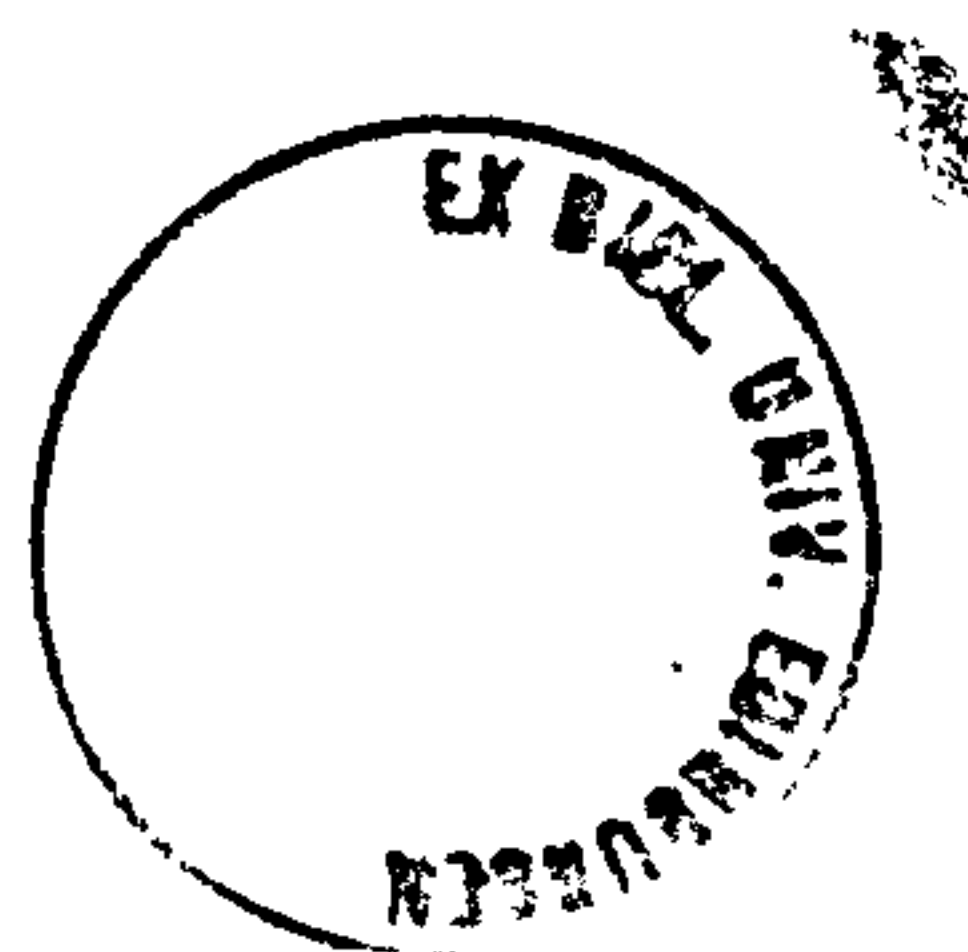


**THE UTILISATION OF THE PATENT
SYSTEM IN A DEVELOPING ECONOMY:
THE CASE OF SAUDI ARABIA**

Khalid A Alakeel

**Thesis Submitted to the University of Edinburgh for
the Degree of Doctor of Philosophy. March 1997**



Dedication:

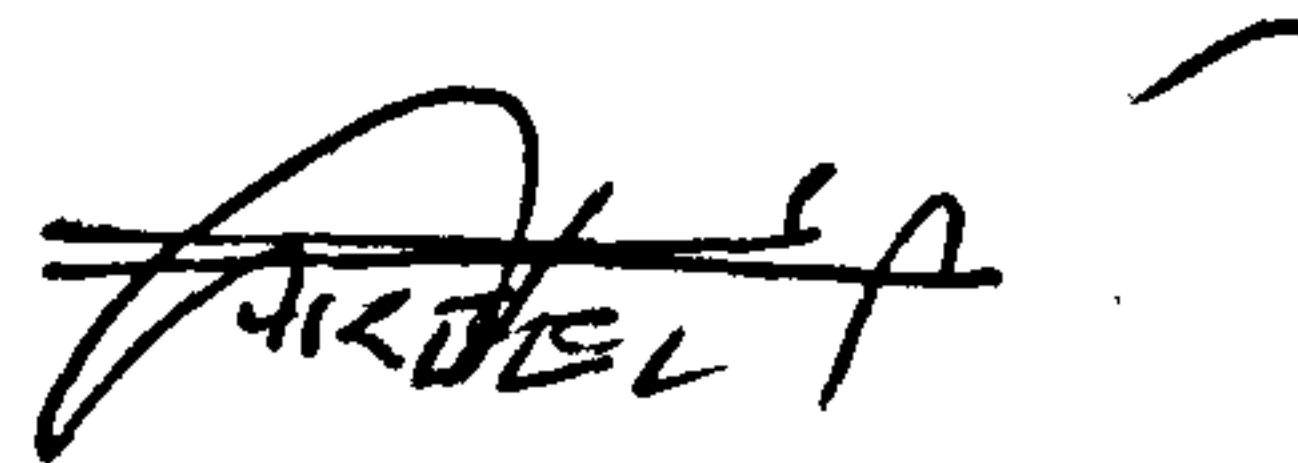
To My Father and Mother

The First and Best Tutor in My Life

Declaration:

This is to declare that the thesis has been composed only by my Work

Khalid A Alakeel

A handwritten signature in black ink, appearing to read 'Khalid A Alakeel', with a stylized flourish at the end.

ACKNOWLEDGEMENTS

In the name of God the most compassionate the most merciful. For He is the source of knowledge. He knows best what is right and wrong. All gratitude and praise be only to Him.

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ABSTRACT

This study deals with the basic ideology of the patent system. It is an attempt to analyse the Saudi Patent Law and System by concentrating on the balance which the System holds between, on the one hand, promoting national individuals and small and medium-sized enterprises, and on the other hand, keeping the flow of foreign technology through the registration of foreign patent applications. Both strategies will be examined overall in order to identify whether they can be utilised as a useful instrument in the technological and economic development of the Country.

Chapter 1 reviews the history and development of the Saudi Arabia Legal System including the Patent Law. Part II of the chapter analyses in more detail the main articles of the said Law. A brief analysis of the international conventions in relation to the patent law is presented in this Chapter.

Chapter 2 approaches an evaluation of the patent system as a spur to inventive activity and as an instrument for economic development. It also discusses the natural property rights theory, and the economic theory of patents as well as the private property theory under the Islamic law. It also investigates the more important articles of the Saudi Law and the practice of the Saudi Patent Office in relation to the economic utilisation of the Law and System.

Chapter 3 and 4 discuss the two most controversial subjects in terms of patentability. The former examines the protection of biotechnological inventions and discusses in depth the ethical, social and economic issues in this regard. The latter discusses the patentability of computer software (programmes). It approaches the current policy in national and international application for the protection of computer software and the controversial arguments surrounding them. It also examines the existing protection offered under the Saudi Copyrights Law and Patent Law and the type of protection desired.

Chapter 5 deals with the protection of intellectual property in international trade. It examines the international conventions available now with more concentration on the Trade Related Aspects of Intellectual Property Rights (TRIPs) and the Paris Convention. It also analyses the effect of such conventions of the protection of intellectual property in Saudi Arabia.

Chapter 6 evaluates the effective role of the patent system in the transfer of technology. It examines the multi-lateral convention concerning the operation of the transfer of technology. It also analyses such effect on Saudi Arabia and also the role of the Saudi Patent System in this regard as well.

Chapter 7 approaches a comparative study of the United Kingdom Patent Office examining its function in encouraging local inventors and industry's inventive activity and increasing its power as an economic source. It also includes an alternative suggestion for the Saudi Patent System in these important functions.

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ABBREVIATIONS

INTRODUCTION

Patents grant to inventors the right to exclude others from making, using or selling the invention for a limited period of time. They are granted to encourage inventive activity by protecting the property rights of inventors. They act as a means of translating new ideas into improved products. Thus, they are useful devices which assist in the creation of wealth as well as disseminating knowledge.

The patent system is generally believed to effect innovations within its territories by providing some guarantee and security for both national and foreign owners of inventions. It is believed to effect the transfer and development of technology and appears to influence the continuous participation in that process of local individuals and research institutions, as well as small and large enterprises.

This study seeks to analyse the main topics of the Saudi Patent Law in relation to the legal nature of patents and the economic function of the Patent System. It focuses on the best methods of using of the Patent System as an incentive to local inventors, introducing them to a new era in the field of industrial property, as well as leading to an increase in the protection of foreign inventors who wish to invest their knowledge in Saudi Arabia. It is an attempt to analyse the Saudi Patent System's experience in the promotion of national technical and industrial development and the transfer of technology through allowing the registration of applications from advanced and experienced countries in this field.

This subject per se has not been dealt with recently, or separately in its own context since the introduction of the law; however, this study intends to investigate other patent systems' measures and developments (i.e. in developing countries) at large and to explain some of the main factors in creating and utilising such a system. This will be done by looking at Patent Office rules and procedures, concentrating mainly on the reaction of inventors, researchers and other interested parties involved in such procedures, and also by studying the advantages

and disadvantages of the existing international patent system in comparison with the main articles of the Saudi Patent Law.

For the purpose of comparison and to have more scope for discussion, an analysis of the most advanced patent offices, i.e. the United States Patent Office, the European Patent Office, and the United Kingdom Patent Office, as well as the views of other writers, critics, and commentators on practices of these offices, will also be mentioned briefly or expanded from time to time where it seems appropriate. In addition, the aim of this study is not only to identify the relevant existing experiences, but also to find out the best methods of developed and experienced offices in this field, and to bring this information together in order that it becomes one body of experience in a coherent framework.

Chapter 1 explains the history and development of the legal system in Saudi Arabia. It begins with the establishment of the country and the formation of the new states. It also explains the Islamic jurisprudence which is known as the Shariah Law and which formed the basis of the state law and the court system. Part II of this chapter covers the patent system of Saudi Arabia, starting with the basic development of the Patent Law. It analyses the main topics of the Patent Law, focusing on the patentable and non-patentable subjects as well as other important articles in relation to local and foreign applications, infringement of patent, and compulsory licences. Statistical data on patent applications is involved with respect to the substantive and procedural rules governing these applications. This data indicates the level of inventors and the subject matters registered so far by both national and international applicants. It is examined to determine the extent to which the Patent Office has offered support to local technical and economical developments.

The final part of this chapter covers most of the international agreements in relation to patent law which may have an affect on the progress of the Saudi Patent Law and Saudi inventors as well.

The most important subject of this study is the economic effect of the patent system. Chapter 2 evaluates the rationale of the patent system in general. It is an attempt to find out whether or not invention is benefit-motivated when rewarded, whether the function of the patent system is encouraging technological development, and what is the task of the patent system in terms of incentive for invention and the return motivation as an incentive to invent.

A number of theories provide the rationale of the patent system, including the natural property rights theory, the economic theory, and private property under the Islamic Law. Each theory will be analysed with an analogy made with the traditional patent protection, also with respect to whether invention should deserve the monopoly right and be judged for rewards.

An examination of the most essential articles of the Saudi Patent Law in relation to the economic exploitation, as well as articles of the Regulation for the Implementation of the Law is presented. The practices of the patent administration are also examined to determine what the administrative procedures have achieved so far in exploiting the system to encourage inventive activity and maintain economic success.

Chapter 3 concerns one of the most controversial issues in terms of patentability. It examines the biotechnological inventions and the scope of patentable subject matter. It appears that this subject is becoming more relevant in our times, especially in the rapid development within the biotechnology industry. It is also vital to the developments of agriculture and agricultural products as well as to the pharmaceutical industry in Saudi Arabia. Part I examines the patentability of biotechnological invention and the conditions of patentability and its categories, including the sufficient disclosure of its patent application. The second part deals with the current international protection of biotechnological inventions and the function of important conventions, focusing on the essential provisions in this subject. Part III of this chapter analyses the ethical, social and economic issues regarding biotechnological inventions. These issues are discussed in relation to the United States Patent Law and the European Union Draft Directive on Biotechnological Inventions. The analysis concentrates primarily on this subject under the Islamic Law, in particular on morality and the method of teaching

science in Islamic. The final part discusses the protection of biotechnological invention under the Saudi Patent Law.

Chapter 4 considers the legal protection of another important subject matter. It concerns the patentability of computer software. Such protection appears to be vital for the local inventor in the industry of programming and may help encourage foreign investors as well in Saudi Arabia. The chapter begins with an overview of computer terminology, which includes definition of computer software and the information system in computer programs, as well as the current policy issues concerning the protection of computer software in national and international patent laws. The patentability of computer software in terms of national policy covers the United States Patent Office, European Patent Offices, United Kingdom Patent Office and Japan Patent Office. It concentrates on the types of protection afforded under each office. The international application of computer software protection analyses the main articles of the World Intellectual Property Organisation's Model Provisions on the Protection of Computer Software, the Bern Convention, the Universal Copyright Convention, Trade Related Aspects of Intellectual Property (TRIPs), and the EC Directive on the Legal Protection of Computer Software. Part III of this chapter examines computer software protection in Saudi Arabia under both the patent law and copyright law. It presents the current protection available under both laws. The final part of the chapter articulates the demand for protection of computer software and the type of protection needed in the patent law and the copyright law. Each is discussed in relation to its procedural and substantive rules, where both laws form a new national policy and a means of commercial incentive for software innovation there.

Chapter 5 concerns the protection of intellectual property in international trade. The chapter begins with the current protection of intellectual property in international conventions, i.e. conventions under the administration of World Intellectual Property Organisation (WIPO), General Agreement on Tariffs and Trade (GATT) including the Trade Related Aspects of Intellectual Property Rights (TRIPs), and the World Trade Organisation (WTO). Part II of the chapter analyses in more detail the TRIPs Agreement, focusing on the most important

provisions in relation to patent protection in particular. There is a comparative analysis of the TRIPs provisions on the protection of invention on the one hand and the Paris Convention for the Protection on Industrial Property on the other. Each analysis is conducted in relation to the requirement of protection for contracting parties from developed and developing countries. The fourth part of the chapter discusses the Saudi Patent Law in a comparative analysis with both the TRIPs Agreement and the Paris Convention . Both analyses are in relation to the effects and obligations of these Agreements on national inventors and the transfer and adoption of indigenous technology. The final part of the chapter examines the role of WTO - TRIPs on developing countries in terms of the legal and economic aspects of intellectual property provisions. It concentrates on the impact of the Agreement on the protection and enforcement of intellectual property in Saudi Arabia.

Chapter 6 deals with the function of the patent system in the transfer of technology. It begins with a definition of the transfer of technology and the process of this in developing countries. The industrial property methods for the transfer of technology are examined along with other forms of law and regulation carrying similar effects in the transfer of technology operation. Part II examines the task of the international patent system in the process of the transfer of technology, including patent documents as a source of technical information, patent licensing, patent of importation and foreign direct investment and joint-venture. The Multilateral Conventions such as The Strasbourg Agreement concerning the International Patent Classification, the Patent Co-operation Treaty (PCT) and the Paris Convention are also presented in this discussion. Part III of the chapter examines the transfer of technology operation in Saudi Arabia. It analyses the main strategic plans and development and the mechanism of transfer of technology. Also there is an analysis of the legal framework used in this operation, including the assignment of the King Abdul-Aziz City for Science and Technology (KACST), as the independent national scientific organisation and the administrative body of the General Directorate for Patents¹ as well as the Directorate of

¹ The General Directorate of Patents is the official title of the national patent office. Unless otherwise indicated in this study, it refers hereinafter to the Saudi Patent Office.

Technology, the latter of which is responsible for the transfer and adoption of new technology, and the former of which is responsible for the patent protection there.

Chapter 7 involves a comparative study of the United Kingdom Patent Office, considering its plans and services to encourage individuals and small and medium-sized firms. It includes the results of a research visit conducted in relation to promoting domestic applications and inventiveness in local industry together with international activities and its economic returns. The examination reviews the potential options on the future strategy of the United Kingdom Office. It examines the possibility of abolition, contractorisation and privatisation as part of the overall improvement of the Office. A personal discussion with the United Kingdom Patent Office Comptroller was included in the research visit. It focuses on the role of the Patent Office as a means of promoting domestic applications, encouraging local inventors, increasing local industry's competitiveness and promoting its efficiency with regard to economic revenues. Part II of the chapter discusses an alternative recommendation for reform of the Saudi Patent Office in the light of the visit as well as the international development of patent protection in general. It includes consideration of joining the most effective international conventions in this regard, as new reforms for the protection of essential technology needed for the country, special measures to promote and protect local inventors, and a recommended scheme for the awareness of patent protection among interested parties, such as students, researchers and businessmen, among the private and public sector and for a better understanding of the patent system.

A summary and conclusion of these chapters completes this study. The summary and conclusion do not contain all my views and recommendations on the subject matter of this study. Instead, these views can be found under the consideration of each specific issue. Hence, the task of the writer, in this regard, is not only to identify the relevant sources and topics within these sources pertaining to the protection, exploitation of inventions, but is rather an attempt to recollect and examine the main ideas and issues discussed in more detail in this study in order that I can present them in an integrated form. It deals mainly with the utilisation of the patent law and system in promoting local inventive activity and whether the

Saudi Patent Law and system in particular appear to constitute a comprehensive patent regime, serving as an incentive for indigenous innovation and providing local inventors with the benefit that patent systems are supposed to provide, and whether it can be used as a tool to increase local industry's competitiveness and expand its services in generating economic sources and revenue.

The research of this study completed in the summer of 1996, with the exception of specific updates relating to the rapidly emerging fields of patent law, particularly the subjects of computer programmes and biotechnology, where important findings were inserted into the text during the editing.

I have sought to state the law as it stands, as much as possible, at 31st October 1996.

Method of Research

The method of research utilised the traditional library-based texts, annual journals, reports and other publications researches which are relevant to the national and international legal implementation, in particular from the developed countries, i.e. the United States, Europe and Japan.

Part of this research required personal interviewing and some correspondence with officials and interested parties involved in the field of intellectual property, in particular from the patent system. It also involved contact with various relevant institution in this field. One of the major discussions took place through a personal visit to the United Kingdom Patent Office with a list of questions already prepared. It was to analyse closely the methods used by the United Kingdom Patent Office to promote local innovation and create a competitiveness environment to local industry as well as to attract international applicants to have their invention registered in the United Kingdom.

There were different questions for different bodies in the United Kingdom Office, but the most important questions were the one which were presented to the Comptroller of the United Kingdom Office. The majority of the questions dealt with concerned local inventors, international applications and their impact and relation to local registration and procedures, as well as international conventions, bilateral agreements or regional treaties involved in this regard.

The answers to those questions were open-ended, or in some cases made it easier for the author to summarise the responses of a number of experts of the United Kingdom Office and created an environment of comparison to decide the benefit of their experiences and bringing it together in a comprehensive result. These answers improved my understanding of the nature of the patents and patent procedures in respect to the law, economy and social affairs function, particularly from an advanced and experienced office. The purpose of evaluating such information was simply to determine whether an existing patent system has produced

benefits and whether these benefits are worthwhile for our social, economic and technical development in Saudi Arabia.

Finally, this research is largely based on the results of other studies carried out in this field and produced in documents, articles, legal instrument and statutes, court cases, government policies and rules and regulations in connection with this field. Other sources of information were used in some personal discussions made in the past few years with some officials of the Saudi Patent Office as well as some correspondence with authors and most of the patent agents who work for the registration of patent applications in Saudi Arabia. The author's personal experience and knowledge from more than 5 years' work in the Saudi Patent Office were also used in this study.

DEVELOPMENT OF THE LEGAL SYSTEM
INCLUDING THE PATENT LAW IN
SAUDI ARABIA

Introduction

Since 1970, Saudi Arabia has embarked upon a massive development programme to diversify its economy and build a strong private sector. This programme has been guided by a series of Five Year Plans. The first plan was for the period from 1970 - 1975. It was focussed on developing basic infrastructure, particularly public utilities, and on improving services and initiating manpower development. However, after the rise in petroleum revenues in 1973, the Government found itself in possession of vast financial resources, and was determined to embark upon massive programmes of Industrialisation and Modernisation¹.

A major feature of the development plans was a project to increase industrial output and to expand existing industrial and commercial sites. The overall aim of these plans is to transform the national economy from its dependence on mainly oil exports into a diversified industrial economy, and also to reduce as much as possible its dependence on imports by increasing local production. The plans are underpinned by a variety of essential themes: greater operational efficiency; creation of new sources of revenue-generating activities - in particular industry, agriculture and financial services; a campaign to develop private sector involvement and initiative; and the need for further economic and social integration with other countries².

The Saudi economy remains dominated by the production of crude oil, which accounts for 64% of the country's GDP revenue and 90% of export earnings³. The fall in oil prices and production in the mid 1980s caused a substantial decline in economic activity thus creating a reduction in planned government expenditure. This led the government to seek new sources of creating revenue, such as greater private investment in the non-oil sector and the development of industries and manpower.

Under the fifth plan (1990 - 1995), government policy aims to increase manpower by an overall 3.5% with an emphasis on industrial growth and economic development. Part of

¹ "A Guide to Doing Business in the Kingdom of Saudi Arabia", issued by The Royal Embassy of Saudi Arabia Commercial Office, Washington D.C. (1988).

² Ibid.

³ AZZAM, H. (Ed.) Saudi Arabia: Economic Trends, Business Environment and Investment Opportunities, London, 1993.

this policy includes the provision of industrial estate and loans covering 50% of capital investment⁴. Under this plan, the encouragement of Saudi industry, mainly in the construction sector, was to be reinforced by the Council of Ministers Resolution 124. This stipulates that all public works contracts which involve execution of construction contracts, and operation and maintenance contracts awarded to individual foreign contractors or joint venture companies with less than 51% Saudi ownership, must subcontract 30% of the contract value to companies which are 100% Saudi.

As a result of this recent shift in the Saudi economy, consumer and industrial markets have experienced unprecedented growth. This rapid development has attracted businesses, industrialists and entrepreneurs from all over the world, all fiercely competing for a share of the market or for participation in joint ventures with their Saudi counterparts, where the reputation of a brand can make all the difference to the saleability of a product or where a superior process can give the owner a competitive edge⁵. Therefore, manufacturers have a lot to lose if they cannot claim priority of legal rights in brands, processes and products. They must ensure that their intellectual property is continuously protected by law through legal registration.

Accordingly, patents, trademarks and copyright law have become a very important means of coping with industrial development. The traditional legal framework of Saudi Arabia has been considered inadequate for dealing with the legal problems with which a developing country is confronted⁶. Thus there have been a considerable number of Royal Decrees, with a tendency to codify the area of business law which deals with investment and foreign trade in particular. Patent, trade mark and copyright law is part of this.

⁴ Ibid.

⁵ Ibid. Note (1) above.

⁶ The Saudi Arabia Intellectual Property Protection has caused the country to be on the Observation List for a trade sanction according to U.S. International Intellectual Property Report. For further details see: IIPA Report: U.S. Report: Middle Eastern Economic Report (MEER), June 1989, pg.

I - The Legal System in the Kingdom of Saudi Arabia

1. The Legal History of the Kingdom

The legal history of the Kingdom of Saudi Arabia has consisted of three distinct periods: the Pre-Islamic Period, the Islamic Period and those developments which have taken place since the establishment of the Kingdom in 1932⁷.

When Mohammed ibn Abdulwahhab, a jurist, started his campaign in the mid-eighteenth century, based on the Islamic faith, against innovation prevailing in some parts of the country, he was joined by Mohammed ibn Suad, a governor, which resulted in the centralisation of authority and of government in the shape of Saudi Shaikh. The Kingdom of Saudi Arabia was gradually established as a result of these two - the governor and the jurist⁸. Its final establishment came in 1932 under King Abdul Aziz (1880 - 1953) who, over a period of 30 years united the Kingdom's various regions by the mixed processes of wars and conquest and voluntary absorption, completing the process in September 1932⁹.

Islamic jurisprudence formed the basis of the official doctrine of the new state. The Supreme Judicial Court of Saudi Arabia later passed a resolution in 1928 making it mandatory for courts in civil transactions to rely on the Hanhali texts which were written by Iman Ahmad Ibn Hanbal (750 - 855 AD) based on text from the Holy Quran. These texts include the following:

- (a) Sharh Mutaha Al-Iradat by Al-Bahuti;
- (b) Kashashaf Al-Kina an Math Al-Ikna by the same author;
- (c) Commentaries of Al-Dalil (Guidance)¹⁰.

The council designated four important legal manuals to be the confirmed sources of law. These manuals cover most aspects of what is known as Shari'ah Law. They are: The Holy Quran; The "Sunna" the sayings and actions of the prophet Muhammad (PBUH); "Ijma" unanimous on a decision of law; and "qiyas" a strict analogical reasoning, by authorised scholars, however no answer is found in these texts, then reference will be made to the

⁷ AMIN, S.H. (ed.): Middle East Legal Systems (1985), pp 305 - 327.

⁸ Ibid.

⁹ Opcit. note (1) above.

¹⁰ Ibid. note (7) above.

authorities in other Sunni schools, and “ijtihād” or “reasoning” may take place among scholars to find a final resolution¹¹.

2. The Development of the National Legal System

Since the traditional scope of law (e.g. personal status such as marriage, divorce, property, legitimacy etc. as well as criminal law) is governed by Shari’ah, the new aspects of law (such as Commercial law, tax, investments, patents, trademarks and copyright) are subject to provisions contained in Royal Decrees and delegated orders, codes and bye laws¹². The formal procedure for new regulations can be found in the following. When the need for regulating a particular field emerged the issue would be identified by a committee of legal experts in the council of Ministers, who are in charge of preparing the code of appropriate draft regulations. Then the draft regulation must be submitted to the Council of Ministers for consideration. Once the council has approved it, it then submits the draft regulation to the King. Upon approval, a Royal Decree containing the regulation will be issued and published in the Official Gazette - “Um-al-Qura”¹³.

The foundation for the legal development of the Kingdom can be traced to legal amendments made in 1927, 1931, 1936 and 1952. The late King Faisal (1904-1975) established a Judicial Council in 1958 which was entrusted with settling differences between present social and economic requirements and the Islamic traditions¹⁴. The growth of the role of governments in the economy, and of contacts with other parts of the world, has brought the need for more specific regulation to govern most aspects of law.

Consequently, the country experienced an increase in legislative enactments in order to supplement without contradicting the Shari’ah. These regulations which are called *Nizam* are in reference to the temporal legal system not fully independent of Shari’ah rules and courts. Disputes in the fields of commerce, labour and the like, which were governed by *Nizam* regulations, have been settled by special tribunals attached to their respective ministers. For instance, the regulations for the Commercial Court (1931) were borrowed

¹¹ Ibid.

¹² Ibid.

¹³ Ibid.

¹⁴ Ibid.

from the Egyptian Commercial Code, which is originally based on the Ottoman code, imported from France¹⁵. The Companies Law of 1955 which contemplated eight different forms of business entities, mainly corporate personality and limited liability, was also based on Egyptian and European Codes¹⁶.

There have been great efforts to expand and strengthen the civil tribunals, as in Article 26 of the Judicature Act of 1975 (which has governed the conduct and jurisdiction of the courts). The Shari'ah Courts were not involved in settling specific disputes identified by regulations as for civil tribunals. Furthermore, in 1980 the council of Ministers established a commission to examine the formation of special courts for the adjudication of commercial, labour and traffic disputes in harmony with the rules and regulations issued by the authorities¹⁷. In addition to that, the fourth Development Plan (1985 - 1990) emphasised an increase in the number of specialist courts to settle disputes of a specialist nature (labour, traffic, conjugal and juvenile disputes) which utilised female graduates of Shari'ah staff in conjugal and juvenile courts. The Plan's justification of the need for such courts was as follows¹⁸:

As the number of economic transactions has increased, the need for a formal and permanent settlement of commercial disputes has also expanded. In the past the private sector hesitated to utilise judicial services due to different practices and attitudes and time delays. New precedents are being established as cases become more complex. Judicial services will have to engage an appropriate pattern of response and procedures.

Among the recent changes in the legal and administrative system of the Kingdom, a package consisting of three separate constitutional documents was issued and enacted in 1992. King Fahad announced, in different royal decrees, a programme of constitutional

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ R. ABA-NAMAY - "The Recent Constitutional Reforms in Saudi Arabia"; International and comparative Law Quarterly; Vol. 42; April (1993); pp 296-97.

¹⁸ See The Fourth Development Plan 1985-1990; Ministry of Planning; Kingdom of Saudi Arabia (1985); p 364.

and administrative reforms. These are: a basic system of Rules¹⁹; a statute covering the establishment of a Consultative council (*majlis al-shoura*)²⁰; and a statute requiring administrative devolution with regional councils²¹. It is a step towards giving some guarantee of personal freedom as well as greater participation in governmental politics²² and, according to the King, it “will be subject to rectification and development according to the requirements of the Kingdom’s circumstances and interests”²³. Such modification “must be orchestrated within the framework of our benevolent Islamic doctrine²⁴”.

The King can issue a royal decree to supplement the Shari’ah Law when new situations arise which justify such regulations. As such, the Government aims to achieve an acceptable balance between traditional Islamic legal and moral concepts on the one hand, and the needs and requirements of modern Saudi Arabia on the other²⁵.

3. Court System and Modern Commercial Practice

The religious law of Islam “Shari’ah” is the common law of the land. It is administered by courts, at the head of which is a chief judge, who is responsible for the “Development of Shari’ah affairs”. Court systems in Saudi Arabia are organised by the Ministry of Justice (established in 1970). There is now a three-tiered judicial system providing for appeal above the ordinary Shari’ah courts. These are: The Court of First Instance, the Court of Appeal and the Supreme Judicial Council.

The Committee for the Settlement of Commercial Disputes is the commercial court. Other specialised courts or committees include those dealing exclusively with labour and employment matters; the Negotiable Instrument Committee, which deals with cases relating to cheques, bills of exchange and promissory notes; and the Board of Grievances, whose preserve is disputes with the government or its agencies and which also has

¹⁹ See Royal Decree No. A/90 dated 27/8/1412 A.H. (Corresponding to March 1, 1992.)

²⁰ See Royal Decree No. A/91 dated 27/8/1412 A.H. (Corresponding to March 1, 1992.)

²¹ See Royal Decree No. A/92 dated 27/8/1412 A.H. (Corresponding to March 1, 1992.)

²² Ibid. Note (17).

²³ See Asharq Al-Aswat(Arabic New Paper), No. 4843, 2 March 1992. Cited in Note 17.

²⁴ Ibid.

²⁵ Ibid. Note (17).

jurisdiction in trademark infringement cases and is the authority for enforcing foreign court judgements.

a) Court of First Instance

The Courts of First Instance fall into two categories:

(i) The lower courts, dealing with minor claims. They sit with one judge. They have limited jurisdiction and can hear the following cases: contracts and quasi-contracts with a value of less than 8,000 Saudi Riyal (£1,300); personal injuries and tort where the damage does not exceed one tenth of the prescribed Islamic compensation of *diah* which is the value of human life, and minor criminal offences, as well as the punishments of death or amputation²⁶.

(ii) General (public) courts which have universal jurisdiction over all civil and criminal cases. A court consists of one or more judges. Sentences of the general courts are passed by a single judge, with the exception of death, stoning or amputation, which require the decision of a three-judge panel²⁷.

b) Court of Appeal

There are two appellate Shari'ah courts, one located in Riyadh (the capital of Saudi Arabia) and the other in Makkah (the Holy City). The first has jurisdiction to hear appeals from general courts located in the Central and Eastern Provinces, and the second from the courts of the Western Provinces. The court consists of the chief justice and an adequate number of judges. It includes a division for criminal law, a department for personal status and departments for other suits. The Chairman of the Court of Appeal is selected on the basis of absolute seniority²⁸.

Divisions are bound by their own prior *ijtihad* - reasoning, and by that of other departments. Three-judge panels hear appeals. However, in most cases, sentences of

²⁶ Ibid. Note (17).

²⁷ Ibid.

²⁸ Ibid.

death, amputation or stoning must be enforced by a panel of five judges. Decisions of the appellate courts are final, but not in the cases of death, stoning or amputation²⁹.

c) Supreme Council of Justice

This is the highest authority in the Shari'ah judicial system. It was set up in 1963 as the highest body of appeal or a "Supreme Court". In addition to its administrative functions, the council has a consultative and judicial role. The Council's main tasks are: to review matter requested by the authority when considered necessary for the council to express an opinion, to review, at the request of the Minister of Justice, matters which require determination of general Shari'ah principles and the opinion on matters pertaining to the judiciary; and to review judgements imposing the death sentences, stoning and amputation. The Council is composed of 11 members and supervises the work of the courts. The functions are carried out by two committees. Normally, direct appeals to the King in the form of petitions are permitted in order to find solutions to grievances. This system is still practised and is a very useful method of obtaining a fair hearing. It will eventually play a vital part in the constitution³⁰ and may declare any law incompatible with the Shari'ah, despite the new Basic System of Rules which may be affected only on the recommendation of the Council itself.

In the Saudi legal system, under traditional Islamic law, there are no jury trials. Cases are normally heard by a single judge, who takes the role of investigative magistrate, who can examine and cross-examine the disputants and their witnesses. On the trial's completion, the judge announces his decision, whether it is a verdict of guilty or innocent, and the amount of damages if any are due³¹.

d) Specialised Courts

Article 26 of the judicial system stipulates that the setting up of specialised courts is permissible by Royal Decree on a proposal from the Supreme Council of Justice. According to Article 49 of the Basic System of Rules, the Shari'ah courts shall arbitrate in all disputes and crimes, but the exception to this is the prerogative of the Board of

²⁹ Ibid.

³⁰ Ibid.

³¹ Ibid.

Grievances. Article 53 of the Basic System of rules states that the board is to be reviewed for the purpose of establishing the seniority of the Board of Grievances and its hereditary right³².

The Board of Grievances was established in 1955. Its function is to review different administrative decisions and citizen grievances as well as claims for compensation against the various governmental ministries or agencies. The Board's term of reference state that it is "to investigate complaints and adjudicate them under the Board's authority and with the approval of the King"³³.

According to Article 9 of the Regulations of the Board of Grievances, the board was not allowed to entertain "petitions pertaining to acts of state or appeals from individuals against decisions or rulings of the courts or judicial bodies in matters within their jurisdiction, nor to examine the constitutionality of administrative acts and regulations"³⁴.

In 1982 the performances of the Board were examined for revision to reflect the growing competence which was created by the expansion of the government's role in the economy and the increase in the number of disputes with it. Consequently, greater judicial powers have been given to the Board by the King to increase the competence of the board in settling more and certain disputes³⁵.

Thus, in Saudi Arabia, not only does the law applicable to state liability differ from the law applicable to the private sector, but also when a question of state liability is raised, the case must be heard by an administrative tribunal and not by ordinary courts of law. In this case, except for acts concerned with the sovereignty of the state on one hand and judicial decisions, whether articulated by the courts or administrative tribunals on the other, all disputes to which the administration is a party will be heard by the Board of Grievances³⁶.

³² Ibid. Note (17).

³³ See Decree No. 2/13/8759 of 1374 A.H./1955 A.D.

³⁴ Ibid.

³⁵ Ibid.

³⁶ For more discussion see R. ABA-NAMAY, note (17), pp 321 - 323.

As a result, the Islamic tradition of Saudi Arabia has been affected by modern legal thought. Accordingly, Saudi business law faces a persistent conflict between its domestic roots and imported Western legal concepts. These conflicts have to be resolved by the Saudi administration. The foregoing demonstrate that in addition to the indigenous sources of formal law in Saudi Arabia, i.e. the Shari'ah and statutory regulations, modern commercial practice also plays a role in Saudi legal reality. Nevertheless, it remains true that the purpose of state regulations in Saudi Arabia is not to derogate from the Islamic law traditions or change and reform them but simply to supplement them.

Legal actions which relate to intellectual property, in particular to patents follow the same procedures which is also influenced by the traditional Islamic law. For example, for cases of patent infringement, a committee was established in 1989 to hear all disputes and to appeal against decisions in this regard as specified in Article 2 (e) of the Patent Law, and it will also handle the panel actions which arise as a result of non-compliance with the provisions of the law and regulations³⁷.

Infringement proceedings before the committee will take place according to Regulations for the Implementation of the Patent Law, under which the committee should issue its decisions by majority at an open hearing³⁸. An appeal against such decisions may be made to the Board of Grievances within sixty days from the date of notification and the decision³⁹.

Saudi Arabian law prevents non-government organisations, private corporations or natural persons accepting international arbitration or choosing a law other than Saudi law as the governing law of the contract, or submitting to a judicial system other than Saudi courts and tribunals. In the Regulation of 1963 issued by the Council of Ministers, a government establishment may not sign a contract which contains terms subjecting the establishment to foreign jurisdiction, whether it is a foreign law or foreign courts, or international

³⁷ See also Article 48, 49, 51, 51, 52, 53, 54, 55, 56, 57 of the Saudi Patent Law, Royal Decree No. M/38 dated 10/6/1409 A.H. (corresponding to January 17, 1989.)

³⁸ Art. 55, Ibid.

³⁹ Ibid.

arbitration. This indicates that all disputes to which the Saudi government is a party are subject to the Saudi law and Saudi courts⁴⁰.

Besides the judiciary and the administrative tribunals, reference must nevertheless be made to arbitration as an important means of settling disputes within the Saudi jurisdiction. The connected statutory provisions administering the law of arbitration in Saudi Arabia are included in the Regulations on Arbitration issued by Royal Decree on 25 April, 1983. Since then, the Commercial Court Regulation (1931)⁴¹ has been used to control the arbitration of commercial disputes. The decree of this set of Regulations on Arbitration in 1983 is an important step forward in the development of the Saudi Arabian legal system⁴².

In 1994, Saudi Arabia acceded to the Convention on the Recognition and Enforcement of Foreign Arbitral Awards (the New York Convention)⁴³. This development was a result of the government's awareness of international adjudication procedures and the need to solve the problem of reciprocity with respect to awards issued in Contracting States. It should permit the Board of Grievances to at least extend its recognition and enforcement of arbitral awards to awards rendered in the territory of Saudi Arabia, which is now considered a Contracting State.

4. The Legal Profession in the Kingdom

The legal profession in Saudi Arabia is not as yet fully established. Furthermore, in keeping with traditional Islamic law, lawyers in Saudi Arabia may not have a monopoly of legal representation. Those party to a dispute may represent themselves or nominate another, either a relative or a professional pleader to act on their behalf. This practice was first introduced in 1936 by the Courts Civil Procedure Regulation, which allowed non-qualified persons to represent their own relatives only. More restrictions were introduced in 1952, which indicated that an amateur should not represent more than three persons at any one time.

⁴⁰ Ibid., note (7), pp 321 - 322.

⁴¹ See Royal Decree No. 32, dated 15/1/1350 A.H. (Corresponding to 1930 A.D.)

⁴² Ibid. Note (7).

⁴³ See Royal Decree No. M/11 dated 16/7/1414 A.H. (Corresponding to December 29, 1993).

The professional lawyers in Saudi Arabia are classified into two groups:

(a) The lawyers of the Shari'ah courts, who must obtain a practising certificate from the Ministry of Justice, as well as being qualified in Islamic law. In reality, the relevant licence to practise before the Shari'ah courts is issued in each district. Only Saudi citizens who have traditional legal training are issued with practising certificates⁴⁴.

(b) The practitioners of commercial law without the right of audience before the Shari'ah courts: practitioners of commercial law do not have the right of audience before the Shari'ah courts, but can conduct appeals before the administrative tribunals and practice as commercial lawyers. Therefore the practising certificate is issued by the Ministry of Commerce which also regulates practitioners of commercial law, as well as intellectual property lawyers. However, some government departments employ graduates of foreign law schools who may have no practical training in Islamic Shari'ah law. Saudi lawyers, if licensed by the Ministry of Justice, can appear in any court in the country. Foreign lawyers cannot appear in Shari'ah courts, but they may practice as legal consultants⁴⁵.

There is no such department within the legal profession as a private notary public. In the Kingdom of Saudi Arabia the notary public is a civil servant attached to the judiciary and notary public offices are administered by the Ministry of Justice⁴⁶.

II - The Patent System of Saudi Arabia

General

The Saudi Patent Law was enacted in January 1989 and came into effect in May 1989⁴⁷. The draft patent law was prepared with the assistance of the World Intellectual Property Organisation's Model Law for developing countries, and in the light of patent laws currently applicable in other Arab countries. The draft committee worked with the assistance and supervision of the Director and staff member of the General Directorate of

⁴⁴ Ibid. Note ⁽⁷⁾.

⁴⁵ Ibid.

⁴⁶ Ibid.

⁴⁷ See Saudi Patent Law. Ibid. Note ⁽³⁷⁾

Patents. The draft law was referred to the General Committee of the Council of Ministers for eventual ratification by the King of Saudi Arabia.

The King Abdulaziz City for Science and Technology (KACST), a government organisation, is the authority which deals with patent applications and grants patents in Saudi Arabia. The application should be submitted to the General Directorate of Patents at KACST. After examination of the application, if it is found to comply with the formal regulations it is accepted as a registered patent application. It should include of the name and address of the applicant, and if that is someone other than the inventor, the latter's name should be mentioned and a declaration by that person should be appended to the application.

An Implementing Regulation of the Law was provided to detail most of the law's provisions and requirements for filing a patent application, as well as for future modification and amendments of such requirements.

The new law received a mixed reception and led to much criticism from national and public interests as well as from international patentees and inventors both inside and outside the country.

The terms of the legislation are meant to be clear and unambiguous, so that their interpretation should be taken as transparent and it should not be necessary to modify the meaning to give effect to the intention of the legislation. The legislation is intended to be applicable to all obligations of the law as found in all parts of Saudi Arabia. The legislation was the result of much thought and effort. The aim of the law is mainly to encourage the work of national inventors as well as national industries, and to ease the transfer of technological processes as registered in applications from foreign inventors, particularly those from developed countries.

The Patent Law has also provided enabling legislation to establish a formal committee with the aim of providing an alternative forum for the settlement of disputes relating to patents in particular those regarding actions for patent infringement and counterclaims for

revocation which usually result therefrom, or disputes arising between the patent office and third parties, in terms of appeal against such decisions by the patent office.

1. Main Topics of the Patent Law

(a) Patentable Invention

The Patent Law indicates the kind of invention which can be patented in Article 4:

“An invention is patentable according to the provisions of this law if it is new and involves an inventive step and is capable of industrial application as a means of offering a practical solution for a defined technological problem.

An invention may be any new product or a method of manufacture or involve an improvement in either of them.”

The definition of a patentable invention, for the purpose of the law, may be interpreted in the general and narrower meaning of an invention for which a patent is actually granted. It should meet the following criteria: it should be novel; incorporate an inventive step; and be capable of industrial application, meaning that it can be made or used in any kind of industry including agriculture and result in the solving of a certain problem in the field of technology in a particular manner.

An inventive step may arise from the formulation of an idea or of a problem to be solved, or it may arise from devising a solution to a known problem. Also both ‘novelty’ and ‘non-obviousness’ may provide the statutory test for the existence of an inventive step, where, if obviousness is shown to exist, there is lack of an inventive step.

It may not be easy to determine the novelty of an invention by interpretation of the law unless there is sufficient practical experience amongst examiners in the field. Such examiners must have the responsibility to outline the state of the art practically. Thus, “absolute” novelty was very much in demand to be the key for determination of such problem. An absolute novelty is a completely original idea, not based on the idea of another nor expanding upon the idea of another.

(b) The Period of Grace

Articles 5, 6 and 7 focus on the fact that if the invention is not anticipated by the prior art, it is considered to be 'new', prior art being constituted by anything disclosed to the public anywhere, at any time by written or oral means, by use or in any other way before the relevant date on which the patent application was filed or the priority date validly claimed in respect thereof. The law does not consider a disclosure of an invention to the public to be part of the prior art if the applicant proves that this disclosure was made during the year preceding the filing date of the application by himself or by his predecessor, or as a result of a malicious act made against either of them. If such disclosure was made by reason of the fact that the inventor or his predecessor had exhibited it in an official exhibition, then for the purpose of this provision, such disclosure should have been made not earlier than six months before the filing date of the patent application.

(c) Novelty and Non-obviousness

An invention is considered as involving an inventive step if, in the light of related prior art, it is not obvious to a person of ordinary skill in the art and obviousness must be related to the subject matter which falls within the term of the claim.

The consideration of an invention as being capable of industrial application is if it can be manufactured or used in any kind of industry or agriculture, including use in craft, in fishing or in service. It is not clear whether the word "service" could mean without the use of modern technology or could be understood in the broader sense as including any physical activity.

Interestingly, for the benefit of local inventors and their existing patentable inventions in the territory if they were manufactured in good faith, before and after the enforcement of the law, they are entitled to the right of their invention. Article 23 states:

If a person in good faith manufactures a product or uses the process of manufacturing a specific product or takes the necessary steps therefor before the

date of granting a patent for such a product or such process to another person, then the former shall be entitled-despite the issuance of the patent - to the right to continue the performance of these acts without expanding. The assignment or transfer of said right to a third party can only be in conjunction with all the assets of the business.

The rights under a granted patent are considered to apply only to acts undertaken in respect of industrial or commercial activities, and they are not extended in particular to acts performed for scientific purposes (Article 24).

(d) Non Patentable Inventions

There are certain categories of invention exempted from patentability and which are not legally considered as inventions. They are covered in Article 8 as follows:

- (a) Discoveries, scientific theories and mathematical methods.
- (b) Principles, rules and techniques of doing business, pure mental activities or playing any game.
- (c) Varieties of plants or animal species or biological processes used to produce plants or animals with the exception of microbiological processes and products thereof.
- (d) Methods of surgical or medical treatment of the human body or of animals, and methods of diagnosis applied to the human body or to animals with the exception of products used in any of these processes.

This article declares that certain classes of matters are not inventions and therefore not patentable. The most important of these exclusions are the ones relating to mathematical methods including computer programming where applicable, and biotechnological inventions when they are included in “biological process”. However, it is not clear whether the specific exclusions relate to the essential constituents of the invention or part of it. These concepts of non-patentability have been “a source of controversy” at international level and created essential difficulties with regard to national legislation, since

the issue relates to “public interest and private right”⁴⁸. The majority of the obstacles arise when it comes to distinguishing between non-patentable products and patentable processes which produce non-patentable products. The argument is that non-patentability as a method appears to contradict the concept of an inventor having property rights in an invention which should cover all types of inventions⁴⁹.

It is, however, very important to provide a definition of patentability in the law as well as a clear interpretation of the scope of the subject matter of patentability in the implementing of regulations for the most controversial subjects in the field of technology: inventions related to computer software⁵⁰ as to whether mathematical algorithms should be included in the subject matter of patentability; the inventions in the field of agriculture and biotechnology⁵¹ as to whether biotechnological processes including micro-organisms, plant and animal varieties, and human genetic materials are included in the subject matter of patentability. Such definitions may solve some of the increasingly controversial issues on an international scale and maintain patentability in compliance with developments in science and technology nationally.

It may be possible to modify this by considering the scope of patentability within the frame of guidelines which are to be issued for examination of inventions as referred to herein because, though only advisory by nature, they are put forward as giving a fully considered opinion on the interpretation of the law, are the only general instructions intended to cover normal occurrences in applying the law and are expected to be used in the future.

However, an invention of a method of treatment of the human or animal body by surgery or therapy or diagnosis practised on the human or animal body shall not be taken to be capable of industrial application, but the products used in any of these methods shall be patentable according to the “non-patentable” provisions stated above. Nevertheless, such exception does not cover pharmaceuticals.

⁴⁸ See ODEK, J.O. - “The Kenya Patent Law: Promoting Local Inventiveness or Protecting Foreign Patentees”; *Journal of African Law*, Vol. 38, No.2; pp 85 - 87.

⁴⁹ *Ibid.*

⁵⁰ This subject will be elaborated upon later, see *infra* Chapter (4).

⁵¹ This subject will be elaborated upon later, see *infra* Chapter (3).

(e) Ordre Public

A patent may be invalidated for violation of Islamic Shari'ah Law, according to Article 9:

A patent shall not be granted if the invention itself or its use is contrary to the Islamic Shari'ah Law; any patent granted to the contrary shall be abrogated. Save those patents which are contrary to Islamic Shari'ah, the granting of a patent to an interested party may not be withheld according to this law. Further, no patent already granted may be revoked on the grounds that the application of the invention is prohibited under the prescribed rules.

It is difficult to give a full explanation or guidelines of the interpretation of the Islamic Shari'ah Law in a few words, or to determine what is forbidden, simply because it involves the law of the constitution and all kinds of legislation fall within its scope, but it is possible to mention that any invention contrary to morality or public policy could be refused a patent in accordance with this article: for example, an invention involving illegal gambling, or pornography, or a process for making alcoholic beverages for consumption, would undoubtedly be refused under the said article.

With no relation to the article above, the President of (KACST) in accordance with Article 10 may direct that

...due to considerations related to the public interest, the granting of patents related to certain products or processes of manufacturing such products may be postponed for ten years. This period is renewable for further periods each of which may not exceed five years. The decision to postpone shall take effect 30 days after its publication.

(f) Employee Inventions

The right of patenting an invention by an employee shall belong to the employer on the condition that the invention is made within a contract or a commitment for the exertion of

invention also if the employer proves that the inventor achieved such invention through the facilities, means and information made available to him by his employer. Article 12 adds:

“The provision of the preceding paragraph may not prejudice the employee’s right to receive special remuneration to be agreed upon amicably or to be assessed by the Committee in the light of the various circumstances of the employment contract and the economic significance of the invention. Any special agreement which deprives an employee of such rights shall be invalid. The preceding provisions shall also be applicable to employees of government departments.

A patent application made by an employee-inventor within the two years following the termination of his services shall be regarded as having been made during his employment.

Another essential element of an invention claimed by a person other than the first applicant who obtained the patent, is that such a person, i.e. the inventor, shall have the right to apply to the Committee to have such a patent application or patent granted to himself, according to Article 13, which adds:

The right to apply for transfer shall be forfeited after a lapse of five years from the date of grant.

This period of five years to allow the original inventor to claim possession of his right from the so-called first applicant was strongly criticised by some experts in the field, stating that such a period is more than enough to create a controversy between two applicants claiming the same right, while according to the patent procedure, a period of opposition will be allowed after every issuance of the granted patents. Again, it may not be clear to local inventors to understand and follow such procedures easily because this subject may be new to some part of them. However, it may be helpful to maintain such a period for the said purposes.

Under Articles 12 & 13, for the purpose of this law, Article 61 supersedes Article 97 of the Labour and Worker Law promulgated by the Royal Decree no M/21 dated 6/9/1389 (corresponding to 1978), which gave the employer the right over their employees in the

case of the latter achieving an invention. It also supersedes any contradictory provisions in the contract.

(g) Foreign and International Applications

Priority for an earlier application made in another country or by a foreign inventor may be accorded by the Directorate for the benefit of the applicant or inventor. Priority may also be accorded to an application subject to reciprocity treatment based on bilateral treaties.

Article 18 stipulates:

The city may accord the applicant the benefit of the priority of an earlier application made in another country provided that such applicant appends to his application a written declaration indicating the date and number of the earlier application and the country in which he or his predecessor filed this application. He is required to produce a copy of the earlier application duly certified by the competent authority in the country in which it was made within ninety days from the date of filing the application in the City.

The city shall evaluate the claim of priority rights in the light of international treaties to which the Kingdom is a party.

Although the law does not require a duly certified copy of the original patent issued abroad, it is recommended to attach one⁵². The Directorate will evaluate the claims of priority rights in the light of international conventions or treaties to which the Kingdom is a member (Article 18 (2) of the Patent Law).

The Kingdom has no bilateral treaties with any other country yet; however, claiming priority would be advisable subject to later examination by the Patent Office. The application for a patent should be in Arabic with an English translation enclosed, if possible. The applicant, however, shall comply with all requirements of the Directorate in relation to the application. Article 14 (4). However, it is not clear whether the Patent

⁵² EHLERT, Dirk - "The Protection of Industrial and Intellectual Property in the Kingdom of Saudi Arabia", Unpublished report presented at the Meeting of the Representatives of the OECD Countries under the Auspices of the Consulate General of the Netherlands.

Office will in fact grant confirmation patents according to the Patent Law or presumably upon an international convention (i.e. Paris or PCT)⁵³.

(h) Infringement of Patent

According to Article 22, the patentee may sue any person who exploits his invention without his consent inside the Kingdom before the Committee, which shall be formed of three law graduates and two high ranking technical persons as provided in Article 48 of the Patent Law. The Committee will have jurisdiction over all disputes related to Patents as well as appeals and its decisions may be appealed against to the Board of Grievances within 60 days of the date of issue.

Exploitation has been defined as making, offering for sale, or using the product as well as stocking such a product for the purpose of offering it for sale, selling it or using it. The patentee or any other interested party (i.e. the registered licensee) may request the Committee to have the infringement prescribed and ask for a reasonable compensation although there is no provision in the law indicating the calculation of the compensation⁵⁴.

It is argued that the normal international rules applied in the case above makes the compensation equivalent to the licence fee which would usually have to be paid, but this may not apply in Saudi Arabia, due to the conflict with some doctrines of Shari'ah Law.⁵⁵ However, the committee may be asked to enforce a fine of the infringing party as according to Article 46 of the Patent Law, the patentee "may claim relief if he can prove that he gave notice to the infringer of the existence of the patent. In such circumstances, the infringer shall be restrained from further infringement and the relief shall be limited to the period following said notice."

Importation by a third party of a patented product is not considered an infringement as long as the exploitation by the patent holder is not yet sufficient. Article 18 of the Implementing Regulation states that:

⁵³ More discussion of the Saudi Patent Law in relation to the Paris Convention. See Part III, (1) of this Chapter.

⁵⁴ Ibid.

⁵⁵ Ibid.

The importation by a third party of a product made outside the Kingdom of Saudi Arabia before the granting in the Kingdom of a patent is not considered as a patent infringement under Article 22 and 47 until the exploitation by the patent holder of the product becomes a complete industrial exploitation in the Kingdom according to Article 25 of the law. Likewise, the importation of the product is not considered as an infringement if such importation is made by the patent holder or a person authorised by him.

Since the importation of a patented product is not considered as an infringement, it is likely that this will be controversial with foreign patentees who have the interest to protect their invention in the country.

Any act of exploitation as referred to in Article 22 made without the written consent of the patentee will be considered an infringement of the granted patent. Article 47 adds:

Upon the request of the patentee and any interested party, the committee may grant an injunction and appropriate compensation.

Upon the request of the City, the committee may also impose a penalty not exceeding fifty thousand Saudi Riyals on the infringer. The maximum fine shall be doubled in the case of repeated infringement.

The Committee may take any prompt measure it deems fit to obviate the damage caused by infringement.

The committee's decision in these circumstances shall be published in two daily newspapers at the expense of the losing party in the action.

At this stage the Committee will hear all disputes and appeals against decisions relating to patents and handle the penal action which arises due to non-compliance with the provisions of the law and regulation. In its decision, the committee must refer to the general laws applicable in the kingdom and any appeal against this decision may be made to the Board of Grievances within sixty days from the date of notification.

A notice of legal action before the Committee may be served on the parties by registered mail or by any other means which secures the delivery thereof. Then the parties are entitled to appear before the Committee either themselves or represented by agents. The Committee may summon an interested party to appear in person to discuss specific matters and may contact any relevant government agency to request any relevant information. The City, represented by the Patent Directorate, will furnish the committee with all documents and paper related to the patent application or patent in question whenever requested by the Committee.

Thereafter, according to Article 46 of the Implementing Regulation, "Deliberation among Members of the Committee shall be secret". Parties to a dispute may request the Committee to clarify any ambiguity in its decision, and such decisions of clarification shall be complementary to the decisions they clarify. (Article 49). However, by a majority of its members, the Committee will issue its decision, which will be reasoned and shall be pronounced at an open hearing, and will not refrain from giving a decision in an action on the basis that there are no provisions governing the litigation in the Law or Regulation.

(i) Compulsory Licence

The patentee must exploit the invention covered by the patent on a full industrial scale in the Kingdom within two years from the date of grant. This period may, upon the request of the patentee be extended for another two years (Article 25), but if the prescribed period expires without the patent being fully exploited; the provisions of Article 34 shall be applicable:

If the period set forth in Article 25 expires without full exploitation of the invention by the patentee within Saudi Arabia, the city may grant any person a compulsory licence to exploit the patent, upon an application submitted to it, provided that the applicant proves his capability to exploit the patent fully. The consent of the patentee to the granting of such a licence may not be required.

It is argued that the legal term “full industrial exploitation” as stated in Article 22 of the Patent Law may be rather broad. Thus, it includes manufacturing, importing, offering for sale and using such product or process where it is produced and stocked for such purposes⁵⁶. Also, a question may be raised if no application has been submitted to the city to exploit such a patent, what then happens to the right of patent? Will that right be referred to the city or does it fall into the public domain in which case there will be no royalties for the inventor? It may be difficult to find a solution to this, since nothing of that nature has been experienced yet. To draw a conclusion to this, it is submitted that the right should refer to the City. The City then, may establish a record of all non exploited invention which fall under these requirements. Such record of patent rights can be utilised commercially through licencing agreement which can be offered to indigenous firms to manufacture, sell and export where possible. This is perhaps one reason to have the registered inventions contribute to local industrial development as part of the Patent Office responsibilities.

The patent invention for which a compulsory licence has been obtained should be used industrially in the Kingdom during the period provided for in the licensing decisions, while the licensee should pay the sum which will already have been determined by the said decision. The beneficiary of the compulsory licence may not transfer the licence to a third party. The City may amend the decision for the granting of a compulsory licence if it finds that there are particular circumstances justifying it. Any decision by the City, either for the amendment of the licence or for rejection of the request, shall contain the reasons therefore.

However, it is only under the following circumstances that the City can cancel a compulsory licence (Article 39):

- (a) If the beneficiary of the licence fails to fully exploit it industrially in the Kingdom within two years from the date of the licence being granted. This period is renewable for another equal period if it is established that his failure to do so was for a legitimate reason.

⁵⁶ Ibid.

(b) If the beneficiary of the compulsory licence fails to pay the monies payable by him within ninety days from its due date.

(c) If the beneficiary of the compulsory licence fails to comply with any other condition of the licence.

The President of the City, according to Article 42, and upon the request of a competent authority, may decide to have the invention exploited by a government authority in the Kingdom if the public interest requires it, provided the patentee is compensated by a fair remuneration which will be specified in the decision. These considerations must be stated in the decision granting exploitation pursuant to Article 42 of the Patent Law. All industrial values, efforts, and costs in developing such invention as well as the period of exploitation must be taken into consideration when estimating the compensation for the exploitation of the inventions. (Article 22. Imp. Reg.)

At the same time, Article 43 of the Patent Law gives the patentee the right to surrender the patent upon a written request to the City in one or more of the claims. That does not mean that it is in the public domain, and the surrender may not be accepted where there is a compulsory licence unless the written consent of the beneficiary is secured or circumstances of force majeure prevail which justify abandonment. The surrender will not take effect with regard to third parties until the date of its publication in the Official Gazette.

In the case of appeal against the decision to grant a patent, Article 44 states that:

Any interested party may appeal against the decision to grant a patent before the Committee within ninety days from the date of publication, and demand total or partial revocation on the grounds of its non-compliance with the conditions of granting. The patentee shall involve the assignee or transferee in the action, or alternatively, the latter may appear in their own right, or the committee may order their conjoining in the action.

The aim of this exploitation is mainly to promote the technology transfer processes for the benefit of the domestic economy, but the experiences of this method have shown no convincing evidence of a successful economic exploitation of transferred technology⁵⁷. Beier's argument is that legal sanctions do not bring new technology. He emphasises that "countries whose laws have enforced severe sanctions for non-use of patents had to learn from experience that a successful economic exploitation of patented inventions is not necessarily promoted when use of the patent is made compulsory⁵⁸". He also added that "the traditional compulsory working of patents, which is related to the national markets, contradicts basic economic sense as well as principles of international division of labour in research, development and production⁵⁹". It is also argued that such sanctions may establish an atmosphere of "mistrust" and "sceptical reservation" on the part of developed countries' corporations which may not be able to serve the interest of the developing countries (i.e. Saudi Arabia) for developed technology transfer⁶⁰. The solution for this may be achieved by means of voluntary licences created in a mutual trust between the owners of foreign technology and the domestic technology receivers. The agencies responsible for this process should not "hinder" this co-operation; rather they should "promote" it through embracing all economic, legal and administrative regulations necessary for an economically beneficial use of such countries in the receiving country⁶¹.

(j) Right of Prior Use

According to Article 23 of the Patent Law, when a person in good faith manufactures a product or uses a process, or who has taken necessary steps to do so, prior to the date a patent is issued to another party for the same product or process, he may continue the same activities following the issue of the patent. The Article states that:

If a person in good faith manufactures a product or uses the process of manufacturing a specific product or takes the necessary steps therefore, before the date of the granting of a patent for such a

⁵⁷ BEIER, Friedrich-Karl - "Does Compulsory Use of Patents Promote Technology Transfer to Developing Countries?"; 12 EIPR (1986), pp 363 - 365.

⁵⁸ Ibid.

⁵⁹ Ibid.

⁶⁰ Ibid. At page 365.

⁶¹ Ibid.

product or such a process to another person, then the former shall be entitled, despite the issuance of the patent to the right to continue the performance of these acts without expanding. The assignment or transfer of said right to a third party can only be made in conjunction with all the assets of business"

The above may not fall within the disclosure restrictions stated in Article 5 of the Patent Law. However, an invention previously registered abroad is patentable only for the remaining period of its foreign validity according to Article 27 of the Patent Law. The protection afforded in Article 27 of the Law is similar to the protection provided under the system of "Patent of Importation" in other countries (i.e. the U.S.A.).

Article 27 adds: "If the inventor obtains a foreign patent, the period of protection to be enjoyed in the Kingdom as if the patent had from the beginning been granted in the Kingdom." Pursuant to this article, Article 19 of the Implementing Regulation states that :
".... a foreign patent shall have no legal protection until the inventor obtains a patent in the Kingdom. The period between the granting of the foreign patent and the granting of a Saudi patent shall be deducted from the protection period prescribed in the Patent Law of the Kingdom."

Since Saudi Arabia is not a party to an international patent convention yet, it is not clear whether the Patent Office will in fact grant confirmation patents at all according to these articles. If so, it is important to indicate upon what basis the patent will be granted; also whether there are criteria for such protection in order to meet with obligations under international conventions (i.e. TRIPs, which is presumably applied even if not ratified yet).

(k) Patent Procedures and Application Requirements

1. An application for the registration of a patent should include the following details or satisfy the following conditions as stated in Article 14 of the Patent Law:
An application for a patent shall be submitted to the Directorate of Patents on the form designed for such a purpose. The application shall include the following data:

1. Name, surname, address and work place of the applicant. If the application is submitted in a name other than the inventor's name, the name of the inventor and a document showing the devolution to the applicant of the right to a patent should be given.

In such a case, the Directorate of Patents may provide the inventor with a copy of such documents.

2. The name, surname and address of a registered agent of the applicant in the Kingdom if the applicant is residing abroad.

3. The title of the invention and a full and clear description thereof, so that a person skilled in the art is able to carry out the same, and the best mode contemplated by the applicant for carrying out the invention.

4. The scope of the required protection, by defining the new features embodied by the claims. The explanatory drawings (if any) of the invention shall be enclosed with the application as well as an abstract in Arabic (and English, if possible). These abstracts shall be used for technical information and they are irrelevant in determining the scope of protection.

The applicant shall comply with all the requirements of the Directorate in relation to the application.

2. Power of Attorney: . The Power of Attorney can be submitted within one month from the date of filing. Article 14 (2) does not explicitly differentiate between national and foreign sources of application but states clearly that the foreign applicant must apply through local agents. An assignment of inventor's rights, if the foreign patent is submitted in the name of the inventor. Such an assignment, as well as the Power of Attorney, must be notarised in the country of the applicant and approved by the Saudi Consulate.

A copy of the foreign letter patent and the specification, if the Saudi application is based on Article 27 "patent of importation" is also required.

3. Specification, claims, drawing (if necessary) and abstract: an Arabic translation is required for the specification, claims and abstract. the specification should point out the best method of implementing the invention prescribed by the applicant.

4. A list of claim/s: This is usually set by the inventor/applicant to determine the scope of potential protection of the invention. Such claims should be well defined and fully described. The specification and drawing may be utilised in explaining the claims.

5. Further information will be required, such as:

- Examination result of a corresponding application in other countries, when the Foreign Letter Patent has not yet been granted.

- International Classification, when available. This classification is used by many countries to categorise all inventions in groups and sub-groups according to the nature of the invention (i.e. electrical, medical, etc.). Priority shall be accorded subject to reciprocity treatment based on bi-lateral treaties.

6. Publication: When a patent is granted, the decision as well as the patent will be issued and published by the Patent Offices Official Gazette in the order of issuance. Article 21.

7. Licensing: A patent may be assigned and/or licensed. Assignment and licence will not be upheld by the Patent Office if they are not recorded (Article 29). Licences should be in writing, signed, authenticated and registered with the office upon payment of the required fee. Unless it is provided otherwise, a licence is considered non-exclusive and non-transferable. The licensee, under a registered licence, has all the rights and privileges provided to the patent holder by the Patent Law. Where there is a licence agreement, the patentee will remain entitled to exploitation of his invention unless otherwise provided for in the agreement. (Articles 31 - 33).

8. Annual Fee: Following the publication of the decision to grant the licence, annual fees are payable at the beginning of each year. Late fees may be paid within ninety days from the due date. (Article 28).

Patent duration: the term of a patent is 15 years, extendable for five additional years upon request during the last year of protection. The duration period of valid foreign patents, however, will be restricted to the remaining period of foreign validity.

9. Examinations: Patent applications are subject to examination as to form and substance (Article 19). A separate and variable fee will be levied for substantive examination. (Article 19 of the Implementing Regulation).

(I) Statistical Data on Patent Application and Procedure

Once an application is approved as formally complete, a required fee becomes due according to Article 15 of the Patent Law. However, if a subsequent examination on formalities shows that certain prescribed conditions for the application are not fulfilled, or some documents are missing, the applicant will be invited to complete the application within 90 days from the date of notification. In the case of failure to respond the application will be regarded as not having been filed. If the application is formally accepted, it will be referred to the competent authority for substantive examination. Article 19 states:

The Directorate of Patents shall examine the registered applications as to formalities. Where it is found that certain prescribed conditions are not fulfilled, it shall invite the applicant to take the required action to complete the application within a period not exceeding ninety days from the date of notification. If he fails to do so within the said period, his application shall be deemed not to have been filed. Upon fulfillment of the formal examination conditions, the applications shall be referred to the competent authority for substantive examination pursuant to the regulations.

The substantive examination regulations have not been outlined in detail in the Patent Law, nor in the Implementing Regulations of the Law. However, to date (up to the end of 1995), 3890 applications have been filed. Only three applications were examined substantively and granted a patent. Other applications have been examined only in form but not in substantively. It is worth mentioning that the lack of substantive examination is due to the lack of skilled and qualified personnel in the Directorate.

Some argue⁶² that because of the delay in the substantive examination procedure, Article 27 of the Patent Law should be revoked. Such an article allows the owner of a foreign patent, obtained abroad the period of protection to be enjoyed in the Kingdom as if it had originally been granted in the Kingdom. The argument for revoking the Article is that the delay may be of up to five years, which may be equivalent to the period of protection remaining which can be enjoyed in the Kingdom. Thus such patent protection will be invalid. Also, it is argued that this may even cause some delay to local economic exploitation as well as to technical development in comparison with the rapid development worldwide⁶³.

Meanwhile, others⁶⁴ point to the lack of co-operation between the Saudi Patent Directorate and some other major Patent Offices (e.g. the European Patent Office) as the reason for the delay in substantive examination. As no bi-lateral agreements exist yet, it is strongly recommended that such agreements are utilised, particularly with regard to this obstacle in the procedures, through examining the most sophisticated inventions and training staff members so that they are qualified for patent examinations in major fields⁶⁵.

Article 3 of the Implementing Regulations allows the Directorate to delegate the responsibility of reviewing and making decisions on patent application examination to various national or foreign agencies. "The Directorate may make use of scientific expertise available at any other agency, whether national or foreign, within or without the

⁶² These opinions have been presented in personal correspondence with AL-AMMAR, S.A. Patent & Trademark Law Office (TAGI RIYADH, Saudi Arabia), 27 June 1995.

⁶³ Ibid.

⁶⁴ Dr HOSHAN, M.H. - These opinions have also been presented in personal correspondence with HOSHAN LAW OFFICE, Riyadh, Saudi Arabia, 28.6.95.

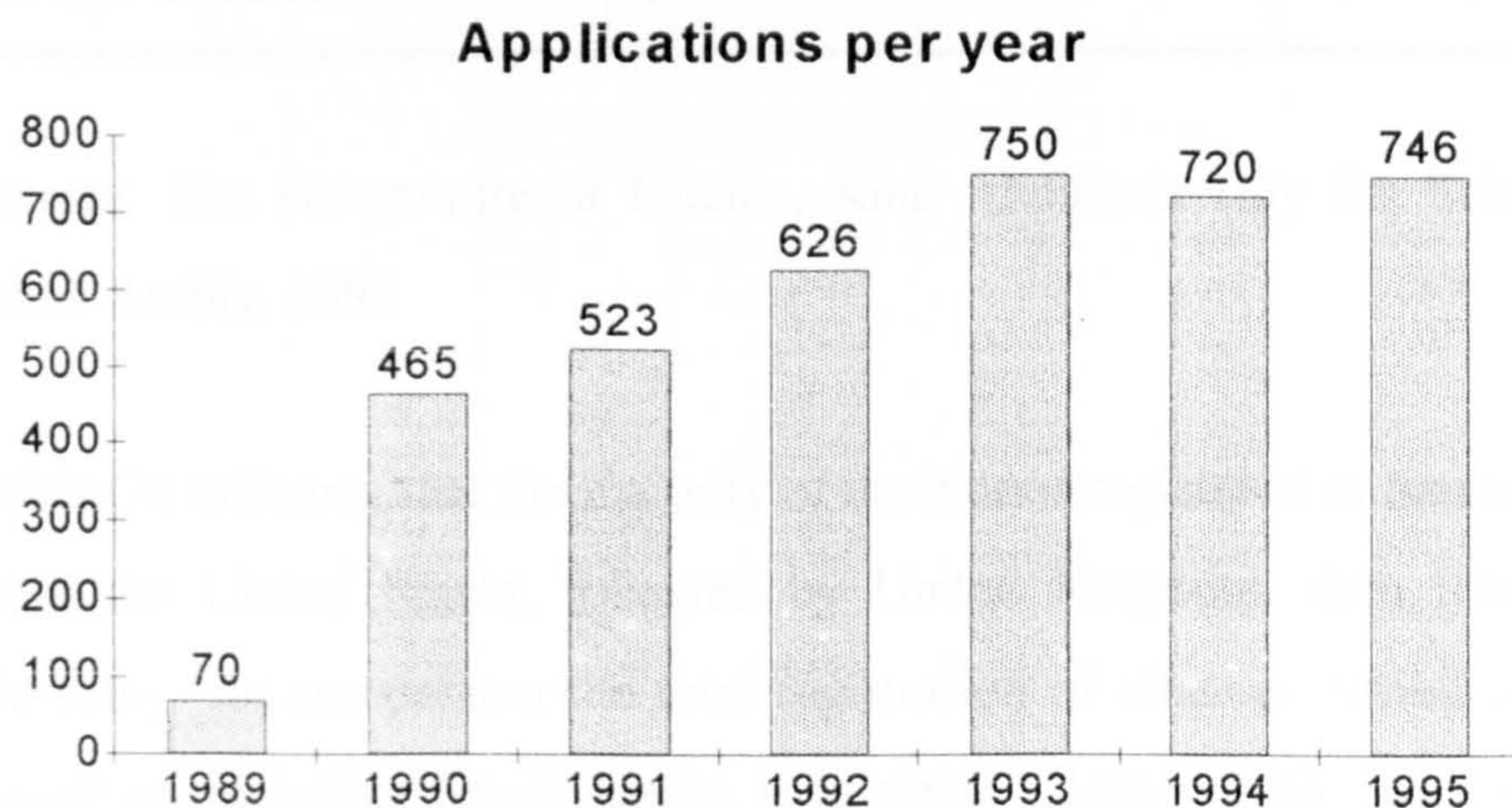
⁶⁵ Ibid.

Kingdom whenever deemed necessary." Thus, it is argued⁶⁶ that this article should be utilised by all means. Such a utilisation should be used by including the substantive examination results made abroad (i.e. in the U.S., U.K. or E.P.O.) for most of the patent applications filed in the Kingdom. This may ease the burden on the small number of examiners, and may avoid duplication in the final processes of the examination, as well as reducing the period of time between the date of filing and the patent being issued⁶⁷.

The long period of time which is taken by the examiners at the Saudi Directorate has been one of the most criticized aspects, which in turn creates a feeling of mistrust between patent applicants and the Directorate. Nearly 15% of applicants have withdrawn their application since they lost the benefit of being able to enjoy the period of protection allowed, under Article 27⁶⁸, as would exist if the patent had been originally been granted in the Kingdom.

The following graph shows the number of formal applications made to the Directorate each year, beginning in 1989 when the Saudi Patent Law came into effect.

Table 1



Source: The Directorate of Patents, King Abdulaziz City for Science and Technology, Saudi Arabia, 1995

⁶⁶ SHAWWAF, S.M.A. - In personal correspondence, these arguments were presented by SHAWWAF LAW OFFICE, Patent and Trademark Department, Riyadh, Saudi Arabia, 3 July, 1995.

⁶⁷ Ibid.

⁶⁸ Ibid.

The majority of these applications are owned by a foreign individual or foreign companies. As the table (2) below indicates, there is a lack of national inventors as well as of local research and development enterprises among the number of applications filed towards the end of 1995:

	1989	1990	1991	1992	1993	1994	1995
Applications	1	13	12	5	7	9	8
Table 2			5	7	8	5	
Total			1	1	1	1	

	No. of applications	Percentage
No. of companies	2972	90.80%
No. of individuals	301	9.20%
Saudi applications	135	4.12%
Foreign applications	3138	95.88%
Saudi companies	21	0.71%
Foreign companies	2951	99.29%
Saudi individuals	114	37.87
Foreign individuals	187	62.13%

Source: The Directorate of Patents, King Abdulaziz City for Science and Technology, Saudi Arabia, 1995

Table (3) indicates that the majority of inventions registered in Saudi Arabia every year are from the United States, followed by United Kingdom, then Switzerland, France and Germany. In comparison the total registration of other countries, particularly developing countries, including Saudi Arabia, is minimal. However, this may be an indication of the lack of skilled personnel and research and development institutions in the country. It may also be an indication of the difficult and formal procedure of patent registration required by the Patent Directorate

Statistics of Applications filed each year (1989 - 1995)*

Source: The Directorate of Patents, KACST, Saudi Arabia.

Country	1989	1990	1991	1992	1993	1994	1995
Australia	1	13	12	5	7	9	8
Belgium	-	-	5	7	5	4	5
Brazil	-	-	1	-	1	-	1
Canada	-	2	3	4	4	10	7
China	1	3	2	2	3	6	4
Egypt	-	2	-	8	2	4	2
France	11	27	17	20	17	36	21
Germany	6	11	19	18	19	22	25
India	-	-	-	-	1	-	-
Italy	1	7	17	26	15	20	14
Japan	2	8	11	15	13	12	22
Jordan	-	1	-	-	-	-	1
Korea	1	2	1	2	3	5	16
Russia	-	-	-	-	1	-	2
Saudi Arabia	12	16	26	21	21	33	28
Spain	-	-	2	7	2	8	4
Sweden	1	19	19	13	17	33	42
Switzerland	5	71	38	81	63	44	50
U.K.	4	66	72	72	85	68	59
U.S.A.	19	164	225	279	416	367	376

* It should be mentioned that the countries above are not all filed in Saudi Arabia, but considered the most interesting to file in.

The first patent issued by the Directorate was granted to a Saudi inventor, while the latter two were granted to foreign companies. The reading of these procedures indicates the average period of examination time. The first patent was filed on 12.3.90, and was granted after over five years (23.12.95). The second patent was filed on 19.9.89 and the third was filed on 3.1.90. They were both issued on 23.12.95. It took both of them more than five years to be examined in form and substance.

The above emphasises the urgent need for reform in terms of substantive examinations, rules and procedures. It also raises the question, in this situation, as to which patent rights can emanate from this delay in substantive examination in the Kingdom. How effective are the current procedures in satisfying the goals of patent protection? Given this situation, as well as the compulsory licensing issue discussed earlier, the main objective of patent protection may be jeopardized, as lack of enforcement may eliminate competitiveness between local and foreign applicants.

Presumably, the majority of patents issued will be foreign-owned, and the enforcement of compulsory licenses against them may act as a disincentive to filing applications. In addition, it will neither encourage the work of local inventors nor help the local economy. Therefore, it is argued that the Saudi Patent Law should be modified in the most controversial areas of patent protection - mainly compulsory licensing, and the substantive examination of patent applications.

In respect of the compulsory licensing issue, patents should be measured in form by importance in relation to the development of the country's economy (i.e. agriculture, mineral and pharmaceutical inventions). This may require a classification and identification of subjects by all major private and government sectors with an interest in national development.

In respect of examination as to substance, it is recommended that Saudi Arabia should join the Patent-Co-operation-Treaty (PCT)⁶⁹ or, at least, take advantage of the result of patent examinations issued by the PCT examination authority wherever possible, when any

⁶⁹ For more discussion of the Patent Co-operation Treaty (PCT), please refer to part III (2) infra.

application is filed in Saudi Arabia. Another possibility is to obtain a bi-lateral agreement with one of the major Offices, which is a signatory to the treaty (e.g. the European Patent Office (EPO)) and who has authority to examine. Such an agreement may create an opportunity for all applications filed in Saudi Arabia to be examined by a party who is a signatory to the treaty.

The final argument is that all patent applications filed by foreign applicants should include the substantive examination result made by the original filing office, whenever this office is considered a member of PCT, or is a developed country (e.g. U.S.A; U.K; E.P.O; I.P.O. etc).

III - International Agreement in Relation to Patent Law

Almost every patent law provides closely similar aspects and procedures. Many inventors wish to have their invention protected in an easy and cheap procedure in a number of countries. Therefore, several international agreements have been signed with a view to ease the task of patenting procedures in more than one country. It is here, for the purposes of this chapter, essential to include most of the international agreements which may have an influence on the development of the Saudi Patent Law as a result.

1. Paris Convention (1883)

The “International Convention for the Protection of Industrial Property” is concerned with all forms of industrial property including patents, trade marks and registered designs. It is considered the original and most important convention on industrial property. It was signed in Paris on March 20, 1883 by eleven countries. It was ratified on the 7th July, 1883.

The Paris Convention has been revised many times. The first revision was in Rome (1886), and the latest was signed in Stockholm in 1967. It was also amended in 1979. The number of contradicting parties rapidly grew. Around ninety countries are now members. The majority of these have adopted the latest Stockholm version of the

Convention. It is administered by the World Intellectual Property Organisation (WIPO) at Geneva, Switzerland. Saudi Arabia is not yet a member of the Paris Convention⁷⁰.

The Convention forbids discrimination in any member country against the national of another member country. The most important provision concerning patents is the grace period which is given to an applicant for a patent in a Convention country: he may apply for a patent in a Convention country and the date of his first application shall be allowed in that country. The period in question is twelve months from his first application.

Article 2 is among the most important provisions in the Convention. It provides for equal treatment for all patent applications and their owners in all member countries of the Convention. In essence it means that foreigners are treated the same as domestic nationals in so far as patent protection for their inventions is concerned. This means that they are entitled to receive the appropriate national treatment. The right of priority means that, when the corresponding patent application is filed within twelve months from the first filing in the original country, then it can effectively be dated and registered in another country with the same date as the original filing. Disclosure or use of the invention which might invalidate the corresponding patent in the designated country is thus considered nugatory.

Besides the fundamental characteristics of national treatment and right of priority, the Convention provides a subsidiary framework of other principles to which convention countries must adhere. These include the right to claim in one patent multiple priorities by one or more applicants. It also includes the right to divide one patent application into two or more; grace periods in terms of renewal fees; limits of choice on the state to grant compulsory licences to third parties and the temporary use of infringing devices on ships, aeroplanes and the like in that country.

With regard to importation by the patentee, the Convention provides for forfeiture of the importation of a patented product by the patentee. The effect of this is the creation of an

⁷⁰ The Saudi Patent Law will be discussed further in comparison to relevant articles of the Paris Convention. Please refer to Chapters (5) and (6) infra.

import monopoly. The same applies to patent protection of a process of manufacture. The right will be accorded to the patentee by the domestic law of the country of importation under Article 5.

2. The Patent Co-operation Treaty (PCT)

The next important international agreement on patents is the Patent Co-operation Treaty (PCT). It was signed in Washington in 1970. It is considered as a supra-national element in the world patent system, establishing an International Patent co-operation Union with the aim of simplifying and rendering the granting of patents more economical in several countries as well as assisting the economic development of developing countries. It is administered by the International Bureau in the World Intellectual Property Organisation (WIPO) at Geneva, Switzerland.

The PCT aims to eliminate unnecessary work and effort for both the patentee on the one hand and the patent office on the other in instances where a patent application is to be filed in several countries. For instance, it eliminates duplication of effort on a number of prior art searches on the same invention to be carried out by the examiners in a designated series of patent offices.

Under the PCT, a single application can be made requesting patents in as many participating countries as the applicant chooses to designate. This “International Patent Application” may be filed in a given Patent Office called the “Receiving Office”; the total numbers of countries are called the “Designated States” and the “International Searching Authority” which does the prior art search and then gives the result - an “International Search Report” to the individual Patent Offices of the various individual Designated Countries.

Priority can be claimed from one or more earlier applications; prosecution in each country is, according to the office in which it is received, with regard to any necessary correction, after 18 months following the priority date, the application with the search report and any amendment will be published. The application will become, in effect, several patent

applications, one in each designated country. If prosecution is successful, the appropriate national patent is granted in the normal manner.

3. Trade Related Aspects of Intellectual Property Rights - TRIPS

The Agreement Trade Related Aspect of Intellectual Property Rights - TRIPS is considered one of the most significant parts of the World Trade Organisation (WTO), formerly the General Agreement on Trade and Tariffs - the GATT negotiations. It is the most recent agreement on the protection of intellectual property. The TRIPS agreement sets a standard for intellectual property protection and provides for enforcement of these standards both nationally and internationally.

The first part of the TRIPS agreement is entitled “General Provisions and Basic Principles”. It applies the established principle of “national treatment” and adds *most favoured nation treatment* to intellectual property to achieve non-discrimination both between nationals and foreigners and between nationals from various countries. The second part includes “Standards Concerning the Availability, Scope and Use of Intellectual Property Rights”. It covers the various intellectual property rights and settles some long-standing disputes in areas of interest to most members of the agreement in this field, including substantive rules and administrative systems. It contains detailed provision on administrative and judicial procedures for the enforcement of rights as well as certain rules designed to tackle counterfeiting and pirated work in trade.

The patent provisions of the TRIPS agreement mandate that all types of inventions be patentable subject-matter, including agricultural, pharmaceutical and chemical inventions. Plant varieties have to be protected by patents or by an effective *sui generis* protection scheme, i.e. the breeder’s right or by any combination thereof. It requires that, in order to be patentable, all inventions must be new, involve an inventive step and be capable of industrial application. The term of patent protection is to be at least 20 years from the date of filing the patent application.

According to Article 27, members of the agreement may exclude from patentability inventions for:

1. Diagnostic, therapeutic and surgical methods for the treatment of humans or animals:
and

2. Plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and micro-biological processes.

The exclusive right of the patent holder will include the right to prevent others from making, using, offering for sale, selling, or importing the patented product. Where the subject of the patent is a process, the patent holder will have the exclusive right of preventing others from using the process, and using, offering for sale, selling, or importing the product obtained directly by using that process. The owner of a patent shall have the right to assign, transfer or licence a patent.

Patent protection in the field of Pharmaceutical and agricultural product would not be required for developing countries for 10 years from the date of entry into force, or from the date on which the agreement establishing the World Trade Organisation (WTO) comes into force. Developing countries must provide national treatment and *most favoured nation treatment* after the one year transition period, in addition to the minor exceptions thereto for agreement administered by the World Intellectual Property Organisation (WIPO). Article 55 (2). Members in the process of transforming their economy from a centrally planned one to a free enterprise, market-led economy may also benefit from the additional four years delay. Article 65 (3). With regard to the least-developed countries, the transitional period is extended to an even longer period upon request.

Saudi Arabia is a signatory to the WTO (formerly GATT) and is in the midst of negotiations to become an official member of the Organisation.⁷¹

4. The Patent Harmonization Treaty

The “Draft Treaty” on the patent harmonization law began its process in 1985 with the creation of a Committee of Experts under the auspices of the World Intellectual Property

⁷¹ Again, this will be further discussed in comparison to the most relevant articles of the TRIPS Agreement. See Chapter (5). *infra*.

Organization (WIPO). The purpose of this treaty is to establish an international patent system. The topics of the treaty are set in twenty-five chapters which are keyed to the Articles of the basic proposal:

- desiring to strengthen international co-operation in respect of the protection of inventions.
- considering that such protection is facilitated by harmonization of patent law.
- recognising the need to take into consideration the public policy objectives underlying national patent law.
- taking into account development, technological and public interest objectives of the Contracting Parties.
- having concluded the present Treaty, which constitutes a special agreement within the meaning of Article 9 of the Paris Convention for the Protection of Industrial Property.

Another focus of the treaty was the benefit of patent applicants who can obtain foreign patent rights under a common system. This concern is because once there is a uniformity of substantive law and procedures, there is no need for the United States, European and Japanese Patent Examiners to triplicate the same *ex parte* patent grant procedures. Thus, a patent applicant may file in one country and receive patent protection in all three territories.⁷²

The significant benefits of the above are the following⁷³ :

- First, the patent applicant who would be able to obtain “global” protection by prosecution of a single patent application would manifestly save a great deal of money and also save in house resources.
- Second, elimination of nearly 70% of the patent filings in the three territories for the important inventions would permit a shift of focus from Patent Examiner production to quality examination.
- Third, patent applicants would have the convenience and better

⁷² Wegner, H.C., “Patent Harmonization” Sweet and Maxwell, (1993) ed at 34.

⁷³ Ibid.

control over prosecution in their home country patent office, by passing such problems as working in a foreign language through a foreign agent to obtain foreign protection. All concerns over the Japanese backlog would, for example, disappear for American applicants able to prosecute their Japanese rights in the United States.

- Fourth, significant cost savings would result for everyone.

In 1991 a Diplomatic Conference was held for discussion of the Committee of Experts' work, which had met over a number of times in the previous year for completion of this treaty. A renewal session was needed in 1993 to reach the final draft, but some delays of these sessions announced by WIPO prevented the final conclusion of the "Draft Treaty" up to date (i.e. 1996).

In addition to the above Conventions and Agreements, there are a number of conventions not relating directly to patents only, but to other subjects of intellectual property in general. They include the Berne Convention for the Protection of Literary and Artistic Works, signed on September 9, 1886 and revised many times since (the last revision was in 1971); the Universal Copyrights Convention (September 6, 1952), last revised on July 24, 1971, and the only Convention relating to intellectual property rights to which Saudi Arabian has acceded. So far Saudi Arabia announced its accession to the convention in December 1993.⁷⁴

It is important to note that Saudi Arabia is a member of the Gulf Co-operation Council (GCC),⁷⁵ which carries many regional agreements in different subjects, including trade and economic co-operation. One of these agreements in relation to patents is the GCC Patent Regulation Office Charter and the regional Patent law for the GCC countries, where a patent can be granted by the Patent Office to the owner of the invention so that his invention enjoys legal protection inside the territories of Co-operation Council countries, according to the rules of the said Law.

⁷⁴ See, Royal Decree No M/12 dated 16/7/1414 A.H. (corresponding to December 19, 1993)

⁷⁵ The Gulf Co-operation Council (GCC) comprises of the United Arab Emirates (UAE), Bahrain, Kingdom of Saudi Arabia, Sultanate of Oman, Qatar, and Kuwait.



Other conventions include the Strasbourg Convention on Unification of Patent Laws 1963; the European Convention on International Patent Classification 1954; the Hague Agreement on Legalisation of Documents 1961; the Budapest Treaty on deposit of Micro-Organisms 1977 and the International Convention for the Protection of New Varieties of Plants, 1961 (UPOV Convention).

Conclusion

Saudi Arabia continues its industrial and economic progress through the five-year plan. It has focused on the improvement of man power in almost every aspect relative to the country's development plans, particularly the present (1995-2000) plan which concentrates on the development of private sectors and offers the opportunity for privatisation in business programmes. These developments require either an introduction of new legislation or a reform of existing rules and regulations in order to cope with rapid development worldwide.

The Saudi Patent Law was provided in order to implement sufficiently an adequate patent protection as well as to encourage local inventive activity and to achieve an effective technology transfer. However, the present practice of the Saudi Patent Office does not appear to provide for the local inventor the benefit that the patent system is generally believed to give, nor to provide for the country an appropriate indigenous technical and industrial development.

**THE ECONOMICS OF THE
PATENT SYSTEM**

Introduction

One of the main instruments of public policy designed to protect intellectual property is the Patent System. The patent laws grant the inventor an exclusive right over the use of his or her invention, meaning that they confer upon their owners the right to exclude others from using, selling, importing or exploiting in almost any means the invention as claimed in the letter patent. These laws are regarded as providing an incentive to induce the inventor to put in the work required to produce a product as an individual and to induce firms to make the investment in plant to bring the invention to commercial use. This would also disclose inventions earlier than would otherwise be the case to facilitate other inventions. These functions constitute an element of social and industrial infrastructure the cost of which may be recovered in the long term.

The objectives of these functions are various namely: improvement of technological and economic information in both national and individuals; provision of incentives to invent which creates an investment in R & D and in innovation; encourage the transfer of technology to the country by most means of business transactions. Its main advantages are that with regard to the opportunities for inventions and innovation the function is directly orientated towards demand and in terms of rewarding inventive activity it is dependent on the competitive structure of the market concerned.

An economic evaluation of the patent system may resolve three basic controversies. The main one is the incentive question: whether or not invention is profit motivated when in some degree that special reward is not needed, as inventions may be created by curiosity rather than by a search for benefit (which is the case of some inventors in developing countries). Second: the amount of innovation is not dependent upon either profit or curiosity but rather depends upon the availability of previous disclosures. Third: evaluation

of the patent system must also consider the standards applied to decide which invention deserves the monopoly and make the judgement of rewards.

My purpose in this chapter is to evaluate the rationale of the patent system and its fundamental functions in supporting technological developments, including consideration of the arguments against the patent monopoly; then in a second step to study the role of the patent system in terms of inducement for invention and the profit motivation as an incentive to invent, as well as the economic value of patent information and patent licensing. Then I will focus on a number of theories justifying the patent system, including that of private property under Islamic law.

Finally, I will examine most articles of the Saudi Patent Law and the articles in the Regulation for the Implementation of the Patent Law (which are in support of exploitation of invention) focusing at the alternative approach to provide the encouragement and support of inventors and innovation activities.

I The Function of the Patent System

a) The Patent System in Historical Perspective

The City of Venice was the first government to grant patents. The important role of the city in the world of commerce helped attach the patents to the goal of economic development, which was reflected in the fact that the patent right granted in a work had to be relinquished if not commercially successful. Technological development emerged and accelerated as political centralisation increased in many parts of Europe.¹ The intellectual property rights were granted in association with the technological development of

¹ US Office of Technology Assessment, "Disseminating Information Evolution of a concept" 64 Economic Impact (1988)

industrialised countries.² Significant invention in the Middle Ages included various processes involving textile-making equipment, mining and metallurgy and ship building designs. The patent grant was part of the government's offers as part of economic policies to stimulate technological progress and commercial development³

The patent privileges granted by some European governments were to import new technologies from other developed countries with a view to the creation and building of an advanced domestic industry. By the nineteenth century most of the industrialised countries had established a system of industrial property rights as a promotion of their industrial achievements⁴.

The operation of industrial property was introduced to developing countries by the colonial countries. It was mostly adapted according to their needs, modified according to which industrial property right, including patent rights, are granted, as well as with regard to the scope of protection. Most rights granted in developing countries come from developed countries, with little domestic inventive activity satisfying international patentability requirements.⁵

b Mechanism of Patent System

In most national patent laws a patent can be issued for any new and useful process, machine, manufacture or composition of machines, as well as new and useful improvements thereof. Once an application is examined to ensure that the necessary standards of patentability are maintained, then the patent is awarded to the first who files

² Beier, "The Significance of the Patent System for Technical, Economic and Social Progress", 11 IIC (1980) page 563-570.

³ Ibidem Note 1 above.

⁴ Ullrich, H "The Importance of Industrial Property Law and Other Legal Measures in the Promotion of

Technological Innovation," Industrial Property. March (1989) 102

⁵ Ibid.

an application for the patent of a specific invention. There are some requirements of patent law to determine whether the invention is genuinely inventive, useful and not obvious at the time the invention was disclosed to the person having ordinary skill in the art.

Besides the above, patent applicants are required to describe their invention to some extent so that an average expert in the field can implement the invention on the basis of what is disclosed in the specification. This disclosure requirement is to tell the examiner whether an invention is really new and useful and applicable to industry. Processing of patent applications requires compromises in the stringency with which the standards of patentability are enforced. It takes about two years on average to process a typical patent application, and consistent and accurate decisions are very difficult to obtain, due to the huge amount of applications registered yearly in many countries.

In many countries the duration of a patent is 20 years beginning with the date of application e.g. under the European Patent Convention. In the US the lifetime of the patent is 17 years, in most cases starting from the date the patent is actually issued. In some developing countries it is 15 years subject to renewal at the end of the 15 years.

There are some differences among nations in the subject matter which can be patented. In the US, Japan, European Patent Office, patents are granted on both product and process inventions without distinguishing among fields of use. In some other nations (e.g. Saudi Arabia) there are exclusions from patentability in some fields such as chemical substances, pharmaceutical and biological inventions.

Patents may not remain in force throughout their maximum legally permissible duration. Many countries require periodic renewal fees to be paid to maintain the patent owner's rights. Some have traditionally enforced schedules under which renewal fees increase sharply as time passes. It is reported that only a few percent of patents remain in force throughout the maximum term allowed legally and an even smaller percentage of all initially issued patents survive to their final year.⁶

The above has led to demand to look at new forms in the patenting direction in order to maintain more patent survivors on the marketplace in most countries, in particular, developed countries, or perhaps to get rid of unused patents more quickly.

c Changes in Inventive Activity and Patenting Directions

When patent systems first developed, most patents were granted to the individual or individuals who had created some new product or process, and most inventive activity was carried out by individual inventors alone without attachment to formal establishment attached. Now some changes have emerged in the field of inventive activity.

These changes appear in the dependence on advanced knowledge as invention has come to a relatively high level of development. It is also apparent in the creation of the method of how to invent, where invention in modern science and engineering comes about through the existence of R & D laboratories rather than individual inspiration.⁷ The movement of inventive activity was away from the realm of the independent, individual inventor to corporations. Finally, the technological change and the scope of corporate organisation

⁶ Taylor, CT and ZA Silberston, (ed). "The Economic Impact of Patent System" A study of the British Experience Cambridge University Press (1973)

⁷ Whitehead, AN, "Science and the Modern World" NY: Macmillan (1925)

mechanisms have become supranational. Patent protection, therefore, has been used to protect inventions not merely within the national territories, but rather all over the world.⁸

According to Kaufer, in the early twentieth century corporations received only 7 percent of all patents issued in the US, while over 80 percent went to other unrelated individuals. In the 1980s the share of individuals had fallen to 18 percent, whilst the share of national companies had increased to over 40 percent.⁹ Another important change has been the extension in the role of foreign inventors in the US. In the early 1900s few foreigners sought American patents, but by the early 1980s, foreign corporations seeking American patents had risen to 30%. These examples indicate that the number of patents issued increase in accordance with the size and level of economic development. They also indicate that the larger the size and the level of development, the smaller is the share of patents obtained by foreigners. It shows aggressively domestic patentees reach out to achieve foreign patent protection.¹⁰ This also shows the importance of obtaining patent protection abroad. Such protection can show the increased amount of competition.

Different patent systems follow different policies as to how much they need patent protection, and even where the gap between patenting and not patenting will be drawn in the scale over the scope and quality of a particular invention differs. Scherer¹¹ found that the number of patents received per million dollars of corporation-financed research and development expenditures ranged from 0.45 to 3.98 with regard to all kinds of industry groups, categorising business data from 250 manufacturing industries. The finding was that the number of patents obtained was influenced both by the amount of research and

⁸ Kaufer, Erich, "The Economics of the Patent System". (1989) 5-7

⁹ Ibidem

¹⁰ Ibidem

¹¹ Scherer, FM, "Research and development Resource Allocation under Rivalry" 81 Quarterly Journal and Economic (1967)

development expenditures earned and by the particular industry in which the manufacturer worked.

This indication of differences between industries in the propensity to patent is very important; almost the same importance as the spending on research and development. The propensity to patent seems to vary over time and across different nations as well as among industries within a given nation, and some patents may never be exploited.¹²

II The Economic Role of the Patent System

a) Patent as Incentive to Invent

Inherently, the patent system is the way to reward individuals and corporations who devote their own initiative, creative talent, and capital to produce inventions. This reward is by providing protection to their intellectual property. Thus, it is a powerful incentive for research, development and investment in the research for new technology.

In terms of using the patent system in protecting inventions and innovation it is essential to examine innovation and its activities. Archibugi¹³ defines innovation as :

“a complex and heterogeneous process that is increasingly important in economic and social life. In order to understand the innovation process, detailed sources of information are needed; they make it possible to develop appropriate indicators and strategies at both firm and government level. In industry, innovation depends on a variety of activities ranging from formalised R & D to production engineering Innovation can either be embodied in capital goods and products or disembodied, i.e. the

¹² Ibid.

¹³ Archibugi, D. and Pianta M. “Innovation Surveys and Patents as Technology Indicators: The State of the Art”.. Innovation, Patents and Technological Strategies - Organisation for Economic Co-operation and Development (OECD) 1996 pp 17-56

know-how included in patents, licences, design, R & D activities, or embodied in skilled personnel.”

This protection could stimulate invention in three ways. Firstly, the system was originally developed to encourage inventors to invest time and money in research and development through offering a reward to the successful inventor. Second, protection allows inventors to explore their inventions exclusively for a period of time. Individuals or corporations could obtain monetary gain sufficient to justify substantial investment in inventions through the sale of patent rights, royalties and related fees. The patent system also stimulates the additional investment necessary to market and further improve new inventions. Third, the system encourages the disclosure of the invention which may contain important technological details not otherwise likely to occur. This could stimulate other inventors to develop alternatives.

The encouragement of investment in research leading towards patentable inventions is a mixture of equitable and good economic reasons. It may come from product invention, process invention or through a combination of these. Braun¹⁴ draws attention to the fact that the patent system maintains a role in the creation of wealth in the modern world. He states:

It is perhaps worth emphasising that there is a serious shortage of detailed and well-documented economic studies of industrial property. All too frequently judgements on the economic consequences of different laws and policies in the industrial property field have to be made by legislators and administrators on the basis of personal evaluation....

He then emphasises:

¹⁴ Braun, Fernand, “The Economic Role of Industrial Property” 10 EIPR (1979)

.....the general point is that decisions on industrial property matters are having to be taken in a vacuum, so far as basic economic information is concerned, or with the doubtful assistance of isolated, speculative and unrepresentative figures

Braun then refers to the researches done by an American economist (Machlup), who was investigating whether or not in the long term the legal system of patents was to the advantage of the economy. He comments:

.....it is characteristic of the elusive character of any economic assessment of industrial property rights that he was unable to reach any firm conclusion one way or another.

Some argue that there is no evidence that the patent system provides encouragement leading an otherwise uninventive person to create a scientific solution to a problem. It is, however, undoubtedly the case that one can make a person want to invent, as an estimated 90 percent of issued patents originated from inventors employed to make inventions.¹⁵

Phillips¹⁶ argues that

..... the encouragement of invention is more likely to be achieved by educating people in the prior art and by stimulating them with unsolved problems, than by holding out the prospect of a right to pay for the privilege of stopping someone else from developing or making your invention, which is what a patent grant is.

He submitted that there is no incentive to invent by pointing out:

..... as sorely lacking is the tolerance or respect of the wider public, and a society which denigrates the inventor's failures while begrudging them the fruits of their success will be the poorer for it.

Finally, the question of whether the patent system plays any significant role as an incentive to invent remains unanswered, because it cannot be tested scientifically; but it may induce

¹⁵ Phillips, Jeremy, (ed) Introduction to Intellectual Property, Butterworths (1995) at 109

¹⁶ Ibid.

some inventors and may support competitiveness within industries which gives more incentive in the inventive activity. It may also not provide a full and decisive incentive to invent, but it still gives protection.¹⁷

(b) Incentive to Invest

(i) Research and Development

The patent system's encouragement of investment in the development of production and marketing of an invention makes good sense from an equitable and economical point of view. The legal grant of a patent which motivates innovation can lead to the actual exploitation of the invention in the marketplace. It offers a guarantee to inventors that their efforts will not be frustrated by the more or less costless or profit-reducing competition of free-riding duplicators. Such protection can contribute to economic growth in respect of increased productivity.¹⁸ Thus in the absence of patent protection the combined effects of the cost of R & D and of exploiting inventions may lead to an under-investment in inventive activities.

One of the advantages of a patent System in R & D activities is that before the conduct of research and development projects, some time and money can be saved by examining the patent literature, which would concentrate on current awareness to maintain the latest improvement. In case of facing great competition in current activities, a successful corporation may try to diversify its activities into a range of products. The cost of this may be assessed properly in respect of the benefits expected from the grant of the patent and from the institutional and economic framework within which the patent system is to operate as well as the scope of claims arising under the patent system's procedures. It

¹⁷ Anderfelt, Ulf, (ed) "International Patent - Legislation and Developing Countries" (1971) 37-41

¹⁸ Ibidem Note 4 page 4

may also avoid the cost of duplicate inventions or possible infringement in the case of improved products.¹⁹

Patent statistics are considered as an output indicator of certified information from strategic and applied R & D. Grupp argues that

“as patent applications are legal documents valid for a single country, many domestic priority patent applications are “duplicated” abroad. Selection of patent data from a single patent office therefore, does not always provide an indicator that is representative of the world output of inventions”.²⁰

However, Schmoch indicated the confined relations in a comparison of patent application flows with trade flows. He argued that “as international flows of patent applications obviously reflects international technology flows in terms of international technology trade, patent statistics can be used to test the thesis of growing techno globalism”.²¹

When a new idea becomes common property before having the chance of commercial promotion, it is not possible to induce investment in the market place. For example, in the medical and pharmaceutical industry, many inventors are very concerned that their ideas should in fact become common property to the best benefit of humanity, (e.g. the Human Genome project). This indicates that information which constitutes an invention can be used relatively at less cost and without any effect on consumption.

Horrath supposes that²²

¹⁹ Duplicate inventions may occur as a consequence of the competitive market - see, e.g. Genentech's Application (1989)

²⁰ Grupp, H., Gunnar Munt and U Schmoch “Assessing Different Types of Patent Data for Describing High-Technology Export Performance” . Innovation, Patent and Technological Strategies - Organisation for Economic Co-operation and Development (OECD) 1996. p.279.

²¹ Schmoch, U., “International Patenting Strategies of Multinational Concerns : The Example of Telecommunication Manufacturers” Innovation, Patent and Technological Strategies. OECD (1996) p.227

²² Gyula Horrath, World Symposium : op. Cit pp 179-180, as cited in Note 13 above.

.... in the absence of such a protection, companies engaged in research work would keep the results secret, retaining thereby certain advantages for themselves but retarding the scientific and technical progress of mankind. In my own personal opinion and from the standpoint of the pharmaceutical industry, a properly operated protection system could be very useful even in its establishment phase. Later on, at a higher state of development, it is imperative to ensure efficient protection and if more than one form of this is used, full freedom should be given to the applicant in choosing between them.

The economic rationale of the legal protection given for the patent system as inducing invention and innovation implies the actual exploitation of the invention in the marketplace. By offering a guarantee to the inventor's efforts in R & D, innovation and investment will not be sterilised by the costless and profit-reducing competition of imitators. Significantly, patent protection constitutes an instrument of economic and industrial policies intended to contribute to some extent to technical improvement. Such an improvement may contribute to national economic growth in general.²³

Ullrich²⁴ emphasises in this respect that there are some commonplace misunderstandings amongst industrial property lawyers. He points out that:

Patents contribute to technical progress and technical progress contributes considerably to economic growth in terms of increased productivity. However, economic estimates of a 75-90 percent contribution of technical progress to economic growth refer to a particular notion of technical progress which is the residual explaining the actual growth rate at any given factor input (capital and labour). This residual may contain, in addition to new technological knowledge,

²³ Ibid Note 4

²⁴ Ibidem.

effects of economic scale, of learning by experience, organisational rationalisation, etc.

Benedetti ²⁵ argues that the patent system is not offering enough to induce research and development. He adds that “Many national courts display an unfavourable attitude towards patents. In addition high costs are involved in charging the infringers and/or defendants of the validity of patents”.²⁶ Some reports indicate that even when companies possess patents, industrial development which conducts research puts small emphasis on patent protection. Most of the exceptions to this appear to be represented by the chemical and pharmaceutical corporations.²⁷

ii Empirical Background

Several empirical studies have been made about the impact of industrial property, mainly with regard to patents. They indicate that only a few industries regard patent protection as an essential means of obtaining economic returns from R & D.²⁸ It was found that patents are more important in some fields and industries than in others.²⁹ The situation is also significantly different between countries. According to Wyatt’s³⁰ study, an examination of 80 multinationals in the U.S., Europe and Japan showed that among Japanese companies patenting was considered to be more effective than by their American and European competitors.

²⁵ Fabrizio de Benedetti, “An Economic and Political Analysis of Changes in the Patent System”, 11 EIPR (1983) 296.

²⁶ Ibid.

²⁷ Benedetti refers to the result in the study made by C.T. Taylor and A.Z. Sillberstone, “The Economic Impact of the Patent System”, Cambridge 1973.

²⁸ Ibidem Note 6 page 60-66.

²⁹ Levin, R.C., “A New Look at the Patent System” American Economic Association Paper and Proceeding, (1986)

³⁰ Wyatt, S., G. Bertin, G and Pavitt, K. “Patents and Multinational Corporations: Results from Questionnaires, World Patent Information. Vol. 17 (1985) ppl 69-212.

A large scale survey of European³¹ firms' behaviour towards innovation and appropriability in relation to patents showed that 15 percent of firms patent 80 to 100 percent of their product innovations, and 37 percent patent less than 19 percent. In terms of process innovation, 7 percent of firms used patents extensively, and 57 percent rarely applied. It was also found that only 14 percent did not apply for a patent in the previous three years, while 79 percent applied at the EPO and 78 percent applied at their national patent office.

The same survey showed that 84 percent of patenting firms used patents in the context of products while 71 percent were used in the context of processes. Secrecy was cited for products among nearly 50 percent of patenting firms and nearly 63 percent of non-patenting firms. However, 41 percent of both patenting and non-patenting reported that they have an advantage if they market ahead of their competitors.

As many firms have traditionally argued for greater patent protection, one study³² indicated that a "very short lived patent, or even no patent at all, might in some context yield higher economic welfare than the patent rights conferred under existing institutional arrangements".

There have been some attempts to evaluate the economic value of patents, indicating that almost half the respondents to surveys have earned an economic return from their patents. The industries which have a large number of patents are pharmaceuticals, plastics,

³¹ Arundel, A.G. van de Pall and L. Soete, "Innovation Strategies of European Largest Industrial Firms: Result of the PACE Survey on Innovation Sources, Public Research, Protection of Innovation and Government Programmes, MERIT, Maasticht (1995). The survey was completed in 1994 and is now underway in the U.S. and Japan.

³² Winter, S. "Patent and Welfare in an Evolutionary Model", *Industrial and Corporate change*, Vol.2, No 2 (1993) p.211. Cited at Archibugi and Pianta, Note (12) above.

industrial chemicals and computer hardware. The success rate of most research may not be reflected in patenting, rather various estimates show the commercial value of patents.³³

In conclusion, these empirical results are relevant to both the private and public sectors involved in patent protection policies. The patent system may be well advised to make some changes in its policy to enhance its capability in order to have enough protection against imitation. It is clear that the existence of a patent system can enable the patent holder to gain some economic fruits resulting from new products and processes, and inventors have manifold reasons to seek protection for their new ideas.

C Technical Information

One of the advantages of the patent system is the stock of technological knowledge built up in a patent office. This is made up of information contained in the disclosure of the invention by applicants in return for the grant of a patent. The dissemination of information through the patent literature and technical progress encourages commercial firms to evaluate the importance of new technological development in the fields where they have a technical and commercial interest. This evaluation may help solve problems which have been encountered by analogous technology in the past to determine either where solutions were found or non-productive avenues revealed.

It would also help to avoid economic waste and/or duplication of R & D by bringing to competitors and society substantial achievements in the technical fields of concern. Some companies may have to face great competition in their established fields; thus they try to change their activities into a new range of related products. Following a patent search, a

³³ Maurice Peston, "The Patent System - An Economist's View" Chartered Institute of Patent Agents, QMW College University of London (1991)

researcher may perceive a new range of options for other products and technologies. Past patents may even reveal potential products.³⁴

Individuals and firms may disclose their names and addresses in the relevant publications (ie patent office gazette) so a discussion of potential commercial exploitation could then follow. This form of commercial publication work permits the researcher to collect all the patents published by a firm or individual or within one field of technology in a particular time span, and then to analyse their contents. This stock of technical information which is due to systematic and precise documentation, is a very important national asset in its own right.³⁵ Some countries may encourage the establishment of a patent system due to the value of the information contained on the published patent documentations alone.³⁶ It is possible that this may well be used as an instrument to transfer technology internationally once the possibility of transferring a protected right is secured.³⁷

Patent literature makes a valuable contribution to technology exchanges by providing a measure for invention which otherwise may naturally not exist. Some firms or individuals can buy or sell rights to “use” more easily than other intellectual property rights, which may not be so clearly defined as patents. Evenson³⁸ points out that

“This is not to say that such exchanges would not take place in the absence of a Patent System. Consulting and Engineering firms, for example, sell intellectual products without patent protection, but these are also bought and sold in various ways - through mergers or plant sales, and of course through products. The point is that a patent provides an additional mechanism for exchange.”

³⁴ T S Eisenschitz (ed) “Patent, TM and Design Information Work” (1978)

³⁵ Ibidem Note 4

³⁶ Ibidem.

³⁷ Ibidem Note 19.

³⁸ RE Evenson “Intellectual Property and Third World” 12 EIPR (1983)

Apart from the benefit to the state, an individual firm can create the possibility of investigating the distribution of the firm's innovative projects by the high level of patent data and the number of its registered patents. Archibugi and Pianta³⁹ have used firms' patent portfolios to study their technological diversification and to identify the benefit from innovation carried out by firms working in similar technological areas. These studies indicate that:

- the majority of companies have a wider distribution of technological activities than product lines and often produce their own equipment and machinery, or the intermediate components of their products;
- patents can help to identify company strategies, often before they are implemented in the market;
- patents are also a valuable aid to identifying the combination of different branches of knowledge into a new technological advance (technology fusion)

There is a low level of exploitation of the patent system as a source of technical information founded on the use of patent specification. Benedetti explains:

“The predominance of legal and scientific jargon operates as a deterrent in this context and the problem is compounded by lengthy texts and insufficient details about practical application. Note, however, that patent searches can now be conducted through computer terminals. Compliance with the usual requirement of description of the invention could perhaps be combined with the necessity to include a short, comprehensive and simple document designed to meet the requirements of engineers who are not patent experts. It is also worth considering the possibility of appointing an international body to analyse patent documents with a view to identifying trends of research in various fields of technology”.

³⁹ See, Archibugi and Pianta M. Ibid note (12) above. p30.

Further he suggests

“A policy of incentive is required. In the first instance an improved and wide use of patent literature should be encouraged, along with the possibility of easier means of identification of so called family patents, for which the adoption of a single international code accompanying the patent filing or grant number might be useful. It would also be possible to require the periodic filing at the Patent Office of an affidavit of working”.⁴⁰

Against the advantages of patent specification and technical information as a source of economic value, Blanco White wrote

“..... as a system for encouraging the making and commercial use of inventions the patent system is defective and tends even to degenerate into a game of bluff, part of business politics rather than productive industry. This tendency is emphasised by the high cost of litigation about patents”.

He develops more views as to the disadvantages of depending on patent specifications as a source of information:

“The most serious defect in patent specifications as a source of information is one for which the courts are largely responsible: specifications often fail to explain just what the object of the particular change in earlier techniques characterising the new invention - far too much information as to what the invention is supposed to achieve may endanger the validity of the patent to be granted for it”.

⁴⁰ Ibidem Note 24.

He then expresses his view about the ineffectiveness of patents in general, with which I agree. He said:

“The essential difficulty in the way of this maintenance of a patent monopoly is this. Once a new technique or product has been developed and shown to be commercially workable, a competitor with the technical resources of modern industry at his disposal will seldom find it so very difficult to work out another way of doing the same thing”.⁴¹

In summary of the material discussed above, patents as a source of technical information can be searched by a particular individual or firm to determine their specialism and current research trends and to keep up to date with all recent development in their fields of interest. It is possible to observe which areas and marketplaces have been diversifying or opening up both nationally and internationally . It is also possible to spot the marketing of newly developed inventions as well as licensing opportunities to fill product gaps. It could be, even for non-inventors, commercially valuable when following the same use.

d Patent Licensing

Licensing means the transfer of tangible rights to use by the owner of the patent to another by which the owner’s exclusivity in that technology is protected. Patent holders can use patents as a benefit appropriation mechanism. They can utilise the monopoly power patent protection provides to commercialise the invention themselves, or by licensing their inventions to other firms or individuals and collecting an income in return or royalties.

⁴¹ Blanoc White QC “Patent for Inventions” (1962)., “The patent system - a tool in the marketing strategy for the creation of wealth and new jobs”. 3 Eur. Intell. Prop. Rev. (1980) at 68-69.

Normally licensing involves only part of the firm's business but for certain organisations e.g. research establishments or Universities, the transfer of rights may be the main business. When firms have by-product business out of which additional income could be created, or in unused by-products, an initial income may be generated out of exploitation for the first time. The cost of licensing might be high. Many alternatives in terms of licensing cost may be used, such as selling the business or assigning the particular right for a lump sum or royalty.⁴²

The common situation where licensing may be active is manufacturing and distributing the licensed products. Licensing may be an important issue when one or more of a number of situations come into existence. Entire sale may be impossible because either the market is far distant in regard to the nature of the product, or because of the prohibition in import controls of all desired markets.⁴³

In the case of an exclusive licence, the licensee is allowed to exploit the invention to the exclusion of even the rights holder. If it is not exclusive, then there will be competition either from the rights holder alone or from a number of other licensees. A licence may set up territorial restrictions, but parallel imports are mainly provided for by a minimum level of competition and no licence which would prohibit parallel imports is allowed in the designated territories. Such restricted clauses may be included in a licence agreement in which to strengthen the patent protection against parallel or duplicative inventions by rivals. These procedures can be useful in the case of regional patent systems (e.g. the Gulf Co-operation Patent Office).

⁴² Baillie I. C., (ed) "A practice guide for business man" (1987)

⁴³ Ibidem.

Reciprocal licensing which is associated with many characteristics (e.g. territorial market, import) can be found among multinational corporations. Telesio found that companies involved in reciprocal licensing tended to have high R & D sales ratios and higher level deviations than firms that did not. Reciprocal licensors in multinationals were concentrated with special frequency in important fields such as pharmaceuticals, chemicals and electricals.⁴⁴

Licensing to similar companies internationally may also be treated as a substitute for “direct foreign investment”. Because of fixed information and basic costs in generating an overseas operation, firms are expected to receive a large foreign market share facing lower unit entry cost in establishing direct foreign investment than firms anticipating a relatively small share. . Licensing against direct foreign investment demand is also effected by the costs of technology transfer between firms.⁴⁵

Yet, licensing is commercially valuable in creating business opportunity. Although a licensor may not appropriate more than a third or a half of the benefit in comparison with the licensee from the use of patented inventions, royalty rates tend to be to the economic benefit of the licensor⁴⁶ . It is in the range of 1 to 10 percent of sales with an average of 3 to 4 percent.⁴⁷ It is the commercial opportunity which the licensee cannot otherwise obtain, either because it is controlled by legal rights of protection, or because this valuable information is not otherwise available.

⁴⁴ Telesio, P (ed) “Technology licensing and Multinational Enterprises”. New York Praeger (1979) cited at Kaufer, note (8) above at 23.

⁴⁵ Ibid Note (8) above. P.23.

⁴⁶ Ibidem at 24.

⁴⁷ Ibid.

Finally it is argued that the whole of intellectual property licensing has become an international issue. Brooke⁴⁸ described it as

“...more complex in terms of the number of countries and scientific and commercial subject matter affected, but it has become less complicated in the sense that national law and inter-organisational practice have been winnowed by years of experience and informed scrutiny --- The planned exploitation of intellectual property will receive more attention as part of the business strategy of all enterprises. The licensing alternative will be especially attractive for products and processes having a short product life and requiring simultaneous exploitation on many geographical or technological fronts in order to optimise the income for their owner”.

III The Rationale of Intellectual Property Rights

a Natural Property Rights

Natural property rights have been considered to include a man's own thoughts, a right which society should recognise and protect. Penrose defines it thus: “Property is in essence exclusive and therefore an exclusive privilege is the only appropriate way for society to recognise this particular right.”⁴⁹ It may be morally accepted that an institution is founded to enforce specific rights which individuals work within the scope of the institution. However, it does not deny that the work of an individual should be rewarded when a new invention emerges, indicating that its working brings an important result.

Spector puts the example of the seventeenth-century theory of natural right as one:

⁴⁸ Brooke, M.Z. and Skilbeck, J.M. “Licensing: The International Sales of Patents and Technical Know How” (ed) Gower (1994) pp 366-367.

⁴⁹ Edith T Penrose “The Economics of the International Patent System” (ed) The John Hopkins Press (1951)

..... according to which men possess certain rights which derive from nature in general or from some sector of nature, such as human nature attempted to offer a deontological justification of those classical liberal rights which a century later were to become items in the famous Bills of Rights. Nineteenth century utilitarianism can be seen as an instance of consequentialist justificatory theory. Utilitarians tried to provide firm grounds for numerous legal institutions, hereditary succession, punishment, civil liberties by arguing that the working of such institutions produces, to use the canonical formula - the greatest happiness of the greatest number”.⁵⁰

He then refers to the labour theory of property possession by John Locke as the most deontological justification of private theory. Locke’s formulation is:

Though the earth, and all inferior creatures be common to all men, yet every man has a property in his own person. This nobody has any right to but himself. The Labour of his body, and the work of his hands, we may say, are properly his.⁵¹

It was in the nineteenth century that these principles justifying patents were adopted in the patent law. They were also accepted by the international conference held in Paris in 1878 which led to the International Convention for the Protection of Industrial Property, while intellectual property was considered to be the most divine of property rights.⁵²

Penrose emphasises this proposition, pointing out that “..... property is a natural right and not a social institution established for a social purpose, and that ideas are a possible

⁵⁰ Horacio M Spector, “An Outline of Theory Justifying Intellectual Property Rights” 8 EIPR (1989) at 270-272

⁵¹ Ibidem.

⁵² Ibid Note (49) at 21. “The International Conference in Paris held: The rights of inventors and of industrial creators over their work, or of manufacturers and business men over their marks is a right of property, the Civil Law does not create it, it only regulates it”.

subject of such exclusive rights, and a proper subject irrespective of the social consequence of the denial to others of the rights to imitate”.

But for some authors the spread and dissemination of thoughts or ideas may be considered more of a “natural right” than exclusive property rights in those thoughts and ideas. Others could not agree with the implications of this argument. To be considered a property right, such arguments pointed out “..... a thing must be capable of being possessed exclusively by its owner, whereas once a man parted with his ideas he could no longer control them, they become common property and restitution to the original owner becomes impossible”. The same idea, however, could be generated in different ways and could not be considered to be the property of someone but not of others.

This was developed by the London Economist campaign in the nineteenth century making the argument against the patent system:

Beforethe inventors can establish a right of property in their inventions, they ought to give up all the knowledge and assistance they have derived from the knowledge and inventions of others. That is impossible, and the impossibility shows that their minds and their inventions are, in fact, parts of the great mental whole of society, and that they have no rights of property in their inventions, except that they can keep them to themselves if they please and own all the material objects in which they may realise their mental conceptions”⁵³

One more difficulty in the way of the adoption of the natural property theory is the objection that there is no rational or moral justification for limiting the granted patent in

⁵³ The Economist. 28.12.1850, at 1434. Cited in Note (49).

time. Penrose sees it as rationally important to support the reasons of continual patents, stating that a:

“...right granted to an individual, his heirs and assigns in perpetuity is a position which led to such obviously unacceptable result from a social point of view that it forced the recognition of the social element in the patent agent”⁵⁴

Hatfield ⁵⁵ classified theories of patent protection into two categories:

- I) the natural rights theory, which means “that individuals own the product of their mental labour. Under this theory, inventors have no obligation to disclose the product of their labour and they certainly have the right to be compensated for disclosure. One form of compensation is the exclusive right to profit from one’s invention;
- ii) the bargain theory, where “the premise is that some reward is necessary not only to induce disclosure but also to encourage inventing. Accordingly under the bargain theory, the temporary monopoly of the attendant patent rights serves a dual purpose”.

He then compares the theories, arguing that the natural rights theory contains a bargain element and is very similar to the bargain theory, but also that there are important differences between the theories. The bargain theory presupposes the need for an incentive to innovate. The reward of monopoly for the successful invention merely fulfills the “bargain”. On the other hand, the natural rights theory assumes that no inducement to innovate is necessary. The natural rights monopoly is offered not as a reward but as consideration for disclosure.⁵⁶

The monopoly is given by the patent system as an incentive to inventors to reveal their ideas in return, rather than keeping them secret. However, some argue that the

⁵⁴ Ibidem at 22-3.

⁵⁵ Hatfield, A.L. “Life After Death for Assignor E stopped: Per Se Application to Protect Incentives to Innovate”. 23 Intellectual Property Law Review (1991) pp 249-251.

⁵⁶ Ibidem

disadvantage of a patent system depends on how much social cost it may impose, which varies from product to product. Rothnie⁵⁷ argues that

“The patent system would not be controversial if it only conferred benefit on society. Unfortunately, it also involves cost. The power to raise prices above the marginal cost introduces static inefficiencies. Some consumers pay more for the product than they would if it were priced ‘competitively’ at marginal cost, others are denied the product altogether although they would value it more highly than alternative uses of their resources. Rival firms are forced to continue using less efficient methods of production, thereby introducing a further distortion of the economy”.

b Economic Theory

To reach the optimal level of production, the economy needs a steady influx of new ideas. Part of this is in the reward of generators of these ideas by private property, which may tend to upgrade the total value of production.

Spector argues that externality is the key concept of the economic situation in which an individual’s pursuit of his self-interest has spill-over effects on the utility or welfare of others. It is usual to speak of negative or positive externality, according to whether the social effects in question are harmful or beneficial (cost or benefit).⁵⁸

He refers to the issue of smoke from a factory as a side-effect of its production as a “negative externality” where as in a society that allows private ownership of animals there is a “positive externality”. A beekeeper and an apple grower jointly exploit premises; the

⁵⁷ Rothnie, W.A. “Parallel Imports” Sweet and Maxwell (1993) (ed). at 108.

⁵⁸ Ibidem, Spector, note (50) above.

bees fly into the orchard and help make the orchard more productive when pollinating. To point out the failure that is generated by externalities, Spector explains:

Externalities generate a failure in the working of private markets; they prevent it from providing the optimal amount of a particular commodity or chattel. The owner of the factory would reduce its production if he had to include in his estimates the social costs of the issue of smoke given that up to a certain lower level of production these would be greater than the marginal value of the product. Conversely, the beekeeper would increase his production if he could include in his estimates the social benefits of the flight of the bees, given that up to a certain higher level of production these would be greater than the marginal cost of the product. An important function of ownership rights is then to correct market failure produced by externalities.⁵⁹

He supports the argument by quoting from Demsetz:⁶⁰

.....property rights develop to internalise externalities when the gain of internalisation becomes larger than the cost of internalisation.

Demsetz refers to the application of the economic theory of property rights in terms of copyright and patent rights as follows:

Consider the problem of copyright and patents. If a new idea is freely appropriable by all, if there exists communal rights to new ideas, incentive for developing such ideas will be lacking. The benefits derivable from these ideas will not be concentrated on their originators. If we extend some degree of private rights to the originators, these ideas will come forth at a more rapid pace.⁶¹

⁵⁹ Ibid.

⁶⁰ Demsetz, H. "Toward a Theory of Property Rights", American Economic Review, IV II (1967) cited at note (50) above.

⁶¹ Ibid.

There is a conflict between the protection of competition in the marketplace and the monopoly right of intangible property given by intellectual property rights. This conflict appears to be caused by intellectual property rights which serve to create optimal levels of production of intangible goods and to improve the quantity and quality of material goods and services. To resolve such conflict, Ichman⁶² puts it thus:

If economic activities are classified on three levels, namely; consumption, production, and innovation, ownership of goods may be described as a restriction on competition at the level of consumption in favour of competition at the level of production, and intellectual and industrial property may be viewed as a restriction on competition at the level of innovation. The general idea is that the availability of property rights at one level ensures that the market and competition develop at the next higher level. The rights of intangible property are restrictions on competition for the benefit of competition.

Spector sees this as an appeal to the highest aim of intangible property in order to explain the two characteristics which distinguish it from ownership: “The limited period of validity and the duty of exploiting the rights in question.”⁶³ He was not convinced that the explanation applies to the duty of using the patent, arguing that:

If the use of patent is economically justified, there will be someone prepared to buy the corresponding licence at a price which would compensate for the inventor’s costs, so that the duty of using the patent is superfluous. If the exploitation of the invention at issue is not economically justified, the obligation to work the patent will imply its loss or sale of a licence at a price which does not compensate for the inventor’s costs and hence is to the detriment of the general efficiency of the economy. The existence of the obligation to use the patented invention tends

⁶² Ibid.

⁶³ Ibid.

therefore to reduce the innovative supply to suboptimal level, whether due to a lower rate of inventing or to some innovations being kept secret. This effect would be more marked in those areas of innovation which are potentially risky for an enterprise's economic survival. The analogue of the right not to work a patent is the right to destroy a tangible good in Roman property law.

According to Spector, Locke's labour theory and his economic theory of property rights both have some difficulties when they are being approached as theories justifying private ownership in intangible property. For the economic theory he explains its difficulties as follows:

....., the economic theory has a distorting effect on entitlement to property rights, which is chronic in every consequentialist (self-sufficient) justification of individual rights. Although a consequentialist theory can prove that enforcement of a particular individual right will have valuable results in the generality of cases, it will never be able to guarantee that this will be so in all cases.

Most arguments concerned with economic theory seem to be standard. As Teston put it, "another way of approaching the matter is to observe that there is a cost to not granting property rights in this case; namely the subsequent disincentive to research and development".⁶⁴ Most of the economists' worries have been about the grant of monopoly power, in particular, with non-exploited patents. This is the reason why patent legislation has to deal with the abuse of monopoly power, including by way of compulsory licensing.⁶⁵ To some economists the word monopoly is associated with anti-trust, making it easy to dismiss intellectual property as a negative factor in economic activity.⁶⁶ In his argument, Sherwood⁶⁷ observes that in a classic market monopoly, research efforts by

⁶⁴ See, Teston, *Ibid* note (33) above at 23.

⁶⁵ *Ibid*.

⁶⁶ Sherwood, R. M. "Intellectual Property and Economic Development" Westview Press (1990) p68.

⁶⁷ *Ibid* at p.52.

others, even if fruitful, will be ineffectual. “Where a monopoly exists, it may have sprung from a variety of factors, but intellectual property is seldom the foundation of a marketplace monopoly or any assurance of its continuation. The right of exclusivity is thereby opened to a compulsory license on a nonexclusive basis, permitting another or others to exploit that right, but the right itself remains in place”⁶⁸

c Private Property under Islamic Law

As mentioned earlier, Islamic law is based on the Sharia Law which is derived from four main sources.

To establish direct support for a legal proposition, it is necessary to follow in order the above sources of the Sharia Law, it is important to begin in order too, using its five types of conducts:⁶⁹ mandatory; recommended; permitted; recommended against and banned.

There are many practices in life permitted under Islamic law because the Quran and the other sources of Sharia Law have not made any statement about them⁷⁰. Intellectual property rights would be among these categories of permitted practices due to the lack of any mention of them. In fact it may well fall under the non-Sharia Law which is adopted to fulfill the needs and structures of developments in modern society. Other examples include the law of commerce, business and limited liability.⁷¹

The main aspects of Islamic law in relation to the protection of intellectual property are: “the recognition of the concept of private property, the creation of title by creative

⁶⁸ Ibid at p.32.

⁶⁹ Saleh, N. “The Law Governing Contracts in Arabia” 38 International and Comparative Law Quarterly. (1989) at 761-781.

⁷⁰ Jamar, S.D. “The Protection of Intellectual Property Under Islamic Law” CAP. V.L. Rev. Vol 21 (1992) at 1080-1081.

⁷¹ Ibid, Jamar. Note (66) above.

endeavour, and the divisibility and separability of various property rights attendant to ownership".⁷² The right of private ownership is limited under Islamic law, since all property belongs to Allah (God) as provided in the Quran through Moses' words to his people in Egypt "Lo! The earth is Allah's. He giveth it for an inheritance to whom he will."⁷³

In theory, ownership is more "trusteeship" or "stewardship" for Allah than full title in comparison with the English Common Law.⁷⁴ However, individual owners have full and absolute rights against all but Allah. Habachy refers this to the teaching of all Muslim schools, which consider private property and rights to be inviolable in relations between individuals in one way, and in relations with the state in another.⁷⁵ It is religious protection as well as government - validated protection. It was the warning of the Holy Quran to followers not to "knowingly devour a portion of the property of others wrongfully" (Quran: II: 188). Even in the case of lost or stolen property in this rules, the finder of such lost or stolen property cannot possess title to it, and the property will be treated as an asset for the benefit of the real owner. Whoever steals or covets any other person's property is liable for any damages or loss that happens to the property for any reason.

The only case where a trustee of property is liable is for the carelessness with the property or for breach of the trust.⁷⁶

Another important aspect of Islamic property law is concerned with possession of "ownership, title or an interest in property", as one may possess actual property by

⁷² Ibid.

⁷³ The Holy QUR'AN, VII: 128 (Verbatim quotations are from the translation of the Qur'an by Mohammed Marmaduke Pickthall in, "The Meaning of the Glorious Koran" Mentor Book (1953) as cited in note (66) above at 1023.

⁷⁴ Ibid at 1083.

⁷⁵ Habachy, S. "Property Right and Contract in Muslim Law" 26 Colum. L. Rev (1962) at 450-452. Cited in note (66) above.

⁷⁶ Ibid.

appropriation. For example, when someone develops underdeveloped land, then he may possess title to it by doing so, because the action of converting unproductive to productive and useful land would create ownership. Most types of ownership of private property or tangible objects may be obtained by extracting from the ground or by obtaining unwanted things from public land (e.g. metal, timber or wildgrass), including hunting. This possession is what may be called the return for someone's effort.⁷⁷

The most important aspect of property law is the "divisibility and separability of property rights", which is of direct significance in the protection of intellectual property. Both real and intangible personal property are explicitly recognised by their divisibility in Islamic law. If someone owns the property and allows others to use it, he may do so without transferring the whole title. In fact he may divide the use of it (i.e. "applying a patented idea to manufactured goods") from the main ownership of the property itself.⁷⁸

According to Jamar⁷⁹ :

"Islamic Law did recognise that physical property on the one hand and ideas on the other are conceptually separable, at least in the context of the "hadd" the amputation of the hand of a thief, under certain limited circumstances, for things of certain minimum monetary value". He refers to an example given by the Hedaya⁸⁰ ".....that one does not amputate the hand of a thief for stealing a book because the thief's intention is not to steal the book as paper, but the ideas in the book, which was not tangible property. However, the same source notes that stealing a book of

⁷⁷ Forte, D.F. "Lost, Strayed or Stolen: Chattel Recovery in Islamic Law, and Jurisprudence (ed) Nicholas Heer (1990). Cited in Note (66) above.

⁷⁸ Ibid, note (66) above.

⁷⁹ Ibid.

⁸⁰ Ibid.

accounts is appreciable property, and not just the paper and materials which make up the book.”

Jamar notes that the above rule is not Quranic, since it does not come from the “haddith”, is not based on “ijma” consensus, and is not from the “qiyas” or reasoning . It was based upon a commentary on the law written by a prominent jurist. Jamar emphasises that: “Though one cannot ignore such pronouncements of ancient scholars,they are not necessarily within the ambit of the underlying roots of the Sharia.....” Further he quotes: “Nonetheless, from this one reference it would appear that the idea of intangible intellectual property existed in some rudimentary form in ancient Islamic Law. The treatment of a book of accounts as “appreciable” property of sufficient value to warrant the extreme punishment of amputation can only, in reality, be based on the value of the information contained on the paper, ie, the intellectual property, the intangibles represented by those accounts”.

It is worth noting that the Council of the Islamic Fiqh Academy⁸¹ has recognised that intellectual property rights are protected under the Shari’ah Law. The Council held that:⁸²

1. The business name, corporate name, trade mark, literary production, invention or discovery are rights belonging to their holders and have, in contemporary times, financial value which could be traded. These rights are recognised by Shari’ah and should not be infringed.
2. It is permissible to sell a business name, corporate name, trade mark for a price in the absence of any fraud, swindling or forgery, since it has become a financial right.

⁸¹ The Council of the Islamic Fiqh Academy, emanating from the Organization of Islamic Conference. It is located in Jeddah, Saudi Arabia. The Council review and study the most current issues in light of the Shari’ah Law. It gives a response on all questions and enquiries through its selective group of Muslim scholars. These responses follow the original source: the Holy Qur’an the Sunnah, the Consensus of the scholars and the analogy to be able to reach to solutions derived from the Islamic Shari’ah.

⁸² See Resolution No (5) concerning intellectual rights issued in the Fifth Session held in Kuwait, 1-6 Jumad al Ula 1409H., corresponding to 10-15 December 1988 G.

3. The copyright and patent right are protected by Shari'ah. Their holders are entitled to dispose of them. These rights should not be violated.

It is in support of the above that there are two main reasons why intangible property may be considered "private property" under Islamic law. First, the fact that (ideas) which are intangible may be "technical processes" which become a means to create a tangible "product". Thus this "product" would become a personal property and subject to protection. A second reason is that if this protection is based upon statutes and legislation properly enacted by the state, then the recognition of these statutes means the recognition of the state in Islam. Thus, it should provide protection to individuals claiming the rights under it.

IV Practices of the Saudi Patent Law

a Main Theory

To begin with, it is important to trace the original draft of the Law as mentioned earlier, with most of the drafted articles derived from the WIPO's model law for developing countries. The model law may not fit all developing countries equally well, as each country has different structures of social and economic development. Before drafting the law it was important for the officials to study the need of national inventors to maintain proper inventive activity and from there, to examine the subjects in terms of technology and industry which the country's development may require. This will enable the legislator to design a law for the encouragement of the national inventors according to their capabilities, in one hand, and to help the law become an effective tool in the industrial and technological development of the country with regard to the demands of society such as consumptions.

The basic theory of the Saudi Patent Law is similar to most patent laws today, that an individual may have a natural right to own the product of his idea, and patents are justified because it is in the public interest that inventors should be encouraged to develop their ideas and disclose inventions through protection given by law. Article II of the law provides that:

The rights in a patent are personal property of the inventor. Such rights may be transferred with or without consideration. If several persons have jointly made an invention, the right to a patent shall belong to them equally unless otherwise mutually agreed upon.

A person who has merely assisted in the implementation of an invention without having contributed an inventive activity shall not be deemed an inventor or co-inventor. The inventor is entitled to have his name in this capacity mentioned in the patent. Any agreement providing for the contrary shall be deemed null and void.

As a recognition of the individual's right of ownership, the Law provides for the vesting of property rights in an invention. Article 22 gives the inventor the right to halt any other person exploiting his invention without legal consent. It states:

The patentee may sue, before the Committee, any person who exploits his invention without his consent inside the Kingdom. The exploitation of a product is embodied in the making, importing, offering for sale or using the product as well as stocking such product for the purposes of offering it for sale, selling it or using it. Where the patent is granted in respect of a process, the patentee shall be entitled to the same right in respect of any products made directly by such a process.

Upon qualifying for a patent, the inventor is given a monopoly right over his invention, so that any use, sale or import without a legal permission from the patent holder is considered an infringement. Article 47 states:

Any act of exploitation, as defined in Article 22, carried out by any person in the Kingdom without a written consent of the patentee registered at the City, shall be deemed infringement. Upon the request of the patentee and any interested party the Committee may grant an injunction and appropriate compensation. Upon the request of the City, the Committee may also impose a penalty not exceeding fifty thousand Riyals on the infringer. The maximum fine shall be doubled in the case of repeated infringement. The Committee may take any prompt measure it deems fit to obviate the damage caused by infringement.

As a means of encouraging research and development in the country whether publicly or privately, the Law gives a privilege to research for the purpose of scientific study. Article 24 states:

The rights under a patent are confined to acts undertaken in respect of industrial or commercial purposes and they shall not extend in particular to acts for scientific purposes.

This purpose is of course to promote science development. However, the law does not make clear who the beneficiary of this provision may be: whether it is the right holder or the research organisation. However, it is possible that the notion of monopoly power may divert the advantages to someone else, either the public, a private researcher or an organisation, rather than the original rights holder of the said patent. The question is in terms of private ownership, if for scientific purposes such researchers developed a new product, thus, where can we draw the line in terms of ownership? A clear distinction

should be important in elaborating the legal scope of use in research practices and a determined decision between commercial purposes and scientific purposes.

(b) Economic Perspective of the Law

In addition to providing the encouragement and support of inventors and inventive activity, the law concentrates on the second stage, in particular, on the industrial development as well as the transfer of technology through the requirement of exploiting registered inventions. It is the desire to establish a new and advanced domestic industry and to get the advantage of patents which underlies the main industrial property rights serving industry and technical development in Saudi Arabia.

The Law requires the inventor upon receiving the granted patent to exploit it in the country within two years from the date of the grant. If it is impossible to be exploited during this given period of time, two additional years are given as a further chance to establish a manufacture of products in the country. In limiting the time of exploitation, it may be different theoretically from the fact that spurring on invention is actual exploitation of the invention in the market place and a guarantee to the inventor to invest. According to Article 25:

The patentee shall exploit the invention covered by the patent on a full industrial scale in the Kingdom within two years from the date of grant. The City may, upon the request of the patentee, extend this period for a further period not exceeding two years, if it believes that the request is based upon reasonable grounds. If the prescribed period expires without the patent being fully exploited, the provisions of Article 34 hereof shall be applicable.

Article 34 states:

If the period set forth in Article 25 expires without full exploitation of the invention by the patentee within Saudi Arabia, the City may grant any person a compulsory licence to exploit the patent, upon an application submitted to it, provided that the applicant proves his capability to exploit the patent fully. The consent of the patentee to the grant of such licence may not be required.

Consequently, Article 17 of the regulations for the implementation of the Law states:

The patent holder must exploit the patented invention in a complete manner sufficient to the need of the Kingdom according to the common standards of consumption.

Following this discussion, even the compulsory licensee must follow the same procedures and the requirement to exploit the patented invention, as Article 36 stipulates:

The Compulsory Licensee shall fully exploit the invention industrially in the Kingdom during the period provided for in the licensing decision as well as pay all the monies which are determined by said decision.

Full exploitation often requires certain categories of information, e.g. market research, establishment for manufacture, production lines, and financial institutions. It may be difficult to meet such demands or requirements due to lack of basic environments and infrastructure to build in the territory, or the man power or raw materials in the land. The Saudi Patent system did not provide an alternative solution to this in order to assess the likelihood of industrial difficulties, nor to keep the patent freely protected. Thus, the legal demand required by Article 36 may not serve its purpose as an instrument of industrial development.

The Law requires prescribed fees to be paid by the applicant during registration of the invention as well as for substantive examination fees. Article 15 states that:

The Directorate of Patents shall examine whether the application has complied with prescribed particulars, documents and procedures. If such is the case, the applicant is invited to pay the prescribed fee. The application should not be registered unless the prescribed fee is paid.

Another payment of fees is by Article 28 which states that the patent is subject to the payment of an annual fee, to be paid each year starting from the year following publication of the patent grant. However, if the patent holder fails to pay the fee within ninety days from the beginning of the year, the fee will be doubled. If he also fails to pay the fee within another ninety days subsequent to the first period, the right of the patent will devolve to the Patent Office.

The Patent Office will estimate the cost of the substantive examination. The procedures of substantive examination will not take place before the applicant provides the cost of such examination. Article 15 of the Implementing Regulation states that:

The Directorate shall estimate the cost of the substantive examination. The patent applicant shall be notified thereof and the time limit within which payment should be made. The substantive examination shall not be completed until the applicant has paid the cost as determined in the estimation report prepared by the Directorate.

Beside the fee for substantive examination, Table 4 below reveals a distinction of payment only between individuals and corporations (which presumably includes small and medium sized firms). However, the Law does not discriminate between local and foreign inventors, nor does it distinguish between different industrial sectors. The costs appear

relatively small and may not meet some of the costs involved in the administration of the Patent Office.

Since the law is considered to encourage local inventive activity, the requirement of patent fees for domestic, individual and small enterprises is very much recommended to be reduced where local inventors may find these fees too expensive. It may add up to significant sums of money without even including the substantive examination fees. This distinction of patent fees between local and foreign applicants will not lose the significant contribution in the sense that it can fill in the gap in the administrative expenditure involved in the process of registering patents. In fact the economic contribution may occur among foreign applicants as the majority of applications are registered by foreign inventors.

Table 4

Fee Payable For	Individuals		Corporations	
	Suadi Riyals	Equivalent to \$ US	Saudi Riyals	Equivalent to \$ US
1. Filing Patent Application	400.00	106.00	800.00	212.00
2. Publication and grant of a patent	500.00	133.00	1000.00	266.00
3. Annual fees for patent	400.00	106.00	800.00	212.00
4. Amendment or addition to the application	100.00	26.00	200.00	52.00
5. Assignment or any aspect relating to the transfer of patent	200.00	52.00	400.00	106.00
6. Obtaining a copy from patent register of any other papers relating to a patent	50.00	13.00	100.00	26.00
7. Granting a compulsory licence	4000.00	1066.00	8000.00	2133.00
8. Registration of licencing Contract	400.00	106.00	800.00	213.00
9. Application for extension of patent term	200.00	52.00	400.00	106.00

To maintain the influx of registration of inventions from both national and foreign inventors, it is also recommended that a quick reform should take place among the provisions mentioned in this crucial point of controversy. Also in order to maintain an economic revenue through maintenance fees and other fees as well as to create a competition of new products in the market place which may increase the productivity of the country, it is suggested that the Patent Office should evaluate the economic importance of the invention and of the patentee of the national market, where value may differ from

one class of patent to another. This can prove the patent system as an effective means of progress in domestic, technical and economic development.

Conclusion

The question whether the patent system has an economic value or not has created a controversy between economists and professionals in inventive activity. Nevertheless, many critics from both sides believe that, when the patent system is used properly, it leads to success among inventors, individuals or firms, and so incidentally for economic development, as in many countries the patenting activities have a direct relation to its economic success.

Although it is impossible to indicate the real value of the patent system of any country by experiments or empirical study, most of the study done so far indicates that the patent system as it is now operating presents rather a net benefit than of a net loss for society in general.

The Saudi Patent Office does not effectively contribute to the national technological development. It does not appear in any sense to be encouraging indigenous domestic inventive activity. It allows registration of any application in general, and it requires the same payment of fees from all applicants. Such practices, instead of encouraging inventive activity, may negatively affect such activity.

**PROTECTION OF
BIOTECHNOLOGICAL INVENTION**

INTRODUCTION

Biotechnology is considered as the revolution of this century. Although it is not new, it has been used for centuries by countries all over the world. "Bios" in Ancient Greek means life¹, and biotechnology seems to comprise any technology that uses living entities, in particular animals, plants or micro-organisms. However, human abilities have been exploited in the improvement of crops, productivity and disease resistance through plant breeding and biotechnological research.

Biotechnology, as a scientific and commercial process and product is recognised to be essential to research scientists attempting to discover the functions of nature and to private companies who are trying to develop and exploit the high potential of commercial application. It is possible to produce new, improved, safer and less expensive products and processes through biotechnology, for example pharmaceutical and diagnostics for humans as well as agricultural products and processes².

The protection of biotechnological inventions has brought with it a controversial debate, although the protection has proved to be different and variations exist between developed and developing countries. The debate among developed countries on the protection of biotechnological inventions presents a general consensus on the main direction of the process and on the basic principle to be followed. The present intellectual property rights do not properly protect biotechnological inventions³ and the international examination of I.P. protection suggests that countries need to agree on the concept of invention, particularly, with regard to biological matter appearing in nature and whether it is to be patentable. It is also recommended that all biotechnological inventions should be eligible for patent protection and some national exclusions can no longer be justified⁴.

¹ Industrial Property Protection of Biotechnological Invention: Report Prepared by International Bureau. WIPO Industrial Property. June (1986).

² C.A.Michaels. "Biotechnology and the requirement for Utility in Patent Law". Journal of Patent and Trademark Office Society. April (1994).

³ Roberts. C. "The Prospect of Success of the National Institute of Health's Human Genome Application" I EIPR. (1994) p30..

⁴ Ibid.

In this chapter, I focus on the patentability of the subject matter in biotechnological inventions, as the term 'biotechnology' has not been classified as being restricted to only living matter; rather it is classified in categories and sub-categories. Also, I consider the conditions for patentability, and the controversy surrounding its standards, i.e. novelty, and industrial applicability according to the terms and regulations of the patent law. As the exclusion from patentability forms part of this discussion, I elaborate on the plant and animal varieties exclusion and the concern over this, as well as the demand for protection to fulfill the growing need to cope with rapid development in this field.

Next, I examine the protection of biotechnological inventions based on the concept of invention and to what extent the traditional concept of invention is applicable to biotechnological products and processes. A distinction between scientific discovery and biotechnological inventions is elaborated in the broadest sense, against a background in which few patent offices have granted patents for biotechnological invention which relied on discoveries. As the scope of protection was found to be essential, practically, to cover the invention broadly and to avoid infringements, I analyse the differences in the scope of protection methods and experimental use of a patented invention in relation to the basic concepts of patent law.

Finally, a review of the requirement of disclosure in a patent application is given in order to understand the current requirements available for biotechnological inventions.

In part II, I examine the current international protection of biotechnological invention and the role of the most important organisation related to the protection of intellectual property, that is WIPO and its recent development in this regard. Also, further discussion is presented on international conventions such as the International Convention for the Protection of New Varieties of Plants (UPOV), Trade Related Aspect of Intellectual Property Rights (TRIPS), and the Biodiversity treaty, focusing on the most important provisions in this regard as well as the arguments that patent protection may not be an appropriate solution to biotechnology innovations.

In part III, there is an analysis of the ethical, social, and economic issues concerning biotechnological invention which underlie the patenting controversy. Two primary issues, that is ethical and social issues, have presented themselves under the US and European Union patent laws as well as the European Union draft Directive on Biotechnological Inventions (1988). The economic issue is focused on two main sources of biotechnology, that is the pharmaceutical and agricultural industries, putting in mind the global competitiveness under a patent protection and the private and public benefit in return.

Part IV examines biotechnological invention in Islam, a different point of view based on the Islamic teaching which is founded in the Holy Qur'an and Hadith of Prophet Mohammad (PBH). Such discussion focuses on morality in Islam and the concept of belief in science, particularly the development in biological inventions worldwide.

Part V examines the protection of biotechnological inventions under the Saudi Patent law as well as making some suggestions for the improvement of existing law in order to cope with the international developments in both biotechnology itself and international agreements on the subject, which are very important to local research and development in general.

I. Patentability of Biotechnological Invention

(A) The Definition of Biotechnology

Traditionally, biotechnology is considered to be one of the oldest activities of mankind. It is encompassed in agriculture (breeding plants and animals), and also in the production of beverages and the fermentation industry. In modern times, use of biotechnology resulted in the development of recombinant DNA techniques which have had a great impact on social structures⁵.

⁵ Ratledge, C. "Biotechnology: the socio-economic revolution? A sybotic view of the world status of biotechnology". Biotechnology: Economic and Social Aspects. Issues for Developing Countries. (Ed) 1992 ppl-19.

Ratledge⁶ defines biotechnology as “technology that is an enabling discipline”. It allows the exploitation of micro-organisms, plant and animal cells to take place within an economic framework. Biotechnology is not then a science: it is a means of applying science for the benefit of man and society. In practice, this means that it is used to make money, or in some instances to save money.

Junne⁷ states that “new biotechnology refers to ‘third generation’ biotechnology which results from breakthroughs in genetic engineering in the early 1970s. ‘Modern’ biotechnology embraces ‘second generation biotechnology’ i.e. the advances in enzyme and tissue culture, and large-scale fermentation technology since the beginning of the twentieth century. In 1984, the World Intellectual Property Organization committee of experts defined biotechnology as including “all techniques using animals, plants, microorganisms and any type of biological material which can be assimilated to microorganisms, or which can create organic changes therein”⁸. Further definitions appear in the report prepared by WIPO’s International Bureau⁹, which held that “biotechnology seems to comprise any technology that uses living entities, in particular animals, plants, or microorganisms, or causes organic changes in them”. For the purpose of biotechnology definition, the Report¹⁰ concluded that:

“(A) General agreement exists insofar as the term ‘biotechnology’ is not considered as being limited to living entities, but as including a wide range of biological material, such as animal and plant cells, animal and plant cell lines, enzymes and plasmids and viruses, all of which can have substantial function in industrial applications similar to the industrial application of microorganisms.

(B) Due to the rapid scientific development in this field, any attempt to define biotechnology in a comprehensive but also, at the same time, precise way must fail. From the legal point of view, such a definition would entail considerable risks.”

⁶ Ibid

⁷ Junne, G. “The impact of biotechnology on international commodity trade”. *Biotechnologies in Perspective*. Edited by: Sasson, A and Costarini, V. (UNESCO), 1991) P.167.

⁸ See WIPO document (Bio T/CE/I/2 November 1984).

⁹ *Industrial Property Protection of Biotechnological Invention: Report prepared by the International Bureau - WIPO*. Industrial Property (June 1986) pp253-273.

¹⁰ Ibid P257.

There is now no general legal agreement in defining the term 'biotechnology'. However, an attempt was made in the U.S. to define it as "the collection of industrial processes that involve the use of biotechnological systems"¹¹. More detailed is the definition of biotechnology to include any technique that uses living organisms to make or modify products or develop microorganisms for specific issues and uses or to improve plants or animals¹². Further, biotechnology includes "commercial techniques that use living organisms, or substances from those organisms, to make or modify a product, and including techniques for the improvement of characteristics of economically important plants and animals and for the development of microorganisms to act on the environment"¹³.

It is now possible for scientists to exchange genetic information between plants or animals through its organisms or the use of recombinant DNA (deoxyribonucleic acid) techniques as well as tissue culture and the development of genetic resources. The definition in a broad sense includes the use of novel biological techniques, particularly recombinant DNA techniques, cell fusion especially for the production of monoclonal antibodies, and new bioprocesses for commercial production. Thus, since this development there has occurred a transformation of agricultural products. This has been achieved in many ways through the use of genetic material contained originally in domesticated varieties of plants.

(B) Categories of Biotechnological Invention

Insofar as the term biotechnology has not been classified as being limited to living entities, there are three main categories of biotechnological inventions classified by WIPO's report¹⁴ as "inventions relating to an organism or material per se, and inventions relating to the process for the creation of a living organism or the production of other biological material, and invention relating to the use of an organism or material".

¹¹ See Office of Technology Assessment of the U.S. Congress (OTA). *An International Analysis*. Washington D.C.: 1984.

¹² Ibid.

¹³ Ibid. P.589.

¹⁴ Ibid note (9) above. P.257.

Subcategories may be distinguished within the above categories, and were classified by the said report¹⁵ as follows:

1. Products in living entities of natural or artificial origin, such as animals, plants, and microorganisms, biological material, such as plasmids, viruses, and replicons and parts thereof such as organs, tissues, cells, and organelles.
2. Processes including those of bioconversion, cultivation, isolation, multiplication, and purification for the creation of products and for the production of substances through bioconversion using products according to a natural or artificial origin (e.g. enzymatic conversion of sugar to alcohol).
3. Uses of products for any purpose (e.g. the use of monoclonal antibodies for analytics or diagnostics).

Other important areas, in which inventive work in the field of biotechnology is most active and achieves great economic importance, are: pharmaceuticals; plant agriculture; animal agriculture; aquaculture, speciality chemicals, and food additives, environmental applications, commodity chemicals, and energy production¹⁶. In this system of categories an overlapping of biotechnology and chemical technology is possible. Most progress has been in the field of pharmaceuticals¹⁷. Other than the area of pharmaceuticals, important advances have been made in the field of animal agriculture e.g. the development of a monoclonal antibody against scours (a potentially lethal form of diarrhoea¹⁸). Also a system of transferring embryos of cattle has been introduced which happened to be important in the field of animal breeding¹⁹.

The main technological development in biotechnology is genetic engineering. It was defined as²⁰ being “not equivalent to artificial modification of the hereditary material of

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ Ibid.

¹⁹ Ibid. At P258.

²⁰ Ibid.

animals, plants and microorganisms but is only one possible method, or rather a bunch of methods for such modifications”. Artificial modification of the hereditary material of animals, plants, and microorganisms has been successfully applied for a long time in animal and plant breeding, and to a certain extent also in microbiology.

The main difference between the so-called traditional methods and those which are newly emerging, consists of the ability of the latter methods to overcome biological barriers previously existing when manipulating hereditary material. It seems preferable not to use the term ‘genetic engineering’ as an all-embracing designation when referring to the fundamental new achievements in biotechnology, but to present the new achievement after explaining the ‘traditional’ methods.

(C) Conditions of Patentability

A biotechnological invention for which a patent has been granted in one country may not be recognized as an invention in other countries. This raises important questions about the conditions of patentability in the area of biotechnology. The fact that an invention relates to new plants, animals, microorganisms, or biological material, or any methods used to achieve them should not be an obstacle to their recognition as inventions for purpose of the industrial property law. They should not be subject to specific conditions in respect of their patentability²¹.

In terms of the patent requirement of disclosure it is, in certain cases, difficult to describe biotechnological inventions because the features of living entities cannot always be described by words or supplemented by drawing, as inventions in the chemical and electrical fields can. By contrast, the purpose and usefulness of mechanical or electrical devices can be described and illustrated by drawings and directly evaluated by the examiner from a reading of the specification itself or by supplying the disclosure as the application proceeds through the patent office. In the case of biological invention a sample of the invention may require to be deposited (e.g. living micro organism or biological material). Such sample should be provided along with a description which will enable an

²¹ Ibid at 255.

expert in the field to repeat the invention²² . The deposit systems are supplied and maintained in a special atmosphere to test the biological activity for a certain duration.

With regard to novelty, national patent law usually states that an invention is not to be regarded as new if it has been disclosed to the public before the filing date. In order to find a solution to the microorganisms and other biological material and the merit of the invention is to be seen in the first solution to make that product available to the public, it could be argued that the fact that a substance exists in nature should not by itself prevent the novelty of the invention as that those skilled in the art are not informed of such existence²³ .

Crispi²⁴ argues that “The contribution to the art on which gene patents are based, is the making of the gene available in a form which can be utilised to produce an expression product and to produce this in quantity, for example, as a commercial pharmaceutical product. Alternatively the cloned gene can be used to transform an organism into another species giving rise to new products, and transgenic plants and animals. Genes are therefore a special case in the broad class of naturally occurring material, which in appropriate circumstances can be patented. Pre-existence of the substance, in association with vast quantities of other materials, is insufficient to contradict this view”.

Concerning gene patents, it is argued²⁵ that genes do not fall within the definition of “state of the art” which cannot be patented because of its pre-existence. If it is presented in a certain well known gene bank, therefore, it may be considered disclosed in the public domain already²⁶ . This argument is based on the fact that the “gene must first be isolated, preferably characterized as to its nucleotide sequence, and cloned in order to be made available to the public²⁷ .

²² Ibid.

²³ Ibid at 263.

²⁴ Crispi. S. “Biotechnology Patenting: The Wicked Animal Must Defend Itself” EIPR. September (1995) P.432.

²⁵ Ibid.

²⁶ Ibid.

²⁷ Ibid.

With respect to the amount of creativity that must be presented in order to demonstrate that the animal breed developed through genetic engineering methods is non-obvious, some arguments²⁸ suggest that there should be some degree of novelty because there is no justification for giving intellectual property rights concerning animal breeds which the public already has available. Due to the difference between animal breeds, it was argued²⁹ that “the Plant Variety Rights³⁰ definition of novelty (which is that the breed has not been previously commercially exploited) should be employed in preference to the patent law definition (which is that the breed has not previously been made publicly available)³¹ . The reason is that the patent law definition may unduly restrict the availability of protection. Society could therefore miss out on the benefits which would come from the use of that breed if the patent law requirements of novelty applied”.

An introduction of “provisions concerning non-prejudicial disclosure” was suggested³² in respect to the fact that most biotechnological inventions are ‘science-based’, and their results of research should be published soon for the purpose of industrial application, and also for evaluation by experts in the patent field. Therefore a particular needs for a grace period for disclosure made by the inventors of biological inventions prior to filing of a patent application. It should not be different from the need for a grace period in the field of science-based technology generally³³ .

A new biotechnological invention extracted from the most advanced research in molecular genetics may cause difficulties for both inventor and patent offices because of a lack of expertise in dealing with such inventions³⁴ . A complex patentability requirement may result in some offices (e.g. in developed countries)³⁵ while it may cause no problems in connection with non-obviousness in some characteristics of naturally occurring substances, in other patent offices (e.g. developing countries).

²⁸ Peacc. N and Christie. A. “Intellectual Property Protection for the Products of Animal Breeding”. EIPE. April (1996).

²⁹ Ibid at P.231-232

³⁰ An example was given as: UPOV Convention. Article 6(1) (cites as note 29 above P.231)

³¹ An example was given as: EPC. Article 54: APA. section 18(1) (cites in note 25 above P.231)

³² Ibid note (9) at P.268.

³³ Ibid.

³⁴ Ibid.

³⁵ Ibid.

With regard to microorganisms, and the possibility of deposit being permitted to ensure the sufficient disclosure required by patent law as well as written disclosure, not all countries require this³⁶. It is suggested, therefore, that countries which have not so far recognised the possibility of deposit, e.g. Saudi Arabia, should adopt such a possibility and become part of the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purpose of Patent Protection (1980), in order to acquire the status of a national institutional authority for the deposit of National and International microorganism inventions in a uniform treatment according to Article 6(2) of the Treaty.

In 1973 the World Intellectual Property Organization (WIPO) began to internationalize aspects of patent law and practice. After the UK Patent Office raised the issue for general agreement over the procedure for deposit it was agreed that deposit in any one officially recognized culture collection would be sufficient for the purpose of multiple patent application on a broad international scale. This led to the establishment of the Budapest Treaty in 1977 and its ultimate ratification by a sufficient number of signatory states to bring it into force in 1980³⁷.

It is essential for the Saudi Patent Office to recognise deposit of a sample micro organism with an authorized depository authority which maintains a culture collection. This recognition should help local inventors to maintain their developments and in return offer them a patent application on an international scale. It is also important to realize that the storage and furnishing of samples requires special expertise and equipment.

(D) Exclusions from Patentability

In many countries, plant varieties are protected by special legislation which establishes a particular system of protection, and the laws for protection of invention as a rule exclude plant species from patentability. But it is different with regard to animal varieties, which do not seem to have any special system of legislation for their protection. Nevertheless,

³⁶ Ibid.

³⁷ Ibid at P.272.

animal varieties are excluded from patenting under a number of national patent laws while protection of plants follows the UPOV Convention (1978)³⁸. Many laws also exclude essentially biological processes used for the production of plants or animals e.g. European Patent Convention and countries which are party to this Convention³⁹. However, in the United States, Japan and China, the patent laws do not contain such an exclusionary provision⁴⁰.

Biotechnological inventions, namely plants and animal varieties and essentially biological processes for their production, were excluded from patentability during the past two decades in most industrial countries⁴¹. This is a cause for concern as the development of case law⁴² indicates the growing recognition of the demand that biotechnological inventions be protected by patent laws in those countries, not by special legislation which establishes a particular system of protection.

Most of the exclusions of patentability occur in the subject matter of the invention. Some patent laws exclude objects derived from nature or already in the public domain e.g. U.S. Patent Law⁴³. Some laws exclude not only the protection of plant and animal varieties, but even the 'essentially biological processes for the production of plants or animals', as well as methods of medical treatment or diagnosis performed on the human or animal body (i.e. Article 53 (6) of the European Patent Convention - EPC). Also "methods of treatment of the human or animal body by surgery or therapy and diagnostic methods practiced on the human or animal body shall not be regarded as inventions which are susceptible of industrial application"⁴⁴.

The exclusion of the above created concern among members of the European Union. There was a review to assess whether the existing patent law in Europe under the EPC was effective to cover inventions in biotechnology and whether the development of

³⁸ Ibid. At P.264-265. Also more detailed to be followed. see section (c) Part III and Part IV infra.

³⁹ See European Patent Convention (EPC). Article 53(b).

⁴⁰ Geneva Treaty on the International Recording of Scientific Discoveries. March (1978) Article (1)11)i.

⁴¹ Ibid note (9) above.

⁴² *Diamond v Chakrabarty* 206 USPQ 193 (1980)

⁴³ More details of the current international protection of biotechnological inventions will be followed. See Part II infra.

⁴⁴ Article 52 (4) EPC.

biotechnology research could be encouraged and become more rapid. So it began to seem necessary to clarify protection and the idea of a Biotechnology Directive⁴⁵ emerged in 1988.

Generally, the rationale for the exclusion of biotechnological invention, particularly 'essential biological processes', depends on the technical intervention in determining the result it is wished to achieve. So 'new' biotechnology and new techniques and methods using and controlling natural forces to achieve a desired result do not fall under the categories of 'essentially biological processes'.

(E) Protection of Biotechnological Invention

It is important to define invention and the extent to which the conventional concept of invention is applicable to biotechnological products for the purpose of industrial property protection. The distinction mentioned above - in part I(a) - between the various biotechnological inventions becomes important in considering the categories of plants, animals, microorganisms, and other biotechnological materials.

In terms of protection, there has been a considerable amount of limitation, mainly as a result of the distinction between inventions and discoveries, the condition that an invention must be a technical one and the restrictive analysis of that condition. Farther the definition of the term 'discovery', is not uniform in national laws, although most countries explicitly exclude 'discoveries' from patent protection.

If, in the broadest sense, 'discoveries' are considered as unpatentable subject matter, this could affect biological inventions and create a problem arising from the fact that the described new technology in the field of biotechnology is based on scientific finding. The definition of 'scientific discovery' in the Geneva Treaty on the International Recording of Scientific Discoveries (1978), is that "scientific discovery means the recognition of

⁴⁵ Published as part of the Commission's Proposal for a Council Directive on the Legal Protection of Biotechnological Inventions. COM (1988) OJ (1989) C 10/3. (Referred hereinafter as the 'Directive' also more discussion on the Directive will follow see Part III (a) (3)infra).

phenomena, properties or laws of the material universe not hitherto recognized and capable of verification”.

Thus it seems to be very important to distinguish between discoveries and invention in national patent law, and examiners carry the burden of making such distinctions. In the last few years patent offices have granted some patents for biotechnological inventions which depend on discoveries. For example, in *Chakrabarty*⁴⁶, a patent on oil-eating bacterium, the Court decision distinguished between ‘human-made invention’ and ‘product of nature’ and held that the invention involved sufficient human intervention to merit patent protection.

Article 52 (2) of the European Patent Convention, along with Article 52(3) excludes a discovery from patentability to the extent that it is claimed ‘as such’. The EPO Guidelines for examination (Part C. Chapter IV, 2.1) state that: “If a man finds out a new property of a known material or article, that is mere discovery and unpatentable. If, however, a man puts that property to practical use he has made an invention which may be patentable”.

With respect to microorganisms and similar biological material (e.g. produced by isolation, purification) which occur in nature in original form, they seem to have no protection and therefore may be treated as discoveries according to the Guidelines for examination in the EPO Chapter IV, 2.1. These state that:

“ To find a substance freely occurring in nature is mere discovery and therefore unpatentable. However, if a substance found in nature has first to be isolated from its surroundings and a process for obtaining it is developed, that process is patentable. Moreover, if the substance can be properly characterized by its structure, by the process by which it is obtained or by other parameters and if it is ‘new’ in the absolute sense of having no previously recognized existence, then the substance *per se* may be patentable”.

⁴⁶ *Diamond v Chakrabarty* 206 USPQ 193 (1980).

In regard to biotechnology and the exclusion of discoveries under Article 52(2)(a) EPC, it was argued that at least⁴⁷ “some of the claimed matter related to a discovery and that it therefore lacked patentability under these Articles”. It adds that “if a substance occurring in nature must first be isolated from its surroundings, can be properly characterized and is ‘new’ in the absolute sense of having no previously recognized existence, this substance *per se* is in principle, patentable under Article 52(2) EPC and the Guidelines”.

It is difficult to distinguish between discovery and invention, particularly in the sciences or nature (e.g. in gene patents applications). This is because the act of discovery so very nearly underpins the resultant practical application which is constituted in the invention⁴⁸. As Vogel put it “every scientific discovery, if made technologically applicable, becomes an invention”⁴⁹. Others⁵⁰ argue that if

“the scientist discovers and formulates a certain mathematical relationship between the molecular weight of a protein and the viscosity of its aqueous solution. In itself this is a discovery of a relationship, but if it leads to practical application, a method of determining molecular weight by measurement of the viscosity of the solution, can reasonably be classified as an invention. These two things are but two sides of the same coin”.

Finally, it is suggested⁵¹ that

“if discoveries in the broadest sense of that term are to be considered as non-patentable subject matter, this could affect biotechnological inventions in a two-fold way. Firstly, a problem arises from the fact that the described new technologies in the field of biotechnology are mostly based on numerous scientific findings which doubtless satisfy the definition of ‘scientific discoveries’ as contained, for example, in the Geneva Treaty on the International Recording of Scientific Discoveries. Secondly, the basic working material of a ‘biotechnologist’ is always some kind of living or biologically active matter - plant, animal, microorganism, plasmid, etc. So

⁴⁷ Hans-Rainer Jacnichen and Andrea Schrell. “The European Patent Office’s Recent Decisions on Patenting Plants - Comments”. 12 EIPR (1993)

⁴⁸ Ibid. not (25) above at 432.

⁴⁹ See Vogel, F. and Grunwald, R. (Eds) “Patenting of Genes and Living Organisms” (1994) A Comment by Zimmerlic, Wh.Ch., Heidelberg Workshop as cited in note 25 above.

⁵⁰ Ibid note (25) above 432.

⁵¹ Ibid note (9) above at P.262.

the question arises whether the outcome of this work may still be considered as something discovered or found in nature. It thus becomes important to draw the borderline between discoveries and inventions”.

(F) Scope of Protection

The protection issues in biotechnological inventions are of enormous practical importance to the biotechnology industry, mainly as a result of its reliance on patenting to support investment. This is to recoup expenditure and make profit, since the basic policy underlying the patent system is to encourage the disclosure of invention through grant of monopolies; in return the inventor of biotechnology seeks patent protection for his invention in order to obtain an exclusive right to the product and the royalties that result from its exploitation through licensing. The ultimate resolution of the issue concerning protection of biotechnological invention may largely shape the course of future research and development efforts in the biotechnology industry in general. The public should get some benefit from biotechnology, and yet this may not happen in the absence of patent protection.

Experimental use of a patented invention is not infringement under most national patent laws. The exact scope of the exemption differs from country to country. There are more differences between the corresponding exemptions for patents, on the one hand, and plant breeders on the other. Under plant variety laws, once someone has obtained a self-replicating biotechnological product, he may, by means of experimental use obtain commercial amounts of the product without having consent or authorized use of the patent. Therefore, it is necessary to provide that if a patent-protected product consisting of a replicated product is used to produce another such product, then this use is not to be regarded as experimental if the derived product is used other than for private or experimental purposes.

It is often asked whether one can protect every conceivable application of the underlying idea or principle. In the case of biological inventions it is difficult to fit into the simple framework of traditional science e.g. physics and chemistry, as well as biotechnology

which supports some of the basic concepts of patent law because of the inherent difficulty of biological entities, and commonly from the relative inadequacy of the information available at the time inventions are first made.

However, many decisions are considered as a milestone in the history of protection of biotechnological invention where they open the way for more protection and for product claims in relation to microorganisms and other biological material. The *Chakrabarty* claim in the USA is an important example of the above, as the claim was “not to hitherto unknown natural phenomenon, but non-naturally occurring manufacture or composition of matter - a product of human ingenuity having a distinctive name, character, and use”. Such claims mean that the limited concept of technical fields “no longer constitutes an obstacle to the protection of biotechnological inventions by patents and other industrial property titles”⁵².

Other examples can be found in the patent application concerning the human genome, where claims for particular DNA may require a special scope of protection, as the DNA itself consisted of a compound of a large number of nucleotide which are four types of the material of inheritance, that is, it forms the genes of almost all living things. The genes are responsible for the sequencing of amino acids which make up the proteins of living organisms⁵³. A United States patent for Harvard/Onco-mouse⁵⁴ may be the best example, where the claim consisted of “a cancer-causing gene or ‘oncogene’ inserted into the genome so that it develops a tumour within a few months of birth”⁵⁵.

(G) Sufficient Disclosure of Patent Application

Most patent laws require the disclosure of an invention in a manner sufficiently clear to the person skilled in the relevant discipline. However, in the case of biotechnological inventions this requirement creates specific problems due to the complexity of the

⁵² Ibid at P.263.

⁵³ National Research Council. “Mapping and Sequencing the Human Genome. 1989. at 1 (cites in CAROL ROBERTS. “The Prospects of Success of the National Institute of Health’s Human Genome Application”. EIPR 1 (1994).

⁵⁴ Harvard/Onco-mouse. U.S. Patent No.4736866. issued April 1988.

⁵⁵ Ibid note (54) above.

biological entities which may be difficult to describe in the specification of the application. This refers to the idea of requiring a deposit of the invention, particularly, of microorganisms in culture collections⁵⁶ .

The deposit of plants is required in accordance with the plant variety protection laws which follow the UPOV Convention only for the purpose of testing by plant varieties protection offices. Article 5(3) of the Convention allows the use of protected varieties as an initial source of variation for purposes of creating other varieties. Patent protection applies differently in this regard, as a deposit including a sufficient written specification may be an applicable method of complying with the requirement of enabling disclosure of the scope of higher living organisms⁵⁷ .

Since any disclosure may have to be open to the public, most patent office procedures require, besides the filing of a written specification, a deposit of sample microorganisms through an authorized depository institution which retains a culture collection. The responsibility of such authorized institutions is to keep a deposited microorganism culture in order that it may be allowed out to third parties under certain conditions. The reason for this is due to lack of storage and special equipment in the patent offices, also to protect such examples from contamination and for health reasons to protect the environment⁵⁸ .

If the applicant considers that his invention involves a microorganism which may be known and made available through a depository institution in which the organism has already been deposited, he may refer to the scientific name of the organism in the specification or to the deposit number and the name of the depository institution with which the deposit was made. But where such a deposit was made, the disclosure may not be sufficient because the deposit as such is considered insufficient to guarantee the disclosure of the invention. However, with the deposit considered as an essential part of the specification, it is important that a sample of a microorganism should be deposited on

⁵⁶ Ibid note (9) above at 269-271

⁵⁷ Ibid.

⁵⁸ Ibid.

the date on which the patent application is filed or on the priority date whenever priority is claimed⁵⁹.

There are some conditions for the release of samples requiring that the deposit be made at the time of filing of the patent application, and the sample should be available to anyone interested in obtaining one. However, different procedures have been adopted in some patent offices. For example, in the United States⁶⁰, the microorganism deposit must be available at the date of the grant of the patent, as at that date the patent description is for the first time made available to the public. This means that where no patent is issued, the availability of the deposited microorganism is not required.

Under Article 93 of the European Patent Convention, an application is subject to double publication procedure. The first publication takes place 18 months from the filing date or date when priority is claimed, and the second publication is made upon issue of the patent. Under Rule 28 of the Regulation made under the EPC, the availability of samples of deposited microorganisms starts from the date of the first publication of the European patent application.

According to Article 7 of the Budapest Treaty (1980), a depository institution obtains the status of “international depository authority” when one of the contracting States provides the Director General of WIPO with assurances that the institution complies with certain requirements of the Treaty. Article 6(2) of the treaty states that the institution in its capacity of international depository authority must:

- have a continuous existence.
- have the necessary staff and facilities to perform its scientific and administrative tasks under the Treaty.
- be impartial and objective.
- be available for the purpose of deposits, to any depositor under the said conditions.
- accept for deposit, any or certain kinds of microorganisms, examine their viability, and store them.

⁵⁹ Ibid.

⁶⁰ See Section 608.01(p) of the U.S. Patent Offices’ Manual of Patent Examining Procedures. 1983.

- issue a receipt to the depositor, and any required viability statement.
- comply with the requirement for confidentiality.
- furnish samples of any deposited microorganisms under the conditions and in conformity with the procedure prescribed under the Treaty.

Uniform measures as well as uniform procedures to apply such requirements have to be provided according to Article 8 of the Treaty. The types of microorganisms which the international depository authority have declared acceptable for deposit under the Budapest Treaty include the following: “bacteria, plasmids, actinomycetes, yeast, moulds, fungi, bacteriophages, viruses, animal and plant viruses, protozoa, algae, cell lines, hybridomas, oncogenes, phages, plant tissue cultures, seed”. Although some of the above may not be considered as living entities (e.g. plasmids and seed), they may be used as biotechnological inventions in the same treatment on microorganisms and may be admitted for deposit by depository authorities⁶¹.

Following the conditions for the release of samples, there are some restrictions concerning supply of samples to third parties. For example, in the United States⁶² it is provided that any restriction of public access to samples of deposited microorganisms must be displaced from the date of issue of the applicable patent. According to Rule 28(3) of the EPC Regulations, a sample of deposited microorganism may only be issued to requesting parties if the latter pledges to the applicant or the owner of the patent:

“(1) Not to make the deposited culture or any culture derived therefrom available to any third party before the application has been refused or withdrawn or is deemed to be withdrawn, or if a patent is granted, before the expiry of the patent in the designated State in which it last expires.

(2) To use the deposited culture or any culture derived therefrom for experimental purposes only, until such time as the patent application is refused, or withdrawn, or is deemed to be withdrawn, or up to the date of publication of the mention of the grant of the European patent. This provision shall not apply insofar as the requester is using the culture under a compulsory licence. The term ‘compulsory licence’ shall

⁶¹ Ibid note (9) above at 272.

⁶² See Section 608.01 of the U.S. Patent Office’s Manual of Patent Examining Procedures. 1983.

be construed as including *ex officio* licences and the right to use patented inventions in the public interest”

It is argued, with respect to the restriction adopted, that⁶³ it must be decided to what extent the said restrictions are required, taking into account both the general principle of patent law - that the public must have free access to all elements of the disclosure of an invention - and the particular concerns of patent applicants.

With the fact that microbiological inventions involve living entities that can reproduce themselves which deserve special treatment within the framework of the patent system, and with the fact that most national laws have adopted the practice of imposing restrictions on the availability of samples of deposited microorganisms, it is argued that microbiological inventions “should be subject to special rules as regards disclosure involving a deposit , in respect of microorganisms not available to the public, and the availability of the deposited microorganism to the public, so that any interested party after having obtained a sample of the deposited microorganism, can use the invention”⁶⁴ .

Further, it is argued that

“the difference between inventions for which a deposit is required and other inventions resides in the fact that use of the former is greatly facilitated to third parties having received a sample of the deposited microorganism. Thus, the restrictions adopted in various laws referred to above seem in principle to be justified, and, notwithstanding the particular system of each national law - and in particular the existing difference with respect to the time when a patent application is first published, a harmonization of the relevant provisions seems to be desirable”⁶⁵ .

II Current International Protection of Biotechnological Invention

The protection of biotechnological inventions has differed from country to country. In some countries protection seems to be difficult or does not exist at all, (e.g. Saudi Arabia).

⁶³ Ibid note (9) above at 271.

⁶⁴ Ibid.

⁶⁵ Ibid at 271-272

The existing protection of biotechnological inventions in addition to patent protection may be under a plant varieties protection system with special authorities separate from patent offices. However attempts for a uniform system for recognizing the protection of biotechnological invention have been made in several international conventions.

(A) World Intellectual Property Organization (WIPO)

The World Intellectual Property Organization (WIPO) is the multilateral body of United Nations which is concerned with protecting as well as harmonizing intellectual property rights. Although WIPO does not have any ability to enforce the IPR laws, it can suggest modified guidelines for IPR regimes which individual countries may accept and adopt. WIPO is as the administrative body to supervise the Paris Union on the Protection of Industrial Property (1883). The obligations under the Paris Union are: to provide foreign applicants the same right to intellectual property rights as domestic applicants receive; the right of foreign priority; and the enactment of basic legislation concerned with unfair competition in international trade.

WIPO do not include new plant or animal varieties within the scope of patentability of a subject matter, and seek rather instead to force protection through the International Union for the Protection of New Plant Varieties (UPOV)⁶⁶. These policies have been criticized as “substantially undermining adequate intellectual property protection for biotechnology advancements”⁶⁷. It was argued that “WIPO amounts to an expansive farmer’s privilege⁶⁸, which allows the use of technology while it excuses the obligation to compensate the developer, thereby denying biotechnology companies the opportunity to obtain a fair return for their investments in new technologies”⁶⁹.

⁶⁶ The International Convention for the Protection of New Varieties of Plants (UPOV Convention, 1961) hereinafter UPOV has been amended three times in 1972, 1978 and 1991. The 1991 Act was kept for open signature to new states to join until the end of 1993 for developed countries and the end of 1995 for developing countries. But once the 1991 Act comes into force, no new state can enter to the 1978 Act. See UPOV Gazette and Newsletter, Plant Variety Protection, No. 68, June (1992).

⁶⁷ See Scalise, D.G. and Nugent, D. “International Intellectual Property Protections for Living Matter: Biotechnology, Multinational Convention and the Exception of Agriculture”. *Case Western Reserve Journal of International Law*, Vol 27 Part 1 (1995) P.P. 107-108.

⁶⁸ For more discussion of the farmers’ privilege see Part B(2) infra.

⁶⁹ See WIPO Meetings, Paris Union, Industrial Property, June (1986) P.P. 251-274.

However, an examination made by WIPO⁷⁰ suggested that countries need to agree on the concept of invention, in particular, whether biological matter appearing in nature is to be patentable (which it recommended should be patentable, as divergencies lead to non-uniform protection). It also stated that some national exclusions were no longer justified and that all biotechnological inventions should be eligible for patent protection provided that the regular requirements of patentability can be fulfilled.

Another recommendation by WIPO was that an international agreement should be decided on giving a general grace period to allow scientists and inventors to publish the results of their research and development as soon as possible to encourage more investment in their work without breaching novelty requirements. It indicated that a broad interpretation should be given to the requirement of utility and industrial applicability. It also concluded that all countries should become party to the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure⁷¹.

It was suggested⁷² that harmonization of the conditions for the release of samples was also desirable, as was a special system of protection of animals similar to that for plants under the UPOV Convention. It is also argued that one should not expect WIPO to be the forum within which a patent harmonization treaty is likely to be

“achieved in the near future. Its allegiances are too transparent, such that developed nations are reluctant to make it the forum of choice. Hence, WIPO has for the present assumed a role as consultant to achieving an international patent harmonization treaty while passing its baton to those promoting the Convention on Biological Diversity”⁷³.

⁷⁰ See Part I (f) supra Notes (53-56) above.

⁷¹ See WIPO Meetings. Paris Union. Industrial Property. June (1986) 274.

⁷² Roberts. C. “The Prospect of Success of the National Institute of Health’s Human Genome Application”. I EIPR (1994) P.30.

⁷³ See note (66) above.

(B) The International Convention for the Protection of New Varieties of Plants (UPOV)

The International Convention for the Protection of New Varieties of Plants (UPOV)⁷⁴, was signed in 1961. The UPOV Convention was revised in 1972, 1978, and 1991. The 1991 Act was left open for signature to new states from developed countries to join until the end of 1993 and to new states from developing countries until the end of 1995⁷⁵. The 1961 Convention included a provision in Article 2(1) that new Member States could only provide protection either under the Convention or under patent law for one and the same botanical genus or species. In other words it presented one model of a *sui generis* system of protection for plant breeders developing new plant varieties.

However, the 1991 Act differs from those of 1961 and 1978 in significant aspects. The 1991 Act does not contain any ban on the concurrent grant of plant varieties rights and patent for the same botanical genus or species. The ban on concurrent protection through plants varieties rights and patents has also been under consideration in many countries (e.g. European Union). The new UPOV Convention is a response to demands for strengthening the minimum standards of protection provided and eliminating the prohibition upon cumulative protection with patent rights, which finally responds to the demand of large research and development-based companies working in new biotechnology industries.

The 1991 UPOV Convention defines variety as:

“ a plant group within a single botanical taxon of the lowest known rank, which grouping, irrespective of whether the conditions for the grant of breeder’s right are fully met, can be defined by the expression of the characteristics resulting from a given genotype or combination of genotypes; distinguished from any other plant grouping by the expression of at least one of the said characteristics; and considered as a unit with regard to its suitability for being propagated unchanged”.

The scope of protection has been expanded to all genera and species. For state members of the Convention the broader scope of protection should be available within five years

⁷⁴ See UPOV Gazette and Newsletter. Plant Variety Protection No 68. June (1992).

⁷⁵ See Roberts. Ibid note (72) above.

starting from the entry into force of the new text, while non-member states may protect only 15 plant genera or species for a transitional period of ten years after entry upon the Convention. The filing of an application in any country in principle makes the variety a matter of common knowledge, and the term to submit plant material or related documents for anyone filing application under a priority right is two years.

1. Breeders Rights

The definition of a 'breeder' in 1991 UPOV includes not only someone who has bred a variety, but also the person who 'discovered and developed it'. The breeders' right seems to have more expansion in relation to 'propagating material'. 1991 UPOV also extended the number of infringements relating to propagating material. According to Article 14 (1) of the 1991 Act the rights in respect of propagating material are the following:

- 1) Production or reproduction (multiplication);
- 2) Conditioning for the purpose of propagation;
- 3) Offering for sale;
- 4) Selling or other marketing;
- 5) Exporting;
- 6) Importing;
- 7) Stocking for any of the purposes mentioned in 1) to 6) above.

Although the definition of 'propagating material' has not been clarified, the term may be defined by state legislature or court, and may be extended to all or part of the plant or a single plant cell from which a whole plant can be produced. Article 14(2) states that the exclusive rights of breeder can extend to 'harvested material, including entire plants or parts of plants obtained through the unauthorized use of propagating material of the protected variety'. This may give the breeder the privilege to licence others to produce the variety and reserve the rights to sell, export, or stock, for himself. It may also exclude farmers from selling their harvested material unless authorized by the breeder.

In terms of the production of a variety derived from the protected variety, Article 14(5) of the 1991 Act provides protection for the derived variety for the breeder, who has rights in relation to:

- 1) Varieties which are essentially derived from the protected variety, where the protected variety is not itself an essentially derived variety;
- 2) Varieties which are not clearly distinguishable in accordance with Article 7 - distinctiveness from the protected variety, that is whose existence is commonly known at the time of application for registration;
- 3) Varieties whose production requires the repeated use of the protected variety.

It is not easy to determine when a variety is 'essentially derived' from another variety. The variety is considered to be essentially derived from another variety - the 'initial variety'- according to Article 14(5), when:

- 1) It is predominantly derived from the initial variety, or from a variety that is itself predominantly derived from the initial variety, while retaining the expression of the essential characteristics that result from the genotype or combination of genotypes of the initial variety;
- 2) It is clearly distinguishable from the initial variety;
- 3) Except for the differences which result from the act of derivation, it conforms to the initial variety in the expression of the essential characteristics that result from the genotype or combination of the genotypes of the initial variety.

Article 15(1) excludes from breeders' right, acts made for the purpose of breeding other varieties except where the provision of Article 14(5) (iii) apply, that is, an essentially derived variety. Therefore, it is not an infringement to breed a new variety by making repeated use of the protected variety, but it is an infringement to commercialize such a new variety. The 'acts done privately and for non-commercial purposes' and 'acts done for experimental purposes' are similarly exempted according to Article 15(1) i and ii.

A breeder who develops a certain variety to add benefits to the farming industry, should be entitled to protection for the considerable time and efforts required in developing such a variety, as it is becoming more difficult to develop successful new plants. If breeders

abandon their attempts to develop new plant varieties, the farming community, and perhaps the country (particularly non-member states) will suffer as a result.

2. Farmer Privilege

The UPOV Convention contains some important exceptions to breeders' rights in favour of the farmer. According to Article 15(2), the contracting states have the option to restrict the breeders' rights "in order to permit farmers to use for propagating purposes, on their own holdings, the product of the harvest which they have obtained by planting on their own holdings". Such exemption may be applied "within reasonable limits and subject to the safeguarding of the legitimate interests of the breeders". Therefore, the farm saving of seeds or propagating material can be allowed under this article and the member state may specifically protect this right.

As a result, it may be on the one hand that one member state may permit free use of farm seed while on the other another may decide to ban it. This also means that the said privilege is not designed to give full rights to farmers but rather that member countries may establish exclusions to allow the farmers' privilege⁷⁶.

Although the term 'farmer' is not defined, so that it may include horticulturists, market gardeners, and so on, the Diplomatic Conference which adopted the 1991 revision indicated that Article 15(2) should not be interpreted as extending the 'privilege' to areas of agricultural production as it is not "a common practice"⁷⁷.

Article 16 explicitly introduces the principle of "exhaustion of rights" on a local scale. It provides that the breeders' right shall not extend to acts concerning any material of the protected variety or an essentially derived variety or any material derived from it, if sold or otherwise marketed by the breeder or a licensee in the territory of the contracting state unless they involve further propagation of the protected variety or involve an export of the

⁷⁶ Correa, C.M. "Biological Resources and Intellectual Property Rights" 5 EIPR (1992) at 156.

⁷⁷ Ibid.

material, except for the final consumption, into a state which does not protect the respective varieties.

3. Protection for Developing Countries

Although the scope of protection in the 1991 Act of UPOV Convention is not equivalent to patent protection, it appears to be, nevertheless, moving closer to the patent law. In its extent, it is wider as to breeders' rights and limited as to farmers' privilege⁷⁸. This view may help the plant variety protection under the patent law or through a *sui generis* system as indicated in the UPOV Convention.

Some developing countries with the changes in intellectual property right in the field of plant varieties coupled with the development of IPR in general do not consider joining the UPOV Convention. But some developing nations have no legislation protecting plant variety and breeders' rights. This lack of legislation may not be feasible for two reasons, as Scalise put it⁷⁹:

“(1) How could the government of a poor, agriculturally based economy enforce laws that would deprive its farmers of the technologies they need to cultivate their subsistence crops? And (2) What forms of punishment or deterrence could be exercised against such infringers?”

The answers to these questions were provided by the same commentator⁸⁰:

“the UPOV's first drawback is that limited participation undermines its effectiveness for protecting large investment into plant-related biotechnologies. Second is its authorization that a member nation may provide farmers' privilege within its domestic laws and may subject foreign applicants to the farmers' privilege exemption. Accordingly, a developing nation could become a signatory and simply provide expansive privileges for its domestic farmers to make use of protected plant varieties. Despite this capability, UPOV contains no mechanism for compulsory

⁷⁸ Verma, S.K. “TIP and Plant Variety Protection in Developing Countries”, 6 EIPR (1995) at 286.

⁷⁹ Ibid note (67) above. at 108.

⁸⁰ Ibid. P.P. 108-109.

sharing of plant breeding technologies, and nothing prohibits private enterprise in a member nation from refusing to do business with another member nation if the lack of substantive protections discourage such commerce.”

It should be added that developing countries require to draw a clear and balanced decision in this regard particularly, that the assessment of the trade-off of different methods of plant varieties protection would be rather difficult. So instead of discussion whether they should have a system of protection or not, they may nevertheless face the enforcement of such rights through other channels. For example, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)⁸¹, will require member countries to protect plant varieties either by patents or by a *sui generis* system, or by a combination of the two.

Finally, it is argued that⁸² “..the developing countries should adopt a *sui generis* system. One model of this is currently provided by the UPOV Convention”. The developing countries are not obliged to adopt the *sui generis* system of the Convention. Their *sui generis* system, however, should give express content to the farmers’ privilege. It should also aim at conserving the biodiversity and gene resources of these countries and encourage the local Research and Development capacity. Nevertheless, the new system, so devised, has to be operated on a non-discriminatory basis, as required under the TRIPS agreement (Article 3) between those seeking plant variety protection.

(C) Trade-Related Aspects of Intellectual Property Rights (TRIPS)

The agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) was linked with the Agreement on World Trade Organization (WTO). The TRIPS Agreement established an international treaty for intellectual property and trade and sought to bring both developed and developing countries together on a better collective basis. It sets

⁸¹ The exclusion in relation to plants, animals and plant varieties in Article 27(3) will be reviewed four years after the entry into force of the WTO according to Article 27(3)b. when a decision can be drawn in favour of according patent protection to them.

⁸² Ibid note (78) above at 289.

standards on intellectual property rights different from those existing under other international treaties and conventions in the field of intellectual property.

Article 27(1) of the TRIPS Agreement required contracting states to provide patent protection for “any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step that is non-obvious, and are capable of industrial application”. According to Article 27(2), a member state may exclude invention from patentability when necessary to protect “*ordre public* or morality, including to protect human, animal, or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by domestic law”.

Another important exclusion from patentability is in Article 27(3):

“(1) Diagnostic, therapeutic and surgical methods for the treatment of humans or animals; (2) Plants and animals other than microorganisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes”.

But this exclusion in relation to plants, animal and plant varieties can be reviewed four years after the coming into force of the WTO according to Article 27(3)b.

This exclusion has created the argument that⁸³

“by including the protection of human, animal and plant life or health, and the avoidance of serious prejudice to the environment, the issue related to health and environment have been made moral and public order issue over which the patent office will arbitrate, and lay down the scope of this exception. This will also import overriding social, ethical, and moral consideration to the patent regime which is otherwise neutral”.

It is also commented⁸⁴ that whereas plant varieties may be protected by a member state either through patents or by a *sui generis* system or by a combination of both, there

⁸³ Ibid note (67) above at 114-115.

⁸⁴ Ibid note (78) above at 281.

“is no such requirement for animal varieties. They are *per se* excluded from patentability if achieved by biological processes, but the animals and plants developed by microorganisms as well as non-biological and microbiological processes are patentable”⁸⁵ .

This exclusion left one possibility, for living organisms and biological processes to be achieved by traditional breeding methods. It is argued that TRIPS “excludes the critical class of biotechnological inventions with the greatest potential commercial gain”⁸⁶ . Others see GATT as “an unqualified defeat for the biotechnological industry and particularly for those engaged in agricultural genetic engineering. The efficiencies of a universally recognized patent remain unavailable to developers of biotechnological invention”⁸⁷ . Therefore, it is suggested that industry should continue to seek patent protection through each available jurisdiction in which it prefers its products to be marketed⁸⁸ .

(D) The Biodiversity Treaty (1992)

The United Nation Convention on Biological Diversity⁸⁹ was adopted in Rio de Janeiro in 1992. Its aim, according to Article 1, is to ensure conservation of biological diversity, “the sustainable use of its components and the fair and equitable sharing of the benefit arising out of the utilization of genetic resources, including by appropriate transfer of relevant technologies”. The treaty indicated that conservation must be balanced in accordance with development, particularly in developing countries.

The treaty recognizes the sovereign rights of state over its natural resources which give national government the authority to determine access thereto. It is also provided that in return for giving access to its genetic resource, the donor state should benefit through any of three methods.

⁸⁵ Ibid.

⁸⁶ A comment made by the “President of Pfizer Pharmaceutical” cited in Scalise, D.G. and Nugent, D. Note (67) above at 115.

⁸⁷ Scalise, D.G. and Nugent, D. Note (67) above at 115.

⁸⁸ Ibid.

⁸⁹ The United Nations Convention on Biological Diversity (hereinafter the biodiversity treaty) was enacted in Rio de Janeiro in June 1992. It was signed by more than 157 governments and has been ratified by 117 states.

- Access to and transfer of derived technology (Article 15(1));
- Participation in research (Article 15(6)).
- Sharing in the results of research and continues of commercial exploitation (Article 15(7)).

The mechanisms for access and sharing have to be dealt with on “mutually agreed terms” and “subject to prior informed consent”. This means that access to genetic resources has to be preceded by negotiation about the extent of the benefit which will be achieved by the donor country (Article 15 (4, 5; and 7)).

Article 16 of the Biodiversity Treaty provides for “access to, and transfer of technology”. It states that “each contracting party shall...provide access to and transfer of technology to fellow contracting parties...including technology protected by patents and other intellectual property rights”⁹⁰. It also requires contracting parties to “take legislative, administrative, or policy measures” in order to achieve this objective, particularly where a developing country provides the genetic resources (Article 16(3)). It also requires that such measures must ensure the aim that the private sector facilitates joint development and technology transfer to government institutions and the private sector of developing countries (Article 16(4)).

Articles 15 and 16 of the Biodiversity Treaty relate to “opposing philosophies of the North-South technology transfer conflict”⁹¹. Such conflict originated in the 1970s and is based on the different ideological points of view argued by developed (Northern) and developing (Southern) countries, on the role of intellectual property protection in technology transfer⁹². The view of the North is that intellectual property protection is a precondition rather than an obstacle to the transfer of technology, which means intellectual property protection must be guaranteed before companies from the North will enter the Southern market, while the Southern countries argue that intellectual property protection for biotechnological innovations based on an imported monopoly theory may create an endless and unrestricted right over genetic resources⁹³.

⁹⁰ Ibid at Article 16 of the “Biodiversity Treaty”.

⁹¹ Kushan. J.P. “Biodiversity: Opportunities and Obligations” *Vanderbilt Journal of Transnational Law*. Vol. 28 No. 4 October (1995) at 757.

⁹² Ibid.

⁹³ Ibid at 758.

Some argue that the terminology in Article 16 of the treaty “is subject to an interpretation that would require private industry in developed nations to surrender its protected technologies without assurances of compensation”⁹⁴. Others see that the recognition in Article 16 of technology to be transferred by patent and other intellectual property rights will not of itself ensure that technology transfer takes place⁹⁵.

“...As it provides an orderly method of achieving such transfer and of controlling unlicensed and unfair competitive activity, it will offer a strong inducement to the whole process of investment in research and development of the genetic resource and in the subsequent exploitation of the derived technology”⁹⁶.

In contrast, some argue that the benefit of the outcome in transferring technology and commercializing a plant genetic resource in some developing countries rich in raw material will not occur to the plant’s true proprietors, in other words to the people. Verma argues that “in most of these countries, thousands of plant species originated and evolved in interaction with human activities”. He symbolised this action with the ‘neem tree’, a famous medicinal tree in India the bio-pesticidal properties of which are patented in the United States, with the patent holder marketing the “neem-based pesticide in the name of ‘Margosondo and Bioneem’, and ignoring the rights of those people who preserved the knowledge about the tree’s properties for centuries”⁹⁷.

By contrast, the evidence of recent international practice done through the Biodiversity Treaty, “indicated an implicit rejection of the common heritage approach to patent genetic resource and the conservation of plant biodiversity”⁹⁸. An example of biodiversity prospecting licensing appears in the arrangement made between the pharmaceutical giant Merck, and the Government of Costa Rica. Merck has agreed to pay Costa Rica’s National Institute of Biodiversity (INBio) a sum of \$1 million for undertaking high technology in Costa Rica’s rain forests as well as a percentage of the profits on any drug

⁹⁴ Ibid note (67) at 111.

⁹⁵ Ibid note (24) above at 440.

⁹⁶ Ibid.

⁹⁷ See Verma for more examples of the above. Ibid note (78) above at 287-288.

⁹⁸ Margulies, R.L.. “Protecting Biodiversity: Recognizing International Intellectual Property Rights in Plant Genetic Resources”. Michigan Journal of International Law. Vol. 14 Winter (1993) at 356.

produced from plants or microorganisms provided by the Costa Rican researchers⁹⁹. Such arrangements encourage many developing countries to make their own wealth of natural species generate some payments for its own preservation¹⁰⁰. It also creates a potentially more successful and equal standard balancing the need and goals of developed and developing nations¹⁰¹.

Finally, some observe that the Convention itself “does not contain many hard law rules. It is primarily a framework convention, as are the other products of UNCED”¹⁰². Another regards the Convention as

“so weak as not to harm the North, it may also be too vague to help the South achieve its goals of increased benefit sharing and technology transfer. Moreover, the Convention was the product of an agreement among governments, not institutions - which hold much of the money, knowledge, and technology that developing countries need”¹⁰³.

The general feeling is that the Convention is too imprecise to have any real impact on the North’s aim of preserving intellectual property rights¹⁰⁴.

III Ethical, Social and Economic Issues Concerning Biotechnological Inventions

(A) Ethical and Social Issues

Patenting biotechnological invention, particularly in the issue of genetic engineering in animal and human life, raised many criticisms. Such criticisms fall within the categories of ethical and moral issues. Below are some of the arguments raised in concern over patent protection policy with regard to this controversial issue.

⁹⁹ Ibid at 354.

¹⁰⁰ Ibid.

¹⁰¹ Ibid at 356.

¹⁰² Charney, J.I. “Biodiversity: Opportunities and Obligations.” *Vanderbilt Journal of Transnational Law*. Vol. 28 No. 4 October (1995) at 619.

¹⁰³ Ibid.

¹⁰⁴ Ibid.

1. U.S. Patent Law

In the United States, patent protection for living organisms begins with the grant of a patent to Louis Pasteur in 1873¹⁰⁵. The patent claims were for producing a pure culture of yeast as well as for the culture itself¹⁰⁶. However patent protection became available for genetically engineered microorganisms after the landmark case of *Diamond vs Charkabarty*.

Since this case in the United States Supreme Court in 1980, a new age of genetically engineered microorganisms has been launched and in effect new life can be patented. This was the first time that a living organism other than a plant was held to be patentable. More patents continue to enter the field as companies begin to develop microorganisms that can instantly and inexpensively produce chemicals and medicine products which were either previously available only by costly extraction from animal blood, or not available at all.

The decision in the case between Diamond and Chakabarty did not resolve important questions involved with genetic engineering patents; rather it gave in to the thinking of inventors and patent applicants with relation to an unsolved patent question. The question is: how would other life forms be treated by the patent office procedures? Since then U.S. Patent Office has begun to solve some of these questions by clearly interpreting the Supreme Court's decision rather broadly. Each granted patent is an example of how the Patent Office is carrying it policy on biotechnological inventions.

In *Diamond v Chakrabarty* the U.S. Supreme Court held that a bacterial strain into which a plasmid from another strain had been inserted was patentable subject-matter. The Court distinguished the products of nature from man-made inventions and held that the statutory subject-matter should be broadly construed to include "anything under the sun made by men", and that genetically engineered microorganisms were not precluded from constituting patentable subject-matter merely because they were living cells. In April 1987, the Commissioner of the United States Patent Office (USPTO) announced that the

¹⁰⁵ "Patents and Patenting in Biotechnology" (cd). Published by European Biotechnological Information (1985). P.1.

¹⁰⁶ Ibid.

USPTO “now considers non-naturally occurring non-human multicellular living organisms, including animals, to be patentable subject-matter¹⁰⁷”.

One year later, the USPTO issued a patent for the Harvard Mouse¹⁰⁸, a genetically modified animal. This decision has created a variety of differing opinions. This variation of opinions happened mostly because the first living animal invented by a human being obtained a patent. It also highlighted the ethical and moral issues of patenting genetically engineered animals in particular. While biotechnology companies welcomed the decision, other opinions reacted less favorably and argued that the issues of the morality of patenting such work should not be left solely to patent examiners.

The emerging technology in creating transgenic animals raises the same controversial concern. The recombinant DNA technology is a new issue raising a new argument in social, moral, and environmental debates¹⁰⁹. It raises unclear and unprecedented issues of patent law¹¹⁰. Armitage argues that “any debate on patentability of living subject-matter should begin, therefore, with a recognition that man has long had and practised the art of creating ‘new’ plants and animals, just as man has exercised similar efforts in modifying the chemical and physical environment to create all manner of things from anti-cancer drugs to toaster ovens. That recombinant DNA technology poses new issues in a moral, political or environmental sphere is self-evident”¹¹¹.

Finally, it appears that the U.S. Patent Law supports the patentability of organisms, particularly genes. However, ethical issues do not seem sufficiently examined in the legal analysis. The threshold patentability test in *Charkrabarty* focuses on the scientific distinctions between natural objects and objects made by human innovation, rather than

¹⁰⁷ See Non-naturally Occurring Non-Human Animals Are Patentable Under 101” 33 Patent, Trademark and Copyright Journal (BNA) No. 827 (April 1987) at 669 cited in Arie P. Katz, “Patentability of Living Within Traditional Jewish Law: Is the Harvard Mouse Kosher?” AIPLA Q.J. Vol. 21 No. 2 (1993).

¹⁰⁸ Harvard’s Onco-Mouse. U.S. Patent No. 473866. issued on April 12, 1988.

¹⁰⁹ Armitage, R.A. “The Emerging U.S. Patent Law for the Protection of Biotechnology Research Results”. 2 EIPR (1989) at 49.

¹¹⁰ Ibid.

¹¹¹ Ibid.

focusing on broader ethical or policy matters¹¹². The threshold patentability test has failed as an ethical safeguard, but as a technical patenting test it does not seem to provide sufficient “second-tier ethical protection” because of the sophisticated growing of biotechnology researchers and the highly skilled claims drafted by lawyers in this field. Therefore, ethical values are left undetermined by U.S. Patent Law in its application to this technology¹¹³.

2. European Union Patent Law

As mentioned earlier, in Europe and the UK patent protection for plant and animal varieties is excluded under EPC Article 53(b) section 3(b) UK Patent Act 1977. Also EPC Article 52(a) and section 4(2) UK Patent Act 1977 excluded methods of medical treatment of diagnosis performed on the human or animal body, defined as being incapable of industrial application.

The most controversial decision of the EPO is the decision in the application¹¹⁴ for Onco Mouse by Harvard University. It was rejected by the Examining Division of the EPO¹¹⁵, and in subsequent appeal proceedings to the Technical Board of Appeal, the EPO finally granted the patent in May 1992. The rejection by the Examining Division was according to Article 53(a) “public order and morality” and Article 53(b) “plant and animal varieties”. The Harvard/Onco-Mouse application covered a broad range of genetically modified mice used to test possible cancer-inducing agents and to find possible treatments for cancer.

Earlier the same issues were raised in the decision over patenting of higher living organisms in ‘CIBA-GEIGY AG BASELY/propagating material¹¹⁶, and ‘LUBRIZOL/Hybrid plants’¹¹⁷. Ciba-Geigy, was a decision by the Technical Board of Appeals (EPO) in 1983. Claims 13 and 14 were regarded as unpatentable by the

¹¹² Looney, B. “Should Genes Be Patented? The Gene Patenting Controversy: Legal, Ethical and Policy Foundations of an International Agreement”. *Law and Policy in International Business*. Vol. 26 No. 1 (Fall 1994) P.P. 256-257.

¹¹³ *Ibid* at 257.

¹¹⁴ European Patent Application No. 85 30 4490.7.

¹¹⁵ T 19/90, Harvard/Onco-mouse. OJ EPU 1990. 476.

¹¹⁶ T 49/83 OJ EPO (1990) 71. 49/83 OJ EPO (1990) 71.

¹¹⁷ T 320/87 OJ EPO (1984) 112.

Examining Division. The claims were for propagating material for cultivated plant treated with an oxime derivative. The reason for the refusal was that such subject-matter was excluded from patentability by Article 53(b) which says: “..a patent shall not be granted (b) for any variety of animal or plant or any essentially biological process or the product of such a process”. If this were the case for new varieties, it applied all the more so to the known varieties according to claim 13 and 14, even if these had been advantageously treated with oxime derivatives¹¹⁸. The matter was taken to appeal, and the Appeal Board claimed in their decision that invention must be new and inventive in order to qualify for patent protection, but decided that these requirements were satisfied in this particular case. They stated:

“ No general exclusion of inventions in the sphere of animate nature can be inferred from the European Patent Convention Article 52(1) in conjunction with Article 53(b) after the semi-colon, and Rules 28 and 28(a) EPC. However, Article 53(b) before the semi-colon prohibits the granting of patents for certain biological inventions. This provision, which needs to be examined more closely in the present case, says that patents shall not be granted in respect of plant varieties or essentially biological processes for the production of plants”.

The board continued, however,

“The very wording of Article 57(b) before the semi-colon precludes the equation of plants and plant varieties. By contrast the innovation claimed here does not lie within the sphere of plant breeding, which is concerned with the genetic modification of plants. Rather, it acts on the propagating material by means of chemical agents in order to make it resistant to agricultural chemicals. The new parameter..., treatment with an oxime derivative, is not a criterion which can be characteristic of a plant variety as far as the protection of plant varieties is concerned...patent protection is the only possibility. Moreover the propagating material claimed is not the result of an essential biological process for the breeding of plants - which would be excluded from patent protection - but the result of treatment with chemical agents”.

The decision in *Ciba-Geigy* was followed by the decision in the *Lubrizol* case which concerned a process for rapidly developing hybrids and commercially producing hybrid

¹¹⁸ See NOTT. R. “Patent Protection for Plants and Animals” 3 EIPR (1992) at 80.

seeds, as well as other relevant claims related to seeds produced by the process of claim 1 and plants developed from those seeds. The Technical Board of Appeal confirmed that the words ‘essentially biological’ in Article 53(b) had to be narrowly interpreted and had to be “judged on the basis of the essence of the invention taking into account the totality of human intervention and its impact on the result achieved”.

The Board was of the opinion that the necessity for human intervention alone was not a sufficient criterion for its not being ‘essentially biological’. The ‘human intervention’ might only mean that it was not ‘purely biological’ without contributing anything beyond an inconsiderable level¹¹⁹. The Board continued, however, that the facts of the present case clearly indicated that the claimed process for the preparation of hybrid plants represented an essential modification of known biological and classical breeders’ processes.

The efficiency and high yield associated with the product in the present case showed important technological character¹²⁰. In all these circumstances the claimed process could not be considered as ‘essentially biological’, and the process claims were allowed. The Board then turned to the product claims for the derived plant varieties. The claimed material was not a ‘variety’ and so the claims were not allowed.

With regard to Article 53(a) EPC, many religious, moral, and political doubts have been set forth¹²¹. Part of the opposition has been under Article 53(a); the product is contrary to “public order” or morality. But this has not succeeded as the EPO has come to the conclusion that exclusive provisions of Article 53(a) and (b) EPC must be subject to extremely narrow interpretation and that therefore neither plants or animals are generally excluded from patent protection.

In the Harvard/Onco-Mouse case, some opponents’ position essentially argue that the Examining Division’s consideration in the said case failed to weigh the advantages and disadvantages as requested by the Board. It is said that the Board failed to consider

¹¹⁹ For more comments see NOTT, note (118) above. at 81-83.

¹²⁰ Ibid.

¹²¹ Jaenichen, H.R. and Schrell, A. “Harvard/Onco-mouse in the Opposition Proceeding Before the EPO” 9 EIPR (1993) at 345.

sufficiently the suffering of the animals according to the invention, and ignored the environmental risk¹²².

Another opponent argues that the subject-matter of the above patent is humiliation to mankind and that the invention does not exhibit any tangible benefit for human health¹²³. Another opponent argues that the patenting of human oncogene sequence is on the same direction as the patenting of human genomic material and is an affront to mankind's dignity; this matter could lead to legalising a technology that cannot yet be judged as regards its effects and the potential risks involved in genetic engineering, and close the discussion of limits of its use¹²⁴.

The above are very good examples of opposing points of view which illustrate that the moral justification for legal practices like patenting has received scant attention in the literature of ethics. Although the moral arguments against patenting of transgenic animals may seem appropriate, it still appears to me that the system of patents encourages invention and has not looked to a justification for what is clearly patentable or unpatentable. As I agree to some extent with some of these arguments, I find it important to examine the Examining Division's conclusion as an authorized body, and then to compare it with the potential rules and regulations governing the Saudi Patent Law to see whether it provides a clear opinion upon the interpretation of morality in an invention.

The Examining Division in its decision concluded¹²⁵:

- (a) In relation to Article 53(b) that claims directed to non-human mammals and rodents, animals *per se*, did not fall within the scope of the terms 'animal variety', 'race animals' or 'Tierart';
- (b) In considering whether or not the subject-matter of the invention was contrary to ordre public or morality under Article 53(a), the merits and advantages of the invention outweighed the detrimental effects and risks, and that on balance the invention was not immoral or contrary to public order. The Examining Board expressly stated, however, that

¹²² Ibid.

¹²³ Ibid.

¹²⁴ Ibid.

¹²⁵ EPOR (1991) 525.

these considerations applied solely in the present case and that other cases of transgenic animals were conceivable for which a different conclusion might be reached under Article 53(a).

(C) That if a legislator is of the opinion that certain technological knowledge should be used under limited conditions only, it is up to it to enact appropriate legislation. The regulation of the handling of dangerous material is...the business of specialised government authorities, not patent offices.

Accordingly, it seems that both Article 53(a) and (b) have been construed very narrowly, and the Board appears to have expressed no opinion as to whether or not the process used could be classified as 'microbiological'. I believe it is possible to obtain patents in the EPO for a wide range of genetically modified organisms. It will clearly be some considerable time before all uncertainties about the extent to which plants and animals can be patented are finally resolved.

So far, it seems that the ethical and moral issues in Western society could be determined by the weight of the suffering of animals and possible risks to the environment, on the one hand, against the inventions, benefit and usefulness to mankind on the other. As in the Harvard/Onco-Mouse case, usefulness to mankind outweighed the overall level of animal suffering and the potential risk to the environment¹²⁶. These questions were also considered by the Examining Board to apply solely to the present case, but the same approach may be followed in future cases in which these issues arise. But the question is, how can the scientific and moral values be measured against economic purposes, and how has the environment risk been assessed?

In answer to this, it is said that if the benefit of the new technology, for agriculture is to be exploited, widespread release of genetically engineered organisms into the environment may happen, and little is known as to how these organisms will react once they leave a controlled environment¹²⁷. It is possible that the recovery of those easily dispersed, for

¹²⁶ Jaenichen, H.R. and Schrell, A. "The European Patent Office's Recent Discussions on Patenting Plants" 12 EIPR (1993) 467-468.

¹²⁷ Alexander, H. "GENETIC ENGINEERING" A discussion paper issued by 'Society, Religion and Technology Project - Church of Scotland Dept. of Ministry and Mission. October 1989 at 6a.

example, insects, birds, fish, could be difficult or impossible. There is more concern over inability to control viruses such as diseases caused by microorganisms which could escape or form accidentally and spread¹²⁸.

Besides the above, there is a widespread concern about the possibility of patenting human life, and whether or not gene and DNA sequences can be considered to be part of that and therefore be excluded from patentability. As recombinant DNA technology is new, as well as the technology to move genetic material across species lines, it poses new concern in the moral and environmental spheres too¹²⁹. This entire new field of biotechnology raises unparalleled issues of patent application for biotechnological invention including human DNA sequences which have already been filed in many parts of the world.

3. European Union Draft Directive

In October 1988 the Proposal for a Council Directive on Legal Protection of Biotechnological Invention¹³⁰ was intended to clarify European law on the patenting of biotechnological inventions. The announcement for this Directive was due to the different level of patent protection available in European states as well as to the uncertainties caused by the interpretation of outdated Articles in the EPC, especially Article 53.

As explained by the Directive: "Different industrial property laws have a direct and negative impact on Community trade and there is no other field of technology where national patent laws vary on so many points as they do in biotechnology". These negative impacts on Community made it less attractive ground for investment in biotechnological research and development by comparison with the USA and Japan. It was hoped that the Directive would restore the balance and encourage investment in biotechnological research and development in the EEC¹³¹. Thus two approaches have been set:

¹²⁸ Ibid.

¹²⁹ See Armitage, note (109) above.

¹³⁰ Published as part of the Commission's "Proposal for a Council Directive on the Legal Protection of Biotechnological Inventions" CDM (88) OJ (1989) C 10/3. It is referred to hereinafter as 'the Directive'.

¹³¹ WHAITE, R. and JONES, N. "Biotechnological Patents in Europe - The Draft Directive". 5 EIPR (1989) at 145.

(1) to increase the patent protection available in the Community by confirming interpretations of current expressions and supplementing new provisions to them; (2) to ensure that the new system is uniform throughout the Community which will allow the internal market to function properly in this field¹³².

The Directive consisted of six chapters¹³³:

1. Patentability of Living Matter; it explained in detail the scope of patentable subject-matter, stating that an invention is not to be considered unpatentable because it is “composed of living matter”;
2. Scope of Protection; this dealt with materials which can be inherited by self replication, i.e. materials encountered in the area of plant breeders’ rights;
3. Dependency licence for Plant Varieties; this provision set out the regulation for the grant of a non-exclusive licence of right from one patent holder to the other.
4. Deposit, access, and re-deposit; it included the procedures for depositing cultures of biotechnological inventions with accepted depositories.
5. Reversal of the burden of proof; although the burden of proof falls normally on the plaintiff, Article 17 reverse this rules in relation to biotechnological inventions which comprises new process for obtaining either new or known products. The article provides a safeguard for the alleged defendant’s manufacturing secrets.
6. Miscellaneous; limited the exclusion on the methods used on animals for therapeutic purposes.

In December 1992, the European Community Commission issued its amended proposal for the Directive. It included matters such as patentability of biological material including parts of the human body and transgenic animals, and farmers’ rights. The proposal created conflicting opinions, as some argued¹³⁴ that the “Proposal creates an unfavourable climate for European biotechnology when compared to the position in the United States and Japan”, while some hoped that the “Council of Ministers, who ultimately have to approve the Directive, will take this point and abandon the proposal”¹³⁵.

¹³² Ibid.

¹³³ For more details see WHAITE. R and JONES. N. Ibid note (131 above 148-153).

¹³⁴ Thurston. J. “Recent European Community Developments in Biotechnology” 6 EIPR (1993) 187.

¹³⁵ Ibid.

Article 2.3 of the Proposal provided that inventions are not patentable if publication or exploitation of them would be contrary to public policy or morality. It stated that the human body or parts of the human body *per se* shall be unpatentable on this basis. The meaning of parts of the body *per se* was not clear to whether it included genes or not. However, the explanatory notes to the proposal provided that “parts of the human body *per se*” meant parts of the human body “as found inside the human body”. It is argued that this is provided so as to clear all possible ambiguity with respect to the position of certain products or part of the human body which are already included by patents granted in relation to the development of medicinal products.¹³⁶

Article 2.3(b) excluded from patentability processes which modify the genetic identity of the human body for a non-therapeutic purpose which is considered to be contrary to the dignity of man. Article 2.3(c) provided that processes for modifying the genetic identity of an animal which are possible to inflict suffering or physical handicaps on them without any benefit to man shall be unpatentable. According to Article 3, biological material including transgenic animals can be patented.

It is argued in this regard that

“as with the case of patentability of parts of the human body, efforts to encapsulate popular morality and ethical consideration into patent law serve only to confuse rather than generate legal certainty. Whether the Oncomouse suffers and, even if it does, whether the benefit to man overrides that suffering is a highly subjective consideration”¹³⁷.

In regards to the qualifying words “contrary to the dignity of man” and their technical characteristics in the sphere of biotechnology, it is argued that “it seems highly undesirable to import into patent law concepts such as the ‘dignity of man’ as a prerequisite of patentability”¹³⁸.

¹³⁶ Ibid at 187

¹³⁷ Ibid.

¹³⁸ NOTT. R. “The Proposed European Community Directive on Biotechnological Inventions” 5 EIPR (1994) at 191.

In December 1993 and after a long time of discussion, some modification was made to the Directive in order to clarify the patentability of biotechnological inventions as well as to harmonise the laws of the Member States in this area.. These changes are as follows:

- the Directive now recognises the essential increase of biotechnology and suggest that “the legal protection of biotechnological inventions does not necessitate the creation of a separate body of law in place of the rules of national patent law”.
- the Directive provides that as a general principle the ownership of the human beings, and by extension parts of the human body is prohibited. It indicates that isolated parts of the human body, including appropriately isolated genes, proteins and cells, may be patented.
- it provides an exclusion from patentability for “methods of treatment of human or animal bodies by surgery or therapy or diagnosis practiced on human/animal bodies”. It also provides that germ gene “line” therapy and presumably by implication any other therapy and invention may be subject to any authorisation procedures applicable.
- the Directive considers that investment required in research and development in genetic engineering is specially high and risky and that the returns of such investment can only be guaranteed through adequate protection, and that without the effectiveness of protection among Member States the necessary investment may not be made.
- the Directive uses language found in international Patent and Plant Variety Conventions such as the exclusion of patentability of plant and animal varieties and essentially biological processes for the production of plants and animal, and recognises that the meaning of that wording need to be clarified.

The text then went to the Parliament for further consideration in February 1994. The Directive was agreed by qualified majority. Only Denmark, Luxembourg and Spain voted against the proposal. All the Member States of the EPC must agree to the modification of the Convention. The application of the Directive could have led to two different biotechnology patent systems in Europe, one under the EPC, and the other under this Directive¹³⁹.

¹³⁹ See. Nott. Ibid note (138) above at 194.

The Directive was mainly an attempt to harmonise the law on the issuing of biotechnological patents in the European Community. But the debate over this issue had shown similarities to the existing provisions as well as difficulties. Nott argued that

“the Directive appears to be leading to a system of patenting for biotechnological inventions which is similar to, but not identical with, the system available under the EPC for all other inventions. The result will be that intellectual property practitioners, industry, and inventors will have to operate to different standards and laws in the different areas, and precedent in one area will be of little or no use in the other”¹⁴⁰.

He then continued that “if it can only be obtained in the form now proposed by the Rapporteur, it is not worth having, and a detriment to industry, and should be opposed and rejected”¹⁴¹.

The Directive was agreed by Council and Commission at the end of 1994, and then passed to Parliament the next year. But after amendment to narrow the protection available for biotechnological inventions, Parliament rejected the Directive in March 1995. The rejection has been followed by a wide range of reactions showing that such rejection may not directly affect either the practice of the EPO or the national patent offices in the Member country ¹⁴², that is, patents will continue to be granted for some biotechnological inventions but the basis for the inclusion of some and the exclusion of others will not be transparent.

The prevailing view of commentators was put by Straus¹⁴³ as

“that the defeat is clearly to be seen as a setback which will result in continuous pressure on policy makers and patent granting authorities to reconsider present the present practice and the law in force, and eventually, will lead to competitive disadvantages for European science and industry. It certainly could lead to differences in developments of national laws in the Member States and also give rise to different interpretations of already existing or yet to be adopted provisions”.

¹⁴⁰ Ibid.

¹⁴¹ Ibid.

¹⁴² Straus, J. “Patenting Human Genes in Europe - Past Developments and Prospects for the Future”. IIC Vol. 26 No. 6 December (1995) at 945.

¹⁴³ Ibid at 945-946

Despite the rejection of earlier texts, the Commission continue to have concern that without a harmonising Directive there may not be an internal market in patented biological products in Europe and no free movement of such goods and so European research in biotechnology would be discouraged.¹⁴⁴ Thus, the Commission has adopted a proposal for a new draft Directive. The aim of this text is to harmonise the European Parliament's concerns with the need for legislation on ethical issues and lack of clarity in patentability of biotechnological invention. Such clarification should improve the competitive side of the European industry in the worldwide market place.¹⁴⁵ The text includes comprehensive explanatory references and discussion on the main points.

The new draft Directive pays more attention to the difficult issue of the patentability of human body parts. It contains important changes such as the following:

1. More attention has been given to the difficult issue of the patentability of human body parts. Article 3 provides that "the human body and its elements in their natural state shall not be considered patentable inventions", which is in contrast to the original proposal that "the human body as such or parts of the human body as such shall not be patentable". As this expression excludes patent protection only for body parts "as such", the European Parliament believed that as a result there is a possibility of allowing the grant of patents for elements that had been separated from the body, and drugs produced based on body parts, therefore they considered this to be unacceptable.

2. According to Article 9, methods of human treatment involving germ line gene therapy and the technique used during fertilisation has been excluded from patentability. Article 9 uses the methods of proportionality to assess whether a patent can be acquired for genetically engineered or transgenic animals, providing that the suffering which can be caused to animals by genetic alternations must be proportional to the benefit gained from the invention.

¹⁴⁴ Proposal for a European Parliament and Council Directive on the Legal Protection of Biotechnological Invention. COM (95) 661 Final.

¹⁴⁵ Jones. N. "The New Biotechnology Directive" 6 EIPR (1996) 363.

3. Article 13 provides a derogation for farmers with regard to patented breeding stock. It authorised them to use protected livestock on their own farm for breeding purposes without paying the patent holder.

The industry's point of view appears to be in favour of the new proposal, as it believes that uniform legislation is needed to establish a legal framework to help increase its competitiveness. It is argued that the new proposal will give greater certainty as to which invention can qualify for patent protection, and therefore areas of research and development can gain sufficient return on investment. In this way, competitiveness of the industry will be strengthened.¹⁴⁶

This development of a new Directive is considered by many to be the last attempt to reconcile the law on the granting of biotechnological patent in Europe.¹⁴⁷ However, it is argued that the future agenda for the draft and the prospect of success remain uncertain. Jones¹⁴⁸ points out that "there must be a real possibility that all of these complex issues will have been sorted out by decisions of the courts and patent offices of Member States long before this piece of European legislation comes into effect". Cornish argues that "its chance of success must remain in grave doubt".¹⁴⁹

(B) The Economic Issue of Biotechnological Inventions

It should be noted that the biotechnology industry plays an essential role in commercial market. Biotechnology is considered by some as the key to the world's next economic revolution, like the computer in its ability to change modern economies and lifestyles¹⁵⁰. Over 1300 biotechnology companies have been established in the past decade with an integrated annual turnover of \$8.1 billion and the industry is expected to generate over \$40 billion by the year 2000¹⁵¹. The most remarkable achievement can be seen in the field of

¹⁴⁶ Ibid at 364.

¹⁴⁷ Ibid at 363.

¹⁴⁸ Ibid at 365.

¹⁴⁹ Cornish, W.R. "Intellectual Property: Patents, Copyright, Trade Marks and Allied Rights" 3rd Edition (1976) at 186.

¹⁵⁰ Ibid. See Looney, not (112) above at 240-242.

¹⁵¹ See Straus note (142) above at 929.

pharmaceutical products, particularly linked to the use and exploitation of information founded in human genes. Also noteworthy is the field of agriculture and agricultural products linked to the techniques used in genetic engineering.

1. Pharmaceuticals

With regard to pharmaceuticals linked to the use and exploitation of information contained in human genes, total sales of human proteins produced by recombinant DNA techniques reached (in 1993) to U.S. \$7.7 billion worldwide¹⁵². The cost of transferring a correct piece of DNA from one cell to another and for evaluating the product is nearly U.S \$1,000,000. It is even more when proteins for therapeutic use are required and it applies to all products derived from rDNA technologies¹⁵³.

A recent survey made by Scherer and Weisburst¹⁵⁴ has classified the importance of patent protection in new drug development in four major categories:

“1. The cost of development and testing new chemical entities to satisfy regulatory agencies’ safety and efficiency standard is high, averaging nearly \$100 million out-of-pocket (including the cost of unsuccessful projects) for products introduced into the U.S. market during the 1970s and early 1980s.

2. Once a new chemical entity has been shown to be effective and safe, the cost of imitation is much lower - as little as \$1 million for chemical engineering required to devise a me-too production process. Absent patent protection, competitive imitation could be swift.

3. It is difficult to invent around drug product patents, since the patents cover a specific and well-defined molecular structure. If an alternative molecule is devised, tests of safety and efficacy must be repeated at high cost.

4. Because of the high perceived value of many drug therapies, because drug purchase outlays are often reimbursed by insurance, and because of information

¹⁵² Ratledge, C. “Biotechnology: the socio-economic revolution? A Synoptic View of the World Status of Biotechnology”. *Biotechnology: Economic and Social Aspects. Issues for Developing Countries* (1992 ed) at 17.

¹⁵³ *Ibid.*

¹⁵⁴ Scherer, F.M. and Weisburst, S. “Economic Effects of Strengthening Pharmaceutical Patent Protection in Italy”. *IIC Vol. 26 No. 6* (1995) at 1010-1011.

imperfections, the demand for drugs is commonly price-inelastic over a broad range of prices; that is, consumption is reduced little even when substantial price increases are effected. As a result, the company marketing a novel drug covered by one or more product patents typically enjoys a substantial degree of monopoly power.”

This shows that it is only companies aided by patent protection that may be capable of making products which are useful to the public and receive a return on their investment as well as sustaining the high cost of research and development to maintain a substantial degree of monopoly power.

Another recent study by the Gulf Organisation for Industrial Consultation¹⁵⁵ revealed the industrial gap in pharmaceutical products in the Gulf region, including Saudi Arabia, which will reach \$1.7 billion by the year 2000. This gap helps create a lot of business opportunity in estimating \$1.46 billion in investment. Such investment could fulfill 75% of pharmaceutical product needs since consumption there forms 1.7 over normal personal consumption worldwide. Saudi Arabia alone consumes about \$1 billion in medical and pharmaceutical products, while the local production reaches \$160 million. The study also indicates the lack of personal skill in local pharmaceutical firms which number less than 10% of the total firms in the country. The study refers to the challenge facing local firms and recommends the establishment of modern facilities and continuous research and development as well as full protection of new developments, as almost half of the pharmaceutical products used in the Gulf region are newly developed.

2. Agriculture

Agriculture is a very important source of income in much of the world, particularly in developing countries. World food crop production has increased half a percent faster between the early 1960s and the 1980s, compared to the growth of population. It is

¹⁵⁵ See Al-Jazeera. A daily newspaper issued in Riyadh. Saudi Arabia. No. 8573 dated Tuesday 19/3/1996 at 23.

expected that the agriculture labour force in developing countries will increase at 0.8% per annum between 1980 and the year 2000¹⁵⁶.

Biotechnology use in agriculture has two characteristics:

“(i)Biotechnology can be used to enhance product quality by improving characteristics of plants or animals;

(ii) Biotechnology has the potential for conserving natural resources and improving environmental quality by use of genetically engineered organisms for degradation of toxic chemicals in the environment and by the development of insect and disease resistant plant varieties”¹⁵⁷.

Its tools are different from the traditional methods mainly in “speed, precision and reliability”. The developments here should derive from genetic materials which are naturally occurring and the possible arrangement of production of which nature is not capable, i.e. the development of transgenic plants and animals¹⁵⁸.

It is argued that biotechnology has its ‘roots’ in agriculture and creates essential opportunities for mankind¹⁵⁹. Deo¹⁶⁰ argued that “biotechnologies enable natural substances available in the biomass to be transferred at low energy cost and on a larger scale into a variety of materials for use in all sectors of the economy where organic chemicals are produced and used”.

The use of transgenic plant species is greater than that of animal species since 1985, as over 30 transgenic plants have been engineered and produced for conducting basic research and crop improvement. Thus its development is increasingly greater than in animal biotechnology as there has been no socio-ethical rejection comparable with those encountered in patenting transgenic animals¹⁶¹.

¹⁵⁶ Iftikhar, Ahmed, (ed) “Biotechnology: A Hope or a Threat?” (1992) P.1.

¹⁵⁷ Hueth, D. Shain - Dow King and Rita R Colwell, “The Effects of Emerging Biotechnologies on plant and animal agriculture - a viewpoint”. in “Biotechnology: Economic and Social Aspects: Issue for Developing countries”. E.J. Da Silva, C. Ratledge, A. Sasson. (1992) - Cambridge Univ. Press. P. 354.

¹⁵⁸ Ibid. P.355.

¹⁵⁹ Ibid.

¹⁶⁰ Deo, S.D. “Implication of biotechnologies for third world agriculture: Lesson of the Past and Prospects”. In “Biotechnologie in Perspective”. Albert Sasson and Vivien Costarini (ed). UNESCO (1991) P.19.

¹⁶¹ Ibid note (152) above.

The use of genetic engineering as well as microorganisms has its effects on plants where there is an impact on plant breeding, particularly tissue and plant cell culture. Such development has helped to increase traditional plant breeding and decrease the lead time to grow new plant varieties¹⁶². It also creates a chance either to have new characteristics added, or delete existing ones. In addition some factors have influences on high 'resistance to different stress' or 'day length, soil salinity, high temperature, and dry or wet climate etc.'. They have created the possibility of changing the geoclimate limits in relation to the growth of certain crops¹⁶³.

Junne¹⁶⁴ explains the result thus

“some plants, exclusively produced in a subtropical or moderate climate, are now reared more and more in the North. An important example is the production of maize, which for decades has been reared in more temperate zones of North America and Europe. This shift to the North can probably be speeded up with the help of biotechnology. Another example is the development of forage grass to grow actively even in cold weather. This development would thus make it possible to shift some cattle production from South America and other southern countries to North America and North Europe.”

He adds that

“This separation of plant from its original environment is of significance to vegetables and fruits and could undermine the recent initiatives of some developing countries exporting vegetable products to the world market. The same effect could be achieved if the resistance of plants to a colder climate results not only from manipulating the plant itself but its environment too. Such an example is to be found in the application of 'ice minus' bacteria to protect crops against mild frost. If this turned out to be economically feasible and politically acceptable, important substitution processes could be the result. For example, if orange plantations in

¹⁶² Junne. G. "The Impact of Biotechnology on International Commodity Trade" in Sasson and Vivien (ed) UNESCO (1991) P.167.

¹⁶³ Ibid.

¹⁶⁴ Ibid.

Florida could be protected against freeze damage, then vitally imported orange juice imports to the U.S. might be replaced by domestic production”.

Apart from such essential social consideration, it can be argued that modern agriculture has been used not by science *per se* but rather under economic pressures which mean that ‘overproduction’ of food may not have been possible without the modern and technological methods to exploit the agricultural land, in other words, without biotechnology in agriculture.

In elaborating the effect of powerful new techniques of production in developed and developing countries, Deo¹⁶⁵ argues that

“ the ascendancy of biotechnologies and genetic engineering in agriculture has come about not merely because they are powerful new techniques of production in the hands of industrialized nations but, because these nations wish them to be seen as having a talismanic capacity. Unless there is a promise of solution to social, economic, and political problems, there will be no faith in science and technology. This provides an opportunity to examine the context of science and technology, development and modernization, agriculture development and the current precarious situation of Third World countries in order to search for new and different ways of achieving the advancement of these sciences.”

This indicates that the development and use of new technological methods in agriculture can make agricultural production and processing one of the productive areas for local and foreign production, with the result that the consumers spend a lesser percentage of their income on food and other agricultural products. It is also indicative of the importance of biotechnology in agriculture as well as to the assessment made by policy makers as to the total need for more jobs and opportunities to be established in the field of agriculture.

It should, however, be realised that in 1990 agriculture in Saudi Arabia contributed 8% of GDP¹⁶⁶. This contribution increases every year. Agricultural exports accounted for

¹⁶⁵ Ibid. Note (160) above.

¹⁶⁶ The Middle East and North Africa Directory. 42nd edition. European Publication limited (1996) 836.

approximately 40% of non-oil exports. The output of the agriculture sector expanded at an average of 8.7% per year¹⁶⁷. This expansion, as well as increasing productivity, was a result of the Government subsidies to farmers in Saudi Arabia made in order to retain stability in the agricultural sector and secure its continuous contribution to the development of the economy. Another important reason is as a means of reducing food imports.

The Government's encouragement to farmers is considered substantial; it prevents the move to the towns by improving rural facilities. The future of Saudi Arabia agriculture relies on capital intensive, large scale farming, hi-tech mechanized as well as requiring a small labour force.¹⁶⁸ A major achievement has been in dairy farming using the most modern farm equipment and technical expertise in joint venture agreements between Saudi companies and foreign firms (e.g. Sweden, Denmark and Ireland). In 1991 Saudi Arabia became self sufficient in fresh milk and milk production, while purchasing milk powder from the EC creates the main competition to local production¹⁶⁹.

There are some examples of developments in agriculture and agricultural products which are involved in competition with foreign imports, therefore, these deserve to be promoted by the Patent Office in terms of patent protection as to biotechnological inventions produced by individuals and small and medium-sized firms working in this field.

IV Biotechnological Inventions in an Islamic View

The principles of all knowledge in Islam are to be derived from the Holy Qur'an and are explained by the Hadith (the Prophet - Peace Be Upon Him - Says). Science under Islam is subordinate to the goals of Islamic society, which are to increase brotherhood, reduce consumption and increase spiritual awareness. Science can only be pursued in relation to those goals which are permitted by Islamic values, law, and tradition. Therefore, a science

¹⁶⁷ Ibid.

¹⁶⁸ Ibid at 837.

¹⁶⁹ Ibid.

with these goals has to be different in nature and style from Western science as practiced today¹⁷⁰.

One of the parts of modern science most opposed to the teaching of Islam is the Darwinian and other theories of evolution, basically because such theories revoke the creation of God and destroy the sense of wonder and mystery in nature. The teaching of Islam considered clearly that man has always been man and the first man is the first prophet, Adam¹⁷¹.

Muslim opposition to teaching theories of biological evolution arises because the theories are conceptualised as if they were scientific facts. They intervene between God's continuous presence and His creation. It also may destroy the belief in higher states of being and leads to mixed faith. The most considerable point is the reductionism of biology to chemistry and the more complex play of forces which is to be found in physics, which brings all elements of reality down to the lowest level of manifestation¹⁷².

Biology is considered to be the most important science of this century. In all biological systems, the organism of the future is encoded in the macromolecular structure of the DNA. Genetics made it possible to manipulate the reproductive potential of an organism, and create a change for either good or worse with no limits to its manipulation of living systems including human beings. The challenge and effects of molecular biology and the rapidly developing science of rDNA on human life should be examined religiously and traditionally very carefully¹⁷³.

The development of recombinant DNA techniques during the 1970s raised concern about potential hazards posed by the new technologies. Recognising a need to establish consensus, scientists became involved in discussing recombinant DNA technology and its potential risks. The International Conference on Recombinant DNA Molecules convened 140 scientists came from all over the world in February 1975 to address self-regulation of

¹⁷⁰ Ances. "Islam and Biological Future" (1989) P.P. 2-3.

¹⁷¹ Nasir. Dr S.H. "Islam and Modern Science" 1982 P.P. 182-190.

¹⁷² Ibid the above.

¹⁷³ Ibid the above.

research involving recombinant DNA technology until its safety could be assured. Recommendations were issued, assigning risk categories to various recombinant DNA experiments and containment levels for each.

Genetics is commonly taken to be that part of biology which concerns itself with the study of transmission of hereditary characteristics. This has frightening social implications, especially if any of the biological disciplines assumes a moral characteristic and moral judgement is sought. It seems that this science holds both the most potential for benefit and the roots of human destruction itself. In other words, it seems that in the area of reproductive biology good and bad exist side by side¹⁷⁴. To retain a value judgement, Muslim jurists and scholars should ask whether the good outweighs the bad, and should keep on the side of the good. At the same time this requires detailed knowledge of rDNA and deep understanding of the nature of human life.

An example of human nature is in the ban of alcohol by the Qur'an despite the acknowledgment of some good in it. But because its potential social problems are greater than its good, it is banned in Muslim society. The same thing happened when Prophet Mohammad (PBH) banned astrology, despite his acknowledgment that it was a valid field of knowledge. It is still banned because its capacity to mislead is greater than its benefit to those who deal with it.

Another example is in the attitude of Muslims toward contraception, as Muslim scholars discussed the question whether it was permissible: Should some use of it be made to avoid economic hardship? Should female health be a factor in such consideration, or should it be taken as an antithesis of fatalism? In deciding upon that, the Muslim scholars took a lot of biological knowledge of their time but this does not invalidate their opinion. Although Islam encourages legitimate marital relationships and promotes procreation, infertility is not a stigma, and women are not obliged by the Qur'an or the Hadith of the Prophet Mohammad (PBH) to bear children. It is God who has the power of creation and makes some fertile and leaves others sterile. It is the balance of human biology that is emphasised

¹⁷⁴ Sardar. Z. "The Touch of MIDAS", 1984 P.P. 114-117.

by Islam, therefore, and in the unanimous opinion of the Muslim scholars, contraception is not prohibited¹⁷⁵.

Anees¹⁷⁶ argues that the most critical need in the future for the Muslim intellectual is the response to the world view of contemporary biology as more and more human attributes are subjected to biological explanation. These responses should be considered in their ideological context and Muslim intellectuals should not remain isolated from biology obtained only through Western technology. Therefore when it comes to human biology, the Islamic and moral order should take their place in interpreting and defining Western technology according to the Qur'an and the Hadith of the Prophet (PBH).

It is very difficult to define an invention to be contrary to Islamic law by the opinion of an individual such as an examiner, but there are manners and values which scientists within an Islamic teaching should recognise and still concede the overpowering influence of values in the limits of his knowledge. In the contemporary setting, Muslim's traditional system of science is no longer in place; as a result of which most Muslim societies have come heavily under increasing dependence upon Western science and technology, with the impending consequence of cultural imprinting. Most Muslim scientists operate within a completely different world view followed by the differences of style of their science from the way science is practiced today in the West¹⁷⁷. The main difference could be in the concept of belief as Muslim scientists regard reason as but one instrument for moving toward God, while Western scientists believe in rationality and regard all other forms of knowing as nonsense, and works to fulfil the need and requirements of society and culture with a specific worldview¹⁷⁸.

This could not meet the requirements of Muslim culture and society because in Islam perspective, science is one tool to fulfil and achieve the religious goals to cultivate a great knowledge of God and His creation. Thus the Muslim approach to human reproductive biology should be transformed into places of learning about it and educated in their own

¹⁷⁵ Ibid the above.

¹⁷⁶ Anees. Islam and Biological Futures. 1989.

¹⁷⁷ Ibid.

¹⁷⁸ Ibid.

tradition and own thinking so that they can come to possess a powerful tool for making decisions about their own scientific needs, rather than living under the influence of Western thoughts.

What Muslim scholars did in upholding the previous examples was to reassert the Islamic principle as a solution to those problems. In other words, it is the moral world view of Islam that gives biological being to the human being, and the Muslim morality does not depend on a specific biological being. It is the same thing for the cases existing in the future which will become intensified because of the strongly defined morality based on revelation which dominates Islamic society. Islam can certainly provide answers under the condition that it does not take modern scientific and technology as an inevitable necessity.

V. Biotechnological Invention in the Saudi Patent Law

The Saudi Patent Law explicitly excludes certain inventions from patentability. Some exclusions are due to moral considerations. For example, under Islamic Sharia Law it is not possible to obtain a patent according to Article 9 of the law which provides:

A patent shall not be granted if the invention itself or its use is contrary to Islamic Sharia. Any patent granted in the contrary shall be abrogated. Save those patents which are contrary to Islamic Sharia, the granting of a patent to an interested party may not be withheld according to this law. Further, no patent already granted may be revoked on the grounds that the application of the invention is prohibited under the prescribed rules.

Up until now there has been no decision on granting a patent in the field of biotechnological inventions by the Saudi Patent Office, nor indeed has an application of that nature been given to an Islamic authority for examination. However, there are some decisions upon questions related to biology such as rDNA and whether it falls under inventions contrary to Islamic Law and to what extent. Although rDNA inventions may differ from some other biotechnological inventions, the methods of making the decision over such a future case will follow the same procedure as for other applications.

Another exclusion is genetic materials and plants and animal varieties, as Article (8) states:

For the purpose of this law, the following shall not be regarded as inventions:

- (a) Discoveries, scientific theories and mathematical methods.
- (b) Principles, rules and techniques of doing business, pure mental activities or playing any games.
- (c) Varieties of plants or animal species or biological process used to produce plants or animals with the exception of microbiological processes and products thereof.
- (d) Methods of surgical or medical treatment of the human body or of animals, and methods of diagnosis applied to the human body or to animals with the exception of products used in any of these processes.

As this shows, there is no place for biotechnological invention in the present law. However, these exclusions are definitely not all the result of Islamic Law. As already mentioned, they were derived from the WIPO Model Law for developing countries. Such exclusions can be seen as not relevant to any technology policy set out for the country's development nor are they promulgated within the framework of the country's economic development plans.

Practically, the Saudi Patent Office allows the registration of any application as long as the relevant formal conditions for registration have been completed. This may be of doubtful significance for any meaningful technological and industrial development of the country. Also it may be important to realise that inventions which may be considered useless or prohibited are still registered in the country. For example, applications have been registered by Phillip Morris Incorporation for some cigarette products. Consequently, these applications may be rejected or considered contrary to public order. This is because prohibiting cigarette smoking is a controversial issue among many scholars, and some of them have denounced it. Further, the likelihood of manufacturing a cigarette project in Saudi Arabia is doubtful. Thus, these registered inventions may not contribute to local technological and economic developments.

There are no statistics published by the Saudi Patent Office indicating the subjects of registered inventions nor its industrial sectors. However, from personal discussion with some officials in the Office, most of the registered applications fall in the chemistry and chemical treatment categories, including living plant material, pesticides and herbicides. The inventions which fall under the classification of organic chemistry and chemical treatment are possibly useful to the agricultural industry and therefore should be given priority in patent procedures, whenever possible, to assist in promoting the local agricultural industry.

Other registered inventions are found in favour of pharmaceuticals and pharmaceutical products. Although there are no rejections or withdrawals of any registered applications in this field, the exclusion of pharmaceutical invention has not yet been clarified by any means to the Patent Office. It is not clear how the patent examiners there will classify such applications, and to what extent they may be accepted or rejected in accordance with Article (8) of the Law. However, the exclusion of pharmaceutical inventions could be a discrimination against the pharmaceutical industry. It may lead to the decrease of the flow of technology in this field, as well as a decrease in participation of foreign patentees in the domestic pharmaceutical industry. Such participation suggests that the local pharmaceutical industry has been very useful to both local firms and inventors in the industry.

In assessing the impact of the above, it is suggested that, since the country does not have sufficient expertise and resources for the development of this sector it could promote the influx of knowledge and investment in this sector through incentives and patent registration in this field until the time when it will have full indigenous capacity. Therefore, an evaluation of the exclusion from patentability in accordance with Article (8) is very much needed, particularly if the Saudi Patent Law falls under the recent changes and reforms of intellectual property rights which is more likely to happen after the enforcement of the GATT/TRIPS harmonization of intellectual property rights around the world. Meanwhile, it is essential to focus on the main source of the Saudi Patent Law as mentioned above in Article (9).

The Saudi Arabian Third Five-Year Development Plan states with regard to science and technology that:

“ Saudi Arabians’ general attitude towards science and technology is based upon a traditional respect for knowledge and appreciation of the human effort expended in its accumulation and development. The Kingdom has always appreciated the contribution that science and technology can make to social and economic development. Accordingly, the objectives of the national science and technology policy are two fold: the transformation of society’s material conditions through the selection, transfer and management of advanced technology while simultaneously preserving culture technology; and in the development of the Kingdom’s natural and human resources”.

The objectives focus on reducing the economy’s dependence on hydrocarbon and other mineral and agricultural resources to maintain a long-term industrialized society by maintaining a real achievement through the transfer of technology. It is also to possess an extensive manufacturing economy and gain the opportunity to export their own indigenous productions into the worldwide market place as valuable foreign exchange funds.

In order to maintain such plans, it is important to take advantage of developments in the field of biotechnology and reform policy in patent law. Such reform requires policy makers to study the rapid development in this field to sustain a viable biotechnologically orientated industry sector involving high levels of capital investment and also to create highly skilled and trained man power.

Therefore, suggestions for reform in the patent law and in the implementation of regulation might be as follows:

1. If there is to be alternative legislation affecting Article (8) of the patent law, then it is to be hoped that such exclusion of patentability of plant and animal varieties or essentially biological processes for the production of plants or animals should be waived. This is to ease the difficulties of interpreting such exclusion by the in--experienced examiners in the office about what is and is not included within the law.

2. It may be that there is an incentive for allowing the patenting of useful genetically modified organisms in the field of pharmaceuticals or agricultural products in Saudi Arabia, due to the local need and to pressures from other countries. It is also to maintain access to foreign inventions and access to foreign markets for Saudi biotechnological industry which may depend on patentability of foreign inventions as well as discoveries in Saudi Arabia.

3. In term of farmers' privilege, the Saudi authority may not be required to join the UPOV Convention but should adopt a *sui generis* system similar to that provided by the UPOV Convention . Such system, however, should provide express content to the farmers' privilege and should aim at conserving the biodiversity and gene resources of the country and encourage the local research and development capacity in this field.

4. On the international level, Saudi authority should adopt a policy reflecting a balance between the need to conserve and develop the country's existing biotechnological industries and genetic resources in one hand and the need to maintain access to international developments in both fields on the other.

5. Saudi's ability to enforce intellectual property laws in other countries under GATT/TRIPS should provide opportunities for Saudi to derive direct and indirect benefit from biotechnology and agriculture resources. Therefore, it is urgently needed to develop a clear and balanced position on these matters as contractual arrangements between various countries and Saudi Arabia relating to those fields may be a standard in the future.

Conclusion

The controversial issue of not considering the patent system as the appropriate place to examine ethical and moral issues may often appear because the patent system is considered more as an effective incentive to investment and innovation. Some are in favour of patenting biotechnological inventions because patenting is important to maintain the benefit derived from biotechnological research for human health and animal health. Others have concern over patenting of genetic material because such patenting may dominate the value of human and animal lives, at least in some Western thoughts.

In other thoughts, the foundation of morality in Islam has its root in teaching derived from the Holy Qur'an and Hadith of the Prophet (PBH). As the principle of all knowledge in Islam is also to be based on the Holy Qur'an and explained by the Hadith, both morality and science were founded on the same principle in Islam. There is, therefore, no conflict possible between them in a traditional setting.

The Saudi Patent Office should take advantage of the above distinctive principles in determining this controversial issue. Beside this, it should weigh the exclusion of biotechnological invention against the value and importance of the invention to the benefit of the national market and economic development as a pragmatic solution.

COMPUTER SOFTWARE PROTECTION

Introduction

Nearly all of our economic, social, financial and administrative systems depend on the use of computer software. The rapid development of computer software has created demands for a proper and practical framework of law in which to protect the highly competitive and rapidly developing field of computer technology.

Defining the character of legal protection and classification of computer software entails not only defining a framework for the protection of particular products, but also a study of the current law and the inconsistencies of current approaches to computer intellectual property. Intellectual property has its roots in rewarding and encouraging the creation of innovation, so that patent law promotes and protects new inventions while copyright, on the other hand, extends to protect the form in which ideas are expressed.¹

In many countries the predominant form of computer software protection is copyright. Computer software *per se* is not within the scope of patent protection in some countries. However, the interpretation of legislation and procedures differs between patent offices and courts.

Economically speaking in the U.S. alone, the total sales of three core elements of the software industry programming services, pre-packaged software, and computer integrated design reached over \$36.7 billion in 1992.² The software industry creates more jobs as since 1987 employment in this industry has increased at an annual rate of 6.6 per cent, and the industry employs around 4 per cent of the U.S. work force³. The U.S. firms hold about 75 per cent of the world market for software and related services⁴. The foreign sales of the U.S. pre-packaged software reached over 19.7 billion dollars in 1991⁵.

This chapter focuses first on the current policy issues concerning computer software

¹ International Bureau of the World Intell. Prop. Org. (Model Provision on the Protection of Software) 1978.

² Stobb. Gregory A., "Software Patents" Wiley & Sons (1995) (cd) P.331

³ Ibid.

⁴ Ibid

⁵ Ibid

protection in some existing national regimes as well as international applications. Next, I articulate the types of protection under the patent system. Finally, I consider the existing protection of computer software in the Saudi Copyright and Patent Laws, including a recommendation proposing a new approach to the protection of computer software there.

I Computer Terminology

(a) Definition of Computer Software

The definition of a computer in the Oxford Dictionary of Computing is "a machine that stores information and finds answers very quickly", although the word "computer" may often carry a broad meaning and include the input and output elements of a computer system.⁶ Another definition by the Penguin Dictionary of Computers describes a computer as "a machine which can accept data in a prescribed form, process the data and supply the result of processing in a specified format as information or as signals to control automatically some further machine or process".⁷

There are three types of computer:

- (i) Hardware, which consists of the physical devices themselves, which are collections of transistors in groups of integrated circuits ([chips] e.g., terminals, printer);
- (ii) Software, which is the code contained in the memory chips, and instructs the microprocessor and other hardware on their function;
- (iii) Algorithms, which are the purely abstract specifications for solving certain problems by accomplishing certain processes. Algorithms can be expressed by either hardware or software: hardware can express it through integrated circuits which can automatically generate the list on output, while software can do it in a programming language.⁸

Computer "programs" are a set of instructions making a computer perform a special function when inserted in appropriate machine-readable form. The term "software" contains the program proper and the supporting documentation and underlying outlines or

⁶ Oxford Elementary Learners' Dictionary, 2nd (ed). Oxford University Press (1994) P.67

⁷ Penguin Dictionary of Computer (Harmondsworth: Penguin Books, 1977) cited in Christopher J Millard, Legal Protection of Computer Program and Data (1985)

⁸ Notes, "Computer Intellectual Property and Conceptual Severance" . I.P. Law Review (1991) pp 166-169.

diagrams. It is used interchangeably and with special reference to the coded instructions and flowchart design of a program which comprise the total source documentation.⁹

A source code prepared to a specification by the programmer is written in a high level language (e.g., BASIC or FORTRAN). It can be read, but only by a programmer. The source code is then translated by a compiler or assembler program into machine or object code which consists of code values and numbers and can be printed out. The instructions written into the object code could be used by a computer. Distributed programs in their object code version are stored on a memory device as read-only memory (ROM). This is a permanent memory device consisting of a semi-conductor incorporated into the integrated circuit of the computer.¹⁰

An algorithm is defined¹¹ as “a specific sequence of steps which can be performed by someone or something to produce a certain result”. Any activity, no matter how simple or complex, can be rendered as an algorithm. A program algorithm is not a “mathematical algorithm” as defined by the Supreme Court¹².

(b) Information Systems in Computer Programs

Computer programs are “an essential element and a potentially fertile terrain for threats to information systems”¹³ The guidelines states that “

“information system may include hardware, computer programs, database, layout design for semiconductor chips, data and information, element of which may be protected by intellectual property and industrial property laws. Intellectual property in information system is intangible, may cross borders virtually imperceptibly, and may be vulnerable to theft by the effort of one finger in a matter of seconds without taking the original and without leaving a trace. Security of information systems may reinforce the protection of intellectual property by limiting unauthorized access to

⁹ Ibid Note (2) above

¹⁰ Information Technology: “The Challenge of Copyright”. *The Nature of Computer Programs* Professor G Dworkin

¹¹ Griem. J.M. “Against A Sui Generis System of Intellectual Property for Computer Software” *Hofstra Law Review* vol.22 (1993) 147.

¹² *Gottschalk v Benson* 409 U.S. 63 (1972)

¹³ Guidelines for the Security of Information Systems. Organisation for Economic Co-operation and Development (OECD) 1996 - pp30-32

components of the system, such as software or competitive information”¹⁴ .

If a program containing a virus is introduced into an information system it may affect the “availability, confidentiality and integrity of that system” by overloading such a system. It is possible to change the list of authorized users of specific parts of the system or to change data or information in the system¹⁵ .

According to the Guidelines the harm resulting from the lack of protection may occur to the following:

“the hardware, including processors, workstations, printers, disks and tapes and communication equipment; software, including system and applications software for central and remote devices; documentation, including specifications, user manuals and operating procedures.”¹⁶ A consequential loss may include “loss of goods, other tangible assets, funds or intellectual property; loss of valuable information; loss of competitive advantage, reduction in cash flow; loss of orders or business, loss of production efficiency, effectiveness or safety; loss of consumer or supplier goodwill; penalties from violation of statutory obligations; and public embarrassment and loss of business credibility”¹⁷ .

The Guidelines provide some adequate measures to enhance the security of information and reduce the consequential losses. It states:

“In addition to the commercial and social benefits of information systems already mentioned, security of information systems may assist in the protection of personal data and privacy and of intellectual property in information systems. Similarly, protection of personal data and privacy and of intellectual property may serve to enhance the security of information systems.”¹⁸

¹⁴ Ibid at 32.

¹⁵ Ibid at 30

¹⁶ Ibid at 31

¹⁷ Ibid at 32

¹⁸ Ibid

(c) Current Policy Issues of Software Protection

The issue of software protection has been controversial for the past two decades. It requires decisions of policy for the protection of technology and for the type of protection desired. Legal protection for a product can be obtained in many ways, either through patent protection, which protects the functional aspects of the tangible invention, or through copyright law, which protects the expression of an idea such as software.¹⁹

There are differences between patent and copyright laws in every national legal system, as the current legislation for software protection, through either law, is in a state of flux throughout the world. There is a lack of uniformity in software protection schemes, even in developed countries (e.g., US and UK) as well as in regional or international conventions (e.g., TRIPS [1994] and EC Directive [1991]). There is difficulty in fitting new technology into the existing legal framework of protection.²⁰

The differences between the treatment of hardware, software and algorithm protection are best explained by a focus on the tangibility of property. Because hardware is tangible, it can be considered as an abstract invention and receives its protection through patent law, whereas, since software is intangible, it receives its protection from copyright law (as well as from patent law when involved in physical manifestations; see further below). Algorithms receive no protection from either law because they are pure ideas, and intangible. The US Supreme Court's decision in *Benson* (1972) was that patent protection could not be extended to algorithms which converted binary coded decimal numbers into pure binary numbers, and the court emphasized that an algorithm was not a tangible process.²¹

Patents protect the effect available for technical function, which may be produced by the functioning of a programmed computer, while the program itself remains within the scope of copyright law. However, copyright law is the predominant form for the protection of

¹⁹ Ibid. Note (1) above.

²⁰ G. Hoffman, J. Grossman, P. Keane, J. Westby, *Protection of Computer Software: An International Overview* II EIPR (1988) at 337.

²¹ See *Gottschalk v Benson*, 409 US 63 (1972)

computer software. A method for calculating square roots by means of computer software stored in an integrated circuit (ROM) was rejected for a patent by the English Court of Appeal (re Gale's Patent Application)²². This means that the possibility of patent protection is rather low and decisions about software protection show a majority support for copyright as the main form of protection.

Having assessed the definition of computer software as well as the current policy issues in the protection of software, it may now be appropriate to examine the patentability of computer software in national and international regimes and to what extent the computer software can be protected.

II The Patentability of Computer Software

a) National Policy

In many countries, legal protection of computer software comes from copyright protection, because computer software *per se* is not within the scope of patent protection. However, *sui generis* protection for software was proposed by the World Intellectual Property Organization (WIPO). The provisions were not based on the principle of national protection; rather it gives computer software explicit and absolute rights and protection in all signatory nations. It was meant as a guideline for national legislatures but has not been adopted. (See further below - International Copyright Protection.)

(1) United States Patent Office

Although the United States Patent Office has its own policy guidelines for what is patentable subject matter the requirements for patent protection are according to 35 U.S.C. §101, “any new and useful process, machine, manufacture or composition of matter, or any new and useful improvement thereof”.

In *Gottschalk v. Benson*, the US Supreme Court refused patent protection to computer software²³. This case indicates the basis for the prevailing view which classes computer software as unpatentable because it is based upon an algorithm. The nature of the claim

²² (1991) RPC 305.

²³ 409 US 63 (1972)

was for a computer program that converted pure binary numbers into binary coded decimal. It was held that the applicant was attempting to patent a mathematical formula, rather than a properly patentable process. The Court analyzed the claims as constituting non-statutory subject-matter under the “Mental Steps Doctrine” of 35 USC § 101. The Court stated that: (1) a method which is equivalent to mental work is not patentable; (2) a method which does not physically alter an article is not patentable; and (3) computer programs are not patentable for practical reasons, because of the difficulty for the Patent Office in assembling relevant prior art applied to computer software.

The Mental Step doctrine had been first applied to software programs in the Application of Prater²⁴ which involved a method for analyzing the composition of gas mixtures by operating special test equations performed either by an analyst or by a digital computer. The Court of Custom and Patent Appeal (CCPA) allowed the protection, stating that because the nature of the claim covered a sequence of steps accomplished by either hand or machine, it was patentable under the Mental Step doctrine.

This move towards the patentability of software was narrowed by the same court in the Application of Bernhart.²⁵ The Bernhart invention was for automatically making two-dimensional images from a three-dimensional object. The claims were directed to an equation used to make images which could be calculated in a digital computer. The Court found that the claims for the device, which directed the image to a computer and plotter, were not excluded from patentability under §101 because they could not pre-empt any other use of the mathematical equations to which the plotting claims were directed.

The Supreme Court considered the patentability of computer software and then rejected it in *Parker v. Flook*,²⁶ holding that a mathematical formula did not become patentable subject-matter by the addition of a rational post-solution application within a process. The application in *Flook* contained a method for updating the value of an alarm limit to aid in the control of a process. This ruling began to apply the two-step test in determining whether the claim set forth any step that recited a mathematical formula or method or

²⁴ 415 F.2d 1378 (1969)

²⁵ 417 F.2d 1395 (CCPA 1969)

²⁶ *Parker v Flook*, 437 US 584 (1978)

calculation, and whether the claim was drawn to a method which recited a mathematical formula. So, as a result, if the mathematical formula provided a significant post-solution activity, it was therefore patentable; otherwise, it was an unpatentable mathematical equation.

The above analysis was affirmed when the Supreme Court made a further statement on the patentability of software in *Diamond v. Diehr*.²⁷ The application in *Diehr* provided a method for curing rubber, which made use of a computer program. The cure time was calculated according to time and temperature. The data from temperature monitors inside the mould were fed into a computer. The computer then repeatedly recalculated the cure time and signalled the optimal opening time for the process, stopping it automatically.

The Court stated that the inclusion of a computer program as a component of an otherwise patentable process would not render the process unpatentable. In analyzing the claims, the Court found that the claim must be reviewed as a whole, rather than separated into different elements. This ruling by the Supreme Court reduces the list of non-patentable software to those programs which only recite a mathematical formula, and all other software which does not contain solely mathematical formulae remains potentially patentable.

This development resolved uncertainty about software protection and led the US Patent Office to issue new guidelines setting out patent examining procedures for program-related inventions. It does not mean protection is available for all program-related inventions; rather a specific area of exception is made for programs which contain a degree of post-solution activity. This inevitably makes for confusion and a series of controversial decisions under the Mental Steps doctrine.

The applicability of patent law to the protection of computer software remains unclear, as the US Patent Office's present practice examines claim drafting in a narrow reading of *Diehr*, though some inventors also depend on copyright to protect their programs, since the Copyright Act 1976, favored copyright for the protection of software. But the narrow

²⁷ *Diamond v Diehr*. 45 US 175 (1981)

scope of protection offered by the Act led others to believe it to be inadequate because it gives protection to the expression only, rather than to the function of the program, by contrast with patent law.²⁸

The US Supreme Court has not ruled as to whether computer software *per se* is patentable subject-matter. Instead, it has ruled that computer-implemented algorithms, which are considered "mathematical algorithms" *per se*, are not patentable statutory subject-matter. In view of the above, Vassallo²⁹ argues that "the proper inquiry in dealing with the so-called mathematical subject matter exception to §101 is to see whether the claimed subject matter as a whole is a disembodied mathematical concept, whether categorized as a mathematical formula, mathematical equation, mathematical algorithm, or the like, which in essence represents nothing more than a ("law of nature", "natural phenomenon" or "abstract idea").

The most recent decision by the Court of Appeals for the Federal Circuit has presented a relaxed attitude towards computer programs and algorithms. *In re Alappat*³⁰ showed that what had once been considered non-patentable subject matter as abstract ideas has become patentable subject-matter. The *Alappat* case is based on mathematical algorithms formulae and equations. The claim is related to means for creating a smooth wave form display in a digital oscilloscope. It defined a combination of elements constituting a machine for producing an anti-aliased waveform a machine for producing an anti-aliased waveform. The US Patent Office held that the invention was not patentable, but the Court of Appeals held it was patentable.

In *Alappat*, it is acknowledged that the claim would provide a general purpose computer programmed to carry out the claimed invention. But the court stated that such programming creates a new machine, because a general purpose computer in effect becomes a specific purpose computer while it is programmed to perform special functions

²⁸ See Copyright and Technological Change: Hearing Before the Subcommittee on Courts, 98th Cong., 1st Sess. 29-58 (1983)

²⁹ Vassallo, E.E., "Patent Software: The Alappat Case". A CLIP Seminar Report, The Intellectual Property Institute (1994) at 16.

³⁰ *In re Alappat* 31 U.S.P.Q. 2d (1994)

pursuant to instructions from program software.

In applying this test to *Alappat*'s claim, the Court stated that:

“although many, and arguably even all, of the means elements recited in *Alappat*'s claim represent circuitry elements that perform mathematical calculations, the claimed invention *as a whole* is directed to a combination of interrelated elements which combine to form a machine”³¹

As a result of the above decision, Vassallo pointed out that *Alappat* found statutory subject matter, where the crux of the claim was mathematics performed by a software program in a computer. The lesson is that patents will now issue in the software field: not on the disembodied mathematical concept *per se*, but where that concept is part, even the crux, of a claim that recites same structure, where there is post-solution activity, and where the preamble applies the maths to a field of use.”³²

In comparing the advantages of patent if copyright is also available for computer software, Vassallo argues that

“the advantages are substantial. Copyright does not protect an idea, only the expression of an idea. Generally, if you use different steps to achieve the same result, you will not infringe a copyright. A patent can provide broader protection, such as by using means plus function language - means to do this, means to do that”.³³

The USPTO Guidelines for Computer-Implemented Inventions

The US Patent and Trademark Office issued examination guidelines regarding computer-implemented inventions. These guidelines were issued in the light of the recent Federal Circuit decisions regarding the status of computer software applications. This has led the U.S. Patent Office to wrestle with an area of technological subject-matter which was previously rejected³⁴.

³¹ Ibid at 1544, 31 USPQ 2d

³² Ibid at 17.

³³ Ibid.

³⁴ Gregor D.A. and R. L. Hails. Jr. The US Patent Office Guidelines for Computer implemented

The Guidelines were published to invite public opinion³⁵. Its purpose is an attempt to unify the many software patent decisions of the Court of Appeal for the Federal Circuit, including its predecessor Court of Customs and Patent Appeals, and the landmark software patent decisions of the U.S. Supreme Court. Another purpose of the Guidelines is to help examiners through a step-by-step analysis of the subject matter in which a software patent is needed. The Guidelines require the patent examiner to categorize the invention into one of the four statutory subject matter: process, machine, manufacture or composition of matter³⁶.

The step-by-step procedures set for examiners to determine the patentable invention (as outlined in abbreviated scheme)³⁷ are as follows:

1. To identify specific embodiments disclosed. To make note of specific utility asserted for the invention.
2. To correlate claim elements with written description.
3. To classify invention by construing each claim as a whole. Using the following presumptions in classifying invention:
 - a. a computer running software is a statutory machine
 - b. computer memory is a statutory article of manufacture
 - c. operational steps performed by computer is statutory process.
1. To reject the following inventions as non-statutory:
 - a compilation or arrangement of data, independent of any physical element
 - a known storage medium encoded with data representing creative or artistic expression
(e.g. music, art, literature).
 - a process that does nothing more than manipulate abstract idea or concepts
(e.g., solving a mathematical problem).

Software developers may not depend exclusively on copyright for protection of their commercial investments. It is now explicit that computer software related - inventions can

Inventions. 1 Europ. Intell. Prop. Rev (1996) 5.

³⁵ Stobbs. Ibid note (2) above.

³⁶ 35 US C §101

³⁷ Abbreviated outline cited in Stobb. Ibid note (2) pp 34-35

be patented in the US³⁸ Thus, it is advisable as a result of the *in re Alappat* decision that “whenever possible, software developers should investigate the possibility of patent protection for the important functional aspects of their programs. While patent protection may not always be feasible, if obtained, it can provide a very powerful tool for protecting an investment in software.”³⁹

(2) European Patent Office

The European Patent Convention did not consider computer software patentable subject-matter, as Article 52(2) stated specifically that computer programs were to be excluded from patent protection. But the interpretation of this is to preclude only the patentability of programs *per se*. Article 52 of the Convention provides as follows:

1. European patents shall be granted for any inventions which are susceptible of industrial application, which are new and which involve an inventive step.
2. The following in particular shall not be regarded as inventions within the meaning of paragraph 1:
 - a. discoveries, scientific theories and mathematic methods;
 - b. aesthetic creations;
 - c. schemes, rules and methods for performing mental acts and playing games or doing business, and programs for computers;
 - d. presentations of information.
3. The provisions of paragraph 2 shall exclude patentability of the subject-matter or activities referred to in that provision only to the extent to which a European patent application or European patent relates to such subject-matter or activities as such.

In 1985 new guidelines for computer program-related inventions came into effect in the EPO following the US case of *Diamond v. Diehr*. The guidelines (C.IV,2.3) provide:-

“...a computer program claimed by itself or as a record on a carrier is unpatentable irrespective of its content. The situation is not normally

³⁸ *In re Alappat* 33 F.3d 1526 (Fed.Cir 1994)

³⁹ Schwarz, M. “Copyright Protection is ‘Not on the Menu’ 7 *Europ. Intell. Prop. Rev.* (1995) 340

changed when the computer program is loaded into a known computer ... [but] patentability of subject-matter claimed should not be denied merely on the grounds that a computer program is involved in its implementation."

If the claimed subject-matter makes a technical contribution to the known art, it is not excluded from patentability. As the guidelines more permissively stated:-

"Where the claimed subject-matter is concerned only with the program-controlled internal working of a known computer, the subject-matter could be patentable if it provides a technical effect ... Where patentability depends upon technical effect the claims must be so drafted as to include all the technical features of the invention which are essential for the technical effect."

The guidelines were revised by the Technical Board of Appeal in respect of Vicom System Application (1986)⁴⁰ . The application was directed at methods and an apparatus for improving the quality and processing speed of computer-generated pictures. The Board accepted that, "even if the idea underlying an invention may be considered to reside in mathematical method, a claim directed to a technical process in which the method is used does not seek protection for the mathematical method as such, claim to a 'method for digitally filtering data'..."

As far as method claims were concerned, the Board applied the same reasoning and held that:-

"a claim directed to a technical process which process is carried out under the control of a program (be this implemented in hardware or software), can not be regarded as relating to a computer program as such within the meaning of Article 52(3) EPC, as it is the application of the program for determining the sequence of steps in the process for which in effect protection is sought. Consequently such a claim is allowed under Article 52(2)(c) and (3)EPC."

⁴⁰ European Patent Application 79 300 903.6/Decision of the Technical Board of Appeal 3.5.1 of 15 July 1986. Also in VICOM/Computer - related invention. Decision T208/84. (1987) EPOR 74.

The Board considered that it did not matter whether the invention could be implemented by means of a suitably programmed conventional computer. The Board concluded its ruling as follows:-

"Generally speaking, an invention which would be patentable in accordance with conventional patentability criteria should not be excluded from protection by the mere fact that for its implementation modern technical means in the form of a computer program are used. Decisive is what technical contribution the invention as defined in the claim when considered as a whole makes to the known art."

In Koch & Sterzed (1987)⁴¹ the claims involved computer related X-ray apparatus. It was argued that, as there was no constant technical interaction between the new program and the well-known X-ray technique, the technical effect claimed was produced only at the end of the computer operation and was separate from the X-ray apparatus. Following Vicom, the Board held that:-

"An invention must be assessed as a whole. If it makes use of both technical and non-technical character means, the use of nontechnical means does not detract from the technical character of the overall teaching... while an ordinary computer program used in a general-purposes computer certainly transforms mathematical values into electrical signals with the aid of natural [sc. electromagnetic] forces, the electrical signals concerned amount to no more than a reproduction of information and can not in themselves be regarded as a technical effect. The computer program used in a general-purpose computer is thus considered to be a program as such and hence excluded from patentability... But if the program controls the operation of a conventional general-purpose computer so as technically to alert its functioning, the unit consisting of program and computer combined may be a patentable invention."

It may be inferred from the above decisions that the fact that the invention lies within a

⁴¹ Koch & Sterzed X-Ray Apparatus. T26/86 (1987)

program is no bar to patentability. This direction may have an influence towards a more liberal approach in current national policies when it comes to solving the existing dilemma of protecting computer software.

Previously, the EPO has issued about 10,000 patents for software-related inventions, and has refused about 100 applications⁴². This evident contradiction appears regardless of Article 52 of the EPC which excludes computer programs as such from the definition of an invention. However, the Article is implemented according to Rules which provide that an invention can be granted in “any field or technology” where it shows a solution to a technical problem⁴³.

The patent claim will be accepted if the invention described is a “method of operating a machine” instead of clearly claiming a program to carry out a function.⁴⁴ An example of this is, the IBM application on a program that moves an object on a screen and displays the extent of the movement adjacent to the object” which was granted a patent by the EPO.⁴⁵

On the other hand, a claim for a program to design a computer chip would be rejected, but if written in terms of a “method of manufacturing a chip”, comprising a detailed specification of the functions of the program, a patent could be issued⁴⁶. Claims for a software-related invention which cover a machine (e.g. a computer - controlled paint-spraying robot), or a means to improve the function of the computer itself, can be accepted⁴⁷.

It has been argued⁴⁸ that

“another aspect of software patenting is that the pace of technological change is often much faster than the rate at which case law develops and precedents are set, so that the commercial lifetime of an invention can be shorter than the legal process to grant a

⁴² Parliamentary Office of Science and Technology Report. “Patent. Research and Technology - Compatibilities and Conflicts” March (1996) p31.

⁴³ Ibid.

⁴⁴ Ibid.

⁴⁵ Ibid.

⁴⁶ Ibid.

⁴⁷ Ibid.

⁴⁸ Ibid.

patent. This may dissuade some from filing patent applications in the first place, who may opt instead to disclose a large number of less important inventions, while patenting those that may have a longer shelf-life or be more commercially valuable. Thus, as a matter of policy, IBM files around 500 patent applications each year in Europe, but release nearly ten times this many into the public domain through its technical disclosure publication”.

(3) United Kingdom Patent Office

Under the UK Patent Act 1977 (based on EPC Act 52) the following list of items are excluded from patentability in subsection (2) of section (1):-

- "(a) a discovery, scientific theory or mathematical method;
- (b) a literary, dramatic, musical or artistic work or any other aesthetic creation whatsoever;
- (c) a scheme, rule or method for performing a mental act, playing a game or doing business, or a program for a computer;
- (d) the presentation of information.

but the foregoing provision shall prevent anything from being treated as an invention for the purposes of this Act only to the extent that a patent or application for a patent relates to that thing as such."

This indicates that anything included in this list is not an invention for the purpose of the Act, and can not be patented. Nevertheless, it may satisfy the other criteria for patentability, such as novelty, inventive step or non-obviousness and industrial applicability. It seems that there is some overlap between the various lists of excluded matter, particularly when an invention which is objected to on the grounds that it is a computer program is also objected to on the grounds that it is a mathematical method, presumably, because such an objection is redundant in the light of the express exclusion in paragraph (c).⁴⁹

Since the introduction of the Patent Act 1977, there have been some cases under the said

⁴⁹ H Carr and R Arnold. *Computer Software. Legal Protection in the UK* (1992)

Act. In Merrill Lynch Application⁵⁰ which relate to an automated trading market for stock. The computer system retrieved and stored the best current bids and asked prices. Ordering of execution by a qualified person reported the trade particular to nation stock price reporting systems. It also determined and monitored stock inventory and profit. The Hearing Officer held that the invention was a mere method of doing business and as such was not a patentable invention. The Principal Examiner stated: "If the task performed is non-technical, for example, a mathematical calculation or a business method, the mere fact that it is being performed by a suitable machine, whether or not this involves a program, does not of itself provide a technical feature".

In the Patent Court⁵¹, Mr Justice Falconer confirmed the Principal Examiner's reasoning, stating:-

"In my judgement, the Principal Examiner correctly construed the qualification in Section 1(2) and correctly approached the consideration of whether the claimed invention of the application was excluded by virtue of Section 1(2) and correctly held that the application, with claim 1 in its original form or as in the first amended form, was not patentable."

In reaching this decision, the Judge stated:-

"In my judgment, where an invention for which a patent is sought involves any of the matters specified in paragraphs (a), (b), (c) or (d) ('an excluded matter'), on its proper construction and qualification in Section 1(2) does require the Patent Office to make an initial enquiry and assessment as to whether the inventive step resides in the contribution of that excluded matter alone, if only that contribution of the excluded matter is the inventive step, the invention is not patentable by virtue of Section 1(2). I endorse, therefore, the view of the Principal Examiner that in the determination of whether or not an application relates to an excluded thing it is necessary to take into account whether the non-excluded features are already known or obvious."

⁵⁰ Merrill Lynch's Application (1989) RPC 561

⁵¹ (1988) RPC 1

He held that apart from the computer program, there was nothing novel and inventive, and so there was no patentable subject-matter.

In *Gale's Application*⁵², the application was for a method of calculating the square root of a number using hardwired instructions. The claim was:-

"Electronic circuitry in the form known as 'ROM' [Read Only Memory], to provide controlling means whereby four binary manipulative entities, of the type known as 'registers', shall derive the square root of an arbitrary number, and whereby such controlling shall so function that only such numbers shall be selected by the controlling means, for use in deriving the square root, as shall eliminate recourse to the process of division, and shall further only perform the process of multiplication insofar as is accomplished by the use of the binary operations of 'shift' and 'test', without the binary function of 'add', such as is usually required within the general form of multiplication of binary numbers."

The Comptroller rejected the application because there was no read-only memory (ROM) description and the novelty in the claim consisted of the particular sequence of operations. It must be conventional. On the appeal on the grounds that the claim was a claim to a new technical product constructed in a particular way and not just to a computer program, the judge drew a distinction between a disk containing a program and a read-only memory (ROM) with particular circuitry.

The Court of Appeal then rejected the distinction and went on, applying *VICOM*.⁵³ Nicholls L.J. pointed out that the applicant claimed to have discovered an algorithm which was not patentable as such because it was an intellectual discovery and a mathematical method. However, he held that the claim was no more than a computer program because the instructions were neither a way of carrying out a technical process outside the computer nor a solution to a technical problem with the computer and the invention was

⁵² *Gale's Application* (1991) RPC 305

⁵³ Decision T208/84. (1987) EPOR 74: see EPO Policy discussed above.

no more than an improvement in programming.

The ruling in both the above cases focuses on the effect of the Section 1(2)(c) exclusion, which is not the last task. Rather the test of novelty and non-obviousness will also apply in deciding the patentability of the invention. This indicates that the dividing line between programs involving a technical application and those which do not is far from easy.⁵⁴

A patent application for a developed software which could assist a chemist to design new chemical compounds was refused by the UK Patent Office on the ground that the application was excluded by Section 1 (2) of the Patent Act 1977. Claims 1 to 8 of the invention were directed to allegedly novel methods of visualising the hybrid structure, while Claim 9 referred to a method of manufacturing a structure in accordance with those claims. Claims 10 to 19 related to apparatus for carrying out those methods.⁵⁵ An appeal from the rejection of the application was also dismissed by Mr Justice Laddie who in analysing the Technical Board's decisions in previous cases as *VICOM computer related inventions* and in *IBM Text processing* and the decisions of the Court of Appeal in *Merrill Lynch's Application* and *Gate's Application* concluded that in applying the principle set out in these cases to the Fujitsu application failed.⁵⁶

The U.K. Patent Office has refused a patent applications for a computer programmed to combine the image of clear structures and produce an image of the combined structure⁵⁷. The reason for refusing this application was on the ground that these applications disclosed no more than a mental act. The Parliamentary Committee of Science and Technology commented:

“the case may itself clarify many of the current areas of debate, such as how far the “mental act” exclusion should extend, and how the technical advance criterion should be interpreted. Depending on the degree of clarification, there may or may not be scope for clarifying the legal status of the exclusion of computer programs to realign

⁵⁴ Ibid. Note (49) above.

⁵⁵ In re Patent Application No 9204959.2 by Fujitsu Ltd. (A Rejection by the Principal Examiner in June 23, 1995).

⁵⁶ See. The TIMES. Tuesday 18 June 1996.

⁵⁷ Ibid.

U.K. decisions with those of the EPO. In addition, the amendment of the EPC to remove the program exclusion could be considered".⁵⁸

The U.K. judgments on the patentability of computer programs are similar to the EPO approach. As mentioned above, both require the presentation of some technical progress over and above the software itself. However, there is a difference in the interpretation of claims for a software patent in terms of technical advance measure⁵⁹. These differences arise mainly because the EPO does not have to follow precedents and can adopt more flexible procedures as well as adjusting its interpretation of technical advance measures in accordance to the condition of each case. On the other hand, the U.K. system requires decisions to be made on the basis of the latest progress in case law, which means that the case by case flexibility available at the EPO is unavailable to the U.K. Patent Office, even though it has an obligation under the law to follow EPO decisions very closely.

In addressing some of the issues for both copyright and patent protection of computer software, the UK Patent Office organized a Forum in 1994 attended by many from the software industry and the legal profession. The Forum concluded the following points⁶⁰ :-

- Current copyright provisions for software - related innovation are satisfactory;
- There was some uncertainty as to whether programs and databases should be treated separately for copyright purposes;
- Software-related inventions should be capable of being assessed for patentability on the same basis as other inventions. There should be narrow exclusions for program listings and methods of doing business.

Broadie⁶¹ argues of UK law that "there were a series of word-processor cases where applications were rejected here which had been accepted in the U.S. Our mental act doctrine is the most restrictive in the world. Europe is somewhere between us and the U.S. It is however, difficult to compare the U.K. and Europe, because you have to opt for

⁵⁸ Ibid.

⁵⁹ See the Parliamentary Office of S & T Report. Ibid note (42) above at 32.

⁶⁰ Quoted from the Parliamentary Committee of S & T Report. at 32.

⁶¹ Broadie. R. "Patent Software: The *Alappat Case*" A CLIP Seminar Report - The Intell. Prop. Institute (1994) at 22.

one route or the other”.

(4) Japan Patent Office

Japanese patent law does not specifically deal with computer software. In Article (2) of the Law, the definition of a patentable invention involves "a high level of novel technological thought using the law of nature". The requirements for a computer program to fulfill the article are:-

- (1) the computer program should involve technological thought;
- (2) the thought should have an industrial use; and
- (3) the invention should be novel.

The following conditions are required by the Japanese Patent Law for a software invention to be considered as statutory subject matter:⁶²

1. The claimed invention utilizes a physical law of nature when processing information; or
2. The claimed invention substantively utilizes hardware resources.

The first way to satisfy the first condition can be claiming that the invention is involved with controlling hardware resources. The second way is by claiming that the invention processes information “based upon the physical or technical nature of an object”⁶³. To satisfy the second condition, the invention must make a substantive use of a hardware resource. The hardware resource must be included in the claim and must play a substantive function in achieving the object of the invention.

In general Japanese practice, claims can be classified as process claims and product claims.

The claim in both processes or products does not effect whether the claimed invention is statutory or not. The claim as a whole is considered in deciding whether the invention is statutory. The argument presented by Stobb is that there is “no doubt, the question of what software inventions are patentable is far from over”⁶⁴. However, the following are

⁶² See Stobb “Software Patents”. 1996 Supplement P.79

⁶³ Ibid at 80

⁶⁴ Ibid at 81

examples of non-statutory subject matter under Japanese practice.⁶⁵

- Programming languages
- Computer programs per se
- Computer program products, reciting computer programs recorded on a storage medium.

In 1976 the Japanese Patent Office issued Guidelines for Examination of Inventions Concerning Computer Programs. The Guidelines required a close connection between the hardware and the software in a computer to determine which technical thoughts were to be patentable. The patentable claims include method-process claims based on a law of nature; claims not based on a law of nature (e.g., calculating method); a computer-aided controlled machine; apparatus to operate a computer or its components; or a computer system loaded with programs not related to laws of nature.⁶⁶

Some analysis of the guidelines established by the JPO for the examination of computer-related inventions suggests that what may be acceptable for patentability under *Diehr* in the US Patent Office could be patentable in Japan with different abstract concepts from those relied on in *Diehr*. The Japanese patent examiners attempt to distinguish the function of the program on the basis of an acceptable subject tied to a physical, technical or natural law, then to find out whether the program is a permissible industrial application.⁶⁷

There has been a proposal by the Ministry of International Trade and Industry to control the examination of computer-related patent applications. The proposal is mixed between patent and copyright concepts. It deals directly with many of the problems created by the application of copyright principles to software. The proposal is leaning toward a more patent-like structure for protection, and the examination process and disclosures were based on a policy similar to that of patent, with conditional protection of technology to provide some access to information about the technology.⁶⁸ However, in July 1993, the

⁶⁵ Ibid at 82

⁶⁶ Ibid. Note (20) above.

⁶⁷ See H Hanneman *The Patentability of Computer Software: An International Guide to the Protection of Computer-Related Invention* (1985)

⁶⁸ Raymond J Nimmer & Patricia Krauthaus: *Classification of Computer Software for Legal Protection: International Perspective* Int'l Lawyer. Vol.21 Summer 1987. P751.

Japanese Patent Office issued new Guidelines describing how computer software should be viewed vis-a-vis the “Law of Nature” utilization requirement. According to these Guidelines computer software inventions are examined according to the following test:

The following inventions are classified as statutory inventions:

(I) Inventions in which natural laws are utilized in the formation processing by software, i.e.

(1) Execution of control with respect to hardware resources or processing accompanying the control, or

(2) Execution of information processing based on the physical or technical nature or properties of an object.

(II) Inventions in which hardware resources are utilized.

Although the term in (I) (2) above is not defined, the Japanese Patent Attorneys Association (JPAA)⁶⁹ interprets this provision to include “any existing object such as a signal, character, image, picture, data, layout, pattern, shape, hardware or the like”.⁷⁰ The purpose of the JPAA interpretation is that the statutory subject matter has been broadened by the Guidelines which make it possible to apply for a patent for such subject matter as a character recognition/communication format or signal format and so on.⁷¹

In the JPAA’s opinion, the Guidelines do not open the pathway to all types of software - implemented inventions. Inventions which are not believed to have utilized natural law in the information processing by computer, and which are not considered to have utilized hardware resources, are the following:

“When information processing is based on mathematical methods, schemes, rules or methods for doing business or performing mental acts, and the like, and also when the limitation imposed by hardware resources in a claim corresponds to an inevitable restriction (mere use of hardware resources)

⁶⁹ See. Questions and Answers of Japanese Patent Practice 26. question 62. in paper distributed by the Japanese Patent Attorneys Association - JPAA (Nov. 1983) following the Seminar on Japanese Patent Practice. Arlington, Va (USA) and L.A. Ca (USA) June 15-18. 1992 cited in Stobb. Ibid note (62) at 345.

⁷⁰ Ibid.

⁷¹ Ibid.

resulting from the use of a computer, then the claimed invention is not considered to have utilized natural laws”.⁷²

Prior to the enactment of the 1993 Guidelines, Ministry of International Trade and Industry (MITI) promulgated Guidelines in 1982 providing that a microcomputer which is designed to achieve a particular purpose may be patented and, to the extent that software has been created as an integral part of the micro computer, the software can be covered by the same patent as is covering the said microcomputer. However, the 1993 Guidelines still apply the “law of nature utilization” test.⁷³

(b) International Computer Software Protection

There have been proposals to clarify the law as it relates to computer software and to provide a comprehensive plan for its protection. Two proposals focused on copyright law and attempted to include programs within a copyright-based scheme of protection.⁷⁴ These come from the World Intellectual Property Organisation (WIPO)⁷⁵ and Association of Data Processing Services Organization (ADAPSO). As already noted, another proposal by the Ministry of International Trade and Industry (MITI) in Japan included computer software within the coverage of patent law⁷⁶.

In 1983 a draft treaty sponsored by WIPO would have required signatory countries to provide protection against unauthorized disclosure, copying or use of program specifications to create similar programs. It provided for adoption of national treatment principles for programs with a twenty-year period of protection, but a number of countries suggested that no treaty was needed because of the adequacy of existing copyright protection.

⁷² Ibid.

⁷³ Ibid at 346.

⁷⁴ Davidson: *Protecting Computer Software: A comprehensive Analysis* 23 *Jurimetrics J.* 337 (1983)

⁷⁵ Ibid. Note (1) above.

⁷⁶ See Japan Patent Law, as discussed above.

(1) WIPO Model Provisions on the Protection of Computer Software

The World Intellectual Property Organization proposal provided a *sui generis* system of protection for computer software. Section 1(i) of the proposal defined a computer program broadly as "a set of instructions capable, when incorporated in a machine-readable medium, of causing a machine having information-processing capabilities to indicate, perform or achieve a particular function, task or result."

The proposal granted protection to the "proprietors", and included both economic and moral rights. Section 5, "Right of Proprietor", provided that:-

"The proprietor shall have the right to prevent a person from:

- (i) disclosing the computer software or facilitating its disclosure to any person before it is made accessible to the public with the consent of the proprietor,
- (ii) allowing or facilitating access by any person to any object storing or reproducing the computer software, before the computer software is made accessible to the public with the consent of the proprietor;
- (iii) copying by any means or in any form the computer software:
- (iv) using the computer program or a program description of the computer program or of a substantially similar computer program;
- (v) using the program description to produce the same or a substantially similar program description or to produce a corresponding computer program;
- (vi) using the computer program or a computer program produced as described in (iii), (iv) or (v) to control the operation of a machine having information-processing capabilities, or storing it in such a machine:
- (vii) doing any of the acts described in (vii) in respect of objects storing or reproducing the computer software or computer software produced as described in (iii), (iv) or (v)."

The proposal expressly excluded any protection of the "concepts" on which the software is

based.⁷⁷ The duration of protection for computer software would last twenty years as measured from the earlier of the two dates of first use, or first sale, not to exceed twenty-five years from the creation of the software,⁷⁸ although some suggested that this period of protection seems too long, presumably because the commercial life of a program is shorter.

The most advanced feature of the proposals was that they eliminated the uncertainty of national treatment, as Section (9) did not pre-empt other applicable national laws in order to provide "a form of protection specific to the needs of computer procedures".

(2) The Berne Convention

The Berne Convention for the Protection of Literary and Artistic Works (1886) was the first international agreement to regulate intellectual property.⁷⁹ It is considered one of the most successful existing IPR conventions, as most nations of the world have acceded to it. It has been revised several times since 1886. The last amendments were in 1979.

Article (2) of the Convention defines the subject matter of the agreement as "literary and artistic works", which includes "every production in the literary, scientific and artistic domain, whatever may be the mode or form of expression". Although the Convention does not mention computer software, the broad scope of protected works and the fact that the Convention does not contain any limitation as to the use or purpose of the work in Article (2), it may be considered as an explicit confirmation that computer software in any form should be protected under the terms of the Convention.⁸⁰

Other important provisions of the Berne Convention related to software concern the terms of protection. Article (7) of the convention states that the term of protection to be given for covered work must be at least the life of the author plus fifty years, or in the case of joint works, fifty years after the death of the last survivor. The protection given by the

⁷⁷ Ibid. Note (1) above. [Model Provisions §§ 3-3]

⁷⁸ Ibid §7.

⁷⁹ Laun. M.W. "Improving the International Framework for the Protection of Computer Software". Univ of Pittsburgh Law Review. Vol 48 (1987) at 1155.

⁸⁰ Kinderman. "Computer Software and Copyright Convention". 3 EIPR (1981)

Convention takes a wide view of what may be protected and provides a long length of protection as well as exclusive rights to reproduce and authorize public performance, and limited fair use according to Article (9), (14), and (10) of the Convention.

According to Article (3)(1)(a), an author who is not a national of one of the member states is entitled to protection in all member states, if his work is first published in a Berne country or simultaneously in a non-Berne member country and a member country. Article (3) (1) (b) states the "Unpublished works can be protected only if the author is a national or habitual resident of one of the signatory countries. According to Article 3(4), "A work shall be considered as having been published simultaneously in several countries if it has been published in two or more countries within thirty days of its first publication".

Under the Berne Convention, there are no requirements for the copies of a work to be embodied in a visually perceivable or readable form in order to receive protection; also the copy may be produced by any means of manufacture according to Article 5(1)(2) and 4(b). Thus, computer software may be considered within the meaning of the Berne Convention if tangible copies of it are made available, with the consent of the authority which may provide satisfactory protection under the Convention, and if such is deemed desirable.⁸¹

There are certain exclusive rights granted to the author of a work where he/she may require works of translation, adaptation and alteration to be authorized⁸². The Berne Convention requires that only the author's name appears on the work for the purposes of infringement procedures according to Article (15). However, the protection provided by the Convention extends to work which complies only with the copyright legislation required in the country of origin.

There is no compulsory licensing nor short term protection provided for literary works under the Berne Convention⁸³. Karjala argues that

⁸¹ Arckens. I.M. "Obtaining International Copyright Protection for Software National Laws and International Copyright Conventions" Federal Communications Law Journal. Vol.38 (1986) 298

⁸² Article 8, 11 and 12 of the Berne Convention.

⁸³ Karjala. D.S. "Recent United States and International Developments in Software Protection" 2 Eur. Intell. Prop. Rev (1994) 58

“one might consider a compulsory licencing scheme that would provide creators of new and popular program features a financial return from later creators who use them as building blocks, but would not allow enjoining the use by others altogether. Therefore, only the scope of protection under the idea/expression distinction is available generally for drawing the policy balance for this new type of copyright-protected work”.⁸⁴

In terms of levels of economic development in different parts of the world, the Berne Convention does not provide for specific translation rights and reproduction licences for developing countries⁸⁵. Such licences may not necessarily join with those in national laws intended to promote translation into minority languages.⁸⁶

(3) The Universal Copyright Convention

The Universal Copyright Convention U.C.C. is another international agreement which regulates intellectual property. It was established in 1952 under the sponsorship of UNESCO. The UCC required member states to accord a reciprocal treatment to the copyright laws of all other member states. As each member state should provide adequate and effective protection to the rights of authors and other copyright proprietors in literary, scientific and artistic works.

Article I of the UCC provides that protection must be available for “authors and other copyright proprietors in literary, scientific and artistic works, including writings, musical, dramatic and cinematographic works, and in paintings, engravings and sculpture”. A writing is considered a work of the human intellect, expressed in language and fixed in conventional, readable symbols, such as phonetic language, code or shorthand. The definition of “literary, scientific and artistic works” may be broad enough to encompass computer software including computer programs in machine - readable form which have been categorized as writings in some countries.⁸⁷

⁸⁴ Ibid.

⁸⁵ Geller, P.E. “Legal Transplants in International Copyright: Some Problems of Method” UCLA Pacific Basin Law Journal. Vol 13 No 1 fall (1994) 230.

⁸⁶ Ibid.

⁸⁷ See. Arkens. Note (81) above at 295

The UCC requires minimum substantive rights, including the right of reproduction, public performance and broadcasting, to be accorded to works protected under the laws of a signatory states. It also requires that each contracting state grant to the unpublished works of the nationals of all contracting country protection similar to that which it grants to the unpublished works of its own nationals. Each contracting state must accord the same protection which may be granted to works first published by its nationals within its borders to works which are first published in any contracting state by nationals of any country; or published in any country by a national of contracting states (Article II).

Arkens⁸⁸ argues that, as a result of the above requirements,

“publication may be a prerequisite to obtaining meaningful protection in states which accord little protection to the unpublished works of their own nationals. A work is published when tangible copies of it, from which the work can be read or otherwise visually perceived, are generally distributed to the public through the sale of copies sufficient to satisfy public demand”.

The UCC provides the author of a work an exclusive right to “authorize reproduction by any means” and to “make, publish and authorize the making and publication of translation” according to article IV and V. Article V also provides that this right will lapse if after seven years an author has not authorized a translation, and certain procedures are followed. It is argued that this provision “does not grant the right to translate computer programs from one computer language to another because the U.C.C. refers to translations in a “language in general use”.⁸⁹ It is also argued that

“it is likely that the drafter of the UCC never considered the implications of the lapsed translation provisions as they could be applied to computer software. Even in the event that computer programs could be translated into another computer language after seven years this is irrelevant, given the limited commercial life of software”.⁹⁰

⁸⁸ Ibid.

⁸⁹ Ibid note (79) at 1158

⁹⁰ Ibid.

The author is required under the UCC to affix the copyright sign (©) along with the name and the year of publication. This symbol will provide protection for the works and such protection is extended to non-nationals of a signatory state who comply with this requirement even if the laws of the signatory state require more formalities from its own nationals.

The term of protection is governed by the law of the state in which protection is claimed. However, the UCC requires a minimum period of protection from each of its signatories. Protection must be granted for the author's life plus twenty-five years according to article IV(2)(a). A signatory may not provide for a shorter term of protection for computer software for authors who are its nationals without establishing an exception for foreign authors.

The UCC imposes compliance with minimal formalities in some situations. However, these requirements cause no problems for computer software⁹¹. In relation to computer programs, a copyright notice must be presented on the original form of the program (i.e. the source language program) in a way that the copyright notice will also be visually perceivable on a program printout or on the program recorded in a storage medium.

Despite these provisions under the UCC, it is argued that

“because the UCC is only a reciprocity agreement, however, computer programs will only be protected in countries where domestic copyright law is applicable to software.

If a country does not provide copyright protection for programs, computer programs of nationals of other contracting state will likewise be unprotected⁹².

To secure copyright protection as published work under the UCC in a country that provides little or no protection to unpublished works, one should publish the software by distributing in one member country of the UCC visually perceivable copies of the software to the general public.⁹³

⁹¹ Ibid. Arkens at 297

⁹² Ibid.

⁹³ Ibid.

The UCC Convention is more flexible in terms of copyright protection by comparison with the Berne Convention.⁹⁴ The emergence of UCC was mainly because the United States copyright legislation long had differences from legislation in the Berne Convention and consequently the United States refused to join that Convention until 1989.

(4) Trade Related Aspects of Intellectual Property (TRIPs)

TRIPS opted for copyright and trade secret protection of computer programs instead of patent protection. Article (1) I of the Agreement stipulated that:

Computer programs, whether in source or object code, shall be protected as literary works under the Berne Convention (1971).

Although there was some debate whether computer software should be protected as “literary work”, it was accepted that copyright should extend to computer programs in object code or source code form, following the 1991 EC Directive on this subject⁹⁵.

The TRIPS agreement allows member countries to determine the level of patent protection to be afforded program-related inventions within their national legislation. But they cannot be free to impose their respective decisions on other member countries. Unfortunately, the availability of patent protection for computer programs varies significantly between member countries. It is even undetermined and controversial in many developing countries.⁹⁶

Article 27(1) of the agreement prohibits field - specific exclusions from patentable subject - matter. It provides that

“patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application patent shall be available and patent rights enjoyable without discrimination as to place of invention, the field of technology and

⁹⁴ Palmer, J. “Research in Law and Economics” Vol 8 page 235-237. JAI Press In. (1986) (ed).

⁹⁵ More discussion to follow. See part II (B) (5) infra.

⁹⁶ Reichman, J.H. “Universal Minimum Standards of Intellectual Property Protection under the TRIPS Component of the WTO Agreement”. *The International Lawyer* Vol 29 No 4 Summer (1995) at 360.

whether products are imported or locally produced”.

Reichman⁹⁷ argues that because of the above provisions the national patent law must recognize some program-related inventions where they meet other criteria of patentability including the non-obviousness standard. He adds that

“there is, however, even less consensus concerning the proper application of patent-law doctrines to computer programs than exists with respect to biogenetic engineering ..., any developed or developing countries that disfavors patent protection of computer software may allow its judicial or administrative authorities to emulate the many restrictive doctrines and practices recognized by developed legal systems, without running afoul of its TRIPS obligations”⁹⁸

Recognition of computer programs as protected under copyright law whether in “source or object code as literary works under the Berne Convention (1971)” and the exclusion of “ideas, procedures, methods of operation or mathematical concepts as such”, raises many questions. For example, the US Federal appellate courts limited copyright protection to wholesale duplication of computer programs for fear that they inadvertently protect functional devices.⁹⁹ The treatment of computer programs “as literary works” remains doubtful because no authority has applied the copyright law to computer programs without “tailor-made” adjustments of considerable importance.¹⁰⁰

Reichman argues that

“the most valuable aspect of a computer program resides in the dynamic behavioural impact it achieves by means of a functionally determined combination of subprograms.

Yet, copyright laws cannot protect functionally determined combination of data structures or functional components of user interfaces without granting patent-like protection, nor do copyright laws protect the technical know-how and industrial

⁹⁷ Reichman, J.H. “The Know-How Gap in TRIPS: why Software Fared Badly, and Waht are the Solutions”. 17 *Hasting Comm & Ent I.J.* (1995) cited in above.

⁹⁸ *Ibid.*

⁹⁹ See 17 USC §101 (definition of computer program). 102(b) (idea-expression) (1988); also see. *Gates Rubber Co v Badno Chem Indust Ltd.* 9F 3d 8232 (10th Cir 1993); *Computer Assocs. Int'l Inc v Altai, Inc.* 982 F2D 693 (2d. Cir 1992); *Brown Bag Software v Symantec Cor..* 960 F2d 1465 (9th Cir). *cer denied.* 113 S.Ct. (1992) in note (96) above.

¹⁰⁰ *Ibid* at 371.

design responsible for program behaviour.....neither copyright laws nor trade secret laws as reinforced by the TRIPS Agreement prevent re-implementation of functionally equivalent behaviour. Nor do these laws impede second comers in developed or developing countries from using components that are functionally determined or that constitute either standards of efficiency in the trade or market - determined standards that consumers require".¹⁰¹

(5) EC Directive on the Legal Protection of Computer Programs

The EC Directive¹⁰² on the Legal Protection of Computer Programs came into force from 1991. It requires EC Member States to adopt a harmonized regime of copyright protection for computer software. It is an attempt to reach a compromise on the largely different attitudes to software copyright throughout the Community.¹⁰³

Article 1(1) provides that:

Protection in accordance with this Directive shall apply to the expression in any form of a computer program. Ideas and principles which underlie any element of a computer program, including those which underlie its interfaces, are not protected by copyright under this Directive.

The protection provided by this article indicates that copyright will be granted for all versions of computer programs. But the meaning of excluding ideas and principles from protection by copyright is not clear, and the excluded items are not defined, as the specification of interfaces constitutes ideas and principles which underlie the program. According to common definition every computer program is an algorithm. The question here is how to distinguish between non-protected idea and protected expression.

However, the Directive does not explicitly exclude logic, algorithm and programming languages from copyright protection *per se*, rather only to the extent that they include ideas and principles.¹⁰⁴

¹⁰¹ Ibid.

¹⁰² COM (88) 816 final: OJ 12 April 1989 C91/4

¹⁰³ Reed. C. "Reverse Engineering Computer Programs Without Infringing Copyright" 2 EIPR (1991) 52

¹⁰⁴ DREIER T. "The Council Directive of 14 May 1991 on the Legal Protection of Computer Programs" 9

Article 1(2) is unlikely to remove any of the confusion mentioned above. The explanatory memorandum comes to its conclusion at paragraph 3.13, which states:

"If similarities in the code which implement the ideas, rules or principles occur as between inter-operative programs, due to the inevitability of certain forms of expression, where the constraints of the interface are such that in the circumstances no different implementation is possible, then no copyright infringement will normally occur, because in these circumstances it is generally said that idea and expression have merged."

Article 1(3) required a test of originality for software providing that "A computer program shall be protected if it is original in the sense that it is the author's own intellectual creation. The purpose of this article seems to have a definition of originality as well as to harmonize the standards of protection in all Member States. However, it is argued that it has proven as difficult for Member States "as it would for any Legislative body to define a concept for interpretation of that which traditionally has been reserved to the court".¹⁰⁵

Article 4 of the Directive provides that the author of the program has the exclusive right to authorize "the permanent or temporary reproduction of a computer program by any means and in any form, in part or in whole". It specifies that any "loading, displaying, running, transmission or storage of the computer program necessitate such reproduction, such act shall be subject to authorization by the rightholder".

The Directive does not include a definition of the term 'reproduction'. It is also not clear whether the acts of loading, displaying, running, transmission or storage of a computer program have to be classified as reproductions. Rather it seems that such acts are subject to authorization by the author which can be seen as a further monopoly to the author to prohibit any use not authorized by him.

It is argued that since reproduction as defined in Article 4(a) also includes any temporary

Eur. Intell. Prop. Rev. (1991) 320

¹⁰⁵ Ibid.

reproduction, the acts taking place such as running, displaying, etc., may, more often than not, require the rightholder's authorization. Therefore, it seems that this would offer the board exclusive right which may not be limited by Article 5(1) as the provision of the Article can contractually be excluded.¹⁰⁶ Article 5(1) provides that:

In the absence of specific contractual provision, the acts referred to in Article 4(a) and (b) shall not require authorization by the rightholder where they are necessary for the use of the computer program by the lawful acquirer in accordance with its intended purpose, including for error correction.

Article 5(2) provides that the person authorized to use a copy of the program may not be prevented by contract from making back-up copy insofar as it is necessary for such use. Meanwhile Article 9(1) specifies that:

The provision of this Directive shall be without prejudice to any other legal provision such as those concerning patent rights, trade-marks, unfair competition, trade secrets, protection of semi-conductor products or the law of contract. Any contractual provisions contrary to Article 6 or to the exceptions provided for in Article 5(2) and (3) shall be null and void.

It seems that the Directive is not dealing directly with the contractual prohibition when indicating that the back-up copy was not subject to the owner of a copyright's agreement.

It is argued that in any case, "it is not clear how the necessity or otherwise of the back-up copy could be settled, so that the final statement 'insofar as this is necessary for this use' appears rather unhelpful".¹⁰⁷

An appropriate remedy against specific acts of infringement has to be provided by Member States in accordance to their national laws. These acts, as provided in Article 7(1)(a), (b) and (c):

- (a) any act of putting into circulation a copy of a computer program knowing, or having reason to believe, that it is an infringing copy;
- (b) the possession for commercial purposes, of a copy of a computer

¹⁰⁶ Ibid. note (104) above at 321.

¹⁰⁷ Lucas A. "The Council Directive of 14 May 1991 concerning the Legal Protection of Computer Programs and its Implications in French Law" 1 Eur. Intell. Prop. Rev. (1991) 31..

program knowing, or having reason to believe, that it is an infringing copy;

(c) any act of putting into circulation, or the possession for commercial purposes of, any means the sole intended purpose of which is to facilitate the unauthorized removal or circumvention of any technical device which may have been applied to protect a computer program.

Further, Article 7(2) provides that any infringing copy of a computer program will be subject to seizure in accordance with the Law of Member States concerned. Such means of seizure has been left to the judgement of Member States to circumvent protection devices Article 7(3). Although a possession of an infringing copy for non-commercial and for private use is considered legal according to Article 7(1)(b), under some circumstances which necessitate reproduction, it is not legal according to Article 4(a).

It is not easy to determine copyright infringement by observation, due to the fact that similarities between computer programs may be because they have been written in the same programming language, they are directed towards the same application and they function within the same operating system. Thus, it is not clear if there has been a copyright infringement between them. It is argued that "there is endless scope for argument about what should amount to infringement. Successful programs invite the challenge of more or less competitive variations".¹⁰⁸

On this important issue, Cornish¹⁰⁹ argues that the "Software Directive has relatively little to contribute mercifully, since the essential judgement must be specific to each case and can only be made by courts. The question whether the program itself is infringed - as distinct from copyright in related output, such as screen displays of 'menus' and games - is likely to turn either upon analysis of actual program content at the level of lines of source or assembly code, or else upon analysis of those elements which together make up the program".

Article 8 of the Directive provides that protection shall be granted for the life of the author plus 50 years after his death. The term of protection is a mandatory minimum

¹⁰⁸ Cornish, W.R. "Intellectual Property: Patents, Copyright, Trade Marks and Allied Rights" 3rd (ed) (1996) at 446.

¹⁰⁹ Ibid.

harmonization standard according to Article 8(1). Although some argument infer that the duration of copyright protection can be excessive for computer program. Dreier¹¹⁰ suggests that "this argument does not seem to be of great significance, since most likely, the economic life of a program will be much shorter than even the 50 years after its creation. If some protected parts of a program will in fact have a longer economic life - which may, of course, not totally be excluded - it would be a political question to be decided whether any longer protection would be excessive, or whether, quite to the contrary, it would be well justified given the success of such program parts."

Finally, the Directive seems to resolve some of the major debates between all parties involved. It has made an attempt to balance between their interest and their needs. One of the most important results is that Member States can now be free to integrate computer program protection in accordance to its own national legislation and can add to the provisions presented by this Directive. Thus, it is suggested that Member States should implement the exact wording in the national copyright legislation and it would not be necessary to adopt a specific section on program protection.¹¹¹ It is, however, a better example for a regional law reform for the protection of an important and increasing field of technology. Such a move towards standardisation and inter-operability should be encouraged in the computer industry in general.

III Computer Software Protection in Saudi Arabia

(a) Patent Law

The Saudi Patent Law explicitly excludes the protection of "mathematical methods" as Article(8) states that:-¹¹²

"For the purpose of this law, the following shall not be regarded as invention:

- (a) Discoveries, scientific theories and mathematical methods.
- (b) Principles, rules and techniques of doing business; pure mental activities or playing any game.
- (c) Varieties of plants or animal species or biological process used to

¹¹⁰ Ibid note (104) above at 326

¹¹¹ Ibid at 327.

¹¹² Saudi Patent Law. Royal Decree No M/38 dated 10/6/1409 (corresp to Jan 17 1989).

produce plants or animals with the exception of microbiological processes and products thereof.

(d) Methods of surgical or medical treatment of the human body or of animals, and methods of diagnosis applied to the human body or to animals with the exception of products used in any of these processes.

So far the issue of computer software protection has not arisen in the Saudi Arabian Patent Office, nor has it attained sufficient priority for legislative action. However, there is no explicit exclusion of computer programs from patentability.

(b) Copyright Law

Computer programs may obtain protection through the Saudi Copyright Law, as Article 3(10) of the Saudi Copyright Law states:-¹¹³

"In general, protection under this law shall cover authors of classified works whose mode of expression is either written, sound, painting, photography or motion, particularly the following:

- (1) Books, booklets and other printed materials.
- (2) Classified works which are delivered orally, i.e., lectures, speeches, sermons, poems, songs etc.
- (3) Dramatic works, plays, shows or any similar presentation which involves motion.
- (4) Classified works which have been specifically prepared for broadcast through radio or television.
- (5) Painting, works of figurative arts and architecture, decorative arts, and artistic embroidery.
- (6) Works of practical arts, whether vocational or industrial.
- (7) Works of photography, including works in which methods similar to those of making photographic pictures are used, i.e., fixed pictures which are transmitted via television but which do not have a physical mounting.
- (8) Illustrative pictures, geographical maps, designs (graphic sketches), figurative works connected with geography, topography, architecture

¹¹³ Saudi Copyright Law. Royal Decree No M/11 dated 19/5/1410 AH (corresp to 17 Dec 1990).

and science.

(9) Computer programs.

The Saudi Copyright Law became effective in January 1990. The Law replaces the ineffectual protection contained in the Printing and Publishing Regulation.¹¹⁴ The Copyright Law provides that all scientific, literary or artistic works expressed in writing, sound, painting, photography, or motion are governed by the law.

In terms of computer programs, it is not clear whether the protection covers the form in which a work is expressed or the underlying idea which that form of expression delivers. It is also not clear whether algorithms and programming languages which comprise ideas and principles are protected or not under this article. The duration of software protection is not mentioned specifically either.

Article 1 of the law provides definitions of terms such as "classified work" which is "any literary, scientific or artistic work which has not been previously published", and other terms as "author", "publishing", "creation", "copying", and "national folklore". None of these definitions mentioned therein refers to Saudi apart from "national folklore", according to article (1). Its definition is

"all classified literary, artistic or scientific works, which are presumed to have been created in Saudi Arabia by authors, who are presumed to be Saudi nationalists, and which have been passed down from generation to generation, thus representing part of the Saudi Arabia national cultural heritage".

This indicates that both Saudi and foreign authors may enjoy the protection of their work when presented for the first time in the country.

Article 7 provides for the author's rights in detail. These may be used only by the authors of works or, following transfer of copyrights permitted under Article 16, by other holders of the copyrights. Such rights include the rights to publish, record, display, translate, make any changes or deletion, withdraw the work from circulation and to exploit the works

¹¹⁴ Printing and Publishing Regulations. Royal Decree No M/17 dated 13/4/1402 AH (corresp to Feb 7 1982).

financially in any lawful manner. Article 8 provides a list of specific uses of a work of authorship which may be taken by another without permission of the author. These lists include the right to make copies for personal use and limited rights to quote in appropriate citation, to use for educational purposes, and to copy where copying may be carried out by public libraries and other specific organizations or in the publishing of news items.

In cases where a number of individuals contribute to the authorship of a work, Article 9 provides that if their contribution in the work cannot be separated and they should be considered equal partners in the ownership of the work, no one of them can individually obtain the rights prescribed under this law unless it is otherwise agreed to in writing.

Although no compulsory licensing is provided for in the law, the Ministry of Information has the right to permit or order publication or copying of such work under certain circumstances where permission is refused by the author. As stated in Article 10:

the Ministry shall have the right to issue permission for publishing and copying of such classified work for educational, cultural or scientific purposes after three years from the date of first publication, without violating the author's rights prescribed under this law. The terms for such publishing or copying shall be determined by the Ministry. The authority or his agent shall have the right to appeal to the Board of Grievances¹¹⁵ within thirty days from the date of notification of the Ministry's decision.

Article 18 also allows the Ministry of Information to have the same action against the heirs of the work's author. These exceptions provided in article 8,10 and 18 are based on the traditional Islamic concern that knowledge should be freely available to everyone.¹¹⁶

Article 17 states that:

1. Copyrights provided for under this law shall be transferred to the heirs of the author.
2. If the author stated in his will that the publication of his classified works would be barred or if he specified a date for such publication, his instructions shall be

¹¹⁵ For more detail of the Board of Grievances, please refer to Chapter 1. Part I (3) (d) supra.

¹¹⁶ For more detail of Intellectual Property Theory under the Islamic Sharia Law, please refer to Chapter 2. Part III (c) supra.

carried out as prescribed.

3. In case of death of an author of a joint classified work without heirs, his share shall be passed to those entitled to it according to the provisions of the Islamic Shari'a Law.

These exceptions provided in article 8,10, and 18 were very carefully planned to ensure the prevention of international commercial benefits at the expense of the original authors.¹¹⁷

However, article 18 provides that:

If the heirs do not take advantage of the rights which have been transferred to them pursuant to the provisions of Article 17 of this law, and when the Minister deems that the public interest requires publication of the classified work, he may send a registered letter to the heirs requesting their approval for the publication of the classified work. If no permission is received within one year from the date of the request, the Minister shall have the right to order publication of the classified work after hearing the heirs' opinion in the Board of Grievances, together with paying an equitable compensation to the heirs.

Article 23 states the works of Saudi and foreign authors are to be protected if they are published or presented for the first time in the country. It states

The following classified works shall be subject to this law.

1. Classified works of Saudi and foreign authors which are published, performed, or displayed for the first time in the Kingdom of Saudi Arabia.
2. Classified works of Saudi authors which are published, performed or displayed for the first time in a foreign country.

The law would appear not to extend protection in any sense to the works of foreign authors, since actually no foreign works are published for the first time in Saudi Arabia, and in particular computer programs. This raises the demand for clarification of these provisions in the rules of implementation of the law pursuant to Article 33 thereof.¹¹⁸ It is argued that this article raises unresolved issues whether and to what extent foreigners will

¹¹⁷ Ehlert, Dirk "The Protection of Industrial and Intellectual Property in the Kingdom of Saudi Arabia". A presentation in the Meeting of the Representative of the OECD Countries under the Auspices of the Council General of the Netherlands. Jeddah, Saudi Arabia, May 1990

¹¹⁸ Article (33) of the Saudi Copyright Law states:

The implementing regulations of this law shall be issued by the Minister of Information after concurrence of the Ministry of Education and the General Presidency of Youth Welfare.

be protected against infringement of copyright works.¹¹⁹

Ehlert¹²⁰ argues that

“it remains unclear whether the publication for the first time in Saudi Arabia requires no prior publication abroad at all. Moreover, it is unclear whether the publication for the first time must be authorized by the original author or whether a publication without the prior authorization of the author is sufficient so that the author enjoys protection of his work in the Kingdom though he has never published it here”..

Further he adds that

“different ways of interpreting the law may have significant influence to what extent foreign copyrights will enjoy protection in Saudi Arabia. Depending on the interpretation foreign authors may be treated nearly like Saudi’s or they may have nearly no problem at all, because generally the first publication at all which does not take place in Saudi Arabia but in the country of the owner of the copyright”.¹²¹

Article 24 specifies the duration of copyright protection. It states:

1. The period of copyright protection for the author of the classified work shall continue during his lifetime and for a period of fifty years after his death.
2. The period of copyright protection shall be for twenty-five years from the date of publication for classified sound and audio-visual works, photographic pictures and works of applied arts (vocational or industrial) and for classified works which are published without citing the name of the author. Computation of the period of protection shall begin from the date of the first publication of the classified work without regard to republishing.
3. The period of copyright protection for joint classified works shall be computed from the date of the death of the last surviving author.
4. Computation of the period of protection for classified works where the author is a legal entity shall be from the date of the first publication of the classified work.

¹¹⁹ Ibid note (117) above at 35.

¹²⁰ Ibid.

¹²¹ Ibid.

5. When the classified work is composed of several parts or volumes, published separately or over periods of time, each part shall be considered as an independent classified work for purposes of the computation of its period of protection.

Article 27 indicates the legal elements of an infringement of the copyright. It states that:

In accordance with the provisions of Article 8 of the law, any person who, without permission of the owner, practices any of the acts described in Article 7 of this law, or issues, copies, sells, rent, distributes, imports or exports any classified work or injures the author's right in it shall be considered to have violated the copyright law.

Penalties and the implementation of competent authority to judge upon infringements are presented in Article 28. A Committee is to be formed by the Minister of Information in order to review infringement cases according to Art.30. It provides that:

1. At the Minister's decision, an Infringement Oversight Committee shall be formed with a minimum of three members, one of whom is a legal advisor.
2. Decision of the Committee shall be made by majority vote, but shall not take effect without issuance of the Minister's approval.

Confiscation or destruction of all copies made in violation of classified work and of materials related to the criminal act, as it may dispose of such materials, is subject to an order of this Committee at the request of the copyright holder. The Committee may issue interim orders to stop publication or display or impound revenues gained from publication.

It may also issue other interim orders it deems appropriate pending final resolution of an action for infringement. When penalty or compensation against a party has been issued by the Committee, the party is entitled to file an appeal at the Board of Grievance within 60 days from notification Article 31.

(a) The Need for Protection of Computer Software in Saudi Arabia

While there is protection for computer software under the Saudi Copyright Law, the absence of protection under the Saudi Patent Law and the non-protection of works published abroad mean that there is an urgent need for clarification and classification of the scope and character of protection for software. A solid legal framework to carry on the responsibility to be allocated between two systems of intellectual property for the proper protection of computer programs is also in demand.

Computer technology is an essential part of the world economy.¹²² Its role is increasingly significant in almost every aspect of modern technological and business life.¹²³ Computer technology is unlike any that society has ever previously been introduced to. It has a special dual nature: “the instructions in software can be permanently imprinted as hardware and functions traditionally associated with hardware can be performed by software”.¹²⁴ Thus, a secure and reliable intellectual property protection for the computer creators may enable the original creator to prevent others from copying the ideas and innovative activities which they have invested in developing their products.¹²⁵

The distinction in terms of embodiment between computer software and more solid technology is prescribed by the manner in which each technology functions.¹²⁶ As the mechanical engineer uses pumps and pipes to manipulate physical objects, the software engineer or designer uses programs to manipulate inchoate data¹²⁷. Thus, computer programs should be treated differently from other technologies because “the nature of computer software allows its creators to write, market and sell software in less time but with the same number of potentially patentable inventions than the creators of earlier, more concrete technologies.”¹²⁸

¹²² Griem, J.M. “Against a *Su Generis* System of Intellectual Property for Computer Software” Hofstra Law Review Vol.22 (1993) 145.

¹²³ Ibid.

¹²⁴ Ibid.

¹²⁵ Ibid.

¹²⁶ Ibid at 153.

¹²⁷ Ibid.

¹²⁸ Ibid at 155.

Another aspect of computer software protection is that the growth in the software industry is almost universal and has been achieved despite the lack of protection in some parts of the world. Also the demand for software program or product was high to the extent that developers could prosper without intellectual property protection for their work and could afford to allow others freely copy their ideas, today the industry has expanded to the extent that companies need more effective and reliable protection for their works.¹²⁹

In addition, many countries have started to extend patent protection to some features of computer software or to draft reform proposals under the copyright protection. Such extensions or reforms of protection are heavily influenced by international commitments and harmonization of laws, e.g. under TRIPS.¹³⁰ It is argued that “compatibility with overseas intellectual property systems is crucial to the global success of domestic software industry ... because it enables software developers to reliably protect their products overseas.”¹³¹ The need for protection of computer software in Saudi Arabia becomes very obvious, and it is essential to reform both Patent and Copyright Laws in order to make them compatible with the most recent changes and developments of the international laws.

It is also essential to consider the most important changes in the concepts which exclude computer software from patentability, as in the *Alappat*¹³² decision, holding that a claim based on ‘mathematical algorithm’ is patentable. *Alappat* has shown that “jurisprudence need not be slaves to irrational, unusable doctrine Inventors should be rewarded for their new inventions that are useful to society”.¹³³

In the following, my aim is to study and analyze the protection of computer software in favour of patent protection, as increasingly many computer program producers prefer protection under patent law as the primary option.

¹²⁹ Ibid at 156.

¹³⁰ Christie. A. “Australia’s Proposal for Computer Software Protection” 2 *Europ. Intell. Prop. Rev.* (1994) at 78.

¹³¹ Ibid note (122) above at 158.

¹³² *In re Alappat* 31 U.S.P.Q. 2d (1994)

¹³³ Turkevich. L.R. “An End to the Mathematical Algorithm Confusion?” *Europ. Intell. Prop. Rev.* (1995) 98.

(a) Type of Protection under Patent System

The need for legal protection comes from the desire to provide an incentive to individual creation and development within the issue of exclusive rights. These incentives are aimed at advancing technology through the disclosure of innovation to the public and to distribute their products not only nationally but also in the international marketplace.

Most software that is distributed in foreign markets in quantity is not exported, rather it is produced under licence in or near the designated foreign market. However, when software is manufactured and packaged in a foreign country, the only exporting involved for each product or version is the computer "source code" or "object code" to the distributor but the process of adapting the software to foreign languages and foreign markets of production is done abroad.¹³⁴

The inventor may seek the legal right to protect the functional aspect of his/her invention. Such protection focuses on the extent to which a program can be patented separately from hardware or other aspects of a system. Some patent laws (e.g. US) provided that no patent can be issued in the field of mathematical algorithms alone unless connected to a patentable system, machine or process. Other patent laws (e.g. EPC, UK, Germany) exclude patents for computer programs "as such".

In any case, there is a fuzzy line between the patentable and the unpatentable which is creating uncertainty in interpretation and which seems to be unresolved in most patent laws. The inevitable result is that an abstracted program implemented with a mathematical process is unlikely to be regarded as innovative and subject to patentability. Although claims for protection of inventions which use a computer program are not excluded and may be patentable, the present creative claim drafting for program-controlled computers is not an efficient way towards attaining adequate legal protection.¹³⁵

¹³⁴ Tandy, Gene. K.. "The Software Developers' and Marketers' Legal Companion: Protect Your Software and Your Software Business" Adison-Wisely Publication Co. (1993).

¹³⁵ The Gordian Algorithm: An Attempt to Untangle the International Dilemma over the Protection of Computer Software. *Law and Policy in International Business*. Vol 22 No 4 (1991).

Another type of inadequate practice is the inability to accommodate abstract invention, as a result of the treatment of the computer as divided into three aspects:- hardware, software and algorithms. However, because it is tangible, hardware receives its primary protection under patent law. Software may not receive any protection unless it is linked to physical manifestations, while algorithms do not receive protection at all, unless tied to a physical process.¹³⁶

(b) What Would be Adequate Protection?

To clear the fuzzy lines and distinctions in the protection of computer programs, some commentators suggest "a marketplace approach to software protection using contract law as the foundation and the preservation of competition in the marketplace as desirable to keep consumer prices down, quality high, and to trigger innovation and technological advancement."¹³⁷ I disagree with this view for the reason that the original developer would have his remedy in the contract against the other contracting party, assuming that the said party was able to pay damages; but it is not possible to prevent people who were not parties to the contract from either continuing to use or disclosing the information, nor is it possible to collect damages for large-scale industrial copying.

Other commentators argue that the patent system should take an approach consistent with its new legislation, recognizing both intangible as well as tangible property rights, and should ignore the physical distinction that has been created in intellectual property until now. This view reflects the belief that property is more than just physical ownership: it is a collection of rights that may be infringed in a variety of ways. I agree, because the collection of rights was created by thought and effort; thus the producer should gain its reward by the grant of protection.

Gemignani¹³⁸ has suggested that it is too crude and simplistic to provide patent protection for algorithms. He argues that under the general principles of patent law, algorithms are

¹³⁶ Ibid Note (8) above.

¹³⁷ See Comment. *The Incompatibility of Copyright and Computer Software: An Economic Evaluation and Proposal for a Marketplace Solution*, 66. NCL Rev. pp977-979 (1988).

¹³⁸ Gemignani. *Should Algorithms be Patentable?* Jurimetrics J.. (1982) pp 326-36.

unpatentable anyway, as in their broad form they lack the requirement of utility. If we assume that all algorithms are merely an expression of abstract mathematical principles they are therefore unpatentable; a method of calculation using certain mathematical principles is not necessarily coextensive with all those principles. Why should one mathematical formula be singled out for special treatment while most inventions depend upon an existing law of nature?

Another argument in the case of algorithms has been suggested by Chisum.¹³⁹ He argues against exclusion of mathematical algorithms from patentable subject-matter, concluding that the lack of patent protection for algorithms may induce attempts to rely on other sources of law, such as copyright and trade secrets, that are inherently less suited to the protection of new technological ideas with widespread potential use, because algorithm development remains vulnerable to copying and infringement. In conclusion of this argument Chisum added:

"Policy considerations indicate that patent protection is appropriate for mathematical algorithms that are useful in computer programming as for other technological innovations... The absence of a clear rule on the allowability of patent claims to algorithms... may cause reluctance on the part of financial interests to back new ventures for the development of innovative software..."

Although the extension of patent protection concerning algorithms *per se* would require significant changes to the existing practices of the patent system, I believe it is appropriate to include it in the scope of protection because patentability of computer program processes may encourage technical progress, and also because of the practical controversy that computer-related inventions and algorithms should not be related to the fact that discoveries and natural law are not patentable, and the focus of the law should be on the market value of, and rights to, the product. Therefore I believe algorithms merit protection.

¹³⁹ Chisum. "The Patentability of Algorithms". 47 Univ. of Pittsburgh Law Rev. (1986) 1020.

(c) A Suggested Scheme for the Saudi Patent Office

It is submitted that a classification of methods of protection should be constructed and allocated between the main authorized bodies for protection of intellectual property rights in Saudi Arabia, i.e., the Ministry of Information (MOI) for copyright protection and King Abdulaziz City for Science and Technology (KACST) for patents.

MOI, coordinating with KACST, should adopt a policy to cover the scope of protection in terms of copyright similar to the WIPO Model Provision on the Protection of Computer Software, protecting the form and expression of programs, which is consistent with the most recent international agreement (i.e. TRIPS).

The proposal should define the concept of "computer software" in a manner consistent with the precedents in comparative law, e.g., the legislation of the EC Directive and Japan. It should also incorporate the concept of source and object programs and the distinctions between basic or applied software. The definition should cover such aspects as microcoding, which is the element built into the microprocessor as a component part of the hardware to control a sequence of operational responses to instructions given to the computer, with distinctions as to what should be covered by the patent law.

While covering the successive adapted and derived versions of programs, legal protection should extend to the ideas, methods, concepts, systems and algorithms used in devising those programs, in accordance with proposed patent provisions. The proposed copyright scheme should be confined to those programs that show a minimum of creativity and resort to the concept of originality and should require that a program is not determined exclusively by its function.

A period of protection in accordance with the main international treaties (e.g. TRIPS and Berne Convention) should be adopted and be compatible with international development in this field. In this period of protection, the author should be able to enjoy the exclusive right to use, produce and market such programs, and also authorize third parties to do the same, with the exclusion of any unauthorized copy by third parties other than for personal

purposes, which could be considered an infringement.

The proposed scheme of copyright protection should be based on the promotion of the development of software industries within the country, and should also establish a system suited to the development and interests of national and foreign investors who would be able to maintain commercial benefit by this protection. The current international agreements, (the Berne Convention, the UCC, TRIPs, and the WIPO proposal), should be considered and introduced carefully into the proposal. This should include the provisions for national treatment, where authors in one country are treated as if they were nationals of the country in which enforcement is sought.

KACST, on the other hand, should establish, through the Patent Directorate, a guideline similar to those of the EPO and JPO for examination of computer-related inventions, to create protection for the technical ideas underlying an invention after, of course, the major reform of the law, particularly Article 8(a) and (b) of the law which does not consider scientific theories and mathematical methods, principles, rules and techniques of doing business as inventions.

Besides what is covered by copyright law, patent law should be reformed, to obtain full and comprehensive protection for computer programs. Without express legislative modification to incorporate software protection, it will be difficult to provide incentives and to cope with the advanced technology. This may exclude national investors from the rapid development in this technology worldwide, as well as deterring foreign investors in Saudi Arabia. Also, it may be difficult to have immediate access to international treaties and conventions which provide for the reciprocal enforcement of protection. It may help to obtain the desirable goal of reciprocal enforcement rights, and could prevent any potential retaliation using otherwise prohibited trade measures which might discourage the proprietor of the technology from transferring it into the country.

Finally, any suggested scheme of protection under existing patent law should seek to provide, as soon as possible, protection involving the same requirements of novelty, non-obviousness, scope, and duration of protection in order to grant a patent to the innovative

product. Such protection can apply to programs including algorithms, or a computer programmed for a process relating to the use of a program as a tool for operating a computer in a new manner, or as a tool for control in manufacture.

Conclusion

Many proposals have been made to clarify the law as it relates to computer software, providing a comprehensive plan for its protection, and indicating copyright law as the primary protection, while patent law has a limited scope for protection. In any case, the development of national and international software protection law has not been realistically approached by many patent systems.

This dilemma has led to the conclusion that computer software protection could be obtained by establishing a tailor-made protective scheme, rather than the traditional mode of intellectual property law: again, no general protective scheme has yet come about or seems likely to do so in the near future.

The recent US decision in the *Alappat* case has reshaped software patent law. It shows that the US Court is moving away from the non-statutory subject matter test in software related - inventions. However, this interpretation has not been followed by the majority of the national patent laws, nor in the major international agreements as yet. One may expect new reform and rationales from these bodies of legislations.

**THE PROTECTION OF
INTELLECTUAL PROPERTY IN
INTERNATIONAL TRADE**

Introduction

Intellectual property has an important role in international trade. It can be traded as part of the resulting goods, either in products, services or through royalties and other fees. The value of intellectual property depends mainly on the usefulness of the product and the quality of information as well as the legal protection connected to it. The protection of intellectual property includes patents, trademarks, design rights, and copyrights. Protection of these rights gives a temporary legal monopoly which enables the holder to benefit from it either by self-exploitation or by assigning the rights to others, or licensing their exploitation by others, in both cases in return for valuable consideration.

Developed countries see intellectual property rights as an essential means of promoting technological development by offering inventors the chance to gain rewards for their efforts. Developing countries consider that the reason for intellectual property protection is to reinforce the economic power of developed countries and maintain less protection.

Toward the end of 1993 discussion over protection and enforcement of intellectual property rights concluded under the General Agreement on Tariffs and Trade (GATT) As a result, there was an establishment of new multilateral international standards for the protection and enforcement of intellectual property rights under the text on the trade-related aspects of intellectual property, known as the TRIPs Agreement. This development made a significant impact on the legal environment for international trade, mainly those dealing with developing countries.

In this chapter I summarize the main administrative bodies regulating the intellectual property protection in Part I. Part II analyses the features of the TRIPs Agreement with emphasis on some details of the patent provisions of the Agreement. Next, there is a comparative study between the TRIPs Agreement and the Paris Convention focusing on the most effective articles in both agreements in Part III. In Part IV I have included some discussion referring to the argument of developing countries about intellectual property and the effect of WTO-TRIPs Agreement on the enforcement and protection of intellectual property in developing countries. Finally, I have moved specifically into the effect of

WTO in general terms as well as the TRIPs Agreement upon Saudi Arabia including some recommendations for further action in that country.

I. Current International Intellectual Property Protection

a) Intellectual Property Conventions Under the World Intellectual Property Organization (WIPO)

Intellectual property comprises industrial property (patents, trade marks, industrial designs) as well as copyrights and neighbouring rights. There are some basic differences between countries, namely form and length of protection, requirements of disclosure and the duration of protection. These differences vary between developed and developing countries.

The legal framework of the international system of protection for intellectual property had its foundation laid in the nineteenth century. The conventions which constitute the international intellectual property system provide a permanent regulation and for revision if required. These conventions share many characteristics, including the principle of national treatment, the establishment of minimum rights, and the harmonization of disparate national intellectual property systems. These developments were due to the growth of trade competition which brought an increasing advantage to those in the van of innovation.¹

The World Intellectual Property Organization (WIPO) is a United Nations Agency established in 1967 to assist countries in setting up intellectual property regimes and it is the administrative office of intellectual property conventions. WIPO responsibilities vary from the promotion of creative intellectual activity to the facilitation of transfer of technology to developing countries.

Within the international conventions, there are two principal agreements governing copyrights. The first is the Berne Convention² for the Protection of Literary and Artistic Works, which was adopted in 1886 and has been revised on several occasions during its

¹ Cornish, W.. "Patents, Copyright, Trade Marks and Allied Rights". Sweet & Maxwell (2nd Ed.) 1989.at 11.

² See further discussion in Chapter 3. 4 Part II (B) (2) supra.

existence most recently in 1971. The Berne Convention obliges Contracting States to protect the expression of literary and artistic work which includes in general every production in the literary, scientific, and artistic domain whatever may be the mode or form of its expression (Article II).

The second principal copyright agreement is the Universal Copyright Convention.³ It was adopted in 1957. As stated in Article I of the agreement, each Contracting State undertakes to provide for the adequate and effective protection of the rights of authors and other copyright proprietors in literary, scientific, and artistic works, including writing, musical, dramatic, and cinematographic works, and paintings, engravings, and sculpture.

In terms of industrial property protection, the principal agreement governing patents and trade marks is the Paris Convention for the Protection of Industrial Property.⁴ It was adopted in 1883 and has been revised several times, most recently in 1967. Article I of the Paris Convention states that:

"The protection of industrial property has as its object patents, utility models, industrial designs, trademarks, service marks, trade names, indications of source or appellations of origin, and the repression of unfair competition. ... Patents shall include the various kinds of industrial patents recognized by the laws of the countries of the Union, such as patents of importation, patents of improvement, patents and certificates of addition, etc."

Other major agreements on patents and trade marks include the Patent Cooperation Treaty (PCT),⁵ signed in 1970, which facilitates the filing of applications for patents on the same invention in member countries. The European Patent Convention (EPC) came into force in 1978 to strengthen cooperation between the European States in respect of the protection of inventions. The EPC has been the main support and source of law for the European patent system since 1978. Any change in its articles requires agreement by a full

³ See further discussion in Chapter 4 Part II (3) (B) supra.

⁴ More details will follow. see Part II of this chapter.

⁵ See further discussion in Chapter (1) and (6).

diplomatic conference of all the Contracting States. The Eurasian Patent Convention (EAPC) is a new regional patent treaty which entered into force on the 1st of January 1996. It provides services within Article 45 of the PCT. The purpose of this treaty is to simplify the procedures for the PCT applicants to obtain protection for inventions in various countries in Eastern Europe and Central Asia. The applicants can include a designation requiring the grant of a Eurasian Patent in international applications.⁶

Throughout these agreements WIPO's efforts are to promote the protection of intellectual property by persuasion.⁷ It also provides advice and technical assistance to developing countries, and introduces projects to promote more cooperation as well as managing registration services for a number of the treaties and agreements.

(b) General Agreement on Tariff and Trade (GATT)

The General Agreement on Tariff and Trade (GATT) came into existence in 1947. The main objects of GATT were then to eliminate non-tariff barriers, participation in negotiation to reduce tariffs, and to create equal treatment by all members in accordance with the most favoured nation (MFN) principle. The MFN provision is considered the main feature of the international trade regime embodied in GATT.⁸ MFN means that trade between members must be non-discriminatory, and members must treat each other equally in terms of import and export duties and charges.

Other functions intended by GATT are the following:⁹

1. To protect the value of the Tariff concession against "multiplication by various non-tariff import barriers". A contracting member has an obligation not to require a Tariff on a particular item larger than stated tariffs as in the Schedule. These

⁶ Guide to Patent Expiries: Patent Terms and Legislation Worldwide. Derwent Information Limited. 1996 (ed.).

⁷ International Trade and the Consumer. "Intellectual Property - the Consumer's View of Patents. Copyright, Trade Marks and Allied Rights". Working paper 6. Published by the National Consumer Council. London (1991).

⁸ Balraj. S.. "GATT : The Effects of Uruguay Round Multilateral Trade Negotiations on U.S. IPRs" Case W. Res. J. Int'l I. Vol. 24. pp.64-66 (1992).

⁹ Bhatnagar M.P. "GATT Intellectual Property Protection Proposal in Context with Developing Countries and the Paris Convention". Patent World. March (1992).

items are termed as "bound" items, and the individual commitments are termed as "binding".

2. To establish a "code of trade conduct". The code is considered as an inter-governmental agreement to ensure observation of the provisions of this agreement by the regional and local governments within its territory.
3. An institution of consultation procedures and joint action to achieve some of the basic objectives and to carry out the main purposes of the agreement through a variety of procedures has been used in GATT. These achievements of the international community have been used by GATT with respect to international trade and commerce.

The trade negotiation in GATT contained reciprocal and mutual advantages, considering that any result would come through MFN, and concessions would be protected from at least non-tariff barriers by the main provisions of the agreement.¹⁰

In the Toyko Round 1979, when GATT deviated from its principle of MFN, the developed countries realized that intellectual property rights were not considered in the GATT. However, the United States proposed a new round of multilateral trade negotiations, which became a major development of intellectual property rights through the GATT.¹¹

The U.S. alleged that then current intellectual properties treaties were not enough to stop piracy and counterfeiting. Consequently, the GATT arranged to study the matter by an appointed group of experts. This study led to the emergence of Trade Related Aspects of Intellectual Property (TRIPs) in the Uruguay Round which began in 1986.¹²

¹⁰ Ibid.

¹¹ Ibid.

¹² Ibid.

During the Uruguay Round negotiations, as the aim of the past rounds was to eliminate or reduce tariff and non-tariff barriers to trade, GATT was expanded into new areas including agricultural subsidies and the film industry as well as intellectual property.

As a final result of the negotiations which were concluded at the end of 1993, every issue was finally resolved and negotiations on market access for goods and services were concluded. It was in 1994 when the Ministers from most of the member states of GATT signed the deal at a meeting in Marrakesh, Morocco. A new World Trade Organization (WTO) was established. This organization will supervise and enforce three major agreements:

- (1) A revised text of the existing GATT Agreement,
- (2) A General Agreement on Trade in Services and,
- (3) The Agreement on the Trade Related Aspect of Intellectual Property Rights, including Trade in Counterfeit Goods.

Nevertheless, GATT provisions intended to favour developing countries remain in place in the WTO, particularly provisions encouraging industrial countries to assist developing countries members "as a matter of conscience and purposeful effort" in their trading conditions and not to anticipate reciprocity for adjustments made for developing countries in negotiations. Another measure agreed, referred to as the "enabling clause", provides a permanent legal basis for the market access concessions made by developed for developing countries under the generalized system of preference.¹³

(c) **World Trade Organization after GATT**

The World Trade Organization (WTO) was established in January 1995. It is the embodiment of the Uruguay Round results and the successor of the General Agreement on Tariffs and Trade (GATT). WTO completely replaces GATT and has a very different

¹³ Trading Into the Future. World Trade Organization: A report written and published by the Information and Media Relations Division (WTO) 1995 (referred hereinafter as WTO Report).

character.¹⁴ It has broader scope than GATT in terms of the commercial activity and trade policies to which it applies. It covers trade in goods, services and "trade in ideas"¹⁵ or intellectual property.¹⁶

According to the WTO Report¹⁷ it is the

"legal and institutional foundation of the multilateral trading system. It provides the principal contractual obligations determining how governments frame and implement domestic trade legislation and regulations. And it is the platform on which trade relations among countries evolve through collective debate, negotiation and adjudication."

The main functions of WTO are¹⁸

- administering and implementing the multilateral and plurilateral trade agreements which together make up the WTO;
- acting as a forum for multilateral trade negotiations;
- seeking to resolve trade dispute;
- overseeing national trade policies; and
- cooperating with other international institutions involved in global economic policy-making.

The WTO Agreement contains some individual legal texts, covering many areas from agriculture to textiles and clothing, and from services to government procurement, rules of origins as well as intellectual property. In addition, there are more than 25 Ministerial declarations, decisions and understandings which clarify further obligations and commitments for WTO members. Also a number of small and fundamental principles perform throughout these instruments which combined the multilateral trading system.¹⁹

¹⁴ Ibid.

¹⁵ Ibid. at 4.

¹⁶ Ibid.

¹⁷ Ibid at 6.

¹⁸ Ibid. at 4.

¹⁹ Ibid. at 5.

There are differences in character between the WTO and its predecessor, the GATT Agreement. Among the major differences are the following:²⁰

- The GATT was a set of rules, a multilateral agreement, with no institutional foundation, only a small associated secretariat which had its origins in the attempt to establish an International Trade Organization in the 1940s. The WTO is a permanent institution with its own secretariat.
- The GATT was applied on a "provisional basis" if even after more than forty years, governments chose to treat it as a permanent commitment. The WTO commitments are full and permanent.
- The GATT rules applied to trade in merchandise goods. In addition to goods, the WTO covers trade in services and trade-related aspects of intellectual property.
- While GATT was a multilateral instrument, by the 1980s many new agreements had been added of a plurilateral, and therefore selective, nature. The agreements which constitute the WTO are almost all multilateral and thus involve commitments for the entire membership.
- The WTO dispute settlement system is faster, more automatic, and thus much less susceptible to blockages, than the old GATT system. The implementation of WTO dispute findings will also be more easily assured.

However, the GATT continued until the end of 1995 to allow time for all its member countries to accede to the WTO and permitting an overlap of activities in areas such as dispute settlement. The GATT exists on as "GATT-1994", the reformed and updated version of GATT 1947 which is an integral part of the WTO Agreement, and continues to contribute the key disciplines affecting international trade in goods.²¹

²⁰ Quoted in the WTO Report. Ibid.

²¹ Ibid.

The WTO will carry the same obligation in terms of applying the non-discrimination clauses such as the "most-favoured-nation" (MFN) and "national treatment". However, apart from the "GATT-1994" some other WTO agreements provide important provisions relating to MFN and national treatment. That is the agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs) which provides, with some exceptions, MFN and national treatment obligations in relating to the provision of intellectual property protection provided by WTO members.²²

Other WTO agreements containing no-discrimination provisions include the General Agreement on Trade in Services (GATS); Trade-Related Investment Measures (TRIPs), Preshipment Inspection, Rules of Origin; and the agreement on the Application of Sanitary and Phytosanitary Measures.²³

Most WTO members were previously GATT members who signed the Final Act of the Uruguay Round and concluded negotiations on goods and services. Countries who joined the GATT later in 1994 and concluded negotiation on their market access on goods and services became members of WTO. However, a new accession to the WTO requires applicant governments to provide the WTO with a memorandum containing all aspects of its trade and economic policies having a manner on WTO agreements. Such memorandum becomes the basis for detailed examination of the accession application in a working party.²⁴

II. Trade Related Aspects of Intellectual Property Rights (TRIPs)

The most recent agreement on intellectual property is the agreement on Trade Related Aspects of Intellectual Property Rights, including Trade in Counterfeit Goods, is one of

²² Ibid. at 5.

²³ Ibid.

²⁴ Ibid. at 14.

the most important aspects of GATT as the establishment of new multilateral international standards for the protection and enforcement of intellectual property. The TRIPs Agreement covers all types of intellectual property rights with the sole exceptions of breeders rights and utility models. It will be supplemented with additional obligations of the main intellectual property conventions which are administered by WIPO as mentioned earlier, such as the Berne, Paris and PCT Conventions in their respective fields.

The TRIPs Agreement recognizes that the wide range of differences in standards in the protection and enforcement of intellectual property rights and the lack of multilateral disciplines involved in international trade in counterfeit goods have been a growing cause of tension in international economic relations.²⁵ Bearing that in mind, the agreement approaches the applicability of basic GATT principles and those of related international intellectual property agreements such as the provision of appropriate intellectual property rights, the provision of effective enforcement measures of those rights, multilateral settlement of dispute as well as transitional implementation arrangements.²⁶

a) **Essential Features of the TRIPs Agreements**

During the GATT Uruguay Round Negotiation, TRIPs was established by the following mandate:

In order to reduce the distortions and impediments to international trade, and taking into account the need to promote effective and adequate protection of intellectual property rights, and to ensure that measures and procedures to enforce intellectual property rights do not themselves become barriers to legitimate trade, the negotiations shall aim to clarify GATT provisions and elaborate as appropriate new rules and disciplines.

²⁵ Ibid. at 26.

²⁶ Ibid.

Negotiations shall aim to develop a multilateral framework of principles, rules and disciplines dealing with international trade to counterfeit goods, taking into account work already undertaken in the GATT.

These negotiations shall be without prejudice to other complementary initiatives that may be taken in the World Intellectual Property Organization and elsewhere to deal with these matters.

The TRIPs Agreement is established on consideration of two main principles. The first is to form minimum standards for the protection and enforcement of intellectual property rights in signatory states. The types of intellectual property rights to be covered are, patents, trademarks, copyright and neighbouring rights, geographical indications, industrial designs, integrated circuit layouts and trade secrets.

The second is that the TRIPs Agreement extends to intellectual property rights the "most-favoured-nation clause" in addition to the established principle of "national treatment". These principles, as mentioned above, mean no discrimination between foreigners and nationals, and also between nationals from different countries. This principle of national treatment reflects the provisions in GATT concerned with international trade in goods and the major treaties on intellectual property.

In more detail this means that signatories are required to confer on nationals of other parties intellectual property protection no less favourable than is given to their own nationals. Additionally, whatever rights are granted to nationals of any other country must be granted to nationals of all other countries.

However, members may take some advantage of some exceptions made by Article 3, the national treatment provision. Article 3(2) provides that:

Members may avail themselves of the exceptions permitted under Paragraph 1 above in relation to judicial and administrative procedures, including the designation of an address for service or the appointment of an agent within the

jurisdiction of a Member, only where such exceptions are necessary to secure compliance with laws and regulations which are not inconsistent with the provisions of this Agreement and where such practices are not applied in a manner which would constitute a disguised restriction on trade.

Article 4 provides some exemption from protection granted by a Member to the nationals of any other country. Article 4 provides that:

With regard to the protection of intellectual property, any advantage, favour, privilege or immunity granted by a Member to the nationals of any other country shall be accorded immediately and unconditionally to the nationals of all other Members. Exempted from this obligation are any advantage, favour, privilege or immunity accorded by a Member:

- (a) deriving from international agreements or judicial assistance and law enforcement of a general nature and not particularly confined to the protection of intellectual property;
- (b) granted in accordance with the provisions of the Berne Conventions (1971) or the Rome Convention authorizing that the treatment accorded be a function not of national treatment but of the treatment accorded in another country;
- (c) in respect of the rights of performers, producers of phonograms and broadcasting organizations not provided under this Agreement;
- (d) deriving from international agreements related to the protection of intellectual property which entered into force prior to the entry into force of the Agreement establishing the MTO, provided that such agreements are notified to the Council for Trade-Related Aspects of Intellectual Property Rights and do not constitute an arbitrary or unjustifiable discrimination against nationals of other Members.

The TRIPs Agreement contains detailed provision on administrative and judicial procedures for the enforcement of rights, as well as special rules set to tackle

counterfeiting in trade of trademarks and other pirated works. These rules could be applicable in parallel with national legislation. As the Agreement sets out the requirements of member governments to provide procedures and remedies under their local law to maintain that intellectual property right can be properly enforced.²⁷

The civil and administrative procedures and remedies indicated in the text include provisions on evidence, provisional measures, injunctions, damages and other remedies.²⁸ These provisions would contain the right of judicial authorities to request the destruction of infringing materials.²⁹ It is also required that members must furnish for criminal procedures and penalties at least in cases of intended trademark counterfeiting or copyright piracy on a commercial level. Members must also provide a special procedure whereby right-holders can acquire the assistance of customs authorities to block the importation of counterfeit and pirated materials.³⁰

b) **Transitional Provisions**

The TRIPs Agreement contains transitional provisions which would allow developed countries to have one year to comply with its provisions. Developing countries can delay the implementation of most of the TRIPs rules for up to five years, and ten years in the case of the least developed countries. But as an initial step, developing countries should introduce the national treatment of foreigners and the most favoured nation principle within the first year.

During the five-year period, special rules should be accomplished for protection of subject-matter that becomes patentable (i.e. biological inventions, computer software) including the establishment of "exclusive marketing rights" in relation to agrochemical or pharmaceutical products.

²⁷ Ibid. at 27.

²⁸ Ibid.

²⁹ Ibid.

³⁰ Ibid.

In the case of non-compliance with the TRIPs provisions, a dispute settlement procedure under WTO rules may become the basis for a commercial retaliatory measure in any field by the country whose nationals are affected by such non-compliance. Unless a country is willing to contain the cost of trade restrictions which may be imposed against it, the likelihood of deviations from those standards is drastically reduced.

An example of this can be seen in the bilateral negotiations between the United States and China over the subject of intellectual property rights disputes. The United States has complained that the U.S. sound recording, motion picture and computer software industries estimated annual losses in China caused by copyright piracy alone at \$827 billion. The U.S. negotiators sought prompt action against Chinese facilities which pirated copies of U.S. products and were pressing for improvement of China's legal and administrative systems which protect intellectual property. Due to the lack of response to settle such disputes, the U.S. threatened to have an imposition of 100% tariffs on imported Chinese products to the U.S. as a retaliation. However, in February 1995, the United States and China reached an agreement which provided protection for intellectual property rights for U.S. companies and provided market access to the U.S. intellectual property-based products.

The TRIPs Agreement has not dealt with the issue of retroactivity. If an invention is not patentable in a member country on the date of application of the TRIPs Agreement to that member country, then any benefit for the owner of an existing invention will arise from the expanded scope of protection required under the TRIPs Agreement Article 70(1), and if the invention becomes patentable in the member country pursuant to the terms of the Agreement when it is brought into force in that country (Article 70(2)).

c) **Patent Provisions of the TRIPs Agreement**

1. **General Principle**

The patent provisions of the TRIPs Agreement are contained in Articles 27-34. The basic provision is Article 27(1). It requires that member states shall make a patent available for any invention, whether a product or a process, in all fields of technology provided that the

invention must be new, involve an inventive step and is capable of industrial application. It adds that "patents shall be available and patent rights enjoyable without discrimination as to ... the field of technology".

2. Exclusions from Patentability

Article 27.2 and 3 specify the exclusions from patentability which permit a member country to exclude certain things from being patentable inventions. They are defined as "ordre public or morality" including the need to protect humans, animal or plant life or health or to avoid damages to the environment. A member country cannot refuse to issue a patent for an invention merely because the commercial exploitation of the invention is prohibited under the domestic law of the member country.

According to Article 27(3)(a), a member country can exclude from patentability diagnostic, therapeutic and surgical methods for the treatment of humans or animals. Also a party may exclude from patentability plants and animals, other than micro-organisms, and essentially biological processes for the production of plants and animals other than non-biological and micro-biological processes, according to Article 27(3)(b). Despite the above, members must provide protection for plant varieties either by patents or by an effective sui generis system.

3. Rights conferred

Article 28 provides for the rights that a patent should confer upon its title holder by referring to two categories of inventions, namely products and processes. According to Article 28(1), patents relating to products confer the right to prevent third parties not having the patentee's consent from "making, using, offering for sale or importing for those purposes the product". The patented process owner is to be given the exclusive right or using the process and, in addition, of using, offering for sale, selling or importing the product which is obtained directly by the patented process. The owner of a patent shall have the right to assign, transfer or license a patent, according to Article 28(2).

The exceptions to the exclusive right conferred on a patent owner are indicated in Article 30 and 31. Article 30 allows "limited reasonable exception to the right conferred by a patent". It does not permit the use of a patent by the government or the issuance by the government of compulsory licences. Nevertheless, Article 31 on "other use without the authorization of the right holder" contains a detailed set of conditions for the granting of such licences. It permits national legislation to determine the grounds for compulsory licensing (i.e. national emergency, anti-competitive practices). However, any decision relating to the granting of a compulsory licence, or relating to the compensation to be provided pursuant to such a licence, must be subject to judicial review.

4. Terms of Protection

Article 33 provides for the term of protection to be twenty (20) years from the date of filing the patent application. This provision will ban any special duration period determined on the basis of the field of technology, the extent of exploitation of the invention, or on any other grounds. In the case of patents of importation, the term of protection shall be computed from the date of filing of the patent application in the country of original grant.

In terms of pharmaceutical and agricultural chemical products, patent protection would not be required in developing countries for ten years from the date on which the agreement would come into force if such protection was not provided in such countries on the date of entry into force of the Agreement. However, a special system has been adopted whereby countries would have to accept filing for new patent applications for pharmaceutical and agricultural chemical products upon the date of entry into force of the Agreement in these countries. For those patent applications which require examining procedures and obtain authorization for marketing before the patent protection become available, an "exclusive marketing right" would have to be given five years after obtaining market approval in that member state.

5. Revocation of a Patent

The TRIPs Agreement does not provide a ground for revocation. Nevertheless, a patent may be revoked due to the lack of payment of annual maintenance fees or for other substantive reasons such as the abuse of a dominant position. Although TRIPs provided that a compulsory licence must be subject to revocation, the Agreement ensures the availability of a judicial review of any decision to revoke a patent regardless of the grounds for revocation.

III. TRIPs and the Paris Convention

One of the WTO obligations is to assist developing countries so that they may obtain a share in the growth of international trade, pursuant to their needs and their economic and industrial development within the commitment of all WTO contracting parties, including developed countries, which may entail reciprocity.

Although reciprocity is one of the vital concepts in WTO practice, it is not defined as a concept in the WTO nor in the Paris Convention on industrial property, as any requirement of reciprocity of protection is there excluded. Therefore, it is important to focus on the main features of WTO namely, MFN, 'National treatment', and compulsory licences, in comparison to the Paris Convention with regard to industrial property, particularly patents.

The most favoured nation clause (MFN) is the main feature of WTO in terms of international trade rules. The basic principle of MFN is that every country observes the principle and then all will benefit in the long term from the resulting efficient use of resources. The procedure of trade negotiations in WTO required to be reciprocal and mutually advantageous and the result would be generated through MFN and that concessions will be protected from at least non-tariff barriers by the general provisions of WTO.

Another important feature in WTO is the 'National treatment' principle, meaning that imported goods will be accorded the same treatment as goods of local origin. It attempts to impose the principle of non-discrimination as between goods which are locally produced and imported goods. It highlights three areas: internal tax, government regulations and government procurement (Article III of the Agreement).

In regard to government rules, it is expected that the contracting party in the government shall treat imported products 'no less favourably' than like products of national origin, in respect of all rules, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use (Article III(8) of the WTO exempts government procurement from this national treatment obligation and from the state trading

obligation. While there is no MFN obligation imposed on government purchases, it is required to give fair and equitable treatment to other parties (Article I).

Under the Paris Convention 'national treatment' is defined in Articles 2 and 3, which provide that national treatment as regards industrial property means that each member country in the Convention must grant the same protection to nationals of other member countries as it grants to its own nationals. Also the same 'national treatment' must be given to nationals of countries which are not party to the Paris Convention if they are domiciled in a member country or if they have an industrial or commercial establishment in such a country.

The principle of 'national treatment' under the Paris Convention is considered to be the basis of the international protection of industrial property. It was adopted at the original Paris Convention of 1883 despite the lack of protection of industrial property in some countries. It is a very simple principle which many countries would accept and does not require either legal unification or change of national legislation.³¹

Parallel to the 'national treatment' clause under the Paris Convention is the 'right of priority' which means that on the basis of a regular first application in one country an applicant may within 6 to 12 months apply for protection in all other member countries (Article 4A(1)). The right of priority is applicable only to patents, utility models, industrial designs and trade marks. It offers a great practical advantage to the applicant, which is to protect the invention in many countries which are members of the Convention. This right of priority must be respected by WTO members who do not adhere to the Paris Convention.³²

Article 30 of the TRIPs Agreement states that:

"Members may provide limited exceptions to the exclusive rights conferred by a patent, provided that such exceptions do not unreasonably conflict with a normal

³¹ Beier. "One Hundred Years of International Cooperation - the Role of the Paris Convention in the Past. Present and Future". IIC vol. 15. no. 1 (1984).

³² Article 2(1) of the TRIPs Agreement require compliance with the Paris Convention.

exploitation of the patent and do not unreasonably prejudice the legitimate interests of the patent owner, taking account of the legitimate interest of third parties".

While other articles allow exceptions to the exclusive right when needed, as according to Article 8:

1. Members may, in formulating or amending their national laws and regulations, adopt measures necessary to protect public health and nutrition, and to promote the public interest in sectors of vital importance to their socio-economic and technological development, provided that such measures are consistent with the provisions of this Agreement.
2. Appropriate measures, provided that they are consistent with the provisions of this Agreement, may be needed to prevent the abuse of intellectual property rights holders or the resort to practices which unreasonably restrain trade or adversely affect the international transfer of technology.

In this regard, it is possible that governments may seek to invoke language according to Article 7 that envisions the effective transfer and dissemination of technology among member countries and the care of social and economic welfare as more reasons for regulatory action to limit the grants of exclusive rights in an appropriate manner.³³ However, it is argued that

"these and other articles thus preserve, and may even expand, pre-existing grounds for limiting a patentee's exclusive rights under Article 5A of the Paris Convention, which some developed countries delegations had hoped to abrogate. Even forfeiture or revocation of the offending patent under the conditions set out in Article 5A of the Paris Convention remains technically feasible, subject to an opportunity for judicial review."³⁴

³³ Reichman, J.H. "Universal Minimum Standard of Intellectual Property Protection under the TRIPs Component of the WTO Agreement". *The International Lawyer*, Vol. 29, No. 4, Summer (1994) 354-355.

³⁴ *Ibid.*

Compulsory licensing is provided for in Article (31) of the TRIPs Agreement. It contains a list of procedural requirements which must be complied with when the government of a member country desires to use a patent without the consent of the patent owner, or to authorize others to use such a patent. The authorization must be considered on the individual merits of the case and the law of a member country cannot permit an automatic right to obtain a licence under patent upon the occurrence of a specific event such as after seven years from the granting of the patent.

The authorization by the government may only be to the use of a patent if the proposed user has made an effort to obtain authorization from the patent owner on reasonable commercial terms and conditions, and this effort has not been successful within a reasonable period of time. The government authorization can only be for non-exclusive use of the patent. If the patent owner had been using the patent in an abusive manner, this would not entitle the government to grant an exclusive compulsory licence under the patent even if it is considered necessary to enable commercial exploitation of a patent in the member country concerned.

Article (31) of the TRIPs Agreement permits national legislation to determine the grounds for granting compulsory licensing (i.e. national emergency, anti-competitive practices) and any decision relating to the granting of a compulsory licence, or relating to the remuneration to be provided pursuant to such a licence, must be subject to review by a distinct higher authority. The agreement set out the conditions for granting a compulsory licence to be met "where the law of a party allows for other use" regardless of the authorization of the right holder.

The TRIPs Agreement combines the broader concept of abuse in Articles 8(1) and 8(2) with the public interest exception for purposes of compulsory licensing in Article 31.³⁵ Another effort has been made to challenge the non-working of foreign patents locally as a basis for triggering such licences. The TRIPs Agreement then refers to all non-exclusive

³⁵ Ibid.

compulsory licences sounding in any of the bases created by Article 8(1) and 8(2) to the condition set out in Article 31.³⁶

Because of the grounds for triggering a non-exclusive compulsory licence under the broad concept of "abuse" for the purpose of public interest or in the case of refusal of authorization by the patentee, Article 31 requires that the potential licensee seeks a negotiated licence from the patent holder to pay reasonable compensation. However, this presented the argument that

"the victorious licensee could not normally export the products resulting from use of the patent under such a compulsory licence. Nor could the licensee exclude the foreign patentee from subsequently working the patent locally - in direct competition with the former - once the latter had rectified any grievances that might have justified issuance of compulsory licence in the first place."³⁷

The only exception to the compulsory licensing conditions available under Article 31 is for patented "semi-conductor technology". Article 31(C) provides that:

"the scope and duration of such use shall be limited to the purpose for which it was authorized, and in the case of semi-conductor technology shall only be for public non-commercial use or to remedy a practice determined after judicial or administrative process to be anti-competitive."

However, it is not clear whether unpatented semi-conductor layout designs subject to integrated circuit laws can also be exempted from compulsory licences for "other use".³⁸ It is argued that in any event,

³⁶ Ibid.

³⁷ See. Reichman. Ibid. note (33) above at 356.

³⁸ Ibid.

"these provisions make it harder for interested parties in developing countries to start up local semi-conductor industries by persuading their governments to seize foreign semi-conductor technologies in the name of over-riding public interest."³⁹

Under the Paris Convention, there are two kinds of compulsory licence. Article 5(4) states that:

"A compulsory licence may not be applied for on the ground of failure to work or insufficient working before the expiration of a period of four years from the date of filing of the patent application or three years from the date of the grant of the patent, whichever period expires last; it shall be refused if the patentee justifies his inaction by legitimate reasons."

It is also provided that non-voluntary licences are not considered non-exclusive in nature and are not transferable. The Convention does not deal comprehensively with all types of compulsory licences as some aspects are left to national laws. This indicates that each member of the Union may have the right to take legislative measures to disallow abuse which might result from the exercise of exclusive right.⁴⁰

Article 5(2) of the Convention allows a party to provide for compulsory licensing of a patent if there is an abuse of patent rights, while TRIPs provides a patent owner with a minimum level of procedural rights which must be followed by a member country before a compulsory licence is granted. However, the duration for the granting of compulsory licences provided in Article 5A(2) for the case of non-working of the patent is not applicable.

According to Article 5 quater of the Paris Convention when there is a patent protecting a process for manufacturing a product in a particular country, and the said product is subsequently imported into that country, the patentee is given all the rights, with regard to the imported product that are accorded to him by the legislation of the country of

³⁹ Ibid. at 357.

⁴⁰ See. Bhatnagar. Ibid. note (9) above at 38.

importation. The TRIPs Agreement requires that member countries have a reverse responsibility provision in order to increase the protection of the patentee with respect to imported products.

Although a compulsory licence is one of the aspects under consideration in the revision of the Paris Convention, it is argued that Article 31 helps to insulate foreign patentees from confiscatory actions while it provides the developing countries with broad means of controlling conduct which damages their local development strategies⁴¹. Reichman⁴² argues that

"Apart from semi-conductor technologies, the requirement that would - be compulsory licencees negotiate seriously with rights holders to obtain exclusive licences on reasonable terms should increase the pressure on foreign patentees to accommodate pricing and other strategies to local market conditions. This, in turn, should lessen the need for government to seek compulsory licensing in the first instance."

IV. Saudi Patent Law, the TRIPs Agreement, and the Paris Convention (comparison)

a) The Paris Convention for the Protection of Industrial Property

Saudi Arabia is not a member of the Paris Convention and may not accede unless a final revision of the convention is reached to include a special benefit to developing countries in connection with Article 2, 4, and 5A(1), and 5 quater.⁴³

The Paris Convention came into force on the 7th of July 1883. Prior to that there was no multilateral mechanism for industrial property protection. The rights of a foreign inventor to protection in the field of industrial property were, therefore, dependent essentially on

⁴¹ Ibid. note (13) above at 15.

⁴² Ibid.

⁴³ According to the Director of Patent Directorate. in an interview made by the Chamber of Commerce Monthly Magazine -1988.

reciprocity between the laws of his own country and those of the country in which he wished to obtain protection.⁴⁴

The first development of an international patent regime for the protection of the rights of inventors came in the Congress of Vienna (1873) which was the first international effort for harmonization of the world patent system. It was restricted to patent matters and concentrated on the modes of accomplishing a uniform international patent system.

The Vienna Congress was followed by the 1878 Paris Congress on industrial property. It was not limited to patents but also covered trademarks, designs and models, and the main goal was the accomplishment of uniformity or minimum integration of the diverse world patent system. The subsequent and final international conference on patents was held in 1880 and 1883. It departed from the concept of uniform legislation as advocated by the previous congresses which formulated a number of provisions to be included in an international convention to enable minimum divergence in national patent systems.

Following the approval of the draft convention and the exchange of the instruments of ratification, the convention came into effect on the 7th of July 1884. It has already been revised seven times, the last revision being at Stockholm in 1967; it was also amended in 1979.

Among the major patent provisions of the Paris Convention is Article 2, which provides for equal treatment for all patent applications and owners by member countries of the Convention. It requires:

"Nationals of each of the countries of the Union shall, as regards to the protection of industrial property, enjoy in all the other countries of the Union the advantages that their respective laws now grant, or may hereafter grant, to nationals, without prejudice to the rights specially provided by the present Convention. Consequently, they shall have the same protection as the latter, and the same legal

⁴⁴ Ibid. note (31) above 1.

remedy against any infringement of their rights, provided they observe the conditions and formalities imposed upon nationals."

The purpose of this provision is to prevent member countries from discriminating between patent applicants and owners on grounds of different nationalities, in other words, a member country cannot discriminate in favour of its nationals as a means of encouraging indigenous inventiveness, and local and foreign inventors are equal before the patent jurisdiction.

This provision does not seem to be fair in comparison with applicants from foreign countries. It has been argued⁴⁵ that

"formal equality as provided by Article 2 would operate to the mutual advantage of the convention countries if they were either at or almost at the same level of technological and economic development. However, with the present immense diversity in technological capabilities between the developed and the less developed member countries, the principle simply confers on the more developed members the unlimited rights to detriment of the other."⁴⁶

It is very difficult for a country like Saudi Arabia to protect and encourage inventiveness and innovation activities of both foreign and local inventors at the same time. By treating local inventors more favourably than foreign inventors, the country would thus be discriminating against foreign inventors and would be violating the Convention. Therefore, this may be one of the reasons for not acceding to membership.

Article 2(2) of the Convention states:

⁴⁵ Yankey. G.S.A., (ed) "International Patent and Technology Transfer to Less Developed Countries" (1987) at 63.

⁴⁶ Ibid.

However, no requirement as to domicile or establishment in the country where protection is claimed may be imposed upon nationals of countries of the Union for the enjoyment of any industrial property rights."

So far this article is contrary to Article 25 of the Saudi law, which stipulates:

"The patentee shall exploit the invention covered by the patent on a full industrial scale in the Kingdom within two years from date of grant. The City may upon the request of the patentee, extend this period for a further period not exceeding two years, if it believes that the request is based upon reasonable grounds. If the prescribed period expires without the patent being fully exploited, the provision of Article 34 hereof shall be applicable."

If the prescribed period expires without the patent being fully exploited, the provisions of Article 34 hereof shall be applicable as Article 34 covers the grant to exploit the patent within Saudi Arabia. The City may grant any person a compulsory licence to have the patent exploited in the country's territories without the consent of the patentee.

Although the implementing regulation of the law does not clearly explain the limit of "full industrial scale", in Article 17 it is stated:

"The patent holder must exploit the patented invention in a complete manner sufficient to the need of the Kingdom according to the common standard of consumption."

The interpretation seems to be that a compulsory implementing or the establishment of a manufactory with a production line to produce such patented product is necessary. Patent office officials considered this article the essence of the Saudi patent law for the transfer of technology. More reason for that is as indicated in the following article of the implementing regulation (Article 18):

"The importation by a third party of a product made outside the Kingdom before the granting of the patent in the Kingdom is not considered as patent infringement under Article 22 and 47 (of the law) until the exploitation by the patent holder of the product becomes a complete industrial exploitation in the Kingdom according to Article 25 of the law. Likewise, the importation of the product is not considered as an infringement if such importation is made by the patent holder or a person authorized by him."

It is clear that the patent must be exploited on a full industrial scale in accordance with the above articles, but what does not seem to be clear is if there is a shortage of manpower or raw material to produce or manufacture a patented product. Will the patent still be protected if there is a good reason for non-exploitation in this manner?

By virtue of this argument, if no application is submitted to the Patent Office to exploit such patent (Article 34), then the answer is that the right will belong to the Patent Office, and it is possible for the patent to come into the public domain, meaning no royalties for the invention. The patent would not only be close to the expiry date, but the invention and the technology itself may become obsolete. With the lack of experience and precedents, it is very difficult to draw a conclusion on this as yet.

Article 5A(1) of the Paris Convention states:

"The importation by the patentee into the country where the patent has been granted of articles manufactured in any of the countries of the Union shall not entail forfeiture of the patent".

This article provided for forfeiture for the importation of a patented product by the patentee. The effect of it is the creation of an import monopoly. It may be noted that some developing countries have taken steps to prevent this monopoly or to deprive the patent holder of import monopoly right. The above article is in contrast with Articles 22, 25, 34 and 47 of the Saudi patent law as well as Article 17 and 18 of the implementing regulation.

Article 22 of the law allows the patentee to sue before the Committee any person who exploits his invention without his consent inside the Kingdom. Such exploitation of a product is embodied in the making, importing, offering for sale, or using the product, and the patentee shall be entitled to the same right in respect of any products made directly by a process. Article 47 of the law states that any act of exploitation carried out by a third party without consent of the patentee is considered to be infringement.

If the country becomes a member of the Union, Article 5 quater is contrary to Article 18 of the implementing regulation. This means that Article 18 must be reformed in order to maintain the full enforcement of Article 5 quater which stipulates:

"When a product is imported into a country of the Union where there exists a patent protecting a process of manufacture of the said product, the patentee shall have all the rights, with regard to the imported product, as are accorded to him by the domestic law of the country of importation, on the basis of the process patent, with respect to products manufactured in that country".

This article is applicable only to countries of the Union which recognise the grant of a patent monopoly to "a process of manufacture". Accordingly in Saudi law (Article 22) the patent is extended to products manufactured by the use of that process. However, there is a contrary rule in Article 18 of the implementing regulation stated as:

"The importation by a third party of a product made outside the Kingdom of Saudi Arabia before the granting in the Kingdom of a patent is not considered as a patent infringement under Articles 22 and 47 until the exploitation by the patent holder of the product becomes a complete industrial exploitation in the Kingdom according to Article 25 of the law. Likewise, the importation of the product is not considered as an infringement if such importation is made by the patent holder or a person authorized by him."

As part of technology transfer policy, the patent law was altered so as to reflect some of the country's technological needs, and Article 5 quater of Paris obviously conflicts with any endeavour to expunge the exclusive right of importation on products manufactured abroad by a patent process. In addition since in practical terms most of the patents are not exploited in the country's territories, the following questions remain:

1. Will this be maintained if the country becomes a member of the Union, and how?
2. Could this significantly influence the transfer of technology policy through other conduct such as joint ventures, patent licensing, know-how licensing and technical services?
3. What are the requirements to cope with this agreement or other bilateral treaty without a significant revision of the national law?

To have the answers to this, it seems unlikely that the country will derive any benefit from the continuation of this provision. It should only prefer the revision of those provisions of the Convention which had adverse effects on its economy. While the country accepts that the cost involved in the participation in the international patent system greatly outweighs the benefits, it should not consider the idea of abandonment. Rather it should put some influence on the revision of the Convention through its diplomatic links to include a special provision benefiting developing countries including Saudi Arabia.

There must be special efforts to render a new introduction to the law relevant to the economic priorities of the country within the existing law, as the majority of registered applications are made by foreign inventors to maintain the facilitation of the development of technology and the improvement of the condition for the transfer of technology under fair and reasonable local terms, with emphasis on the proper balancing of the needs for economic and social development of the country on the one hand and the rights of patentees on the other.

Most negotiations for revision of the Paris Convention are for the purposes of social and economical benefits.⁴⁷ But the question presented is to what extent the evolution of the

⁴⁷ Anderfelt. U. "International Patent-Legislation and Developing Countries" Martinus Nijhoff (1971) ed.

Convention in general has been influenced by collective interest, while such interest has been regarded contrary to the interest of patentees.⁴⁸ Anderfelt⁴⁹ argues that

"while it is true that certain rules of the Convention may seem to be an entirely legal problem, it must be concluded that such is not the case for the rules concerned with regulating the exploitation of patented invention."

However, it has been emphasized that while specific questions have been solved on the basis of legal considerations, the regulation of the obligation to work a patent is really based upon economic-political aspects.⁵⁰

Every revision of the Paris Convention has given rise to a different text of the Convention and obligations are required on member states in accordance with the particular text which that country has verified.⁵¹ Revision reflects mostly the essence of the North/South Dialogue which refers to a broad international movement providing some evidence of the unwillingness of the Northern Countries to meet Southern demands for institutional revision.⁵²

As most of the negotiations have been deadlocked, some argue that this deadlock has derived from the structure of the grouping of countries for the negotiation phase. It is negotiation which is

"bound by rigid rules of procedure, divergent economic and political interests, established legal traditions which vary from one country to another, and a system of grouping countries into bargaining blocs which was established for a completely different purpose than that of revising the Paris Convention."⁵³

at 99.

⁴⁸ Ibid.

⁴⁹ Ibid. at 102.

⁵⁰ Ibid.

⁵¹ Hay, F. "Canada's Role in International Negotiations Concerning Intellectual Property Law". Research in Law and Economics. JAI PRESS INC. Volume 8 - 1986 (ed). 239.

⁵² Ibid. at 242-3.

⁵³ Ibid. at 261.

Finally, as some have argued,⁵⁴

"The developing countries experiences during the negotiations of the Paris Convention hold no promise for a peaceful co-existence between the high level intellectual property protection which industrialized countries are seeking in developing countries and the economic aims of those developing countries. In respect of the highly controversial issue of compulsory licence by the U.S. proposal for intellectual property protection rules have at all times been rejected by developing countries as unacceptable. Why should the developing countries accept them now?"

b) The TRIPs Agreement

The TRIPs Agreement is part of the WTO under the supervision of its own Council, which monitors the operation of the agreement and governments' compliance with it. The trend is towards providing intellectual property protection on an international level with respect to least developed countries. Developing countries as well as other countries currently in the process of transition to market-based economies are expected to play a vital role in the WTO as the Organization's membership expands.⁵⁵

The WTO offers help with trade and tariff data relating to developing countries, particularly the least-developed among them in their own export interests and to their participation in WTO bodies. Other assistance is in conducting missions and practical technical cooperation for governments and their official dealing with accession negotiations, implementing WTO obligations or requesting to participate effectively in multilateral negotiations.⁵⁶

As provided by Article 66:

⁵⁴ Ibid. note (9) above at 38.

⁵⁵ Ibid. note (13) above. at 15.

⁵⁶ Ibid.

- “1. In view of their special needs and requirements, their economic, financial and administrative constraints and their need for flexibility to create a viable technological base, ... The council shall, upon duly motivated request by a least-developed country Member, accord extensions of this period.
2. Developed country PARTIES shall provide incentives to enterprises and institutions in their territories for the purpose of promoting and encouraging technology transfer to least-developed country PARTIES in order to enable them to create a sound and viable technological base.”

My purpose in relation to the above is to compare Section 5 of the TRIPs Agreement, which concerns Patents, with the Saudi Patent Law.

Article 27(1) of the TRIPs Agreement falls on the contrary with Article 22 of the Saudi Law on the term of importation:

“... patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced.”

Article 22 of the Saudi Law provides:

“the patentee may sue, before the Committee, any person who exploits his invention without his consent inside the Kingdom. The exploitation of a product is embodied in the making, importing, offering-for-sale or using the product.”

With regard to the exclusion of inventions from patentability, Article 27(2) of the TRIPs Agreement focuses on the prevention of commercial exploitation when necessary to protect “ordre public” or “morality, including the protection of human, animal or plant life or health, or the avoidance of serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by domestic law. In the Saudi Law nothing of this nature exists, although it is important to be recognized in

future reform of the law, particularly in terms of the environmental hazards. However, morality or "ordre public" have been stated in the law as according to Article 9 of the law:

"A patent shall not be granted if the invention itself or its use is contrary to the Islamic Shariah Law. Any patent granted to the contrary shall be abrogated, save those patents which are contrary to Islamic Shariah, the granting of a patent to an interested party may not be withheld according to this law. Further, no patent already granted may be revoked on the grounds that the application of the invention is prohibited under prescribed rules."

In the following Article 10 there is no exclusion from patentability, but rather provision for delay in relation to the public interest:

"The president of (KACST)⁵⁷ may direct that, due to considerations related to the public interest, the granting of a patent related to certain products or processes of manufacturing such products be postponed for ten years.

The interpretation of the Islamic Shariah Law is not clear to many foreign inventors. It is not explained in the implementing regulations of the law nor is it simply possible to do so. Islamic Shariah Law is the Law of constitution and it covers most aspects of life; thus, most litigation in the country falls under its legislative rules and order. However, the determination of what may be contrary to Islamic Shariah Law will be decided on the preliminary examination of patent applications.

It is very important for Saudi patent officials to provide an interpretation of what may fall to be excluded from patentability under the Saudi law. This may clarify some of the conflict raised in inventions of an important field of technology (i.e. biotechnological inventions), because what is legal in other countries may not be legal in Saudi Arabia, particularly in developed countries where most of the patent applications come from

⁵⁷ KACST is King Abdulaziz City for Science and Technology, an establishment sponsored for science and technology. The Directorate of Patent is part of the KACST administrative framework.

The TRIPs Agreement does not require patentability for diagnostic, therapeutic, and surgical methods. It also does not require patentability for several forms of biotechnology; nor does the Saudi patent law. TRIPs provides protection to micro-organisms and plant varieties, but the latter is not mentioned in the Saudi Law. Because of these exclusions both texts fail to give sufficient protection to inventors in the field of biotechnology, despite the importance of this field and the significant investment required for biotechnology developments.

The Saudi patent law does not cover important new technologies and is not keeping up with significant advances being made in such fields as health, agriculture, and biotechnology. It needs to ensure that the country respects intellectual property rights in biotechnology as well as other modern technologies. It is the same thing with regard to environmental issues; there are no rules in the Saudi patent law although it is supposed to be considered.

TRIPs requires that product patent-holders be able to prevent the unauthorized making, using, offering for sale, selling, or importing of the subject matter of the patent (Article 28). Process patent holders must be able to prevent the unauthorized use of the process. The Saudi law contains almost identical language on patent protection (see Article 25 of the law), but does not consider the importation of the product as an infringement if such importation is made by the patent holder or a person authorized by him (Article 18 of the implementing regulation).

Both laws, however, allow exceptions to exclusive patent rights. The terms of these exceptions, which are identical in the two laws, provide grounds for concern. Both laws allow exceptions if they do not unreasonably conflict with a normal exploitation of the patent and do not unreasonably prejudice the legitimate interest of the patent owner.

In terms of revocation and forfeiture (Article 33) of the TRIPs Agreement states:

"An opportunity for judicial review of any decision to revoke or forfeit a patent shall be available."

On the same subject Article 48 of the Saudi law states:

"A Committee shall be formed comprising three law graduates and two technical persons whose ranks are not less than grade twelve. The members shall be nominated by the President of the City. A decision establishing the committee is issued by the Council of Ministers. The term of the Committee shall be for a period of three years, renewable once only. One of the law graduates shall be nominated in the decision as Chairman of the Committee."

Article 49 indicates that the function of the Committee is to hear all disputes and appeals against decisions relating to patents. It also handles the penal actions which arise due to non-compliance with the provisions of the law and regulations.

In connection with the TRIPs article above, this would be considered an opportunity for judicial review. Accordingly, the Committee will have jurisdiction in every dispute arising between inventors and the patent office on the one hand, and between inventors themselves. The Committee is the first authority to look and make decisions on any disputes arising in the time being.

Article 34 of the TRIPs Agreement (Process Patents: Burden of Proof), states with regard to (1)(2) and (3):

"In the absence of proof to the contrary, the legitimate interest of the defendant in protecting his manufacturing and business secrets shall be taken into account."

According to this Article, it is the judge who will have the authority "to order the defendant to prove that the process to obtain an identical product is different from the patented process". This may be a reasonable solution; once it would have left the judge the opportunity to assess in the circumstances of each case, the extent to which the decision to revoke is justified. However, the provision permits member countries to opt between two hypotheses but in both of them "any identical product when produced

without the consent of the patent owner shall, in the absence of proof to the contrary, be deemed to have been obtained by the patented process".

In relation to this the Saudi law Article 23 states:

"If a person in good faith manufactures a product or uses the process of manufacturing a specific product or takes the necessary steps therefor before the date of granting a patent for such product or such process to another person, then the former shall be entitled - despite the issuance of the patent - to the right to continue the performance of these acts without expanding. The assignment or transfer of said right to third party can only be made in conjunction with all the assets of the business."

This article is considered to be contrary to Article 34 of the TRIPs Agreement. However, the purpose of this article in the Saudi law was to cover the existing industry, including products and processes, which may not have a chance to register these inventions prior to the issuance of the law. Therefore, a continuing production of such inventions has been given to them until the expiring date of each patent granted thereafter. But the question has been raised as to how the person in good faith discharges the burden of proof, since there is no interpretation for this article in the implementing regulation.

Compulsory licensing is dealt with in Article 31 of the agreement. The agreement does not refer to the widely accepted notion of 'non-voluntary' or 'compulsory' licensing. Nevertheless, Article 31 on 'other use without the authorization of the right holder' contains a detailed set of conditions and limitations for the granting of such licences. It allows national legislation to determine the grounds for granting compulsory licensing, referring to some specific grounds (i.e. national emergency, anti-competitive practice), but does not limit the members' right to establish such a remuneration for different situations.

Article 34 of the Saudi law indicates that on the inadequate exploitation of the invention by the patentee within Saudi Arabia, the authority may grant any person a compulsory licence

to exploit the patent upon a submitted application to the patent office. Further, Article 35 of the law states:

"If the exploitation of an invention has a major significance in industry and requires the use of another invention, the 'City' may grant either patentee a compulsory licence to exploit the other invention unless they mutually agree on exploitation in an amicable manner. The City shall determine the period and the remuneration of the exploitation together with all other conditions."

Article 36 stipulates that the compulsory licensee must fully exploit the invention industrially in the country during the period provided for the licensing decision as well as pay all the costs which are determined by the said decision. The beneficiary of the compulsory licence may not transfer the licence to a third party, according to Article 37. The cancellation of the compulsory licence is provided for by Article 39 which states:

"The City shall cancel the compulsory licence in the following circumstances:

- a) If the beneficiary of this licence fails to fully exploit it industrially in the Kingdom within two years from the date of granting the licence. This period is renewable for another equal period if he establishes that this failure was due to a legitimate reason.
- b) If the beneficiary of this compulsory licence fails to pay the monies payable by him within ninety days from its due date
- c) If the beneficiary of the compulsory licence fails to comply with any other condition of the licence".

Articles 34, 35, 36 and 37 of the Saudi law indicate that the main purpose for compulsory licensing and any given compulsory licence is to promote the transfer of technology mechanism by exploiting non-worked patents including public interest in the first instance. However, there is no anti-competitive practices provision included in the condition of compulsory licensing schemes available and the law. As Article 31(k) of the TRIPs Agreement provides that:

"The need to correct anti-competitive practices may be taken into account in determining the amount of remuneration in such cases. Competent authorities shall have the authority to refuse termination of authorization if and when the conditions which led to such authorization are likely to recur."

Reichman⁵⁸ points out that

"if a government authorizes a compulsory licence because the patentee refused to rectify exorbitant prices, is this either a public interest exception under Article 8(1) or the type of abuse otherwise subject to all the limitations of Article 31(b)-(j) or is this an anti-competitive practice within the less restrictive regime of Article 31(k)?"

Further he added that this

"empowers developing countries to adopt appropriate measures to deal with abusive licensing practices that adversely affect the international transfer of technology."⁵⁹

Although compulsory licensing practices have been limited,⁶⁰ developed countries have tried to limit the conditions to use of compulsory licensing system, while many developing countries have considered that system as a required counterbalance for the acceptance of new fields of patentability, particularly to conserve a specific degree of competition in the local market.⁶¹

⁵⁸ Ibid. note (33) above at 356.

⁵⁹ Ibid.

⁶⁰ Correa, C.M. "The GATT Agreement on Trade-related Aspects of Intellectual Property Rights: New Standards for Patent Protection" 8 *Eur. Intell. Prop. Rev.* (1994) at 331.

⁶¹ Ibid.

V. WTO and Developing Countries

a) **Legal Aspect of Intellectual Property in WTO**

During the GATT Uruguay Round negotiation, the United States and other developed countries required a new look at international rules to govern the relation of trade and intellectual property rights. Their concern was that existing intellectual property conventions did not necessarily provide a sufficiently effective body of rules to meet all measures to ensure a proper world trading system.⁶²

Developing countries insisted during the negotiations that they should not have to maintain the monopoly positions of the developed countries by imposing upon themselves developed countries' intellectual property rights. They argued that the World Intellectual Property Organization (WIPO) is the appropriate body to enforce intellectual property rights. The developing countries' argument was for the transfer of technology which will help their domestic development. Such international enforcement of intellectual property rights will drive up domestic prices, which may deprive developing countries of access to patented, trade marked and copyright products.

The main objective of the U.S. and other developed countries has been to enforce on developing countries strict new GATT rules requiring them to amend their intellectual property laws (if not to establish a new law in some countries). These objectives arose for many reasons, mainly that advanced countries (i.e. the U.S.) desired to use their technology effectively and maintain its level of production without any piracy. The need to reduce the trade deficit has come to impose the enforcement of intellectual property claims as a means of securing substantial foreign exchange transfers from developing countries. Another reason is that developing countries' debt crisis and balance-of-payment pressures have undermined their access to new and advanced technology.

⁶² Cunningham, R.O. "The Restatement of Prologue to Turmoil in the law: a commentary on Restatement of U.S. Intellectual Trade Law". 24 Int'l Law (1990) 8 at 315.

In this respect the strategy of the U.S., in particular, in the Uruguay Round has been an extension of the bilateral strategy pursued under 'Section 301'. Section 301 of the 1988 Omnibus Trade Act⁶³ is the legal mechanism with which the U.S. addresses the alleged unfair trading practices of other countries. It also authorises the imposition or increase in tariff of quantitative restrictions or both in response to unfair trade practices by foreign government as well. Section 301 authorises the President of the United States to take action against foreign governments if they have been in breach of trade agreement or acted to impair benefits of the United States under a trade agreement. Section 301 lends itself to the enforcement of bilateral and multilateral agreements to which the United States is a party, as well as allowing remedies outside those provided for in certain trade agreements.

Section 301 was amended in the Uruguay Round Agreement Act to clarify that a country can be identified as denying sufficient and effective intellectual property protection even if it is complying with its obligations under the TRIPs Agreement. It was also amended to allow the United States Trade Representative (USTR) to take into consideration a country's prior status and behaviour under Section 301. The USTR reviews foreign countries which have trade with the U.S. each year to identify the unfair acts, policies and practice relevant to intellectual property.

If a country is found to have inadequate and ineffective protection of intellectual property rights in relation to U.S. products, the said country, depending on the extent of violation, will be identified as on a "watch list". The watch list is used by the USTR as a means of monitoring progress in implementing commitments in respect of protection of intellectual property rights and for providing equal market access for U.S. intellectual property products. After the inception of the Uruguay Round several developing countries unilaterally reformed their intellectual property codes following Section 301 threats.

The success of the Section 301 programme in the U.S. trade practices ensured its popularity with the U.S. Congress and as a result the Omnibus Trade and Competitiveness Act of 1988 emerged and Section 301 was strengthened to Super 301, a

⁶³ Omnibus Trade Act 1301(a) codified at 19 U.S.C. 2411 (Supp. 1988).

telecommunication Section 301 and a government effective procedure based upon Section 301.⁶⁴

The weakness of some developing countries comes from their dependence on the United States for trade. An example of this weakness involves the situation surrounding pharmaceutical products, where developing countries consider the pharmaceutical issue as an issue of financial policy because of the lost sales resulting from the lack of patent protection on human drugs. They are more concerned with health policies than with patent protection when it comes to medicine products.⁶⁵

Some commentators argue that some of the complaints of worldwide 'piracy', 'counterfeiting', and the lack of adequate protection enforcement etc, were never put before the WIPO. According to the WIPO Director-General, these issues were never put forward by the U.S. and others, nor was there any proposal for change in the Conventions either to secure greater protection for intellectual property rights or to deal with counterfeit goods in international trade.⁶⁶

Chakravarthi⁶⁷ argues:

"In bringing the issue on the Uruguay Round agenda and by using the term intellectual property rights the U.S. and other ICs (industrialised countries) have managed to inject some value-loaded words, like 'piracy' and 'counterfeiting' to describe those who are not prepared to accept their demands. With the help of the media, they have made these terms current coin, confusing the public and legitimizing their own demands, and painting those opposing them as indulging in some immoral acts or near criminal conduct or behaviour."

⁶⁴ Bello, J.H. and Holmer, A.F. "U.S. Trade Law and Policy Series No. 24: Dispute Resolution in the New World Trade Organization: Concerns and Net Benefits". *The International Lawyer*, Vol. 28, No. 4, winter (1994).

⁶⁵ Kastemeir, R.W. and D. Beir. "International Trade and Intellectual Property: Promises, Risks and Reality". V and J. *Transnational* (1989).

⁶⁶ Chakravarthi, R.. "Recolonization: GATT the Uruguay Round & Third World (1990).

⁶⁷ Ibid.

Other commentators argue that developing countries may get some justice in GATT in relation to the export of tropical products, and that developed countries may like to re-study their proposals of enforcement and protection of intellectual property rights through GATT, bearing in mind that developed countries have some obligations toward developing countries, either legally or at least morally. The present text may put the working of GATT in crisis, and it is possible that it will also put the credibility of industrial property, as an incentive to technological development, in to uncertainty.⁶⁸

Some argue that the TRIPs Agreement is a great enhancement for companies involved in international trading activities, mainly Western companies doing business in developing countries. This will give them greater confidence that the intellectual property rights which they rely on in the developed countries to protect their commercial investment will also be acknowledged in developing countries. They could also impose a more uniform and reliable method of enforcing intellectual property rights by using the intellectual property systems in more and useful registrations of intellectual property applications. At the time when offering the benefit of low costs and high industrial growth rates, those countries will become even more attractive commercial prospects.⁶⁹

I could agree to some extent with both arguments above, but while this may well give some benefit to the Western company (for example) and increase the mechanisms of transferring technology and disseminating knowledge to developing countries, it may, on the other hand, destroy the ability of local inventors and companies to compete where there is no comparison with the advanced technical progress carried out by Western individuals and companies. Once these registered products are incorporated into a useful commodity, they then become the property of the said company, which can claim royalty payments and restrict access to them. It is also possible to claim royalty when they are imported into their country of origin.

Some argue that

⁶⁸ Ibid. note (9) above.

⁶⁹ Worthy, J. "Intellectual Property Protection after GATT" 5 Eur. Intel. Prop. Rev. (1994) at 195.

"Only the adoption of equivalent concession under the WTO-TRIPs regime in accordance with the balance of commitments principle would guarantee that the international trade regime would not worsen the technology imbalance between developed and developing countries. Further, without balance commitments (which excludes international trade conditioning), developing countries cannot make free technological development and regulatory choices unlike the now developed countries which were, historically, able to do so without imposed restriction."⁷⁰

Another point is that the TRIPs Agreement is a

"welcome development for companies involved in international trading activities, particularly western companies active in developing countries. It will allow them to have greater confidence that the intellectual property rights which they rely on in the developed world to protect their commercial investment will also be acknowledged in less developed countries. Equally importantly, they can look forward to a more uniform and reliable method of enforcing intellectual property right in developing countries, at a time when many developing countries offer the benefit of low cost and high industrial growth rates."⁷¹

Beyond both arguments it is hoped that the WTO-TRIPs legal obligation on both developed and developing countries produces a step forward in strengthening intellectual property protection and help to enable governments to regulate licensing practices in an effective measure to transfer and disseminate technology to the mutual benefit of producers and users, when developing countries may engage in more investments and become more attractive commercial prospects.

⁷⁰ Wairama, B.G. "International Law and the Acquisition of Technological Capacity by Developing countries". Ph.D. Thesis, University of Edinburgh (1992).

⁷¹ See. Worthy. Ibid. note (69) above at 198.

b) Economic Aspects of Intellectual Property in WTO

The WTO multilateral trading system:⁷²

"is an attempt by governments to provide investors, employers, employees and consumers with a business environment which encourages trade, investment and job creation as well as choice and low prices in the market place. Such an environment needs to be stable and predictable, particularly if business is to invest and thrive."

Furthermore,

"the existence of secure and predictable market-access is largely determined by the use of tariffs, or customs duties. While quotas are generally outlawed, tariffs are legal in the WTO and are commonly used by governments to protect domestic industries and to raise revenues.

Following the establishment of the GATT in 1948, the average tariff levels fell dramatically through a series of seven trade rounds.⁷³ Added to that, the Uruguay Round cut tariffs substantially to zero in some cases, while raising the overall level of bound tariffs increasingly. The commitments on market access through tariffs reduction were done by over 120 countries in the Uruguay Round.⁷⁴ In developed countries tariffs on industrial products will result in a 40 percent cut. The developing countries' percentage of bound product lines increased from 21 to 73 percent.⁷⁵ This result provided a substantially higher degree of market security for trade and investors.⁷⁶

⁷² See. WTO Report "Trading into the Future". Ibid. note (13) above at 5.

⁷³ Ibid.

⁷⁴ Ibid. at 6.

⁷⁵ Ibid.

⁷⁶ Ibid.

Between 1986 and 1993 over 60 developing countries and countries in the process of economic reform from non-market systems implemented trade liberalization programmes.⁷⁷ Meanwhile, developing countries took a much more active role in the Uruguay Round negotiation than in any previous round and the trend effectively changed the notion that the trading system existed only for industrialized countries.⁷⁸ It also changed emphasis to exempting developing countries from certain GATT provisions. However, developing countries proved themselves ready to take on most of the obligations that are required of developed countries.⁷⁹

However, some commentators argue that developing countries are playing a big part in reforming world trade and economy as well as in formation of transferring technology. The developing countries have, of course, cut or frozen more tariffs than ever before and the talks have for the first time encompassed tropical goods, farm trade, textiles and clothing. All of these areas are of special interest to the developing countries.⁸⁰ Nevertheless, the argument is that developing countries may lose because of this Agreement, as they granted access to rich countries markets under the generalized system of preference (GSP), and the world liberalization could erode the advantage they enjoy over competitors who are too rich to qualify for this sort of help.

Focusing on intellectual property rights as stated above, the imbalance between the developed and developing countries is apparent from the fact that more than 80 percent of the patents in developing countries are owned by foreigners, mainly from the U.S., Japan and European countries, and more than 95 percent are not used in production in these developing countries. The dialogue on intellectual property is concerned with achieving more protection for northern transnational corporations (TNCs) whose complaint is that developing countries' technological piracy is costing them a fortune annually.⁸¹

⁷⁷ Ibid.

⁷⁸ Ibid.

⁷⁹ Ibid.

⁸⁰ The Economist, "For richer, for poorer: No, developing countries do not lose from the GATT deal", Economic Focus. December (1993) at 64.

⁸¹ Ibid. note (66) above.

The United States became frustrated with the lack of protection of intellectual property abroad.⁸² In bringing the issue through TRIPs to expand world trade and create new norms, the US and some of its supporter countries want consumers around the world to promote their transnational corporations and to create provisions to legitimize such unilateral actions.⁸³

Some argue that the right holders of intellectual property of all nationalities should benefit from the TRIPs Agreement. One of the prime factors for the future stability of international trade in this field will be the ability to resolve disputes through the existing WTO dispute settlement mechanism. This should substantially improve the international climate for trade and the economy, and other transactions involving intellectual property rights, by allowing their holders greater certainty over their application and use. It will also have the beneficial effect of fostering international flows of technology transfer and investment at a time when it is needed by developing countries, as well as increasing domestic innovation. Overall, the prize will be a strengthening of the open multilateral trading system in WTO leading in turn to greater growth, to the benefit of all.⁸⁴

I cannot agree with the above argument, as compulsory licensing is widely used in developing countries in order to eliminate the abuse of monopoly power conferred by patents. Such licensing procedures are intended to prevent transnational corporations from applying for a series of patents with a view to strangling local competition and becoming monopoly importers of the products in question, over-pricing imports in the process.

These practices have been confirmed by a number of studies indicating that between 60 percent and 90 percent of foreign owned patents in developing countries are never put to use for local production.⁸⁵ Under non-voluntary licensing devices, foreign firms are required by many government regulations to transfer patents not used in local production

⁸² Cordray, M.L. "GATT v. WIPO" JPTOS, February (1994) 138.

⁸³ Ibid. note (66) above.

⁸⁴ Slaughter, J. "TRIPs: The GATT Intellectual Property Negotiations Approach their Conclusion" II Eur. Intell. Prop. Rev. (1990).

⁸⁵ Watkins, K. "Fixing the Rules: North-South issue in International Trade and the GATT Uruguay Round (1992) ed. at 96.

to national firms.⁸⁶ The aim of these regulations is to encourage technological advance and adaptation.

Some commentators see the harmonization of the patent system by the WTO as undermining the ability of developing countries to obtain and assimilate imported technologies by increasing their foreign exchange costs. Some indication of the potential scale of these costs can be gained by the claims substantiated of the US International Trade Commission that American companies lose up to \$61bn per annum through inadequate patent protection in the developing countries.⁸⁷

A WTO regime designed to impose royalty payments on this scale would cost the developing countries between \$100 bn and \$300 bn annually, dominating the outflow of resources associated with debt servicing. Such transfer would require developing countries to increasing technological poverty, with attendant implications for economic growth and human poverty.⁸⁸

I would agree with the above argument and with what Watkin⁸⁹ said:

"New technologies are difficult to develop, requiring substantial investment in research and development, but are often easy to imitate and adapt. Such imitation and adaptation are vital if developing countries are to have any hope of closing the technology gap separating them from North by leapfrogging earlier stages of industrial development process. This is specially true for the world's poorest countries, which are already technologically marginalised. But it is also increasingly true of the more industrially advanced middle-income countries, specially where debt and terms-of-trade deterioration have raised the cost of imported technology. This is why any GATT agreement must allow developing countries the policy sovereignty to determine what products should be excluded from patenting and the life-span of patents. It should also address the problem of

⁸⁶ Ibid.

⁸⁷ Ibid. at 94.

⁸⁸ Ibid.

⁸⁹ Ibid. at p.96

providing the resources needed to close the North-South technology gap, although this issue has been excluded from the Uruguay Round agenda."

The final argument describes the WTO agreement in general effect and economic relations between developed and developing nations. Hudec⁹⁰ suggested that

"... GATT's legal policy towards developing countries should change and the Contracting Parties should instead establish a regime of developing - country legal obligation that would provide support for government of developing countries in opposing unwanted protectionist policies at home. Such a change would involve setting aside both the principle of non-reciprocity and the principle of preferential treatment. It would involve accepting instead the proposition that developing countries should assume either equal legal obligations or, at least, an equal degree of legal control".

Further, he added,

"The consequence is that the GATT's current policy towards developing countries now has the momentum of a fully laden supertanker under way at full speed. It will take many miles of ocean just to slow it down, much less to begin making a complete turn."⁹¹

Unfortunately, most of the developing countries' governments would not only be unable to act positively in the international economic field to support the well-being of their people, but rather be obliged to protect the interests of the developed and foreign enterprises and foreign nationals against their own people. There are those who believe that the only role left for governments of developing countries would be maintaining law and order and keeping domestic labour under control.

⁹⁰ Hudec, R.E., (ed) "Developing Countries in the GATT Legal System" (1987) 229.

⁹¹ Ibid. at 230.

Thus, it is submitted that governments of independent countries in developing countries should create some major deal towards foreign capital and free flow of information and technical services through a services agreement to enable the establishment and growth of industries and to eliminate international rules which block or inhibit control over key services sectors.

c) **Saudi Arabia and the WTO Agreements**

1) **General Principles on Economic and Trade Measures**

Saudi Arabia applied for membership of the GATT Agreement in 1993. The application has to be considered by a formal GATT Committee including the United States, the European Union and Japan. Saudi Arabia is now in the negotiation process over the WTO obligations.

Since members are required by WTO rules to extend national treatment to individuals and entities from other states, Saudi Arabia could in the course of these negotiations be asked to reform and modify some of its internal trade rules, including its local agency requirements as well as the modification of intellectual property enforcements, and a minimum acceptable level of protection as required by the Agreement.

Foreign individuals and companies from the WTO member countries under such reforms could find it secure to invest in Saudi Arabia and would come to enjoy greater freedom of trade in the Saudi market as presently enjoyed by Saudi and other countries' individuals and firms. Resolution through this may offer the prospect of the WTO agreement from which both Saudi and others can gain as well as bringing its economic and trade measures up to appropriate international standards.

The Saudi officials see that the multilateral trade approach through the WTO Agreement offers a bright hope for the country's trade and economic development and will help continue such development due to the fact that the Saudi domestic market is a free market.⁹² They realize that by the lack of protection for intellectual property in services

⁹² Alriyadh. A daily newspaper issued in Saudi Arabia in the Arabic Language. 16 April 1994 - No. 9427

obstacles facing it. Joining the WTO Agreement is recommended as its laws are more valuable to Saudi Arabia than the dual commercial agreements, and the WTO is more useful to Saudi Arabia than at any time before when the country depended only on oil production.⁹⁷

2) Enforcement of Intellectual Property Protection

The joining of the WTO Agreement can be seen as taking a positive step toward the reform of intellectual property laws in Saudi Arabia. If the country joins the WTO and signs the Agreement on Trade-Related Aspects of Intellectual Property Rights, including Trade in Counterfeit Goods (TRIPs) it will have a significant impact on the protection and enforcement of intellectual property in Saudi Arabia, not only for patent protection, but also for the protection of industrial design, geographical indications, layout-designs of integrated circuits, enforcement procedures and remedies, provisional measures and special requirements related to dispute settlement procedures.

It seems essential to have an instrument aimed at establishing universal standards on the issue of the form of intellectual property protection. It is also essential to settle all other areas of technology of equal or similar importance to achieve a sufficiently effective body of rules and regulations to cover all the needs of social, economic and industrial developments, whether Saudi Arabia is considered to be a developed or developing country by the WTO Committee.

Whatever choice is made, the possibility of reforming and combining an intellectual property system of protection with new areas of technology (i.e. biotechnology, plants and animal varieties), is open for further developments. For example, in the field of plant varieties, the ban upon 'double protection' of plant varieties through patents and breeders' rights has been removed by the UPOV Convention in 1991 in amendment to the Convention. Thus, it is a great chance to be exploited in the field of agriculture upon

⁹⁷ Some views in a joint symposium between the general secretariat of the Gulf Cooperation Council (GCC) and the General Agreement on Tariffs and Trade (GATT) held in Riyadh, Saudi Arabia from 2-5 March (1985).

which the country depends largely for its production, as it comes second after the field of oil and oil industries.

Although it is argued that any international system with measures and standards applicable generally in all countries would mean that the developing countries

"would be powerless to act against abusive use of the rights granted. Such abusive practices characterize the licensing agreement by which the patent holding foreign enterprise authorizes its working in the territory of any particular country. Industrialized nations counter such abusive practice through their anti-trust and competition laws and policies, which they are able to enforce on the enterprises which are located on their territories or are dependent on the market."⁹⁸

It is, however, important to take advantage of these procedures followed by industrialized countries and adopt similar laws within the general reform of intellectual property protection. Saudi Arabia is recommended to adopt such legislation (i.e. anti-trust law, particularly in the field of patent protection).

In spite of the above argument, Saudi Arabia has made considerable progress in the form of intellectual property protection in recent years. It has begun to take action enforcing copyright protection which is compatible with obligations established in the Berna Convention. It deposited its implements of accession to the Universal Copyright Convention in 1994, and protection of foreign works took effect in July, 1994. Saudi Arabia has adopted an effective enforcement against piracy and counterfeiting of imported goods particularly of U.S. works.

Part of the progress can be seen in the fact that Saudi Arabia has been accused of committing unfair trading practices by the United States. Such practices have put Saudi Arabia alongside countries violating trade practices, and placed it on the 'watch list' according to Section 301 of the Omnibus Trade Act⁹⁹ which allows the United States

⁹⁸ See. Chakravarthi, *ibid.* note (66) above at 134-135.

⁹⁹ Omnibus Trade Act (codified at 19 U.S.C. 2411).

Trade Representative to take some action against governments who breach trade agreements with the United States.

Nevertheless, such action made by the United States has increased the awareness of intellectual property protection in international trade and foreign investment. However, it is submitted that the choice in participating in the international intellectual property system should be increased. The WTO-TRIPs Agreement can be useful, which as a result of participation, permits local firms to exploit intellectual property in the markets of all of those countries that join the system. In other words, it expands the practices of those firms internationally, perhaps at a reduced cost.

The action taken by the United States against Saudi Arabia should not be the end of intellectual property reform in the country, rather a message to the effect that multilateral trade negotiations should include intellectual property laws. Negotiation for WTO-TRIPs should have some impact on the legislative activity in Saudi Arabia. New rights should be recognized in Saudi's legal system, such as industrial design and trade secrets. Such new rights can be suggested because the TRIPs Agreement recognized those rights and provided international standards for protection.

Finally, an amendment to all intellectual property rights in Saudi Arabia should take place to accord with most important TRIPs provisions in the country. It may not benefit local intellectual property rights holders to monopolize the import of the products, opting instead for utilization of the intellectual property system for domestic industrialization. However, the benefit may occur through TRIPs agreement in another member country of the agreement in which the Saudi inventors can exploit invention commercially in a broader market place. The patent holder can charge for the use of the patent rights either in the form of royalties or through the final product wherever the technology is needed by the adopting countries. In any case, the patent holder will have some advantages of immunity granted to him immediately and unconditionally.¹⁰⁰

¹⁰⁰ TRIPs part I. Article 4.

Conclusion

The TRIPs negotiations were intended to internationalize what so far have been the local criteria for enforcement and protection of intellectual property. The agreement is also to broaden the range of protection by extending the lifetime of protection and thus monopoly rights of intellectual property rights holders, reduce or eliminate such capacity of member countries to regulate and maintain monopoly, and to increase competition internationally.

Unfortunately, it is unlikely that developing countries will obtain a competitive practice as the larger share of the TRIPs benefit, nor would be advantageous for the intellectual property holders of the said countries nationally and internationally.

**THE EFFECTIVE ROLE OF THE
PATENT SYSTEM IN THE
TRANSFER OF TECHNOLOGY**

Introduction

Historically, technology has been described as the effort of man to maintain his surrounding for best benefit.¹ This shows the close relation between the types of societies and their production of technology.² Following the industrial revolution in the eighteenth century, some scientists continued to succeed in developing technological knowledge, while others have been left comparatively unaffected and culturally remote. This disparity in technology within many countries created the categories of development: some countries are "developed" and other are "developing"³

The need for acquisition and development of technology appeared among developing countries due to the fact that these countries contain over half of the world population, yet their source of income is less than a tenth of that of developed countries.⁴ It was also due to major advances and significant changes in many fields of technology which have occurred in the past. Such development increases global competition and creates change in both the private and government sectors.⁵

One of the most important factors governing the development and transfer of technology is an effective system of intellectual property rights protection; in particular, the patent legislation in both developed and developing countries is considered to promote the improvement of existing innovation and encourage new inventions and technological and economical development.

This chapter will address three areas, firstly what is meant by technology transfer; secondly the legal regulation of transfer of technology, including the international environment and norms in the transfer of technology; and lastly technology and technological and indigenous acquisitions in developing countries.

¹ T C Creel and D M Wintrigham: "Patent System and their Role in the Technological Advance of Developing Nations" Rutger Commerce and Technology Law Journal Vol. 10, 255-56 (1983).

² Ibid

³ Ibid.

⁴ Ibid.

⁵ UNCTAD: Analytical report by the UNCTAD Secretarial to the Conference. N.Y. (1992)

The second part will focus on the international patent system and technology transfer, including the role of multilateral conventions and treaties in the intellectual property system, mainly, the Paris Convention, Patent Co-operation Treaty (PCT) (1970), and the agreement on Trade Related Aspect on Intellectual Property (TRIP's) (1994).

Finally, the third part will examine the role of the Saudi Arabia Patent Law in comparison to relevant issues concerning the transfer of technology. There will be a brief analysis of the methods taken by the Saudi authority in order to maintain a proper use of and indigenous capability in current technology, with some discussions and recommendations for improvement of its approach.

I Technology Transfer in Developing Countries

(a) The Definition of Technology Transfer

Traditionally, the definition of technology has been effected by "territorial national commercial interests".⁶ In the United Nations Centre on Transnational Corporations, the definition was described as "the stock of knowledge which permits the introduction of new or improved machinery and equipment, product, process and services, including in a broad sense, additional elements such as management and marketing skills".⁷

Technology was defined for legal purposes in the WIPO Licensing Guide for Developing Countries as⁸

"systematic knowledge for the manufacture of products, the application or commercial enterprise or its activities".

The transfer of technology has broad scope. It has been said that "the material on the subjects is voluminous, and so are the resolutions by the United Nation and its various

⁶ Wairama. B.C. "International Law and the Acquisition of Technological Capacity by Developing Countries". Ph.D. Thesis. University of Edinburgh (1992) 65.

⁷ Ibid.

⁸ Herein referred to as WIPO Licensing Guide

agencies, the international and regional development financing institutions and the various political fora".⁹ Yusef¹⁰ refers to the term Transfer of Technology as "vague and imprecise". Further, the definition of technology transfer "often includes training where licensor's technical personnel assist the licensee in rapidly and effectively utilising the licenced technology. All personnel involved in such training from both the licensor and licensee should have not only a clear understanding of what information is to be transferred but also what information should not be disclosed."¹¹

Transfer of technology was defined by Yankey¹² as "the introduction of technology from one environment to another where its use is not only capable of meeting the needs of the recipient, but equally capable of importing the necessary knowledge and skills for the continual satisfaction of those needs" He continues: "the technology transfer process is never complete until there has been the acquisition of the necessary skills by indigenous labour to manage and utilise the technology autonomously as well as its total absorption and diffusion throughout the recipient's entire industrial and agriculture sectors."¹³

The international supply of technological products or processes may not contain the development and transfer of technology but rather the current state of technological products or process. Developed countries' governments have argued that technology is privately owned and can be transferred through the market, while developing countries have retorted that the market is distorted against them, and that they need reduction and favourable terms.¹⁴

The Code of Conduct on Transfer of Technology¹⁵ which was drafted by the United Nations Conference on Trade and Development (UNCTAD) (1974), defines technology transfer as "the transfer of systematic knowledge for the manufacture of products, for the

⁹ Yusef. Abdu Rahman: "The Role of Transfer of Technology in the Pursuance of Technical Progress". A lecture presented in UNCTAD Conference (Technology Policies for Development and Selected Issue for Action), held in Jeddah, Saudi Arabia (1988) 14.

¹⁰ Ibid.

¹¹ Megantz, R.C. "How to License Technology" Wiley and Son (1995) ed. at 132..

¹² Yankey, G.S. "International Patents and Technology Transfer to Less Developed Countries" (1987)

¹³ Ibid

¹⁴ Sandbrook, R. "Workshop on 'Transfer of Technology' Technology and Developing Countries: Practical Applications, Theoretical Issues" in Richard Heeks (ed) Frank Cass (1995) at 195..

¹⁵ Ibid.

application of processes or for the rendering of a service and does not extend to the transaction involving the mere sale or mere lease of goods". Even where transfer of knowledge is excluded in a sale of goods, it can still be a useful channel for transferring technology on the basis that it may help the recipient to develop indigenous expertise through competition rather than importing know-how as part of the deal.¹⁶

Another aspect of the Code of Conduct, is that it puts no explicit burden on the transferor to ensure that the transferred technology is properly and completely managed by the recipient. Rather it is left the responsibility of the transferor. This results in "the need to legally balance foreign technological rights, especially those commercially motivated with local technology and the general public interest,"¹⁷ i.e., in relation to health, environment and culture.

Although agreeing with the above arguments, the ideal transfer of technology may lie, first in the need to create new technology in the country to overcome the lack of resources and develop special techniques; secondly, to create and maintain the ability to develop the intellectual skills of domestic labour to achieve the systematic knowledge of transferred technology; and thirdly, to convert learning methods into processes and goods. Such goals can be achieved by utilising transferred technical means and methods properly in the local environment.

(b) Industrial Property and Other Legal Methods in Transfer of Technology

1. The Protection of Industrial Property

In most countries the legal framework for transfer of technology is in the development of technology and the commercialisation of transferred technology and there is considerable overlap between them.¹⁸ However, in order to illustrate both aspects it is best to categorise them in accordance with the rules provided in the international regimes. We can categorise

¹⁶ Ibid. note (12) above.

¹⁷ Ibid.

¹⁸ Yusuf. Abdugawi a. "The Legal Framework of Technology at the National Level" UNCTAD Conference. *ibid* note 9 above.

them as (a) industrial property legal systems of protection; and (b) other laws and regulations such as foreign investment codes, contracts and competition laws.

(a) Patents

Patents are granted to encourage innovation by protecting the property rights of inventors. It gives the patent holder the right to exclude others from making, using or selling the innovation for a certain period of time. Meanwhile, the benefit of the invention can be utilized by the public through the disclosure of its details and the sale of products associated with the invention.

Traditionally patent protection is available to the claimed technology included in the specification contained in the patent application documents. The specification can be used as an indirect method of facilitating the transfer of technology. The information contained in a patent document may contribute in making a product or process which may be either exported to a recipient country or licensed through a license arrangement between a patentee and a licensee to make use of the patent. This method is traditionally used by many developing countries and sometimes by MNC (Multi-national Companies) in the developing technology under which the patent is worked in the recipient country.

The creation of a "transfer of technology patent" was explained in the WIPO Model Law for developing countries on invention, promulgated in 1980.¹⁹ The application for this kind of patent must be jointly filed by the "foreign party" and the "domestic party" who is going to work the invention in the recipient country. Both parties must form a "transfer of technology contract" providing that the invention must be worked in recipient country either by both parties or by the domestic party alone and all the know-how necessary for the use of the invention must be provided by the foreign party. Maintenance of the patent depends on it being used and the importation of the patent products by either owner will result in the patent lapsing.

¹⁹ WIPO, "Model Law for Developing Countries on Invention", vol II, WIPO Pub. No. 841 (E) (1980)

In both cases, the "traditional" patent or "transfer of technology patent", the legal scope lies in public disclosure of the specification of the protected invention in exchange for the owner of the right having the right to exclude others from making, using and selling the invented product or process in the territory of the granting country.

(b) Trade Marks

Trade and Service Marks are created by enterprises to differentiate their own goods from those of others and to indicate not only their origins but also the quality of such goods. The purpose of this is to prevent counterfeiting and to maintain fair competition in the market place. Many use trade and service marks as a method of technology transfer, as in the case of franchising businesses, where the owner of the registered mark can license the protected mark to be used in a different territories. The recipient must show a high standard however with regard to the quality and services of such marks in the new territories.

In addition, there is also a "trade name" where the name used by a business describes itself. An origin of goods or services can also work as an indicator of the guarantee to consumers. As part of the transfer of technology, it is also possible to use more than one trademark; that is the case where licensing technology may wish to use different trademarks with a common feature which is called "associated trademarks".²⁰

(c) Industrial Designs

The scope of protection for industrial designs is in the shape or appearance of products which includes "aesthetic" aspects. Technical functions may not be included in the protection. The right of an industrial design holder is similar to the right of a monopoly for the patent holder. The rights are enforceable against infringement by unauthorised use or production of the claimed design. They have an essential role in commercialising a product. The role of industrial design in the transfer of technology is not as important for

²⁰ See the WIPO Licensing Guide, Ibid note (8) above.

developing countries as they do not have technical processes or methods of use to develop new products.

(d) Know-How, Trade Secrets and Technical Data

In addition to the above, know-how, trade secrets and technical data are also essential in the context of technology transfer as elements of an industrial property. Although in most developing countries there is no legislation granting an exclusive right to know-how or trade secrets, irregular disclosure of such information and illegal use is generally forbidden. Most uses of these kind of information (unpatented technology) depend on secrecy and are transferred subject to confidentiality provisions in the contract.²¹

2. Other forms of laws and regulation in the transfer of technology

In addition to industrial property rights, transfer of technology is governed by other legislation, such as investment, contract and competition or anti-trust laws. The last mentioned is mainly used in developed countries against restrictive business practices, including licensing in the transfer of technology.²² Competition law is usually concerned with the direct or indirect effects of restrictive practices on the local market; in other words, it is concerned with agreements, decisions and concerted practices which prevent, restrict or distort competition within the local market.

The argument is this that some foreign enterprises may be unwilling or uncertain to plan manufacturing where patent protection does not exist; and they may be reluctant to form joint-venture contracts with indigenous companies. Therefore, these countries may have to provide full intellectual property protection in order to make foreign direct investment possible in the country.

One of the most important legislative methods is the national law and regulations about transferring technology, in other words, "State Codes". These laws which have been adopted by

²¹ Ibid.

²² Ibid.

many developing countries have similar legal frameworks but not identical. They may be changed in accordance with the requirements of the individual country. Some countries adopted a "national laws or general regulations" whilst others use "existing legislative enactments" issuing "non-binding guidelines" to regulate the proceedings of technology transfer²³.

Special laws and regulations of technology transfer were established following discussion in UNCTAD (e.g. the Andean Group countries, Mexico and Argentina) which helped these countries depart from their earlier practice of dealing with such a complicated process in a "piecemeal and uncoordinated fashion".²⁴ In addition special machinery has been developed by the same countries in order to deal with technology transfer contracts and licensing agreements and to avoid the abuses of such licensing agreements, particularly in patent licencing. The transitional provisions in these laws ensure that contracts undertaken before the effected date can be revised so as to comply with the provisions of these laws and then registered within two years in the national registry of the Andean Group countries.²⁵

The United Nations Conference on Trade and Development (UNCTAD) decided to establish a special measure to regulate international instruments for the transfer of technology which became "UNCTAD Code of Conduct on Transfer of Technology"²⁶ as a result of intensive consultations with government and regional groups by the Nairobi Conference in 1976. Subsequently, an Interim Committee of the Conference met in a number of sessions between 1976 and 1983. The fifth session successfully concluded UNCTAD's commitment to create an international "Code of Conduct on the Transfer of Technology" in the sixth session in 1985.

The code has set forth principles on technology transfer, defined critical terms, codified warranty and other obligations of suppliers, and clarified what law should apply and which

²³ Ibid

²⁴ UNCTAD, "The Role of the Patent System in the Transfer of Technology to Developing Countries". Document No. TD/B/AC.II/19/Rev1(1975).

²⁵ Ibid, at 22-23

²⁶ Cutajar, M Z (ed): "UNCTAD and the South-North Dialogue (1985).

forum should settle disputes.²⁷ The main feature of the code was the listing of restrictive practices to be avoided or invalidated in all international transfers of technology transaction, such as tying and price-fixing.²⁸ The code rejects some practices of the developed countries and presents an alternative rule. Developing countries considered that “the existing transfer of technology norms were more concerned with safeguarding the industrial property rights of suppliers than with preventing abuses of those rights or encouraging the application of technology to development, since most technology suppliers are from Northern States and all Southern States are net recipients of technology.”²⁹

This has prompted many criticisms - as Sandbrook³⁰ pointed out that “the international conferences on technology transfer have been, more often than not, graveyards of good intentions; while there has been near universal acceptance of the need for enhancement of the technological capability of developing countries, agreement has stood still”. Further, he added, “it is regrettable, but perhaps no surprise that we are still awaiting the conclusion of the UNCTAD negotiation for an international code of conduct for technology transfer.”³¹

C. Methods adopted for the transfer of technology

The acquisition of technology may occur in many ways, eg. foreign direct investment (FDIs), technical agreements, technical agreements involving patents, know-how and trade secrets, joint-ventures, technical training programs, etc. Most of the technologies can be effectively transferred to developing countries by relying upon local expertise and on the local capacity. Nevertheless, adopting methods of use is very important in order to satisfy the purpose of the transfer, and several methods have been introduced to satisfy the technology transfer processes, since most developing countries consider importation of

²⁷ Davidow, J and D.L Miller “Antitrust and the United Nations: A Tale of Two Codes” in Seymour J. Rubin and Don Wallace, Jr (eds) “Transnational Corporations and National Laws” (U.N. library on transnational corporations: Vol 19) (1994) at 140.

²⁸ Ibid.

²⁹ Ibid.

³⁰ Sandbrook, R. “Workshop on ‘Transfer of Technology’”. Ibid. note (14) above.

³¹ Ibid.

technology as essential to their industrialisation efforts. Yankey³² suggested that developing countries stand to acquire more by opting for “generative technology transfer” rather than “consumptive transfer”. He classified technology transfer into two categories:

1. A *generative technology transfer*, which not only enables the utilisation of the transferred technology to satisfy human needs, but more importantly has the potential for the further generation of technology. The generative transfer process may include the transfer of hardware technology like technical and managerial experience. This type of technology transfer is crucial because the use of knowledge and tools to achieve stated goals is the crux of the technology transfer process.

2. *Consumptive technology transfer*, on the other hand, refers to a transfer which cannot be applied to satisfy present and future human needs without the technology itself being consumed or exhausted, and thus may not have any real potential for generating any further technology. This transfer includes the transfer of consumer goods and some consumer durables which themselves are the embodiment of the technology that goes into their production.³³

Yankey suggests that countries which seek a permanent technology foundation should avoid consumptive technology transfer and concentrate on the generative transfer. Without any supportive structures, however this choice may not necessarily lead to any economic or technical development and progress, and technology acquisition should be accompanied by some adoption of legal measures in order to reduce the heavy dependence on the foreign supplier.³⁴

It seems that acquisition, adoption, assessment and development of technology transfer are particularly difficult tasks. Referring to the necessary base and relative structures of technology, i.e. science and technology, and parallel to the policies and regulation adopted to governing such transfer, a method of use in order to accomplish the above process is to be preferred. In 1979 a programme for the adoption of technology transfer was issued by

³² Ibid note (12) above.

³³ Ibid.

³⁴ Ibid. at 46.

the United Nation Conference on Science and Technology for Development, called the Vienna Programme of Action (VPA). The programme suggested that:

... each developing country should formulate a policy on transfer and acquisition of technology as a integral part of its national policy for scientific and technological development. Such a policy should provide for a technological spectrum ranging from the most simple to the most advanced technologies and for the assimilation and adoption of imported technology.

The conference further recommended that:

... Developing countries should strengthen their capacities for the assessment of technologies from the point of view of national development objectives. Developing countries should also strengthen their capacity to unpackage technologies to be acquired so as to make a financial evaluation of the different elements and an evaluation of their technical specifications, and plan the training of human resources in order to provide technological capacities.

Some arguments suggest that in order to accomplish a successful method of adopting and acquiring the maximum standard of transferred technology is by a study of Western socio-economic systems, as this system produces the acquired technology; in order then to determine the most effective method, and recommend its application to the developing country. The function of the Western economic system is controlled by a quantum of investment which manages employment and returns by many factors, such as trade, labour, technology, finance and marketing combined with empirical relationships which contribute to the economic and technology produced by this system.³⁵

Perhaps it is true that Western Technology is a pioneer and very much in demand from developing countries, but the question is whether such Western development of technology can find the same infrastructure, skilled labour, finance management and marketing in developing countries, maintain the same quality of production, and create a

³⁵ Ibid, note 9 above at 10.

new industrial and commercial base to foster the local economy and compete in acquired fields of technology. It is also important to realise that Western technology reached its present stage over about two centuries, and has its own social and moral values which may have given more freedom of production. There may not be the same situation in developing countries and particularly Saudi Arabia, as they may be able to purchase and acquire the technology but cannot alter their social and moral values, which are very different from Western societies. Thus clear measures with regard to transfer of technology processes should be considered by the developing countries in order to achieve a suitable result.

Finally, in any method of transferring the technology, it may be important to realise the need for a growth and development of technology to suit particular conditions in accordance with the confidence of national governments in their manpower and skilled labour, available material, and technical needs and social outlook. This is because new methods may have to be worked out in a new environment, and new social policies may have to be decided on, in order to avoid a rejection of development in the developing countries.

Methods of the transfer may not always be the same. It may vary from country to country and from one society to another even between one human's skills and another. The implementation of a fixed model is not possible because in many developing countries the method adopted may have a different effect on technical development in peripheral economies due to the variation of the economic development between these countries.

d. Problems Faced in the Operation of Transfer of Technology

One may be able to transplant an industrialisation base but not be able to maintain its operation. The case for transferring technology from developed countries to developing countries is "deeply rooted in the international division of labour, which has developed the advanced countries of modern industry, and which, by definition, explains the role of the developing countries as producers and supplier of tropical food, minerals and agricultural raw materials with little or no domestic manufacturing industries".³⁶ In addition some

³⁶ Ibid note 15 above at 38.

developing countries are classified as producers of more important raw material and export it to developed countries, which helps the developed countries establish their technology. It is oil and petro-chemicals in the case of Saudi Arabia, where these natural resources were encompassed and accumulated by capitalist firms involved in the entire range of production relations.

As Yankey put it, "imperialism at its maturity and territories coming under the domain of the capitalist countries, they initiated and urged, and where necessary forced the cultivation of crops and exploitation of minerals required by the home economy. Systematic colonial investment provided the underdeveloped world with a handful of primary commodities for export, instead of concentrating on meeting the needs of the colonies, and thus transformed them into the farms and mines of the metropolis. It is no wonder that the economy of most of the third world countries which experienced imperialism and/or colonialism bear the characteristic of either monocrop or bi-crop".³⁷

This led to the belief that the control of the developing countries' economies made them dependent upon the metropolitan economies and at the same time developed countries were producing and exporting goods to the colonies and other countries. This is what created their advantages in technical development, and what causes the "impoverishment" of developing countries and their present lack of industrial structures.³⁸

In addition to the reasons above, the international structure of the economic system helps worsen the problem. As Yusef puts it,

"although aware of the great importance of technology for their development, the developing countries are unable to exercise real choice in designing effective strategies for their technological transformation. The growth of the international economic system has resulted in a profusion of institutions and mechanisms that maintains developing countries in conditions of dependence and that leads to ever widening disparities between the richest and poorest nations. In general, technological dependence arises when most of a country's technology comes from abroad and the

³⁷ Ibid. at 39. Yankey refers for some evidence in India, see Brown (1974J), on Ghana see Howard (1978), and on Nigeria see William (ed) (1976) and Onimode(1982).

³⁸ Ibid. at 40.

greater the reliance on foreign technology the more concentrated the source, the greater the dependence".³⁹

Nevertheless, the greatest difficulties in the process of transfer of technology may be the lack of manpower of the recipient country. Besides the causes of weaknesses in the basic infrastructures as mentioned above, a modern industrial project may require technical performances such as machinery, equipment, skills, procedures and technical activities such as know-how, all including socio-economic arrangements and perhaps a political decision. But the question remains, can these factors be transferred from one human being to another or one society to another, just by a written agreement?⁴⁰

Whatever the stages, the problems with the process of technology transfer are many. O'Reilly⁴¹ argues, for example, that "the stage of procurement does not necessarily lead on to absorption and innovation. The transfer process has for the most part been supply-dominated and has therefore not responded effectively to the need of developing countries. The import substitution strategy of most developing countries has thus been found wanting." Further, he added, "While the flow of technologies from 'high pressure' to 'low pressure' area may be viewed as 'natural', the problem of technology choice is still critical in determining whether a technology is appropriate or not to local circumstances".⁴²

Part of the difficulty is the lack of even a basic infrastructure. In heavy industries, almost every component may have to be imported and assembled under foreign export supervision, and each type of industry will be halted when something goes wrong until problems of this nature can be solved. This is despite the provision of training as an integral part of these transferred technology projects. With regard to insufficient management, maintenance and function of the project, perhaps a little transfer may take place in term of hardware plants. This may be supported by Robinson,⁴³ when he states

³⁹ Ibid. note 9 above at 11.

⁴⁰ Ibid.

⁴¹ Ibid.

⁴² Ibid. at 243.

⁴³ Robinson. A (ed): "Appropriate Technologies for Third World development". (1979) cited on note 9 above at 11.

that "putting the clock back and seeking an appropriate technology in the limbo of the earlier technologies of advanced countries will seldom be successful. A majority of these technologies were very highly skill-intensive".

Finally, in terms of acquisition and negotiation of technology contracts, some obstacles relating to the imported technologies are detrimental not only to the contractor class but also to the local economy as a whole and may cause unnecessary reduction of foreign reserves. As suggested by UNIDO,⁴⁴ reference can be made to the following:

(1) Payments made by local companies for supplied technology are usually excessively high and may not be in line with the established international practices for the negotiation of the same technology package in other countries;

(2) In some instances, local entrepreneurs pay for a technology on which the patent has already expired, without realising that expired patent technology is available free of charge and obligation;

(3) Contract periods are usually excessive and sometimes of indeterminate duration, thus perpetuating the financial obligations of the recipient;

(4) The terms and conditions of the contracts often include several restrictive clauses which hinder the effective assimilation of the technology and the use of local inputs;

II The Effective Role of the International Patent System in the Transfer of Technology

(A) Patent System in Technology Transfer

Traditionally, the patent system is designed to protect inventions which contain technical information. Patent applications will be subjected to a formal examination as to substance, a search to determine the state of the art in the technical field of the invention, and a final examination as to the ground for granting a patent. These practices offered by the patent

⁴⁴ UNIDO, "Workshop on Negotiation of Transfer of Technology Contracts". The workshop took place in Port-of-Spain, Trinidad and Tobago (1988). Jointly organised by the Caribbean Industrial Research Institute (CARIFI), and the Industrial Development co-operation (LDC) and the United Nations Development Organisation (UNIDO). For more details see TIES Newsletter, No. 40 March 1988 at 1.

office are designed to promote local inventors and to allow foreign inventions to be registered and protected locally for investment purposes. Both protection of local and foreign inventions may promote local technical and industrial development.

The availability of the "technical information" contained in patent documents can indirectly help to facilitate the transfer of technology to both developed countries and developing countries. Some direct ways of helping to promote technology are when the patent is included in a so-called "package" of technology transferred, in other words, exported to a recipient country,⁴⁵ or through a licensing agreements between the patent holder and a license in developing countries where the patent is to be worked.

In developing countries the evidence as to the role which the patent system plays in the transfer of technology has revealed little, due to the fact that most developing countries either do not have an existing system of protection, or are not utilising the system properly when there is one. However, patents per se do not have a role in transferred technology; rather they may have an effect on the transfer process.⁴⁶ It is estimated that less than 2% of the technology transferred to developing countries is patented.⁴⁷ In addition, however, there is no indication to suggest that any transfer of technology was based on published patent documents only.

I agree with the argument that, without patent protection, foreign technology may not be encouraged to disclose desirable technical processes in the developing countries. It may be added that, creating a reliable environment for local and foreign investment and utilising such technology requires full procedures from filing of applications to examining and granting patents, rather than a process of registration only, which may jeopardise the purpose of creating the system as well as the benefit of the existing system. Unfortunately, this is the case in some developing countries, including Saudi Arabia, which has issued only a small number of patents despite the establishment of its patent office in 1989, and in

⁴⁵ Bladkeney, M (ed) "Legal Aspect of Transfer of Technology to Developing Countries" (1989) at 87-89.

⁴⁶ See (Vaitso, 1973 and Vicent 1984) cited in note 15 above at 22.

⁴⁷ Mangalo, "Patent Protection and Technology Transfer in the North-South Conflict", 9 IIC 100, 112 (1978) cited at note 45 above at 87.

which many foreign inventors have almost lost interest in investing, according to their complaints to some patent and trademark agents in the country.

Another regrettable fact is that most reports on the utilisation of patents registered in developing countries have shown no exploitation, the right given by patents appearing to be used to preserve import monopolies rather than help encourage local production capacity.⁴⁸ The reason for non-utilisation of most foreign or imported patents registered in developing countries is the claim that without the transfer of assistant know-how, the content of technology in a granted patent is rarely sufficient to allow the successful utilisation of such technology.⁴⁹ With regard to the above, the United Nations concluded in a report (1975) on the role of patents in the transfer of technology to developing countries that:

"If the domestic enterprises want to use the foreign patentee's technology and management know-how, the foreign patentee will look for assurance of a safe and profitable situation. Patent protection may or may not have a high place among the profitable conditions or guarantees which he expects. In any case, the fact is that patent protection is actually asked for and expected in a large number of situations and quite apart from its actual economic significance it may be of psychological importance for the foreign patentee-investor."⁵⁰

The patent system may have an influence on the transfer of technology in various ways; mostly, in the documents containing the specification, claims and sometimes drawings of the invention; patent licensing; patents of importation; and joint-ventures and contracts of foreign direct investment. However, the benefit from strengthening the patent protection can be found in the literature including access to information disclosed in patents, stimulation of national research, enhancement of technology and foreign direct investment

⁴⁸ UNCTAD. "Transfer and Development of Technology in Ghana". Doc. No. UNCTAD/TT/86(N.Y.) 1987.

⁴⁹ Ibid. note 45 above.

⁵⁰ See. UNCTAD "The Role of the Patent System in Transfer of Technology to Developing Countries" Ibid note (24) above.

influxes, easier access to markets national and internationally, as well as the stimulation of more R & D globally.⁵¹

1. Patent Documents as a Source of Technological Information

It was once estimated that the patent documents published annually specify nearly 350,000 new solutions to technological problems.⁵² These newly developed solutions may arise from researchers and inventors upgrading their technological activities. For some of them, such information may not be so important, but for others, the information might be of more importance than the primary function of a Patent Office, particularly, the granting of a patent, as most patent documents generally contain information which is not disclosed in any other form of literature. Therefore, it may be incorrect to assume that relevant information contained in patent documents cannot come to someone's attention by other means. For example, a study made by the US Patent and Trademark Office indicated that as much as 70% of the technology disclosed in US patent documents from 1967 and 1972 has also been disclosed in the non-patent literature.⁵³

However, patent documents can be utilised to assist in a selected technology as a tool of advanced information. According to Andary's⁵⁴ classification such use may be as follows:

- patent documents may convey the most recent technical information;
- patent documents are classified according to the field or fields of technology to which their contents relate;
- the disclosure of the document comes by describing the inventions in accordance with the claimed novelty and inventiveness referring to the existing state of the art;
- the date indicated in the document may help determine the time the invention was published and whether it is still under legal protection. Also indicates the

⁵¹ See "Compendium of Document and Reports Relating to the Work of the UNCTAD AD HOC Working Group on the Inter-Relationship between Investment and Technology Transfer". UNCTAD/DST/3. June (1995) at 226 (hereinafter referred to as Ad Hoc Working Group Report)

⁵² WIPO - "The Role of Patent Information in the Transfer of Technology". WIPO doc. no. INSPI/82/5 (1982)

⁵³ See Andary, R. "Use of Patent Document as a Source of Technological Information" WIPO Pub. no. 639 (E) (1980)

⁵⁴ Ibid. at 122-123.

name and address of the inventor or the patent holder, which may be used for the purpose of licensing or exploiting such invention;

- the patent documents disclose not only the concept of the invention but also detailed information on the best method of use in industry;

-the patent documents can be used to support further research and development activities since the technological information contained in patent documents is not secret.

As indicated above, the value of patent documents cannot be over estimated, as they offer a solid solution to most technical difficulties by an easily accessible method. They may offer not only an answer to some problems, but also an evaluation, comparison, or even competition in an alternative field of technology, as information in general becomes one of the main products of national economies. Other benefits of patent documents in government use can be in identifying profitable areas of research and in the inventive activities. Patent statistics may also help governments to elaborate technical development plans and to monitor the process of innovation, or the lack of development in certain fields of technology in local research and development in general.

The industrial sector though is the main user of technological information contained in patent documents. They can offer information and identify technology which is available through their own government to help eliminate a purchase or lease of patented technology by foreign entities and eliminate repetitive practices as well as save money. Most of this activities can be done through patent documents. In a study made in 1985, 100 leading multi-national companies from the US, Europe and Japan graded patent documents as the most important source of technical information used by them.⁵⁵

The failure to utilise patent information in developing countries could be due to the insufficient level of technical knowledge in manpower and ignorance of the importance of patent documents among many local individual inventors and R&D institutions in these countries. Sometimes the same problem exists even in developed countries, as shown

⁵⁵ See Smith, "Patents as a Source of Technology, IPAD (1986) at 63, 70 cited in note 45 above at 86.

regrettably in a recent WIPO publication,⁵⁶ pointing out that in the EC billions per year, (and UK Patent Office referred to about £20 billion), are wasted in developing things which already exist and are documented in the specification of granted patents. All these costs can be seen as a result of patent applications being rejected, because they do not contain any new aspects. A lot of costs could be saved if the relevant patent information were properly consulted at the right time in the development process.⁵⁷

2. Patent of Importation

Patents of importation can be granted to inventions patented abroad to be exploited domestically.⁵⁸ Regardless of international novelty, the concern is to maintain the technology involved, to help, perhaps, set off a learning process or to result in an increase of technical capability to solve technical problems or promote production levels. This practice is another channel through which patents can be used as a tool to transfer technology. The duration of protection can be limited to the remaining term of the imported patent.⁵⁹

The Saudi Patent law has a similar approach, giving the granted patent the remaining term of the foreign patent. Article 27, referring to the term of patent, states that "... if the invention obtains a foreign patent, the period of protection to be enjoyed in the Kingdom is as if the patent had from the beginning been granted in the Kingdom". However, this provision does not require a need for the existing technology for the benefit of domestic technological activities. The Saudi patent law does not explicitly adopt this approach as a means of transferring the technology. However, it may be useful to utilise the provision for the same purposes.

Opposite to the above, there is an argument that such a method is not very popular with most developing countries because of some reported cases of abuse of patent monopoly

⁵⁶ WIPO. "Use of Patent Information and Document for Technical Development and Transfer" WIPO Pub. no. IP/KW/95/6 (1995).

⁵⁷ Ibid

⁵⁸ See Creel and Wintrigham, *ibid* note 1 above at 261.

⁵⁹ Ibid.

import permits by foreign patent owners⁶⁰ This should emphasise the fact that working or using of such imported patent must be proved on a regular basis in order to maintain useful and proper work of technology and in the case of abuse or failure to work, this patent should be subject to revocation.

3. Foreign Direct Investment and Joint-Venture

Foreign direct investment and transfer of technology based on mutual benefit are favourable to both technology supplier and recipients. Thus, the importance of technology transfer depends not only on the benefit of both sides but also on the overall development of the international economy.⁶¹ The more innovative the industry, the more localized forms of technology transfer were to be expected through foreign direct investment.⁶² A successful foreign direct investment and technology transfer cannot be detached from developed countries' participation in helping developing countries to acquire and enhance the technology capability through the means of foreign direct investment, licensing of technology and expert advice.⁶³

It is indicated that:

“the relationship between foreign investment flows and the building of technological capacities runs in both directions. While investment flows present the opportunity for acquiring and absorbing technology, it has become apparent that investment is attracted most strongly to those countries that have adopted measures to strengthen their domestic technological capability an overall policy framework conducive to innovation; investment in infrastructure, intellectual property protection, human capital formation and a stable economic and regulatory environment.⁶⁴

Joint-ventures on the other hand, are useful in creating the ownership and development, as well as the use of technology, among different parties⁶⁵. The issues of whether the joint-

⁶⁰ Ibid. note 15 above at 23.

⁶¹ See. the (Ad Hoc Working Group Report), *ibid.* note (51) above at 8.

⁶² *Ibid* at 51.

⁶³ *Ibid* at 10.

⁶⁴ *Ibid* at 8.

⁶⁵ Rubin. H. (ed) “International Technology Transfer” Graham and Trotman Ltd (1995) at 240.

venture can be completely a partnership or a corporation, and whether it should be a local or foreign entity, turn on the need to organise the contribution of technology by one or both parties.⁶⁶ They could turn to the joint-venture in a cost-effective manner. However, in most cases, this technology is licenced for no royalties as the technology owner's contribution to the joint-venture.⁶⁷

Some writers refer to the hesitation of some enterprises, mainly transnational corporations, to establish manufacturing plants exploiting patented technology in the developing countries in the absence of patent protection. It is argued that "Transnational corporations have become central actors of the world economy and, in linking foreign direct investment, trade, technology and finance, they are a driving force of economic growth. Their impact on economic and social welfare of developed and developing countries is both widespread and critical."⁶⁸ Others indicate the importance of the issue of intellectual property protection surrounding transnational corporations' activity, commenting that "the licensing of technology by transnational corporations and others and the protection of intellectual property rights (i.e. patent) is increasingly being addressed in the literature. If transfer of technology is to increase, and local technology to flourish, it is important to strengthen the protection of such rights"⁶⁹

However, it may be incorrect at the present time, as many developing countries have steadily increased in adoption of intellectual property legislation including patent law, and have joined the international community in this field.

4. Patent Licensing

Licensing a patent is when the patentee chooses to grant reasonable licenses to anyone who applies in return for a royalty. Patent licensing may be considered an important method in technology transfer. Such transfer gives the legal protection of the patent to the

⁶⁶ Ibid.

⁶⁷ Ibid.

⁶⁸ Saurant, K.O.P. and John H Dunning "Transitional Corporation and National Laws" in Seymour, J. Rubin and Don Wallace, Jr. p.cm. (United Nation Library on transnational corporations. Vol 19 (1994) at Prease (vii-viii).

⁶⁹ Dam, K. W. "The growing importance of international protection of intellectual property" in Seymour and Wallace, Jr. Ibid at 23.

investor who maintains his title and exclusive right to the technology. Besides the legal monopoly given to the inventor, he can possibly license the embodied know-how which increases the effective exploitation of the new technology.

The purposes of licensing may include the following:⁷⁰

- To generate income from the granted patent when the patentee is not making or selling the patented product.
- To exploit other markets where the product can be used in many areas, in particular when granting to a licensee who is an expert in the market concerned.
- Licensing can result in essential side benefits to the licensor, including advertising by the licensee and the use of improvements developed by the licensee.
- To reduce legal expenses, particularly in infringement actions, since infringers can be licensed, thus avoiding legal expenses associated with such actions. Also if the licensee is a competitor, the effect on the licensor's business should be considered in the overall cost of licensing.
- Licensing can be used in foreign markets to generate income and to protect foreign patents by working the requirement in the designated countries that patent is to be used to remain in effect.

It is argued that "pure patent licensing as a technology transfer mechanism" may not be very common in the developing countries because of the absence of licensees with the resources and skilled personnel to exploit the licensed invention on their territory⁷¹ However, where many technologies are controlled by foreign patent owners in developing countries, cross-licensing and pooling of patents are sometimes used to control the market and prevent the entry of newcomers.⁷² Unfortunately, the lack of capability to attract the influx of patented technology through cross-licensing in developing countries limits the possibilities here. Therefore, essential commercial difficulties exist in the process of the transfer of patented technology.⁷³ This leads to the argument that the patent system

⁷⁰ See. Megantz. Ibid note (11) above at 5-6.

⁷¹ Ibid. note 12 above at 23-24.

⁷² Ibid. note 45 above at 89.

⁷³ Ibid.

should be aware of this matter and examine more carefully its policies, not only in terms of commercial or economic use, but also in relation to technological developments.

Patent licencing and accompanying know-how licences usually contain special restrictive clauses which effect the exploitation of their technology. In view of the extent to which abuses or restrictive practices may be found in licensing agreements, it is of considerable importance to safeguard the public interest and to promote the economic purposes of intellectual property rights. Such restrictions include a) export prohibition; b) price fixing; c) field of use restriction; and d) "no-challenge" clauses.

a) Export Prohibition

This type of clause is part of a territorial restriction on exports usually included in agreements involving licensees of developing countries. The clause confines production and sale to the territory or country of the licensee. It may be extended to neighbouring countries or specific ones.⁷⁴ This clause may help the patentee to divide up the regional or international market where he can lease his technology in as many territories as possible, implying different sources of royalties in each.⁷⁵

This kind of clause occurs in both developed countries and developing countries, particularly in relation to regional schemes. It can prevent the creation of a common market amongst countries and block attempts to integrate the respective economies of the designated countries through their trade participation. This led the EEC to prevent this type of anti-competitive practice in order to have a free movement of goods.⁷⁶

⁷⁴ See UNCTAD "The Role of Patent System in the Transfer of Technology to Developing Countries". Ibid note 26 above at 23-24. The report also include: a) total ban on exports; b) prior approval by the licensor required before exports can take place; c) prohibition of exports to certain countries; d) exports allowed only to certain countries; and e) requirements to channel exports through the licensor's agents.

⁷⁵ Ibid. note 15 above at 24-27

⁷⁶ The main relevant provision of the law contained in Article 85, 86 and 30-36 of the Treaty of Rome.

b) Price-Fixing

This type of clause has been considered as an unfair practice in most laws of technology transfer and in anti-trust law. It is often found in patent licensing agreements, and enables the licensors to impose on his licensees restrictions relating to the sale price of patented products or products produced by the patented technology. As a result, the licensee enterprise price may have no relationship with local market conditions, thereby ignoring the rules of supply and demand.⁷⁷

Some laws control action by which excessive prices are charged for the technology transferred. For example, Mexican law does not allow contracts to be registered “when the price or counter-service is out of proportion to the technology acquired or constitutes an unwarranted or excessive burden on the country’s economy.”⁷⁸ However some price-fixing clauses still occur in licensing agreements involving developing countries but may not be as frequent as export prohibition clauses.

c) Field of Use Restriction

In this type of clause the licensor of owned technology restricts the licensee in regard to the extent or fields in which the latter may work the technology or licensed product. Also it may occur when a licensor grants a licence for a limited use of the patented subject-matter, refusing to license all the other uses of the patent for self-use or exploitation by other licensees. It may be considered as within the rights conferred by law on the patent holder.⁷⁹

This practice can be used by licensors as a means of allocating or dividing the territorial market. It also has some effect in restricting the use of the licensed technology. In some laws, restrictions of this kind relevant to a purchasing licensee are unlawful per se while restrictions placed on producing licensees may be considered legal.⁸⁰

⁷⁷ Ibid note 15 above.

⁷⁸ Article 7 of the Mexican Law on the Registration of the Transfer of Technology and the Use of Working of Patent and Trademarks (1972) cited in note 27 above at 26.

⁷⁹ Ibid. note 27 above at 27.

⁸⁰ Ibid.

d) "No-challenge" Clauses

Under this type of clause the licensor is able to prevent the licensee from challenging the validity of the licensed patent for the duration of the contract. The no-challenge clause in patent cases may create the situation in which a licensee is not able to escape a bargain he had made by challenging the validity of the licensed patent, while on the other side enjoying the benefits coming from such patent.

No-challenge clauses are usually used by licensors in order to maintain some restriction on competition in relation with patent licences, particularly when there are some relative weaknesses in their licensed patents. Thus, such clauses are considered not only anti-competitive, but also enables licensors to enjoy rights beyond those conferred by the patent grant. The impact of these restrictions may extend beyond the licence to other third parties such as contractors and users of the product of licensed technology. This type of clause becomes unlawful under the competition laws of many countries including developing countries, since it allows invalid patents to continue in effect.

B) Multi-Lateral Conventions

In the context of the transfer and acquisition of technology to developing countries, in particular, technology which has been established abroad, the relevant aspects of the international system are those which have an impact on the technical developments or have a relation with other affected legislation or developments. The "international patent system" as defined by the UNCTAD report⁸¹ is in fact "a system of accumulated practices rather than a set of fixed rules. It is the practice of international relations in the matter of the legal protection of inventions, resulting from and governed by both national legislation defining the treatment to be granted to foreigners and international treaties concerning such treatment. Once the local law stipulates a form of right to foreigners, it should be "part of the international system even when, as in the case of several developing countries,

⁸¹ UNCTAD "The Role of the Patent System in the Transfer of Technology to Developing Countries"
Ibid Sec. note (24) above.

the country is one of those which are party to no international treaty on the subject, for such laws form the basis upon which in practice inventions are protected in more than one country.⁸²

International patent protection gives rise to considerable administrative and practical problems, for example, in the determination of novelty and prior art among past patent documents accumulating at the rate of nearly a million a year in many different languages, as well as other requirements in formal examination. These problems took the attention of developed countries' governments towards a major effort to find solutions by harmonisation, standardisation and in the elimination of duplication of work. This has led to the establishment of treaties and the improvement of existing ones as a final step in the process of creating an international system of protection governed mostly by the UN and its administrative organisation such as UNCTAD, UNIDO and WIPO.

It is essential to examine these Conventions in relation to international patent system, particularly the Paris Union and its impact on the transfer of technology to developing countries. Therefore, we may begin with: the Strasbourg Agreement and the Patent Cooperation Treaty, then conclude our analysis with the most important and controversial convention for the purpose of this chapter, the Paris Convention.

1) The Strasbourg Agreement Concerning International Patent Classification.

The Strasbourg Agreement Concerning International Patent Classification⁸³ was established in (1968) as a special agreement embodied within the framework of the Paris Convention. It was a replacement for the International Patent Classification (IPC) under the administration of the International Bureau of WIPO which had been in force between numerous States since 1968. The Strasbourg Agreement categorises technology into eight main sections and approximately 55,000 subdivisions. A symbol containing the classification appears on patent documents, published usually by the national patent office

⁸² Ibid.

⁸³ For the text of the Strasbourg Agreement, see WIPO. "Manual of Industrial Property Conventions". vol. 3 (Geneva).

The purpose for this classification is for the retrieval of patent documents in the preliminary search of "prior art".

A periodical update and modification of the International Patent Classification is made by a committee of experts of the member states as well as by a joint ad hoc committee of the Council of Europe and WIPO.

2) The Patent Co-operation Treaty (PCT)

The PCT⁸⁴ was adopted in 1970 by thirty-five signatory nations. The Treaty is open to member states of the Paris Union. The primary objectives of the treaty are to provide public access to technical information contained in the documentation of new inventions, the improvement of legal protection given to new technology, and to provide multinational protection of inventions as well; also to promote and progress technological and industrial development among the developing countries through some measures tending to improve the efficiency of the industrial property statutes in those countries.⁸⁵

The Treaty provides for the filing of an international application when protection is sought for an invention in several countries. This filing is subject to formalities regarding disclosure which are regulated in detail by the treaty's provisions. This procedure of filing was meant to replace the prior onerous procedure of separate filing in each country with the attendant difficulties of different languages and different forms, contents and disclosure. This filing can be accomplished at any member patent office, for example, at the European Patent Office, or at the International Bureau of WIPO.⁸⁶

After the application and search report are published by WIPO,⁸⁷ the applicant then submits copies of the application, search report and preliminary examination (if any) including translation if required to the national office of each member state designated by the applicant. The applicant may seek a "preliminary" international examination to find out

⁸⁴ For the text of the treaty see Patent Co-operation Treaty, done at Washington June 1970. WIPO Pub. no. 274 (E) (1970).

⁸⁵ PCT. Preamble.

⁸⁶ Ibid. see PCT at 3-5.

⁸⁷ Ibid. article 21

whether the invention seems to be new, non-obvious, and industrially applicable. Once the applicable reports are issued, the application is processed separately in the various countries, each of which will then grant or refuse protection

Regardless of the great ambition which existed as a result of the establishment of this treaty, practically, it has not been broadly used. Rather some argues that "it still requires prosecution through the various national patent offices, numerous translation, etc, and is therefore, a rather cumbersome mechanism".⁸⁸

3) The Paris Convention for the Protection of Industrial Property

The Paris Convention for the Protection of Industrial Property (hereinafter cited as the Paris Convention) was first adopted in 1883.⁸⁹ It has been revised on several occasions, the last revision occurring in 1967 at Stockholm.⁹⁰ In accordance with the last revision was the establishment of World Intellectual Property Organisation (WIPO) which takes responsibilities from the United International Bureau for the Protection of Intellectual Property (BIRPI) for the function and performance of the Paris Union which was constituted by the countries to which the Paris Convention applies.⁹¹

A previous discussion of the major patent provisions of the Paris Convention has been presented in a comparison with the Saudi Patent Law. It is essential, now, to take up the analysis of major articles of the Paris Convention which relate to the transfer of technology. Those provisions include: National Treatment for Nations of Countries of the Union (article 2); Right of Priority (article 4); Independence of Patents Obtained for the same Invention in Different Countries (article 4 bis); Compulsory Licensing (article 5) and Imports (article 5Ai and 5 quater).

⁸⁸ Ibid. note 1 above at 268.

⁸⁹ See UNCTAD. "The Role of Patent System in Transfer of Technology to Developing Countries". *ibid* note 27 above at 15.

⁹⁰ *Ibid.*

⁹¹ Catanese. a "Paris Convention, Patent Protection and Technology Transfer". *Boston University International Law Journal* vol 3 (1985) at 217.

(a) National treatment of nationals of countries of the union (article 2)

Article 2(i) provides for an equality of treatment for all patent applications and owners from member countries of the Convention. It states:

Nationals of any country of the Union shall, as regards the protection of industrial property, enjoy in all the other countries of the Union the advantages that their respective laws now grant,... Consequently, they shall have the same protection as the latter, and the same legal remedy against any infringement of their rights, provided that the conditions and formalities imposed upon nationals are complied with.

This provision clearly prevents member states from discrimination between patent applicants and owners on the grounds of different nationalities. In other words, a member country cannot discriminate in favour of its nationals as a way of encouraging indigenous innovative activities, and local as well as foreign inventors are equally the same before the patent jurisdiction. As a result reciprocity is excluded under this provision, which means that it cannot be claimed as part of the conferral of reciprocal rights by member countries on their national. It means that countries of the Union are not expected to apply national treatment to non-nationals on the basis that their own nationals would have the same privileges elsewhere.⁹²

Also countries without a patent law can belong to the Convention and nationals thereof have similar treatment with nationals of other convention countries despite the fact that the latter may not have any patent right in the former countries.⁹³

It was argued that the equal treatment provided for by this article would work to the advantage of the member states if "they were either at or almost at the same level of technological and economic development".⁹⁴ As with the immense difference in technological development between developed countries and developing countries the

⁹² See Wajrama. note 6 above at 55.

⁹³ See Penrose. 1951. at 64-65. cited at note 12 above at 63.

⁹⁴ Ibid. note 27 above at 63.

principle gives more advantages to developed members over the less developed members⁹⁵

It is argued that any unequal treatment for developed countries and developing countries members may seem to affect the principle of this Convention. It may be in harmony with the present international trade practices as developed countries and developing countries create unequal measures in regard to economic activities of foreigners and nationals. Thus, the establishment of equal discrimination measures with regard to patents may be challenged practically with the legal personality of subsidiaries of transnational corporations which may allow the registration of an invention in the name of the subsidiary. This may cause retaliatory measures in the area of trade and obstruct investment and the influx of technology to the country.⁹⁶

I agree with the above arguments. We may add this possibility, that a country like Saudi Arabia faces two difficulties in this regards. First, the country may not seek membership of the Convention as a result of this inequality. Second, it would be very difficult to utilise this Convention as a means towards the transfer of technology. That is because when a foreign investor or enterprise cannot have the same treatment as the local inventor it may be unwilling to invent and exploit the patented invention in the country. This may help create an obstacle to utilisation of the patent system as a whole in the process of transferring technology. Such obstacle may not necessarily be the Patent Office's fault; rather it could be blamed on this international system of protection presented by the Paris Convention.

(h) Right of priority (article 4)

The right of priority provision establishes more protection extra-territorially, to the inventor or his successor in other countries of the Union. Article 4A(i) states:

⁹⁵ Ibid.

⁹⁶ Ibid

A person who has duly filed an application for a patent, or for the registration of a utility model, or of an industrial design, or of a trademark, in one of the countries of the Union, or his successor in title, shall enjoy, for the purpose of filing in the other countries, a right of priority during the period hereinafter fixed.

The priority for patent applications provided in article 4C(i) is twelve months. This period disallows any prejudice to the applicant's rights. The effect of a priority claim is that a consequent filing, after filing in home state, in any other member state of the Union before the expiration of the priority period, is not invalidated by any other acts. It is maintained under conditions of regular national filing according to article 4A(ii).

Article 4A(iii) states that "by a regular national filing is meant any filing that is adequate to establish the date on which the application was filed in the country concerned, whatever may be the subsequent date of the application". This provision allows patent applicants the benefit and protection from the loss of novelty. According to article 4B, the novelty on an invention will not be prejudiced on the ground of any act done during the course of the period of priority. It also allows applicants the following length of the priority time, i.e. with relation to the elements of the invention not included in prior applications according to article 4F.

It has been observed that this provision "is concerned more with the interest of patent application than the public interest as affected by patents. The consequent effect on developing countries constitute a strong disincentive to initiate research and development activities because of the cost of a priority claim could have on investment in such activities."⁹⁷

Some developing countries have challenged this obstacle because their inventors who wish to exploit their new inventions may not avoid incorporating ideas held as background rights by investors from developed countries. The process of exploiting an international technology demands searches on such technology; therefore, developing countries' lack of an independent examination system puts them in a weak position with competitors from

⁹⁷ Ibid at 68.

developing countries' nationals. This causes more reluctance to comply and leads to challenges against such kinds of provision.

The Saudi Patent Law allows any foreign inventor to claim the benefit of the priority of an earlier application made in another country, provided that such applicant appends to this application a written declaration stating the date and number of the earlier application and the country in which the applicant filed this application within ninety days from the date of filing the application in the country. The claim of priority rights will be evaluated only in the light of international treaties to which the country is a party, according to Article 18.

(c) Independence of Patents (article 4 bis)

Under article 4 bis patents for an invention granted in one member country should be treated as independent of patents for invention obtained for the same invention in other countries. Article 4 bis (i) provides that:

Patents applied in the various countries of the Union by nationals of countries of the Union shall be independent of patents obtained for the same invention in other countries, whether members of the Union or not.

Continuing, section (ii) of the article provides that:

The foregoing provision is to be understood in an unrestricted sense, in particular, in the sense that patents applied for during the period of priority are independent, both as regards the grounds for nullity and forfeiture, and as regards their normal duration.

The establishment of this article to create the independence of patents can be seen as a result of parallel patent principles between developed countries and to prevent the application of obsolete technology through foreign inventors. This is to enable such countries to decide on the issue of patentability and matters related to patents, such as abandonment, revocation and forfeiture etc, when covering the same parallel patents in other countries. For example, patent applications which have been rejected in one member

state, may be in the state of prior grant on the ground of lack of patentability, may still be granted in other countries.

Developing countries have rejected the independence of patents principle for the reason that it may extend the patent protection in developing countries for patents which might have otherwise been invalid or have fallen into the public domain in the country of prior grant. Also developing countries are not capable of full examination of the applications of foreign patents, particularly for applications which often required searches and examinations in developing countries. It is argued that the "validity of protection of the patent in the developing country should automatically lapse at the same time in the developing country as in the granting country".⁹⁸

I agree with this argument as well as the argument in setting up a net of information for the exchange of information about forfeiture proceedings between the member states of the Convention, and to incorporate into national laws a provision requesting applicants for patents to submit along with their application the result of prior applications in other countries, which may even reduce the cost of procedures involved in issuing foreign patents.

This practice may also help reduce the procedure of national patent offices in developing countries and reduce the pressure over the competent authority as well as help accelerate the final result in the substantive examination, which is a heavy burden on many developing countries' patent offices, eg. the Saudi Patent Office. We may recommend this practice as a quick solution to speed up the granting procedure for the Saudi Patent Office. They can require a submission of the search report of the substantive examination of a foreign patent once the reports have been issued in a developed countries, eg. USA, UK, Japan and Germany. Having said that, over 90% of patent applications submitted to the Saudi Patent Office are foreign applications and come mostly from the above mentioned countries.

⁹⁸ See Yankey. note 12 above.

(d) Compulsory Licensing (article 5)

Article 5 of the Convention allows member countries to provide a legislative solution for patent abuses by the patentee in case of failure to work. Article 5A (ii) states:

Each country of the Union shall have the right to take legislative measures providing for the grant of compulsory licenses to prevent the abuses which might result from the exercise of the exclusive rights conferred by the patent, for example, failure to work.

This means that in the case of failure to work or insufficient working of a patent invention, the granting country may require the patentee to grant a compulsory license to a willing applicant. No one can apply for a compulsory license before the expiration of either four years from the filing date or three years from granting date, whichever occurs last. This was provided by article 5A (iv) which states:

A compulsory license may not be applied for on the ground of failure to work or insufficient working before the expiration of a period of four years from the date of filing the patent application or three years from the date of the grant of the patent, whichever period expires last,...

The patentee may then still have to wait three to four years before any approval can be enforced. In addition if the patentee has a “legitimate reason” that justifies the non-working of the patent beyond the three and four years period, he may still retain the patent and a compulsory licence may be refused. However, if a compulsory licence is granted, it may be only non-exclusive which means that the licence allows the licensee to work in addition to the patentee, not only in place of the patentee.

There is no definition provided by the Convention of what is meant by “failure to work”, but it may be understood to refer to the manufacture of a patented product or an industrial application in the case of patented process. In addition the sale or importation of a patented product is not considered as a working of the patent. However, in some countries

this will be considered sufficient. Further, the extent of what is meant by “legitimate reasons” for non-working has not been defined in the Convention.

It is possible for some member States to take advantage of the absence of a precise definition in interpreting these definitions. For instance, Israeli patent law provides that it is “insufficient working” if the product which is the subject of the patent is not manufactured in Israel. In Mexican patent law the definition of exploitation of a patent is the use of patent or patented product or process “in quantities that amount to effective industrial exploitation and no satisfactory conditions as to quality and price”.⁹⁹

Another obstacle in the provision of Article 5(A)(4) is the additional time delay caused by the prior examination which is required before the grant; also where the applicant for a license is to be issued through a judicial authority rather than an administrative authority.¹⁰⁰ The argument is that:

“even when it is possible to obtain a compulsory licence within a reasonable time period, it is doubtful whether local licensees would be able to work the patented invention successfully without the necessary know-how. Unless the disclosure of the invention is adequate, and the licensee possesses the required technical skills, the prospects of a successful working on the basis of compulsory licences are bleak”.¹⁰¹

According to Article 5(A)(3), revocation of patent rights for failure to work or insufficient working is prohibited unless compulsory licences have already been granted and proved insufficient to prevent such abuses. When compulsory licences have proved insufficient, forfeiture procedures may not be instituted before the expiration of two years from the grant of the first compulsory licences. Article 5(A)(3) states:

⁹⁹ See Blackeney. *ibid* note 45 above.

¹⁰⁰ *Ibid* note 15 above.

¹⁰¹ *Ibid*.

Forfeiture of the patent shall not be provided for except in cases where the grant of compulsory licences would not have been sufficient to prevent the said abuses. No proceeding for the forfeiture or revocation of a patent may be instituted before the expiration of two years from the grant of the first compulsory licence.

This provision may indicate that the abuse of a patent benefit by a patentee can continue for a long time before it may be discovered and effectively dealt with. A patentee may not forfeit his patent rights unless the invention is not worked for the initial three to four-year period, and a compulsory licence is then granted, but the invention is still not worked for another two years. Such delay may prove the insufficiency of compulsory licence; forfeiture or revocation may be more effective when dealing with patent abuses.

Significantly, Article 5 of the Paris Convention was adopted by some developing countries national patent laws, particularly in relation to the provision that a compulsory licence should be refused if a patentee can prove that his failure was due to “legitimate reasons.” For example, Article 25 of the Saudi Patent Law requires an exploitation of the patent within two years from the date of grant. It states:

“The patentee shall exploit the invention covered by the patent on a full industrial scale in the Kingdom within two years from the date of grant... If the prescribed period expires without the patent being fully exploited, the provision of Article 34 hereof shall be applicable.”

Article 34 provided that:

“If the period set forth in Article 25 expires without full exploitation of the invention by the patentee within Saudi Arabia, the City may grant any person a compulsory licence to exploit the patent, upon an application submitted to it, ... The consent of the patentee to the grant of such licence may not be required.”

The interpretation of “reasonable grounds” in article 25 and “exploit the patent fully” in article 34, needs to be clarified and largely depends on the opinion of the official

concerned. Patent office officials still consider these provisions as fundamental to Saudi patent law and a useful condition in achieving transfer of technology.

(e) Patent Importation (5(A)(i) and 5 (quater)

Article 5(A)(i) permits importation by patentees without losing their monopoly advantage. It explicitly includes importation of articles by patentees which have created a rejection by developing countries. Imports are not considered by developing countries as channels of transferring technology, so the working of patent cannot be substituted for by the importation of patented products. However, article 5(A)(i) states:

“Importation by the patentee into the country where the patent has been granted of articles manufactured in any of the countries of the Union shall not entail forfeiture of the patent.”

Since this article creates an import monopoly, some developing countries took some measures to deprive the patent holder of import monopoly right, for instance Article 22 of the Saudi Patent Law prohibits patent importing. It provides that:

“The patentee may sue, before the Committee, any person who exploits his invention without his consent inside the Kingdom. The exploitation of a product is embodied in the making, importing, offering for sale or using the product... Where the patent is granted in respect of a process, the patentee shall be entitled to the same right in respect of any products made directly by such a process.”

Under Article 5 quater, when a product is imported into a country where there is a patent for the process of manufacturing the product, the patentee has the same right with regard to a product produced in the issuing country. It stipulates:

“When a product is imported into a country of the Union where there exists a patent protecting a process of manufacturing of the said product, the patentee shall have all the rights, with regard to the imported product, that are accorded to him by the legislation of the country of importation, on the basis of the process patent, with respect to products manufactured in that country.”

This article is aimed at members of the Union who consider the grant of a patent monopoly a “process of manufacture”. It is also applicable when the protection given by the process patent is extended to products manufactured by the use of that process. It entitles the patentee to prevent anyone from making, using, or selling products manufactured in accordance with the patent process of the issuing country. Also permitted is the power to prevent the use or sale of products manufactured outside but imported into the issuing country.

It should be noted that all the privileges given to the patentee in article 5(A) and 5 quater are not to the benefit of developing countries, and as a result it has been concluded that the developing countries do not derive any significant benefit from the international patent system. For these reasons they have discussed a revision of the subjects of compulsory licences and importation which are not considered as provisions which may have some affect on developing countries. However, articles 25 and 34 of the Saudi Patent Law will not be utilised as a means of transferring technology by their exploitation requirements. In fact they will be useless in exploiting any new technology when both article 5(A) and 5 quater apply if the country becomes a member of the Union.

III Transfer of Technology in Saudi Arabia

(a) Major Strategies and Developments

In the past 20 years, through the five-year development plans, the transfer of technology to Saudi Arabia has been highly consolidated by the financial capability and economic development of the Kingdom. With this capability, the Kingdom has been able to select from a wide range of technology being offered to the country from both developed and developing countries. The Government of Saudi Arabia has the greatest share in negotiating possession of transferred technology into the country while the private sector shares a lesser part of this.¹⁰²

¹⁰² See, Hebshi, UNCTAD Conference “Proceeding of the Seminar Organised by the Islamic Development Bank and UNCTAD”: *ibid* note 9 above.

It is essential to note that the Government had the chance to select the best technology possible in order to protect employment and foreign exchange and to adjust it to the skill level of domestic labour. The first priority is to diversify its sources of technology, depending on its quality, and to ensure that the technology is proven and sufficiently advanced in accordance with the country's needs in its economic and social development.¹⁰³

In order to maintain the best transferred technology, the Government has adopted an economic offset investment programme. According to this programme, it requires major suppliers of technology to invest not less than 30% of the total value of the approved contract in the country. The reason for this share of 30% is to maintain a sequenced influx of high standard technology to the country. Also it gives the local partner in joint venture projects a chance to participate in new technology through the processes.

The transfer of technology to Saudi Arabia will be briefly presented in this discussion, with the emphasis on three essential parts related to this chapter: (1) the strategy and mechanism for transferring the technology; (2) the legal framework used in the process of technology transfer; (3) the task of King Abdul Aziz City for Science and Technology (KACST) in promoting the transfer of technology.

(b) The Strategy and Mechanism of the Transfer of Technology

Since the 1970s, Saudi Arabia enjoyed the benefit of its five year development plans as the country built a strong foundation for continued growth and economic development. To maintain this growth, inflow of technical development and expertise through a transfer of technology was essential. Therefore, the government realises that achieving its ambitious goals requires a steady flow of technology and expertise into the country. Its strategy is to welcome foreign capital and invite it to participate in the economic development projects in co-operation with Saudi business.

¹⁰³ Ibid.

Another major strategy is to optimise the indigenous resources of technology and capital by investing in capital and establishing large-scale basic industries. Thus, the Government created a policy which did not impose any restriction on the movement of money into and out of the country. So foreign investment which fulfils the regulatory requirements enjoys all the privileges of national capital and are entitled to the same preferential treatment, protection and inducement accorded to national capital. These requirements are meant to supplement the country's basic industries and to activate other national industries to meet the requirements of some of the former as regards primary and intermediate input; also to encourage the private sector to participate in the development of these projects.

In the process of development, the government formed joint research projects in the context of technical assistance activities with some developed countries. For example, in 1977, the government entered into co-operative agreements with the United States and the Federal Republic of Germany for joint research programmes in the field of solar energy, to develop and implement a number of solar energy technologies and systems in both countries. The principal objectives of the programme are similar to most of the Economic Offset Investment Programme established by the government as the primary conduits in the transfer of technology.¹⁰⁴

Special activities were introduced to the programme in strengthening the country's capability to manage the technology transfer processes, and to emphasise the development of technical and managerial skills in local industries with regard to the following field: (1) assessment and selection of technology; (2) decisions to plan and monitor the transfer process; (3) upgrading the development of a proper organisational system and joint culture which is helpful to the assimilation to the imported technology.¹⁰⁵

(c) Legal Framework Used in the Process of Transfer of Technology

It may be said that, as well as the industrial property protection (encompassing only patents and trademarks laws), transfer of technology in Saudi Arabia is affected by the

¹⁰⁴ Ibid.

¹⁰⁵ Sec. UNCTAD: "Transfer and Development of Technology in Developing Country: A Compendium of Policy Issue (NY)(1990). Doc No UNCTAD/ITP/TEC/4 at 40.

legislative instrument of the Foreign Capital Investment Code. Since Saudi Arabia is considered a free market, all goods can be imported with no restriction (apart from imports contrary to the Islamic Sharia law, such as alcohol and pork, which are prohibited). These imported products have to be in accordance with the Saudi standard regulations which were issued by the Saudi Arabian Standards Organisation and aimed at controlling the quality of foreign imported goods.

The Foreign Capital Investment Code was established in 1957, replaced in 1964,¹⁰⁶ and superseded in 1979¹⁰⁷ which is still in force. The Code applies to investment in securities, equipment and to methods of transport, including ships. According to the Code, a foreign investor is one who is not a Saudi citizen and in the case of corporations, one whose equity owners are not all Saudi Arabian. Foreign investment is administered by the Ministry of Industry and Electricity. It is regulated by an inter-agency board of six representatives. The Secretary General of the board is the head of the Investment Bureau of the Ministry.

The Code gives approved investors five-year tax holiday for industrial and agriculture projects. However, in order to share in the tax exemption, 25% or more of the total capital must be owned by Saudi nationals. The applicant must prove that investment is to be accompanied by foreign technical know-how. Thus it seems that investment of capital will not be permitted except when the project is one where foreign know-how will be used.

A prior approval by the Ministry of Industry and Electricity is required for the establishment of any enterprises with foreign participation, including joint projects with a Saudi partner. All such enterprises should be licensed under this Code, with the exception of those involved in oil and mineral projects, which operate under different regulations. Although technically a foreign investor is not required to have a Saudi partner, in practice it is more difficult to obtain a licence to invest without Saudi participation.

¹⁰⁶ See. Royal Decree No. 35. February 25. 1965. (now superseded).

¹⁰⁷ See. Royal Decree No M/4. dated 2 2. 1399 a.h. corresponding to January 1. 1979.

If foreign investors breach the Code, their licences can be revoked or liquidated. Dissatisfied investors can file an appeal within 30 days after the revocation decision, and such appeal is final. The 1963 decision of the Council of Ministers prohibited Saudi agencies from submitting disputes to international arbitration and the Board of Grievances therefore is the only source of adjustment.

d) The Task of King Abdul Aziz City for Science and Technology in the Transfer of Technology

King Abdul Aziz City for Science and Technology (KACST) is an independent scientific organisation administratively connected to the Prime Minister. It was established in 1977.¹⁰⁸ Its role is that of supporting and encouraging applied scientific research, co-ordinating the activities of the major scientific research institutions, and co-operating with competent agencies to define the national priorities and policies in the field of science and technology for the Purpose of Creating a technical scientific base. KACST attempts to promote the national scientific personnel who are capable of working for the development and employment of modern technology as part of the major development of the Kingdom.¹⁰⁹

The task of promoting and regulating the transfer and development of technology lies with the Directorate of Technology, which can also be found through the assignment of General Directorate of Patents. Both are part of KACST administrative divisions. We will therefore briefly discuss the task of the former directorate i.e. promoting and regulating the technology transferred into the country. Then we will focus on the most relevant articles in the Saudi Patent law including the current procedures of the General Directorate of Patents in applying the law with regard to this subject.

¹⁰⁸ See. Royal Decree No R/60 dated 18/12/1397 a.h. under the name Saudi Arabian National Centre for Science and Technology (SANCST). On 21/12/1405 a.h. the Royal Decree No R/61 was issued changing the name of the Saudi Arabian national Centre for Science and Technology into the National Centre for Science and Technology (NCST). In view of diversity of the Centre's activities, the Royal Decree No R/8 dated 19/4/1406 a/h. was issued changing NCST name into the current name "King AbdulAziz City for Science and Technology" (KACST).

¹⁰⁹ Ibid.

(1) Directorate of Technology

The Directorate of Technology undertakes responsibility for the drafting of the laws and regulations managing the processes of technology transfer, and provides the services of various data and information and statistics of the required alternative technology. The Directorate is responsible for putting forward suggestions for national policy in the development of science and technology, and to operate the required strategy and plan in its implementation. Also within the framework of KACST, the Directorate may co-ordinate with some government agencies, scientific institutions and research centres in the field of research, information and expertise exchanges. This is to save repetitive and wasted works and efforts among responsible governmental bodies through formation of co-ordinating committees of experts in which similar activities are related.¹¹⁰

Unfortunately, nothing of this nature has been achieved so far. There are neither regulations nor a draft of regulations for the transfer of technology in the Kingdom. But a review of the UNCTAD's Code of Conduct in the Transfer of Technology is being undertaken and the progress and development of the said code has been followed by the Directorate of Technology along with a study of the advantages and disadvantages of regulations issued by Asian and African countries in this regard. The purpose of this, it is hoped, is to formulate a final draft regulating the transfer of technology into the Kingdom despite the argument by some government institutes that such regulations may be an obstacle to industrial development as well as foreign investment.¹¹¹ This is based on the potentially high cost and increased bureaucracy which may result.

Apart from the argument outlined above, the main reason for the delay in creating such regulations is the lack of expertise and skilled personnel with the ability to identify and tackle specific and long-term technical processes. This includes assistance and advice to both the private and public sectors concerned with technological choices and alternative sources of technology required for the countries development. It is also possible that the lack of awareness in this important field among senior officials in the government may well

¹¹⁰ Ibid.

¹¹¹ These activities are according to M Al Badrani's responding to a personal conduct done by corresponding reviewing the latest developments of this subject in Saudi Arabia. done in 19 July 1995.

be an important reason for such delay. Their lack of involvement may cause a major delay in assisting the assimilation of regulations, and an acquisition of modern and balanced flows of technology.

KACST should realise that technology transfer's cumulative effect may create a more effective use of the science and technology base, and could produce a higher rate of technological innovation ¹¹² Gee argues that:

“the flow of technology should not be construed to be only one way, that is, from the science-technology base. There is an equally important and feedback link where technological progress resulting from the innovation process also acts to broaden the science-technology base in conjunction with the R & D input”.¹¹³

It is agreed that progress will not be made in the absence of political will, as without steady political decisions by the decision-makers, the idea of development in the technological process will be very slow.¹¹⁴ Bell¹¹⁵ reflected this thought in his observation that:

“there will be no science, technological development and real progress in the underdeveloped countries unless their political elite become aware of the need for it for their national progress, and come sufficiently to appreciate the conditions under which it can be successfully implemented. The King, the Queen, the President or Prime Minister must initiate or support a series of decisions on measures which aim at making research and particularly applied research productive. To be able to accomplish this tremendous task, it will be incumbent on the political leaders to realise that there is no such thing as spending too much on research and development”.

(2) General Directorate of Patents

As has been discussed above in a comparison with the international patent system, particularly the Paris Convention, we have seen the most important relevant articles of the

¹¹² See. Gee, S (ed), “Technology Transfer, Innovation and International Competitiveness” (1981) at 21.

¹¹³ Ibid.

¹¹⁴ See Yusef, “The Role of Transfer of Technology in the Pursuance of Technical Progress”. *ibid* note 9 above at 14.

¹¹⁵ Bell, R. M. “Approaches to National Science Policy”. Science Policy Research Unit, University of Sussex, June 1983, at 7. cited at note 9 above at 14.

Saudi Patent Law as a conduit for the transfer of technology to the country. The law requires a patent to be worked within two years of its grant. Failure to work a patent within this period makes it subject to compulsory licensing (article 25). The law allows the patentee an extension of two additional years on valid reasons for non-working being shown. However, if not, a compulsory licence is granted, or the invention is exploited by an official body if it is deemed of public utility. (Ibid.)

In case of non-working or insufficient working by the patentee or his assignee or licensee within the prescribed periods, a non-voluntary licence can be granted to an eligible party (article 34). A patent may not be invalidated, however, except for violation of Islamic Sharia Law or the *ordre public* according to article 9.

A patent may be assigned or licensed where assignment and licence may not be opposable to the Directorate if not recorded (article 29). Where there is a licence agreement, the patentee will remain entitled to the exploitation of his invention unless otherwise provided in the agreement according to article 32. This is an effort to maintain a record of the licensing activities so that interested parties within the private or public sectors may have access to utilise such inventions in technical and innovative activity inside the country. It may be part of the Directorate mechanism in promoting the transfer of technology between local and foreign inventors.

Article 18 of the Law permits foreign inventors to claim the benefit of the priority of an earlier application made in another country. The applicant is required to provide a declaration stating the date and number of the earlier application as well as the country in which the applicant filed this application within ninety days before the date of filing in Saudi Arabia. The claim of priority will be evaluated according to a bilateral convention or to an international convention if the Kingdom is a member thereof.

Nevertheless, an invention previously registered abroad is patentable only for the remaining period of its foreign validity under article 27.

It seems that articles 25 and 34 of the Law were provided in order to transfer part of the registered technology locally when requiring the exploitation of patented inventions. We

may argue that both articles can be useful for such purposes but it may be very difficult to determine the time and capacity of full exploitation. As we mentioned earlier, the interpretation of the law is lacking in the relation to the phrases “exploit the patent fully” in article 34 and the “reasonable grounds” for a compulsory licensing in article 25. An explicit interpretation of these terms may be essential in the future.

Compulsory licensing for the non-working of a patent may not be justified as a solution for transferring technology. If no application was submitted to exploit such a non-worked patent, then this may mean that no right exists or no royalties for the inventor of non-working patent. According to Saudi law it is not stated that the condition should be justified as reasonably necessary to enable the patentee to obtain a fair reward or at least some reward as the patent rights are a form of property and the objective of the patent system is to reward and promote inventive activity. A patentee who finds it necessary to grant licenses because he cannot supply the market himself soon realises that he is dealing with a potential competitor; for the licensee may invent improvements of importance which overshadow the basic patent. The local inventor may find this neither helpful nor encouraging in his further endeavours.

Another obstacle to the transfer of technology in the compulsory licensing regulations is the extension of time to maintain a compulsory license which may be caused by the prior examination to substance required before the grant. Also it may be difficult for a local licensee to be able to work the patented invention successfully without the necessary know-how, unless the licensee possesses the required technical skills, which may be doubtful given the technical levels locally. Thus, the prospect of a successful regulation on the basis of compulsory licences may be unpromising.

In practice, the present Saudi Patent Office has not been able to apply the above articles properly, simply because only a small number of patents have been granted. Therefore, it cannot be said that the Office provides the country with the benefits that these articles are generally believed to give in transferring technology effectively. Its function is mainly the registration of foreign and local applications, without further proceeding in examining, granting or rejecting most of these applications. If it keeps making no progress in the

examination procedures, then it may become a negative effort and possibly impede the effective processes of transferring technology into the country.

Because only a few patents have been granted, no reports have been issued indicating the scale of exploitation among patent applications registered in the country. Also the differences in the number of applications¹¹⁶ from local and foreign applications as indicated in the recent statistic report issued by the Office - 96% foreign, 4% local - may suggest that the right conferred by patent applications to be registered is primarily to preserve import monopolies rather than encourage local production capacity.

Patent licencing as a vehicle for transferring technology is not very common in the Saudi Patent Office practices. In fact, since the majority of patent applications are owned by foreign inventors, the major concern in this regard is the use to which these foreign dominated inventions are put instead of being exploited locally they may be used to introduce restrictive and anti-competitive practices through their licensing and investment transactions contracts. Such practices may adversely affect the influx of technology into the country. Thus, this may lead to the conclusion that neither local nor foreign applicants, nor the country, are benefiting properly from the existence of the Office. In the absence of managing the granting procedures, we may argue that the Patent Office is only in an unformed stage.

Both the Directorate of Technology as well as the Patent Office have not significantly influenced the transfer of technology processes through other means such as foreign direct investment (FDI) and joint-ventures in the country. Neither have identified the technological need, rather their norms were developed not within the context of any technology transfer policy and therefore not as an integral part of an overall national policy. Therefore, it is recommended for these offices to contribute to the transfer and development of technology, they should have to be appropriately staffed given the necessary resources and adequate facilities and more importantly, their opposition should be precisely defined and brought into the mainstream of technology planning and policy development.

¹¹⁶ Statistics Reports. The Patents Directorate (KACST) 1995.

This may avoid unnecessary duplication of procedures and manpower as well as financial costs. It may be recommended, therefore, that the function of regulating the transfer of technology governs all agreements in this regard and consigned to one central organisation such as KACST. It is also recommended that a comprehensive monitoring system be recognised as an essential aspect of the regulation of the transfer and development of technology in the country. This should enable the qualified authorities to undertake the actual monitoring of approved agreements and to determine the adoption of new technologies included in such contracts. It should also examine the behaviour of technology suppliers as well as the behaviour of technology recipients. This will help the qualified authorities not only to proceed examination, approval and registration of technology transfer, rather it will help them play an active role in the process of bringing important technologies into the country.

For the Patent Office, in particular, this will be one possible way of integrating with other means of development in this regard. The Patent Office will be able to encourage local inventive activity, on the one hand, and strengthen the technological and scientific infrastructure on the other hand. In effect, the Patent Office will be able to co-operate with other administrations directly involved in formulating and executing national plans and development objectives.

The lack of proper operation and performance can be blamed on the lack of skilled personnel and manpower capable of carrying out their tasks properly, as well as on high-ranking government officials' neglect and lack of care in the importation of the patent system. It seems that the responsible officials should send out a clear message to the higher-ranked officials in the government and draw their attention to one of the most important conduits in transferring technology, which may help to create and promote local agricultural and industrial development. Such a development might then be able to supply the domestic market and to export products more competitively.

Conclusion

Patents are a useful conduit through which know-how and licensing deals can assist in transferring funds as well as developing technology. The rights conferred by patents can be regarded as personal property which can be licensed and assigned to others, enhancing the ability to manufacture, sell, and compete in the international market place. Once an individual has the ability to do so, it can be regarded as useful for the entire country in terms of inventive and innovation activity. As the role of innovation is accorded a greater role in the development of the national technical ability and the economy, so the capacity for its exploitation is increased. However, no matter how effective a system of protection is, and regardless of how well it functions, the economic benefits of the invention will not be fully realised unless there are more effective mechanisms for its exploitation.

The Saudi Patent Office does not appear to provide the adequate local technical development. It does not appear to have constituted a comprehensive patent regime which can have the possibility of serving as an encouragement to indigenous inventive activity and proper technological transfer.

**STUDY OF THE UK PATENT
OFFICE AND AN ALTERNATIVE PROPOSAL
FOR SAUDI PATENT LAW**

Study of the U.K. Patent Office and an Alternative Proposal for Saudi Patent Law

Introduction

This chapter draws together a number of themes concerned in the utilization of the patent system through a comparative study of the U.K. Patent Office's experience and future plans to maintain better performance and service for its consumers. Alternative proposals are recommended to the Saudi Patent Office in order to obtain a better exploitation of the patent system in selected areas vital to the encouragement of national inventors and to help stimulate innovation in general.

I A Comparative Analysis of the U.K. Patent Office

a. Background

The present situation among developed and developing countries, in terms of promoting innovative activities, varies from country to country, although rules and regulations concerning the procedure of patent application are nearly the same. Technical and economic developments as a final result of innovative activities have not been obtained properly by many developing countries, (e.g. Saudi Arabia). Therefore an analysis and study of the role of the UK Patent Office, referred to herein as "the Office", has been conducted with regard to how it promotes domestic applications, creativity and inventiveness in local industry, as well as its international activities and its economic outturns since it became an Executive Government Agency in 1991.¹

The U.K. Patent Office was established in 1852 with responsibility for the granting of patent of invention. In 1870 the responsibility for registering trade marks and industrial designs were transferred to it. This meant that the Office might file a patent application when payment was received and the rights were acquired according to the filing date.

¹ An Executive Agency which requires the Patent Office to continue its drive to improve efficiency and quality of service and to contract out activities wherever this is compatible with its statutory role and good value for money.

The objective to the Patent Office are the following² :

- to ensure that the intellectual property system operates in a way which reflects the national interest.
- to provide all its customers with services which combine quality with value for money
- to ensure that industrial property rights issued under its authority carry with them a good presumption of validity in the market-place
- to maintain the considerable knowledge and experience accumulated in the course of its work and to ensure that these are available for the benefit of industry and commerce
- to promote an awareness of the value of industrial property and its exploitation
- to ensure that it performs its functions with increasing effectiveness, efficiency and economy

The Patent Office became a Government Agency in 1990. In October 1991 the Office acquired trading fund status. In December 1994 the status of the Patent Office as a Government Agency was confirmed while preserving the option of privatising the Office at a later date. This means that where practicable the Patent Office should contract out work to the private sector including the establishment of joint ventures with the private sector in order to enhance the value for money and quality of services which the Office provides for its users³ .

Today the Office has introduced new commercial and financial methods to maintain better services for its customers than before. It employs over 1,000 people and has five divisions of which the two largest deal with patents and designs, consisting of three quarters of its staff ; its output is about £50 million per annum.⁴

² "The U.K. Patent Office Annual Report and Accounts" (1993-1994)

³ "The U.K. Patent Office Annual Report and Accounts" (1994-1995)

⁴ Ibidem

Its mission as a “trading fund” is to facilitate innovation in the British industry and commerce through the rights of intellectual property. The Office procedures are regulated by both national and international law and by treaty obligations (ie) European Patent Convention of 1973. According to the Office’s Corporate Plan of 1994, the Office regulates its objectives by the following:

- 1 Supporting moves to simplify and modernise the law on intellectual property, and international initiatives aimed at harmonisation of rules and procedures;
- 2 Undertaking information and marketing work aimed at ensuring that British industry and commerce, and small and medium sized firms in particular, are aware of the opportunity provided by intellectual property to enhance their profitability and competitiveness;
- 3 granting patents and registering trade marks and designs with a good presumption of validity and based on excellent standards of services, measured against benchmarks set in consultation with users under the Citizen’s Charter;
- 4 providing services at a price which represents good value for money.

b. Plan and Services

Recently, the Office has established a self-sufficient financial basis as the annual profit-saving per annum reaching the amount of nearly £6 million. This has led to the creation of new financial and commercial controls (e.g. accrual accounts), to maintain accurate information on costs which helps the Office to minimise any fee increase. Quality of service was part of the main objective, as users find a high standard of services performed and continue to do so in consideration to the reduction of cost of patent application.

The performance of 1993/94 was set against five targets established when the Office became an Executive Agency. Two of these targets were concerned with patents: they are: “to increase the productivity of patent examination by an average of at least 1.5% a year; to issue at least 90 % of patent search reports within twelve weeks” (see table 1 below). The fifth target seeks the reduction of the cost of regular services by 20% over five years. The Office expected to over-

achieve, as the turn out for 1993/94 indicated a reduction of 43% in real terms on the 1989/90 baseline⁵.

Although the 46% reduction which has been made as a result of accommodation savings following the relocation of the Office from London to Newport, the 1994/1995 outturn indicates a saving of 6% in real terms over 1993/1994.

Despite a decrease of patent applications in 1993, the Office, having respect to the interest of innovations and new business enterprises, did not raise fees. It rather sought to reduce costs in order not to jeopardise its business volumes. Its arrangement indicates that the “best prospect of securing the long term future of the Office lies in responding to the legitimate needs of customers by offering a high quality service at a very competitive price”. This should help the process of innovation in the UK and serve particularly small and medium sized firms, which are becoming more aware of the outcomes of the patent system and choosing the national system to fulfil their needs.

The Office did not plan to change its targets for 1994/95, as the five-year period was then almost finished. Instead officials are working to create new targets, hoping to cover a broader range of costs and activities. Measurement of unit costs is expected to play a part in this plan, indicating the preliminary cost for patent *cost* and examination and reflecting the provisional cost arrangements already in place. The new target for 1995/1996 will focus on quality of service and will require productivity gains in relation to staff numbers and costs.⁶

c National and International Policy

In serving the national strategy for creating a wealth-creating and competitive environment, the Patent Office provides, through publication of patent and registered designs, a huge contribution in the field of research and development, quality and technical information bases. The Office provides services to the Standing Advisory Committee on Industrial Property (SACIP), a

⁵ “The Patent Office Corporate Plan” (1994). Issued by the UK Patent Office, Newport, Wales. Page 12

⁶ Ibid. Note (3) above.

government advisory committee on all aspects of intellectual property activities, including consulting on national and international issues.

Another forum for exchanging opinions among Government Departments and other public sectors in connection with the exploitation policy of intellectual property is the Interdepartmental Committee on intellectual property (ICIP), established by the Office to maintain a successful exploitation of new ideas and fostering innovation amongst industrial competitors as well as protecting investment.

The intellectual property Policy Directorate provides advice to the Department of Trade and Industry (DTI) and to other Government departments on domestic, European and international laws and policies concerning intellectual property rights. Most of its services lie in dealing with negotiations for harmonisation in intellectual property issues in Europe and other parts of the world. Such advice is very important to the UK to permit participation in international development with a clear and stable point of view .

In terms of international participation, the Office is involved in much regional and international work. As far as regional work is concerned, in the European Community the examination of European Community proposals for the harmonisation of intellectual property Laws of the member states and the implementing regulations are part of the intellectual property Policy Directorate involvement. The EPO plays a major part in relations with the UK Office and the role of the European Commission has developed too. Another part of the supervision and development of the European Patent Office is growing as well, where part of the work is to make it more efficient and attractive to small and medium sized enterprises.⁷

Patent Office officials attend the annual meeting of the World Intellectual Property Organisation (WIPO), a UN agency specialised in the field of intellectual property. Election of the UK to committees increases the involvement with the Organisation, including the Patent Co-operation

⁷ "The UK Patent Office Annual Report and Accounts" (1993-94): Patent Office Targets pp 50-51. Ibid note (2) above.

Treaty (PCT), the Paris Convention, Berne, Nice and Locarno Conventions, European Patent Convention (EPC) and Vienna Unions.

Other international involvements are in the Agreement on Trade Related Aspects of Intellectual Property (TRIPs). Developments internationally in many aspects of intellectual property are monitored continuously by the Office to maintain full up-to-date information and to aid interested users and Government departments where the impact of intellectual needs to be properly assessed.⁸

In 1993 the UK Office abandoned its status as a PCT-designated examining authority according to the treaty requirements. Although this work was transferred to the European Patent Office, applications on requests filed before May 1993 continued until the middle of 1994.⁹

d. Marketing and Awareness

The Office considers that awareness of intellectual property among students, academics and businessmen, private and public sectors is encouraging better understanding of the patent system. Thus, the Office has established a Patent Training Package sent to almost every university in the UK as well as to Science Reference and Information Services (SEIS) and the other patent libraries. This program deals with assessing the feasibility of a new product being exploited and licensed, and on the best methods of doing so, starting from concept to marketplace.

Another concept of raising public awareness is by short training courses on patents and licensing for interested people in this field running throughout the year, as well as courses on the Patent Training Package which includes an examination qualifying the candidate to become a Patent Office trainer. An advertising campaign is put in the national press. School teaching packages have been made based on patent information and are circulated. A compilation of videos, road

⁸ Ibid Note 89 p5

⁹ Ibid.

shows, including talks and seminars, has been organised, and radio and television interviews provided for getting across the Office's message about the importance of intellectual property being utilised as a vehicle for the protection and exploitation of ideas and technology transfer.

The Office continues to deal with the reliability of information provided as a top priority and has introduced standards controlling response times to maintain the quality of services. This response has been worthwhile as many customers have shown a big interest which has led to several thousand requests for further information in this regard.¹⁰

Beside these efforts, the Office keeps in touch with potential customers, in particular, small firms which may be unaware of the intellectual property benefits of and may disadvantage themselves by not protecting their products. There are frequent meetings between the Office and the majority of its customers to discuss important aspects of procedures and to ensure that the services and manner provided by the Office are properly responsive to the market.¹¹ These efforts are mostly in pursuit of new applicants and applications as well.

e. Potential Options on the Future Strategy for the Office

1 Major Options

Since the Office became an Executive Agency in 1991, the review of its framework document, which defines the scope and power of its operations, has begun to consider future options for work, such as justifying agency status or privatisation. In a summary report issued by the Office in May 1994, future options included abolition, contractisation and privatisation.¹² According to this report, abolition was not suggested because, as the Office is financially profitable, it is suggested that it should continue to exist at least for the short and medium term.

¹⁰ Ibid.

¹¹ See (Patent Co-operation Treaty) Article 10 "Receiving Office".

¹² Ibid Note (89)

While there are no constraints arguments of a clearly financial nature, privatisation is possible and contractorisation may achieve part of the benefits of privatisation with a reduced legislative and regulatory control, assuming that the Deregulation and Contracting Out Bill is established substantially in its present form.

The report suggests that if the Office was privatised, it may be important to guarantee that the new authority should act with independence and balance in order to avoid disputes between its work as owners on the one hand and any other subject of interest which it may have in intellectual property on the other. Nevertheless, more consideration is to be given to its operations, particularly in the case whether the examination of patent applications should continue or not. Other considerations are whether the new authority can provide better value for money and better service to its customers.

2 Abolition

Before we analyse the privatisation option, it is worthwhile to examine in brief the other major options such as abolition or contractorisation of the UK Patent Office in accordance to the views discussed in the above report.

Abolition was categorised as: “outright abolition, elimination of examination process, and elimination of both the search and examination process”. Outright abolition might cause difficulties for the UK in relation to its obligations under international treaties. It might not achieve proper benefits. The elimination of patent examination might result in a poor quality of search and it is difficult to assess what effect a thorough examination system has on deterring weak applications. This may lead to more invalid applications receiving a grant. So far there are no reliable statistics to depend on for presenting the level of completed claims arising between nations which have examination systems and those which have only a registration system, nor is there evidence indicating that elimination of examination may or will result in a fall in the quality of the register.¹³

¹³ Ibid Note 1.

Elimination of both search and examination have not shown any significant merits which could be maintained, particularly when additional costs savings may seem relatively small in comparison to its apparent effect as an initial filter. It is indicated that 30% of applications for search are now rejected at this level of the process¹⁴.

The report concluded that neither outright abolition nor abolition of examination seem to have real merits which would be expected by customers and users of the Office. The resolving of legal disputes, with this system, may raise the costs to users and may bring disadvantages to small and medium sized companies too. However, no additional benefits may be brought if abolition of search and examination were to take place.

3 Contractorisation

As indicated in the report, contractorisation is a broad term. It can apply to many options including: “contracting out” which is for a small level of activities, “a partial contractorisation”, and through the letting of contract of the entire work (“intact contractorisation”). This means work would remain in the public sector and Government would be responsible for its functions.

In comparison with privatisation the differentiating aspects of contractorisation were described as :

- “ - a contractor would not take direct revenue risks. He would be given a cost related contract to deliver a service. The contractor would nonetheless take on the employment of staff, and to the extent that the volume of work in the office diminished, the contractor could be asked to take indirect revenue risk (more properly described as business volume risk).
- the contractor would not assume ownership of the business. He could however be required to take either absolute or temporary (leases) ownership of assets.

¹⁴ The Patent Office Option for the Future. Summary Report (May 1994) Issued by the UK Patent Office.

- the contractor's performance would be governed by the terms of his contract with Government, rather than through the regulatory licence approach adopted for full scale privatisation."

Usually, contractors will be given rights to work for short or medium periods ranging between 1 - 10 years; while privatisation will be given a longer period of time to do the work. Despite the differences in time between both contractor and privatised bodies, a contractor may bring useful flexibility if he has the desire to re-evaluate the possession options at a future time after a short operation period.

In terms of the Patent Office, it was surmised that not all divisions of the office are equally ready for contractorisation. It requires the establishment of senior management to "set strategy" and "monitor the contracts" and other policy operated by normal procedure which is retained in the public sector. However, some important advantages in the terms of contractorisation was seen as including:

- Transferral of jobs to the private sector.
- Generation of efficiency gains, provided it was targeted at appropriate areas of the business.
- Unlikely to require primary legislation - beyond that foreshadowed in the Deregulation and Contracting Out Bill (now an Act of 1994).
- It would not prevent any subsequent privatisation.

4 Privatisation

The main benefits of privatisation were indicated in the report to be:

- Raising proceeds for Government
- Rolling back the frontiers of the State and transferring jobs to the private sector, where work can be successfully undertaken in the private sector.
- Promoting efficiencies, part of which can be passed to consumers in the form of real price reductions.

- Promoting competition.
- Improving levels of service.
- Offering commercial freedom to the new owner to exploit additional services.

The main possibility of forming privatisation would be “a trade sale by competitive tender with encouragement being given to management and employee bids and to consortium approaches”.

Less attractive options were put as:

- a franchise arrangement for the whole business: whilst this might generate enhanced proceeds, it also runs the risk of seriously damaging the quality of service provided and therefore would require very intrusive regulation
- a foundation: this would be more likely to satisfy industry concerns on independence and integrity; it would not, however, generate proceeds.
- a flotation; which again (means setting up a company limited by shares for sale on the Stock Exchange or to the public). This might be preferable from some independence viewpoints but the concern here would be lack of growth prospects which would be likely to reduce the attractiveness of the office as a flotation candidate, particularly under its present fee structure.

The report does not see the sale of performing patent offices as an objective recommendation. It may be possible but may not create improved interest or proceeds from shareholders and investors; indeed, it may bring little to the competitive framework.

In overall conclusion, the study shows that “in the absence of compelling financial arguments decisions on the future of the Patent Office should be based largely on policy and legal practicality grounds.” Privatisation would be very possible, and would “transfer jobs to the private sector”. But it may require basic policy and effective legislation to prevent concerns in the industry in relation to “independence and integrity” in the issue of the monopoly rights of patents despite some argument within industry that such right belongs to the State, and the State therefore has the responsibility to decide whether or not the monopoly right is granted.

In terms of contractorisation intact, it would result in transferring jobs to the private sector but would not however, delink the Patent Office from Government. While partial contractorisation could transfer about one half of the Office staff to the private sector and would reinforce the effectiveness of saving. The report indicates that

“if the transfer of jobs to the private sector is judged to be a policy priority, the choice between privatisation and contractorisation intact is largely one of the practicalities of achieving the necessary legal changes and a view on the risks of legal challenge. Contractorisation avoids the need to set up a full scale regulatory system but leaves Government responsibility for the contractors decisions”.¹⁵

f. Personal Discussion with the UK Patent Office Comptroller

A personal visit was made to the UK Patent Office in May 1995. It was arranged to analyse and compare most of the important operations and service provided by the Office to its user. The purpose of the visit and discussion focused with the Comptroller of the Office, Mr Paul Hartnach, on the following subjects:

- the best methods of promoting local applicants and applications and the value of intellectual property in general among small and medium sized enterprises.
- the function of the Office as a tool to increase local industries' competitiveness.
- the services provided by the Office to maintain useful exploitation of new invention and fostering innovations in order to increase competitiveness in industry as well as to generate national economy.

Part of the discussion included central points of patent law, (e.g.) “compulsory licenses”, and the argument that compulsory licensing is placed in the law as a factor of technology transfer; also “biotechnological inventions were discussed ” as creating a controversial issue among interests, in terms of protection and morality. Finally, there was discussion about the

¹⁵ Ibid at 21.

possibilities of setting up mutual co-operation in the future between the UK Patent Office and the Saudi Patent Office in order to help promote and develop the progress of the latter's members of staff for quick results in procedures of patent application in the Saudi Office.

1 Cost Reduction

The Comptroller referred to the development of the Office in respect of the interest in innovations and new business enterprises by keeping down the cost of patent application rather than raising them, in order to help individuals and small and medium sized companies. He referred to the activities of the Interdepartmental Committee on Intellectual Property (ICIP) which was established by the Office to maintain successful exploitation of new ideas and fostering innovation among industrial competitiveness as well as protecting investment. The Office realised the value of intellectual property, particularly patents, and officially promoted the value of this among not only private and public sectors, but, also among students, academics, business and individual creators by producing programs assessing the feasibility of new products for exploitation and licensing taking a simple idea to the marketplace. He then suggested that the Saudi officials at this stage can follow at least part of these steps in particular, programmes written to all levels of interest in the country.

2 Generating Businesses

The Comptroller referred to the function of the Office in terms of increasing competition in industry and generating economy by the efforts to keep in touch with all customers, particularly, small firms and individuals which may not realise the value of their production and may then disadvantage themselves by not protecting their products.

The Office gives advice and recommendations to most interested departments in the Government, particularly the Department of Trade and Industry (DTI), not only for domestic

industry but also for European and international industry. Such advice could help competitors to be aware of industry's development locally and abroad.

In terms of economic features, Mr Hartnack believes first of all that the patent system is not "science" nor is it "law". He sees it as "business" or creating money. His opinion is that intellectual property, like any other commodity, can be sold or licensed to another and the rights to enable that are given by the Patent Office against imitation or theft. In consideration for this, the Patent Office receives a sum of money. The more services, the more money, which means that the Patent Office is conscious of the need to provide value for money and that patents supply two-thirds of the Office's income.

In doing this business, it is important to encourage people to take a chance and seek protection. Therefore, Mr Hartnack refers to the most important customers in this field as: UK residents or foreign, who desire to establish such rights in the UK market, who could be large firms, medium or small firms, individual inventors and research bodies and most importantly national and government institutions. All create most of the resource of the revenues to the Office. Thus the Office devoted to serve by ensuring that services provided have to be accessible, cost less and be effective.

3 General

When asked about the substantive law of "compulsory licenses", Mr Hartnack replied that he believes industrial property take the "generated cycle" particularly in patent, as the cycle begins in the stage of import then gains self sufficiency and finally to export processes. In more details the patent product gain a maximum term of protection and the patentee continually weighs the potential revenue against the cost of renewal fees and will allow it to lapse when the potential net return comes to cease to be positive. However, it should be noted that different products have different lengths to their time cycle.

A compulsory license may not create full advantage of transferring the technology; rather it may reduce the interest among small and medium sized enterprises when they cannot afford to build up an enterprise in each country in which they desire to protect their products, and such country (e.g. Saudi Arabia) required an establishment of production sites in order to keep protection of desired product and process. He advises that compulsory licenses policy should be abolished, particularly when many bilateral agreements, and international conventions and agreements are coming into force gradually and harmonisation of the Patent Law is following.

On “biotechnology”, Mr Hartnach’s opinion is that the Patent Office does not harm animals or create immoral products or process. He refers to the scientists who are doing the examination, experiments and research to create such products or processes. The Patent Office offers its services to protect the “right” in such products and processes, and gives legitimate ownership against imitation or theft, but does not “reward” them. Whatever comes after that is subject to argument, debate or even revocation by opponents.

Finally, the Comptroller indicated willingness to co-operate with anybody approaching the Patent Office to have any kind of services or recommendation. He referred to the lack of a relationship with the Saudi Office, to uncertainty of needs and training among staff as well as supply of information. He recommended someone to approach the Office for such co-operation which can be seen as a very important opportunity to be taken by the official in the Saudi Office very soon indeed in order to create some progress and keep up with the pace of international development in this field.

II An Alternative Proposal for the Saudi Patent Office

a. Special Protection for local inventors

It is sad to admit that a policy of encouraging national inventors does not exist in the Saudi Patent Law, nor does it offer any real assistance to develop and exploit an invention. In fact the existence of patent rights is not as high a priority for officials in comparison to other

considerations such as social and political activities. Needless to say, the establishment of the Patent Office was a result of pressure from some international trade requirements, (i.e. the pressure on Saudi Arabia from the U.S. under section 301 of the U.S. Trade Act of 1974). It was not taken as a necessary step for the national economic development nor to increase incentive activity in the country.

In support of the above, as will be recalled, the total percentage of national inventors with patents registered in the Saudi Patent Office is less than 4 percent in comparison with other inventors mainly from developed countries. In terms of companies, the national average is .027 percent as the international companies reached 99.73 percent. (This is at the end of 1996). From the author's experience, filings in the majority of local applications are poor and hardly understandable, and some have neither illustration nor drawing explaining the function of the invention, nor claims. Most of the filed applications are shelved by the authority in such a way that they are never retrieved again, or if so, only with a great deal of difficulty in terms of classified subject matter. Also significant is the fact that most of the patent applications are not worked in the country and there is neither urgency nor requirement on applicants to work their inventions there.

One of the obstacles to fulfilling the exploitation requirements and assisting in technology progress lies in the balance of industrial and technical development of the country in comparison to the most advanced patent applications registered by foreigners, as the general Saudi developments in these fields have not reached the stage of technological development enjoyed by the developed countries. Therefore, in order to exploit the patent system as a means of economic development, the following actions are suggested as a new approach to reform.

With regard to national inventors who are working alone to create new inventions, government officials are advised to engage an instrument or institution to help local inventors obtain benefit from their efforts by easy registration of the invention, using a procedure specially designed by the Patent Office to give priority to local inventors. These inexperienced inventors should also

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legislative instrument of the Foreign Capital Investment Code. Since Saudi Arabia is considered a free market, all goods can be imported with no restriction (apart from imports contrary to the Islamic Sharia law, such as alcohol and pork, which are prohibited). These imported products have to be in accordance with the Saudi standard regulations which were issued by the Saudi Arabian Standards Organisation and aimed at controlling the quality of foreign imported goods.

The Foreign Capital Investment Code was established in 1957, replaced in 1964,¹⁰⁶ and superseded in 1979¹⁰⁷ which is still in force. The Code applies to investment in securities, equipment and to methods of transport, including ships. According to the Code, a foreign investor is one who is not a Saudi citizen and in the case of corporations, one whose equity owners are not all Saudi Arabian. Foreign investment is administered by the Ministry of Industry and Electricity. It is regulated by an inter-agency board of six representatives. The Secretary General of the board is the head of the Investment Bureau of the Ministry.

The Code gives approved investors five-year tax holiday for industrial and agriculture projects. However, in order to share in the tax exemption, 25% or more of the total capital must be owned by Saudi nationals. The applicant must prove that investment is to be accompanied by foreign technical know-how. Thus it seems that investment of capital will not be permitted except when the project is one where foreign know-how will be used.

A prior approval by the Ministry of Industry and Electricity is required for the establishment of any enterprises with foreign participation, including joint projects with a Saudi partner. All such enterprises should be licensed under this Code, with the exception of those involved in oil and mineral projects, which operate under different regulations. Although technically a foreign investor is not required to have a Saudi partner, in practice it is more difficult to obtain a licence to invest without Saudi participation.

¹⁰⁶ See, Royal Decree No. 35, February 25, 1965, (now superseded).

¹⁰⁷ See, Royal Decree No M/4, dated 2.2.1399 a.h. corresponding to January 1, 1979.

If foreign investors breach the Code, their licences can be revoked or liquidated. Dissatisfied investors can file an appeal within 30 days after the revocation decision, and such appeal is final. The 1963 decision of the Council of Ministers prohibited Saudi agencies from submitting disputes to international arbitration and the Board of Grievances therefore is the only source of adjustment.

d) The Task of King Abdul Aziz City for Science and Technology in the Transfer of Technology

King Abdul Aziz City for Science and Technology (KACST) is an independent scientific organisation administratively connected to the Prime Minister. It was established in 1977.¹⁰⁸ Its role is that of supporting and encouraging applied scientific research, co-ordinating the activities of the major scientific research institutions, and co-operating with competent agencies to define the national priorities and policies in the field of science and technology for the Purpose of Creating a technical scientific base. KACST attempts to promote the national scientific personnel who are capable of working for the development and employment of modern technology as part of the major development of the Kingdom.¹⁰⁹

The task of promoting and regulating the transfer and development of technology lies with the Directorate of Technology, which can also be found through the assignment of General Directorate of Patents. Both are part of KACST administrative divisions. We will therefore briefly discuss the task of the former directorate i.e. promoting and regulating the technology transferred into the country. Then we will focus on the most relevant articles in the Saudi Patent law including the current procedures of the General Directorate of Patents in applying the law with regard to this subject.

¹⁰⁸ See, Royal Decree No R/60 dated 18/12/1397 a.h. under the name Saudi Arabian National Centre for Science and Technology (SANCST). On 21/12/1405 a.h. the Royal Decree No R/61 was issued changing the name of the Saudi Arabian national Centre for Science and Technology into the National Centre for Science and Technology (NCST). In view of diversity of the Centre's activities, the Royal Decree No R/8 dated 19/4/1406 a/h. was issued changing NCST name into the current name "King AbdulAziz City for Science and Technology" (KACST).

¹⁰⁹ Ibid.

(1) Directorate of Technology

The Directorate of Technology undertakes responsibility for the drafting of the laws and regulations managing the processes of technology transfer, and provides the services of various data and information and statistics of the required alternative technology. The Directorate is responsible for putting forward suggestions for national policy in the development of science and technology, and to operate the required strategy and plan in its implementation. Also within the framework of KACST, the Directorate may co-ordinate with some government agencies, scientific institutions and research centres in the field of research, information and expertise exchanges. This is to save repetitive and wasted works and efforts among responsible governmental bodies through formation of co-ordinating committees of experts in which similar activities are related.¹¹⁰

Unfortunately, nothing of this nature has been achieved so far. There are neither regulations nor a draft of regulations for the transfer of technology in the Kingdom. But a review of the UNCTAD's Code of Conduct in the Transfer of Technology is being undertaken and the progress and development of the said code has been followed by the Directorate of Technology along with a study of the advantages and disadvantages of regulations issued by Asian and African countries in this regard. The purpose of this, it is hoped, is to formulate a final draft regulating the transfer of technology into the Kingdom despite the argument by some government institutes that such regulations may be an obstacle to industrial development as well as foreign investment.¹¹¹ This is based on the potentially high cost and increased bureaucracy which may result.

Apart from the argument outlined above, the main reason for the delay in creating such regulations is the lack of expertise and skilled personnel with the ability to identify and tackle specific and long-term technical processes. This includes assistance and advice to both the private and public sectors concerned with technological choices and alternative sources of technology required for the countries development. It is also possible that the lack of awareness in this important field among senior officials in the government may well

¹¹⁰ Ibid.

¹¹¹ These activities are according to M Al Badrani's responding to a personal conduct done by corresponding reviewing the latest developments of this subject in Saudi Arabia, done in 19 July 1995.

be an important reason for such delay. Their lack of involvement may cause a major delay in assisting the assimilation of regulations, and an acquisition of modern and balanced flows of technology.

KACST should realise that technology transfer's cumulative effect may create a more effective use of the science and technology base, and could produce a higher rate of technological innovation.¹¹² Gee argues that:

“the flow of technology should not be construed to be only one way, that is, from the science-technology base. There is an equally important and feedback link where technological progress resulting from the innovation process also acts to broaden the science-technology base in conjunction with the R & D input”.¹¹³

It is agreed that progress will not be made in the absence of political will, as without steady political decisions by the decision-makers, the idea of development in the technological process will be very slow.¹¹⁴ Bell¹¹⁵ reflected this thought in his observation that:

“there will be no science, technological development and real progress in the underdeveloped countries unless their political elite become aware of the need for it for their national progress, and come sufficiently to appreciate the conditions under which it can be successfully implemented. The King, the Queen, the President or Prime Minister must initiate or support a series of decisions on measures which aim at making research and particularly applied research productive. To be able to accomplish this tremendous task, it will be incumbent on the political leaders to realise that there is no such thing as spending too much on research and development”.

(2) General Directorate of Patents

As has been discussed above in a comparison with the international patent system, particularly the Paris Convention, we have seen the most important relevant articles of the

¹¹² See, Gee, S (ed), “Technology Transfer, Innovation and International Competitiveness” (1981) at 21.

¹¹³ Ibid.

¹¹⁴ See Yusef, “The Role of Transfer of Technology in the Pursuance of Technical Progress”, *ibid* note 9 above at 14.

¹¹⁵ Bell, R M, “Approaches to National Science Policy”. Science Policy Research Unit, University of Sussex, June 1983, at 7, cited at note 9 above at 14.

Saudi Patent Law as a conduit for the transfer of technology to the country. The law requires a patent to be worked within two years of its grant. Failure to work a patent within this period makes it subject to compulsory licensing (article 25). The law allows the patentee an extension of two additional years on valid reasons for non-working being shown. However, if not, a compulsory licence is granted, or the invention is exploited by an official body if it is deemed of public utility. (Ibid.)

In case of non-working or insufficient working by the patentee or his assignee or licensee within the prescribed periods, a non-voluntary licence can be granted to an eligible party (article 34). A patent may not be invalidated, however, except for violation of Islamic Sharia Law or the *ordre public* according to article 9.

A patent may be assigned or licensed where assignment and licence may not be opposable to the Directorate if not recorded (article 29). Where there is a licence agreement, the patentee will remain entitled to the exploitation of his invention unless otherwise provided in the agreement according to article 32. This is an effort to maintain a record of the licensing activities so that interested parties within the private or public sectors may have access to utilise such inventions in technical and innovative activity inside the country. It may be part of the Directorate mechanism in promoting the transfer of technology between local and foreign inventors.

Article 18 of the Law permits foreign inventors to claim the benefit of the priority of an earlier application made in another country. The applicant is required to provide a declaration stating the date and number of the earlier application as well as the country in which the applicant filed this application within ninety days before the date of filing in Saudi Arabia. The claim of priority will be evaluated according to a bilateral convention or to an international convention if the Kingdom is a member thereof.

Nevertheless, an invention previously registered abroad is patentable only for the remaining period of its foreign validity under article 27.

It seems that articles 25 and 34 of the Law were provided in order to transfer part of the registered technology locally when requiring the exploitation of patented inventions. We

may argue that both articles can be useful for such purposes but it may be very difficult to determine the time and capacity of full exploitation. As we mentioned earlier, the interpretation of the law is lacking in the relation to the phrases “exploit the patent fully” in article 34 and the “reasonable grounds” for a compulsory licensing in article 25. An explicit interpretation of these terms may be essential in the future.

Compulsory licensing for the non-working of a patent may not be justified as a solution for transferring technology. If no application was submitted to exploit such a non-worked patent, then this may mean that no right exists or no royalties for the inventor of non-working patent. According to Saudi law it is not stated that the condition should be justified as reasonably necessary to enable the patentee to obtain a fair reward or at least some reward as the patent rights are a form of property and the objective of the patent system is to reward and promote inventive activity. A patentee who finds it necessary to grant licenses because he cannot supply the market himself soon realises that he is dealing with a potential competitor; for the licensee may invent improvements of importance which overshadow the basic patent. The local inventor may find this neither helpful nor encouraging in his further endeavours.

Another obstacle to the transfer of technology in the compulsory licensing regulations is the extension of time to maintain a compulsory license which may be caused by the prior examination to substance required before the grant. Also it may be difficult for a local licensee to be able to work the patented invention successfully without the necessary know-how, unless the licensee possesses the required technical skills, which may be doubtful given the technical levels locally. Thus, the prospect of a successful regulation on the basis of compulsory licences may be unpromising.

In practice, the present Saudi Patent Office has not been able to apply the above articles properly, simply because only a small number of patents have been granted. Therefore, it cannot be said that the Office provides the country with the benefits that these articles are generally believed to give in transferring technology effectively. Its function is mainly the registration of foreign and local applications, without further proceeding in examining, granting or rejecting most of these applications. If it keeps making no progress in the

examination procedures, then it may become a negative effort and possibly impede the effective processes of transferring technology into the country.

Because only a few patents have been granted, no reports have been issued indicating the scale of exploitation among patent applications registered in the country. Also the differences in the number of applications¹¹⁶ from local and foreign applications as indicated in the recent statistic report issued by the Office - 96% foreign, 4% local - may suggest that the right conferred by patent applications to be registered is primarily to preserve import monopolies rather than encourage local production capacity.

Patent licencing as a vehicle for transferring technology is not very common in the Saudi Patent Office practices. In fact, since the majority of patent applications are owned by foreign inventors, the major concern in this regard is the use to which these foreign dominated inventions are put instead of being exploited locally they may be used to introduce restrictive and anti-competitive practices through their licensing and investment transactions contracts. Such practices may adversely affect the influx of technology into the country. Thus, this may lead to the conclusion that neither local nor foreign applicants, nor the country, are benefiting properly from the existence of the Office. In the absence of managing the granting procedures, we may argue that the Patent Office is only in an unformed stage.

Both the Directorate of Technology as well as the Patent Office have not significantly influenced the transfer of technology processes through other means such as foreign direct investment (FDI) and joint-ventures in the country. Neither have identified the technological need, rather their norms were developed not within the context of any technology transfer policy and therefore not as an integral part of an overall national policy. Therefore, it is recommended for these offices to contribute to the transfer and development of technology, they should have to be appropriately staffed given the necessary resources and adequate facilities and more importantly, their opposition should be precisely defined and brought into the mainstream of technology planning and policy development.

¹¹⁶ Statistics Reports, The Patents Directorate (KACST) 1995.

This may avoid unnecessary duplication of procedures and manpower as well as financial costs. It may be recommended, therefore, that the function of regulating the transfer of technology governs all agreements in this regard and consigned to one central organisation such as KACST. It is also recommended that a comprehensive monitoring system be recognised as an essential aspect of the regulation of the transfer and development of technology in the country. This should enable the qualified authorities to undertake the actual monitoring of approved agreements and to determine the adoption of new technologies included in such contracts. It should also examine the behaviour of technology suppliers as well as the behaviour of technology recipients. This will help the qualified authorities not only to proceed examination, approval and registration of technology transfer, rather it will help them play an active role in the process of bringing important technologies into the country.

For the Patent Office, in particular, this will be one possible way of integrating with other means of development in this regard. The Patent Office will be able to encourage local inventive activity, on the one hand, and strengthen the technological and scientific infrastructure on the other hand. In effect, the Patent Office will be able to co-operate with other administrations directly involved in formulating and executing national plans and development objectives.

The lack of proper operation and performance can be blamed on the lack of skilled personnel and manpower capable of carrying out their tasks properly, as well as on high-ranking government officials' neglect and lack of care in the importation of the patent system. It seems that the responsible officials should send out a clear message to the higher-ranked officials in the government and draw their attention to one of the most important conduits in transferring technology, which may help to create and promote local agricultural and industrial development. Such a development might then be able to supply the domestic market and to export products more competitively.

Conclusion

Patents are a useful conduit through which know-how and licensing deals can assist in transferring funds as well as developing technology. The rights conferred by patents can be regarded as personal property which can be licensed and assigned to others, enhancing the ability to manufacture, sell, and compete in the international market place. Once an individual has the ability to do so, it can be regarded as useful for the entire country in terms of inventive and innovation activity. As the role of innovation is accorded a greater role in the development of the national technical ability and the economy, so the capacity for its exploitation is increased. However, no matter how effective a system of protection is, and regardless of how well it functions, the economic benefits of the invention will not be fully realised unless there are more effective mechanisms for its exploitation.

The Saudi Patent Office does not appear to provide the adequate local technical development. It does not appear to have constituted a comprehensive patent regime which can have the possibility of serving as an encouragement to indigenous inventive activity and proper technological transfer.

**STUDY OF THE UK PATENT
OFFICE AND AN ALTERNATIVE PROPOSAL
FOR SAUDI PATENT LAW**

Study of the U.K. Patent Office and an Alternative Proposal for Saudi Patent Law

Introduction

This chapter draws together a number of themes concerned in the utilization of the patent system through a comparative study of the U.K. Patent Office's experience and future plans to maintain better performance and service for its consumers. Alternative proposals are recommended to the Saudi Patent Office in order to obtain a better exploitation of the patent system in selected areas vital to the encouragement of national inventors and to help stimulate innovation in general.

I A Comparative Analysis of the U.K. Patent Office

a. Background

The present situation among developed and developing countries, in terms of promoting innovative activities, varies from country to country, although rules and regulations concerning the procedure of patent application are nearly the same. Technical and economic developments as a final result of innovative activities have not been obtained properly by many developing countries, (e.g. Saudi Arabia). Therefore an analysis and study of the role of the UK Patent Office, referred to herein as "the Office", has been conducted with regard to how it promotes domestic applications, creativity and inventiveness in local industry, as well as its international activities and its economic outturns since it became an Executive Government Agency in 1991.¹

The U.K. Patent Office was established in 1852 with responsibility for the granting of patent of invention. In 1870 the responsibility for registering trade marks and industrial designs were transferred to it. This meant that the Office might file a patent application when payment was received and the rights were acquired according to the filing date.

¹ An Executive Agency which requires the Patent Office to continue its drive to improve efficiency and quality of service and to contract out activities wherever this is compatible with its statutory role and good value for money.

The objective to the Patent Office are the following² :

- to ensure that the intellectual property system operates in a way which reflects the national interest.
- to provide all its customers with services which combine quality with value for money
- to ensure that industrial property rights issued under its authority carry with them a good presumption of validity in the market-place
- to maintain the considerable knowledge and experience accumulated in the course of its work and to ensure that these are available for the benefit of industry and commerce
- to promote an awareness of the value of industrial property and its exploitation
- to ensure that it performs its functions with increasing effectiveness, efficiency and economy

The Patent Office became a Government Agency in 1990. In October 1991 the Office acquired trading fund status. In December 1994 the status of the Patent Office as a Government Agency was confirmed while preserving the option of privatising the Office at a later date. This means that where practicable the Patent Office should contract out work to the private sector including the establishment of joint ventures with the private sector in order to enhance the value for money and quality of services which the Office provides for its users³ .

Today the Office has introduced new commercial and financial methods to maintain better services for its customers than before. It employs over 1,000 people and has five divisions of which the two largest deal with patents and designs, consisting of three quarters of its staff ; its output is about £50 million per annum.⁴

² "The U.K. Patent Office Annual Report and Accounts" (1993-1994)

³ "The U.K. Patent Office Annual Report and Accounts" (1994-1995)

⁴ Ibidem

Its mission as a “trading fund” is to facilitate innovation in the British industry and commerce through the rights of intellectual property. The Office procedures are regulated by both national and international law and by treaty obligations (ie) European Patent Convention of 1973. According to the Office’s Corporate Plan of 1994, the Office regulates its objectives by the following:

- 1 Supporting moves to simplify and modernise the law on intellectual property, and international initiatives aimed at harmonisation of rules and procedures;
- 2 Undertaking information and marketing work aimed at ensuring that British industry and commerce, and small and medium sized firms in particular, are aware of the opportunity provided by intellectual property to enhance their profitability and competitiveness;
- 3 granting patents and registering trade marks and designs with a good presumption of validity and based on excellent standards of services, measured against benchmarks set in consultation with users under the Citizen’s Charter;
- 4 providing services at a price which represents good value for money.

b. Plan and Services

Recently, the Office has established a self-sufficient financial basis as the annual profit-saving per annum reaching the amount of nearly £6 million. This has led to the creation of new financial and commercial controls (e.g. accrual accounts), to maintain accurate information on costs which helps the Office to minimise any fee increase. Quality of service was part of the main objective, as users find a high standard of services performed and continue to do so in consideration to the reduction of cost of patent application.

The performance of 1993/94 was set against five targets established when the Office became an Executive Agency. Two of these targets were concerned with patents: they are: “to increase the productivity of patent examination by an average of at least 1.5% a year; to issue at least 90 % of patent search reports within twelve weeks” (see table 1 below). The fifth target seeks the reduction of the cost of regular services by 20% over five years. The Office expected to over-

achieve, as the turn out for 1993/94 indicated a reduction of 43% in real terms on the 1989/90 baseline⁵.

Although the 46% reduction which has been made as a result of accommodation savings following the relocation of the Office from London to Newport, the 1994/1995 outturn indicates a saving of 6% in real terms over 1993/1994.

Despite a decrease of patent applications in 1993, the Office, having respect to the interest of innovations and new business enterprises, did not raise fees. It rather sought to reduce costs in order not to jeopardise its business volumes. Its arrangement indicates that the “best prospect of securing the long term future of the Office lies in responding to the legitimate needs of customers by offering a high quality service at a very competitive price”. This should help the process of innovation in the UK and serve particularly small and medium sized firms, which are becoming more aware of the outcomes of the patent system and choosing the national system to fulfil their needs.

The Office did not plan to change its targets for 1994/95, as the five-year period was then almost finished. Instead officials are working to create new targets, hoping to cover a broader range of costs and activities. Measurement of unit costs is expected to play a part in this plan, indicating the preliminary cost for patent *cost* and examination and reflecting the provisional cost arrangements already in place. The new target for 1995/1996 will focus on quality of service and will require productivity gains in relation to staff numbers and costs.⁶

c National and International Policy

In serving the national strategy for creating a wealth-creating and competitive environment, the Patent Office provides, through publication of patent and registered designs, a huge contribution in the field of research and development, quality and technical information bases. The Office provides services to the Standing Advisory Committee on Industrial Property (SACIP), a

⁵ “The Patent Office Corporate Plan” (1994). Issued by the UK Patent Office, Newport, Wales. Page 12

⁶ Ibid. Note (3) above.

government advisory committee on all aspects of intellectual property activities, including consulting on national and international issues.

Another forum for exchanging opinions among Government Departments and other public sectors in connection with the exploitation policy of intellectual property is the Interdepartmental Committee on intellectual property (ICIP), established by the Office to maintain a successful exploitation of new ideas and fostering innovation amongst industrial competitors as well as protecting investment.

The intellectual property Policy Directorate provides advice to the Department of Trade and Industry (DTI) and to other Government departments on domestic, European and international laws and policies concerning intellectual property rights. Most of its services lie in dealing with negotiations for harmonisation in intellectual property issues in Europe and other parts of the world. Such advice is very important to the UK to permit participation in international development with a clear and stable point of view .

In terms of international participation, the Office is involved in much regional and international work. As far as regional work is concerned, in the European Community the examination of European Community proposals for the harmonisation of intellectual property Laws of the member states and the implementing regulations are part of the intellectual property Policy Directorate involvement. The EPO plays a major part in relations with the UK Office and the role of the European Commission has developed too. Another part of the supervision and development of the European Patent Office is growing as well, where part of the work is to make it more efficient and attractive to small and medium sized enterprises.⁷

Patent Office officials attend the annual meeting of the World Intellectual Property Organisation (WIPO), a UN agency specialised in the field of intellectual property. Election of the UK to committees increases the involvement with the Organisation, including the Patent Co-operation

⁷ "The UK Patent Office Annual Report and Accounts" (1993-94): Patent Office Targets pp 50-51, Ibid note (2) above.

Treaty (PCT), the Paris Convention, Berne, Nice and Locarno Conventions, European Patent Convention (EPC) and Vienna Unions.

Other international involvements are in the Agreement on Trade Related Aspects of Intellectual Property (TRIPs). Developments internationally in many aspects of intellectual property are monitored continuously by the Office to maintain full up-to-date information and to aid interested users and Government departments where the impact of intellectual needs to be properly assessed.⁸

In 1993 the UK Office abandoned its status as a PCT-designated examining authority according to the treaty requirements. Although this work was transferred to the European Patent Office, applications on requests filed before May 1993 continued until the middle of 1994.⁹

d. Marketing and Awareness

The Office considers that awareness of intellectual property among students, academics and businessmen, private and public sectors is encouraging better understanding of the patent system. Thus, the Office has established a Patent Training Package sent to almost every university in the UK as well as to Science Reference and Information Services (SEIS) and the other patent libraries. This program deals with assessing the feasibility of a new product being exploited and licensed, and on the best methods of doing so, starting from concept to marketplace.

Another concept of raising public awareness is by short training courses on patents and licensing for interested people in this field running throughout the year, as well as courses on the Patent Training Package which includes an examination qualifying the candidate to become a Patent Office trainer. An advertising campaign is put in the national press. School teaching packages have been made based on patent information and are circulated. A compilation of videos, road

⁸ Ibid Note 89 p5

⁹ Ibid.

shows, including talks and seminars, has been organised, and radio and television interviews provided for getting across the Office's message about the importance of intellectual property being utilised as a vehicle for the protection and exploitation of ideas and technology transfer.

The Office continues to deal with the reliability of information provided as a top priority and has introduced standards controlling response times to maintain the quality of services. This response has been worthwhile as many customers have shown a big interest which has led to several thousand requests for further information in this regard.¹⁰

Beside these efforts, the Office keeps in touch with potential customers, in particular, small firms which may be unaware of the intellectual property benefits of and may disadvantage themselves by not protecting their products. There are frequent meetings between the Office and the majority of its customers to discuss important aspects of procedures and to ensure that the services and manner provided by the Office are properly responsive to the market.¹¹ These efforts are mostly in pursuit of new applicants and applications as well.

e. Potential Options on the Future Strategy for the Office

1 Major Options

Since the Office became an Executive Agency in 1991, the review of its framework document, which defines the scope and power of its operations, has begun to consider future options for work, such as justifying agency status or privatisation. In a summary report issued by the Office in May 1994, future options included abolition, contractorisation and privatisation.¹² According to this report, abolition was not suggested because, as the Office is financially profitable, it is suggested that it should continue to exist at least for the short and medium term.

¹⁰ Ibid.

¹¹ See (Patent Co-operation Treaty) Article 10 "Receiving Office".

¹² Ibid Note (89)

While there are no constraints arguments of a clearly financial nature, privatisation is possible and contractorisation may achieve part of the benefits of privatisation with a reduced legislative and regulatory control, assuming that the Deregulation and Contracting Out Bill is established substantially in its present form.

The report suggests that if the Office was privatised, it may be important to guarantee that the new authority should act with independence and balance in order to avoid disputes between its work as owners on the one hand and any other subject of interest which it may have in intellectual property on the other. Nevertheless, more consideration is to be given to its operations, particularly in the case whether the examination of patent applications should continue or not. Other considerations are whether the new authority can provide better value for money and better service to its customers.

2 Abolition

Before we analyse the privatisation option, it is worthwhile to examine in brief the other major options such as abolition or contractorisation of the UK Patent Office in accordance to the views discussed in the above report.

Abolition was categorised as: “outright abolition, elimination of examination process, and elimination of both the search and examination process”. Outright abolition might cause difficulties for the UK in relation to its obligations under international treaties. It might not achieve proper benefits. The elimination of patent examination might result in a poor quality of search and it is difficult to assess what effect a thorough examination system has on deterring weak applications. This may lead to more invalid applications receiving a grant. So far there are no reliable statistics to depend on for presenting the level of completed claims arising between nations which have examination systems and those which have only a registration system, nor is there evidence indicating that elimination of examination may or will result in a fall in the quality of the register.¹³

¹³ Ibid Note 1.

Elimination of both search and examination have not shown any significant merits which could be maintained, particularly when additional costs savings may seem relatively small in comparison to its apparent effect as an initial filter. It is indicated that 30% of applications for search are now rejected at this level of the process¹⁴.

The report concluded that neither outright abolition nor abolition of examination seem to have real merits which would be expected by customers and users of the Office. The resolving of legal disputes, with this system, may raise the costs to users and may bring disadvantages to small and medium sized companies too. However, no additional benefits may be brought if abolition of search and examination were to take place.

3 Contractorisation

As indicated in the report, contractorisation is a broad term. It can apply to many options including: "contracting out" which is for a small level of activities, "a partial contractorisation", and through the letting of contract of the entire work ("intact contractorisation"). This means work would remain in the public sector and Government would be responsible for its functions.

In comparison with privatisation the differentiating aspects of contractorisation were described as :

- “ - a contractor would not take direct revenue risks. He would be given a cost related contract to deliver a service. The contractor would nonetheless take on the employment of staff, and to the extent that the volume of work in the office diminished, the contractor could be asked to take indirect revenue risk (more properly described as business volume risk).
- the contractor would not assume ownership of the business. He could however be required to take either absolute or temporary (leases) ownership of assets.

¹⁴ The Patent Office Option for the Future, Summary Report (May 1994) Issued by the UK Patent Office.

- the contractor's performance would be governed by the terms of his contract with Government, rather than through the regulatory licence approach adopted for full scale privatisation."

Usually, contractors will be given rights to work for short or medium periods ranging between 1 - 10 years; while privatisation will be given a longer period of time to do the work. Despite the differences in time between both contractor and privatised bodies, a contractor may bring useful flexibility if he has the desire to re-evaluate the possession options at a future time after a short operation period.

In terms of the Patent Office, it was surmised that not all divisions of the office are equally ready for contractorisation. It requires the establishment of senior management to "set strategy" and "monitor the contracts" and other policy operated by normal procedure which is retained in the public sector. However, some important advantages in the terms of contractorisation was seen as including:

- Transferral of jobs to the private sector.
- Generation of efficiency gains, provided it was targeted at appropriate areas of the business.
- Unlikely to require primary legislation - beyond that foreshadowed in the Deregulation and Contracting Out Bill (now an Act of 1994).
- It would not prevent any subsequent privatisation.

4 Privatisation

The main benefits of privatisation were indicated in the report to be:

- Raising proceeds for Government
- Rolling back the frontiers of the State and transferring jobs to the private sector, where work can be successfully undertaken in the private sector.
- Promoting efficiencies, part of which can be passed to consumers in the form of real price reductions.

- Promoting competition.
- Improving levels of service.
- Offering commercial freedom to the new owner to exploit additional services.

The main possibility of forming privatisation would be “a trade sale by competitive tender with encouragement being given to management and employee bids and to consortium approaches”.

Less attractive options were put as:

- a franchise arrangement for the whole business: whilst this might generate enhanced proceeds, it also runs the risk of seriously damaging the quality of service provided and therefore would require very intrusive regulation
- a foundation: this would be more likely to satisfy industry concerns on independence and integrity; it would not, however, generate proceeds.
- a flotation; which again (means setting up a company limited by shares for sale on the Stock Exchange or to the public). This might be preferable from some independence viewpoints but the concern here would be lack of growth prospects which would be likely to reduce the attractiveness of the office as a flotation candidate, particularly under its present fee structure.

The report does not see the sale of performing patent offices as an objective recommendation. It may be possible but may not create improved interest or proceeds from shareholders and investors; indeed, it may bring little to the competitive framework.

In overall conclusion, the study shows that “in the absence of compelling financial arguments decisions on the future of the Patent Office should be based largely on policy and legal practicality grounds.” Privatisation would be very possible, and would “transfer jobs to the private sector”. But it may require basic policy and effective legislation to prevent concerns in the industry in relation to “independence and integrity” in the issue of the monopoly rights of patents despite some argument within industry that such right belongs to the State, and the State therefore has the responsibility to decide whether or not the monopoly right is granted.

In terms of contractorisation intact, it would result in transferring jobs to the private sector but would not however, delink the Patent Office from Government. While partial contractorisation could transfer about one half of the Office staff to the private sector and would reinforce the effectiveness of saving. The report indicates that

“if the transfer of jobs to the private sector is judged to be a policy priority, the choice between privatisation and contractorisation intact is largely one of the practicalities of achieving the necessary legal changes and a view on the risks of legal challenge. Contractorisation avoids the need to set up a full scale regulatory system but leaves Government responsibility for the contractors decisions”.¹⁵

f. Personal Discussion with the UK Patent Office Comptroller

A personal visit was made to the UK Patent Office in May 1995. It was arranged to analyse and compare most of the important operations and service provided by the Office to its user. The purpose of the visit and discussion focused with the Comptroller of the Office, Mr Paul Hartnach, on the following subjects:

- the best methods of promoting local applicants and applications and the value of intellectual property in general among small and medium sized enterprises.
- the function of the Office as a tool to increase local industries' competitiveness.
- the services provided by the Office to maintain useful exploitation of new invention and fostering innovations in order to increase competitiveness in industry as well as to generate national economy.

Part of the discussion included central points of patent law, (e.g.) “compulsory licenses”, and the argument that compulsory licensing is placed in the law as a factor of technology transfer; also “biotechnological inventions were discussed ” as creating a controversial issue among interests, in terms of protection and morality. Finally, there was discussion about the

¹⁵ Ibid at 21.

possibilities of setting up mutual co-operation in the future between the UK Patent Office and the Saudi Patent Office in order to help promote and develop the progress of the latter's members of staff for quick results in procedures of patent application in the Saudi Office.

1 Cost Reduction

The Comptroller referred to the development of the Office in respect of the interest in innovations and new business enterprises by keeping down the cost of patent application rather than raising them, in order to help individuals and small and medium sized companies. He referred to the activities of the Interdepartmental Committee on Intellectual Property (ICIP) which was established by the Office to maintain successful exploitation of new ideas and fostering innovation among industrial competitiveness as well as protecting investment. The Office realised the value of intellectual property, particularly patents, and officially promoted the value of this among not only private and public sectors, but, also among students, academics, business and individual creators by producing programs assessing the feasibility of new products for exploitation and licensing taking a simple idea to the marketplace. He then suggested that the Saudi officials at this stage can follow at least part of these steps in particular, programmes written to all levels of interest in the country.

2 Generating Businesses

The Comptroller referred to the function of the Office in terms of increasing competition in industry and generating economy by the efforts to keep in touch with all customers, particularly, small firms and individuals which may not realise the value of their production and may then disadvantage themselves by not protecting their products.

The Office gives advice and recommendations to most interested departments in the Government, particularly the Department of Trade and Industry (DTI), not only for domestic

industry but also for European and international industry. Such advice could help competitors to be aware of industry's development locally and abroad.

In terms of economic features, Mr Hartnack believes first of all that the patent system is not "science" nor is it "law". He sees it as "business" or creating money. His opinion is that intellectual property, like any other commodity, can be sold or licensed to another and the rights to enable that are given by the Patent Office against imitation or theft. In consideration for this, the Patent Office receives a sum of money. The more services, the more money, which means that the Patent Office is conscious of the need to provide value for money and that patents supply two-thirds of the Office's income.

In doing this business, it is important to encourage people to take a chance and seek protection. Therefore, Mr Hartnack refers to the most important customers in this field as: UK residents or foreign, who desire to establish such rights in the UK market, who could be large firms, medium or small firms, individual inventors and research bodies and most importantly national and government institutions. All create most of the resource of the revenues to the Office. Thus the Office devoted to serve by ensuring that services provided have to be accessible, cost less and be effective.

3 General

When asked about the substantive law of "compulsory licenses", Mr Hartnack replied that he believes industrial property take the "generated cycle" particularly in patent, as the cycle begins in the stage of import then gains self sufficiency and finally to export processes. In more details the patent product gain a maximum term of protection and the patentee continually weighs the potential revenue against the cost of renewal fees and will allow it to lapse when the potential net return comes to cease to be positive. However, it should be noted that different products have different lengths to their time cycle.

A compulsory license may not create full advantage of transferring the technology; rather it may reduce the interest among small and medium sized enterprises when they cannot afford to build up an enterprise in each country in which they desire to protect their products, and such country (e.g. Saudi Arabia) required an establishment of production sites in order to keep protection of desired product and process. He advises that compulsory licenses policy should be abolished, particularly when many bilateral agreements, and international conventions and agreements are coming into force gradually and harmonisation of the Patent Law is following.

On “biotechnology”, Mr Hartnach’s opinion is that the Patent Office does not harm animals or create immoral products or process. He refers to the scientists who are doing the examination, experiments and research to create such products or processes. The Patent Office offers its services to protect the “right” in such products and processes, and gives legitimate ownership against imitation or theft, but does not “reward” them. Whatever comes after that is subject to argument, debate or even revocation by opponents.

Finally, the Comptroller indicated willingness to co-operate with anybody approaching the Patent Office to have any kind of services or recommendation. He referred to the lack of a relationship with the Saudi Office, to uncertainty of needs and training among staff as well as supply of information. He recommended someone to approach the Office for such co-operation which can be seen as a very important opportunity to be taken by the official in the Saudi Office very soon indeed in order to create some progress and keep up with the pace of international development in this field.

II An Alternative Proposal for the Saudi Patent Office

a. Special Protection for local inventors

It is sad to admit that a policy of encouraging national inventors does not exist in the Saudi Patent Law, nor does it offer any real assistance to develop and exploit an invention. In fact the existence of patent rights is not as high a priority for officials in comparison to other

considerations such as social and political activities. Needless to say, the establishment of the Patent Office was a result of pressure from some international trade requirements, (i.e. the pressure on Saudi Arabia from the U.S. under section 301 of the U.S. Trade Act of 1974). It was not taken as a necessary step for the national economic development nor to increase incentive activity in the country.

In support of the above, as will be recalled, the total percentage of national inventors with patents registered in the Saudi Patent Office is less than 4 percent in comparison with other inventors mainly from developed countries. In terms of companies, the national average is .027 percent as the international companies reached 99.73 percent. (This is at the end of 1996). From the author's experience, filings in the majority of local applications are poor and hardly understandable, and some have neither illustration nor drawing explaining the function of the invention, nor claims. Most of the filed applications are shelved by the authority in such a way that they are never retrieved again, or if so, only with a great deal of difficulty in terms of classified subject matter. Also significant is the fact that most of the patent applications are not worked in the country and there is neither urgency nor requirement on applicants to work their inventions there.

One of the obstacles to fulfilling the exploitation requirements and assisting in technology progress lies in the balance of industrial and technical development of the country in comparison to the most advanced patent applications registered by foreigners, as the general Saudi developments in these fields have not reached the stage of technological development enjoyed by the developed countries. Therefore, in order to exploit the patent system as a means of economic development, the following actions are suggested as a new approach to reform.

With regard to national inventors who are working alone to create new inventions, government officials are advised to engage an instrument or institution to help local inventors obtain benefit from their efforts by easy registration of the invention, using a procedure specially designed by the Patent Office to give priority to local inventors. These inexperienced inventors should also

get some help in the international field, to have some confidence in competition with other inventors worldwide.

As already observed, since the majority of filing by local inventors is poor, it should be realised that these filed applications may not be useful or may not lead anywhere when it comes to examination as to substance. Thus, it is recommended that substantive examination should be waived on all local patent applications. Having only a registration process for these applications may create some advantages, for both local inventors and the Patent Office, such as:

1. It is less time consuming, which makes it easier for local inventors to apply a registration.
2. It does not require expensive and complicated procedures as a responsibility of the Patent Office.
3. It may also not require the Patent Office to examine patent applications which may not be commercially viable prospects in the international market.
4. The Patent Office does not have to employ a high level of technical and experienced persons for this task.

The adoption of the above may be explained by the lack of technical personnel and experts in this field required to undertake effectively the examination of all subject matter of registered inventions.

The Patent Office should establish an internal department to maintain full commercial exploitation of inventions, since once the invention is protected it is essential that it be exploited commercially either locally or internationally, especially when the owner cannot exploit it himself. This internal department should establish special procedures and regulations designed to exploit useful inventions in any possible way, whether in the national or international marketplaces. It should be possible to recommend buying the invention or the patent product and make investment exclusively, or helping inventor with licensing or selling it so as to enable someone else to utilise it.

The resources used to exploit invention and to move into production process may vary from invention to invention, of course, but the maximum value to the economy is realised when the marginal cost of production is higher than the marginal cost of exploiting and employment of the invention. When a royalty paid for use of the invention includes a rent to the inventor, then part of this rent may be paid to the institution in return for their efforts towards exploitation, and both will benefit.

b. Considerations in Joining International Conventions

The Saudi Arabian patent system should give serious consideration to examining the need to join most of the International conventions (e.g. Paris Convention and TRIPs Agreement). Any reform of law should be strong and effective for the sake of national innovative activity. Conventions such as Paris and TRIPs required in their essence “reciprocity” and “national treatment”, which means that once the country is a member in either, the Saudi Arabian legal requirement of exploitation of the invention will be abolished.

As Kingston put it in a description of the way in which one Convention works:

The monopolies that such countries give to foreign firms are largely “filled” monopolies, in that the firm has products on the market with which to exploit the. The negligible number of monopolies which such countries get in return are almost always “empty” monopolies, without products to produce an economic return.¹⁶

Another important factor to suggest in reforming the patent law is to consider the patent system as an encouragement of invention and innovative activity among national and international applicants. It is also to monitor the recent developments in the international patent system (ie the harmonisation of the patent protection).

¹⁶ Kingston. W. “The Patent System Unexploited Potential ?” Chartered Institute of Patent Agent, (ed) QMW College, Univ. of London (1991) P.83.

As a source of information, the patent system may help create an international co-inventor which leads to several international research and development networks. According to Brown and Hirabayashi these activities may arise from¹⁷

- i. Research activity between patent firms and foreign subsidiaries;
- ii. Research activity between unrelated firms, government and research institutions; or
- iii. Research activity stemming from intra-corporate arrangement in which firm's employees reside in several countries.

c. Necessity of Protection of Important Technology

It is essential to consider new protection in the law for important fields of technology such as biotechnological inventions, plant and animal varieties, as well as computer software. These fields create potential for large scale development in industry and are increasingly dominating the international market place, particularly, computer software and biotechnological inventions. The lack of patents in these important technology may pose a threat to the future competitiveness of Saudi industry, which may become totally dependent on foreign companies.

In terms of registration of patent applications, it is important to register all types of invention applications. Without discrimination, the law should indicate priority of registration and/or examination to both national and foreign inventors. It should be stated that the purpose is in favour of the working inventions rather than unused or un-exploited ones. (For example those inventions related to development measured in accordance to the development plans set by the government). It is also important to realise the limited ability of examiners of the Patent Office.

A somewhat more desperate step would be to differentiate specifically between foreign and national inventors in the precise field of technology in order to encourage local inventors. Foreign patent protection might be granted for higher and more advanced technology and might be subject to exploitation requirements as exist in the current law. The same requirements

¹⁷ Brown, W.H. and M.J. Hirabayashi, "Patent With Multiple Inventors Residing in Different Countries", Innovation, Patent and Technological Strategies. (OECD) 1996 p.257.

should not apply to local inventors due to lack of manufacturing capability. Also there could be a differentiation in the term of patent lifetime as foreign patents could have a regular term of protection as required by international convention, while local inventors could have shorter protection periods. This should give consideration to the international conventions and their provisions of “national treatment” and reciprocity in efforts not to overlap its obligations.

It is possible to use for the above systems of protection such as “utility models” in order to favour the national inventor against foreign patents to some extent. A utility model is intended usually for small and medium sized enterprises. It provides protection for technical developments of less significance and useful purposes. A utility model differs from a patent in the fact that its maximum term is 6 to 10 years from filing of application and no exam. The granting of it does not depend on a report on the state of the art as is the situation for patents. The claims in utility models are usually less clearly distinct from the state of the art and often drawn up without the participation of experts in the field from the Patent Office. However, the substantive conditions of protection in terms of novelty and inventive step are similar to those for patents. The holder of a utility model has to submit a report on the state of the art in the case of infringement of his right.

Again, for the benefit of the local inventors, it may be added that the Saudi Patent Law should have urgently a useful reform in adopting new provisions for the granting of rights such as utility models where only a lesser requirement in terms of novelty is needed and which gives protection at less financial and administrative cost, and with a shorter term of protection.

It may also be suggested that local inventors have the option offered by the Saudi Office to receive an inventor’s certificate amongst their legal rights. These procedures can be used as an encouragement to local inventors, having regard to inventors lack of capabilities which make it not possible for them to exploit their inventions. The legal right of these inventions will then belong to the Patent Office which may be able to undertake their exploitation, whilst in exchange the inventors can receive compensation for their inventive efforts.

If some suggestions appear difficult to establish, especially in relation to TRIPS provisions as to which the country may become a member, it is important to announce a new internal procedure. All foreign applicants who may have obtained a parallel patent in an industrialised country (e.g. US, UK, Japan, EPO) may request that the Saudi Patent Office accept his application without the examination procedure as to novelty and non-obviousness, provided that the registered inventions, particularly those based on foreign priority, have obtained priority from an earlier registration and which therefore might have had a full substantive examination also, provided that there are identical claims of the patent granted in any of those countries.

Some application descriptions may differ according to the translation of the application; alternatively claims must be made only in the English language, as requested already under the current procedures. There should also be notification to the Patent Office of all pending opposition or cancellation proceedings regarding the parallel patent. In fact it is strongly recommended that such procedures should be taking place now to help speed the progress of the Saudi Patent Office. It is recommended mainly because a lot of applications are registered every year and nothing has been done with most of them since the law was first issued, through lack of examiners.

d. Reform of the Term of Protection

According to Article 27 of the Saudi Law, the “term” of a patent is fifteen years from the date of grant. This term is subject to extension for a further five years. In the event that “an inventor obtains a foreign patent, the period of protection to be enjoyed in the Kingdom is as if the patent had come from the beginning been granted in the Kingdom”. Due to the lack of expert examiners, along with the development in the international conventions, particularly TRIPS, it is recommended that the duration of the patent lifetime should be twenty years from the issue date of the patent for applications in which the applicant seeks protection for the period . Once it is granted it should be subject to a rising schedule of fees as time passes. These renewal fees are to be paid to maintain the patent owners’ rights throughout their maximum, legally permissible duration. This would help increase the Patent Office’s revenue in addition to the chargeable fees

(i.e.) registration, examination and grants. This would also create an increase in the national revenues.

It is also recommended that, since the Law required an exploitation of the patents locally within a maximum of four years, any patent with a duration of four years or less, with the lack of time for such exploitation, should not be subject to registration. Also it may not be able to survive to the terminal year; thus, it may be a waste of time and money to both inventors and the Patent Office. However, it would be appropriate if the term of protection can be equivalent to the importance of the invention to the country's technical and economic advance, and also have regard to whether the invention may be put to work immediately or not.

e. Promoting Public Awareness of the Patent System

Since intellectual property laws are relatively new in Saudi Arabia, it is essential to educate the public about the law and to train legal professionals. Education and training policy is "the most important long-term investment for the future".¹⁸ It is obviously a critical element of unity, in that it forms by itself interdependence structures which strongly facilitate the spread of knowledge. On the other hand it makes the incentive systems more effective.¹⁹

The Saudi Patent Office may establish targeted plans towards education in the field of intellectual property, particularly in patents. It should, however, increase the public's awareness of intellectual property rights. These educational plans may be directed to certain groups such as students at college and universities, research institutions, and public and private large and small, medium-sized enterprises. It is very important that such plans should have strong local participation and support for the intellectual property systems in general.

¹⁸ Foray, D and C Freeman "Technology and the Wealth of Nation: the dynamics of constructed advantage"
Published in association with DECD.

¹⁹ Ibid.

As revealed earlier, the number of applications by local individuals and research institutions is very low. Many of the research institutions have not been effectively involved in the protection of their own industrial property. It seems that these institutions along with many colleges and universities have less awareness of the important aspects of intellectual and industrial property rights, as well as the financial resources and required facilities to exploit such rights. Also, there may be a cultural reason, as the traditional thinking of most intellectuals in Saudi Arabia is to undervalue business. They think they are doing research for either academic or social value, or for a hobby, but not to achieve any economic goals or to do business.

Therefore, it is recommended that the Patent Office should establish possible targeted sectors to inform the public about the nature of the patent system and to guide them through its processes. Such a scheme could include the following:

1. To issue information leaflets including the basic background on operations and organisation of the Patent Office along with the services provided.
2. The Patent Office should devote attention at local level to measures encouraging and enabling individuals as well as small and medium-sized firms to make more use of patent protection. It should ensure that their business in this regard is advised about proposals for national and international law.
3. The Patent Office should help provide its customers with value for money out of their inventive efforts by drawing up publications on the economic aspects of patents which may help increase the awareness of patents amongst managers in research institutions and in industry in general. It should also provide a training program for inventors to help with marketing their inventions.
4. The Patent Office should create an on line direct access to patent information for both the general public and local industry, particularly, small and medium-sized firms in order to stimulate innovative activity.
5. The Patent Office should hold symposiums and seminars on important issues highlighting patents in courses and lectures. It should also recommend that those courses be included in academic textbooks on economic and business studies, which

may promote the study of the basics of these subjects at higher educational institutions.

6. Training patent agents and lawyers is very important since the country may have a shortage of experts in this field and there may be great demand. Thus, the Office in association with the educational authorities may recommend a special programme on this subject which could be taught in universities to produce legal professionals in intellectual property. Once this program is implemented, it is possible that such professionals will be capable of representing parties in a lawsuit or at administrative tribunals. They will also be able to adjudicate cases involved in this regard and may become judges themselves and enforce the law.

SUMMARY AND CONCLUSIONS

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At the beginning of this study we traced the development of the Saudi Patent Law and discussed the object of its establishment. It should be recalled that the main purpose of developing the law was due to the shift in the Saudi economy which attracted companies from all over the world to compete for a share of the industrial market. This caused pressure on the local authorities to create a means of securing and protecting the imported products, and to cope with international developments in the field of intellectual property. This lack of protection in intellectual property rights caused Saudi Arabia to be on the observation list for a trade sanction many times under "Section 301" of the United States Omnibus Trade Act.

As detectable from the above, we argue that the introduction of the Saudi Patent Law was never meant to encourage local inventors nor to create an effective technology transfer policy. It was adopted for the protection of inventions in imported technology from other countries, particularly the United States which invested heavily in the country. This is not surprising since the main reason of establishment of the patent law was due to political pressure from the United States and a threat of retaliation in trade relations between the two countries, if there was a lack of industrial property rights protection.

The draft patent law was produced with the help of the World Intellectual Property Organisation Model Law for developing countries. It was unexpected to find out the WIPO Model Law reflected the needs of domestic inventive activity nor relate to the country's level of industrialisation and economic development.

We also argue that from an international level, particularly for developing countries, the WIPO authorities who were assisting in this regard should study the issue of a new patent law for each country precisely. It should set up an individual proposal reflecting the technical and economic development of each country.

The WIPO Model Law as the main source of the Saudi Patent Law created obscure provisions, such as the compulsory licencing requirements, the substantive examination of application required by the Patent Office and the exclusion of some subject matters from patentability. We argue that the adoption of the provisions can be seen as not relevant to any policies set out for the country's economic and industrial development nor can be found promulgated within the framework of its technology policy.

It will be recalled from Chapter 1 that according to the Saudi Patent Law, patents are required to be exploited within two years from the date granted, and upon the request of the patentee can be extended for another two years. If the prescribed period expires without the patent being exploited, the Patent Office will grant any person a compulsory licence to exploit such patent. The basis of this procedure is that the compulsory licence is only meant to promote the technology transfer process to the benefit of local technological development. However, we argue that such efforts have never shown any convincing evidence of a successful technical or economic exploitation of transferred technology. We also argue that sanctions for the non-working of a patent may establish an untrusting environment for industrialised countries, which may not be able to help the interest of the recipient country, (i.e. Saudi Arabia) to develop technology transfer. Therefore our recommendation is that voluntary licences may be a better solution and establish a mutual trust between both parties in the process.

Although compulsory licensing provisions are required in the patent law, such provisions have not been applied. If they are applied, the limited stock of contractors and locally skilled personnel and high developed equipment to work the invention can be a major difficulty. Therefore, we argue that the benefit of the patent law and system can be evaluated in the form of local exploitation of the protected invention.

Although substantive examination regulations have not been established in the Saudi Patent Office's procedures, the patent applications must be referred to such requirements. However, to date the examined applications are very limited and very slow; according to local statistics, there are only three granted patents. We argue that the slow procedures are due to the lack of

skilled and qualified personnel in the Patent Office. Such delay in examination may cause delay to the local technical and economic exploitation of the invention. It shows that the Patent Office is not capable, nor equipped, to examine every application. Thus, our recommendation is that the Saudi Patent Office should use the results of the substantive examination of applications made in developed countries. These results may ease the burden on the small number of examiners and avoid duplication of procedures. Another recommendation is to join the Patent Co-operation Treaty (PCT) and take advantage of the patent examination results made by the PCT examination authority.

The exclusion of some technological subjects from patentability is not based on any technical or economic policy. In this regard, the Patent Office can be used to exclude from patentability foreign technologies which may either be a threat, or block the local technological development, or be not relevant to the country's economic development. In chapter 3 for example, our discussion of the biotechnological inventions indicates that such exclusion of food or medicinal products from patentability would perhaps not encourage research and developments, and consequently the investment in such researches in the country. We argue that the criteria for patentability in this subject requires to be revised. It should distinguish between and within sectors that are of vital importance to the country's agriculture and medical research and productivity. It should reflect the country's needs of development in these fields. It should also be noted that attention should be paid to the merits of the inventions, and the sectors within which they relate, and to the actual exploitation of the patent.

In addition to the above, we have in the course of our discussion referred to the exclusion of computer program protection from patentability in Chapter 4. Such exclusion was not based on any technology policies nor on any technical or economic requirements. This issue of computer software protection has been controversial world-wide in past years. However, recent development in decisions related to computer software protection indicate that there is a possibility of obtaining some protection by moving away from the non-statutory subject matter test in term of software-related inventions.

It was revealed in Chapter 4 that, regardless of the rapid development of the computer software industry, the appropriate and practical legal protection has not yet been formed by the Saudi Patent Law and system. Our argument is that the protection of computer software under the Saudi Copyright and Patent Laws may not be enough; rather the absence of protection under the Patent Law creates the urgent need for determining the scope and character of protection for software. Such demand is due to the fact that the instructions in software can be imprinted on hardware, while functions associated with hardware can be performed by software; therefore either software or hardware should be subject to legal protection. The form in which the material is presented should not affect eligibility for protection.

The demand for legal protection appears also in the desire to provide an incentive to individual creativity. Such incentives are aimed at advancing technology where local developers can distribute their products not only locally but rather world-wide. Also it can be for the promotion of the software industry within the country, where foreign investors may benefit commercially by this protection.

It will be recalled in Chapter 6 that the main principles of the Trade Related Aspects of Intellectual Property (TRIPs) are to establish minimum standards of protection and the enforcement of intellectual property rights of signatory states, including copyright and neighbouring rights. Each country should protect nationals of other parties by granting the rights set out in the Agreement. The type of intellectual property protection for nationals of other parties should be no less favourable than is provided to the signatory's own national, which is known as the "most favoured nation principle".

These standards include the term of patent protection, which is 20 years starting from the date of filing the patent application. This revealed that the Saudi Patent Law should make a special determination that 20 years be the full patent protection period, since the existing Law already provides for 15 years of protection plus a 5-year extension. Another important change

expected in the Law relates to the subject matter of patent protection, where the TRIPs Agreement states that patents are to be issued for any invention in all fields of technology. This means that biotechnological inventions can be patentable, subject to an exclusion for plants and animals.

We have argued that there are several provisions in the TRIPs Agreement which prevent the implementation of many reforms in favour of local inventors. The requirements of TRIPs that patents shall be available for any inventions in all fields of technology means that the Saudi Patent Law cannot be reformed to effect selective protection in certain sectors. The TRIPs Agreement, by incorporating the national treatment and the Most Favoured Nation standards, limits the possibility of treating local inventors and products differently from imported products which might be recommended to reduce the impact of foreign competitors on local production.

Therefore, we have argued that it is unfortunate that the TRIPs regime limits the country's flexibility in utilising the patent law in favour of local inventors unless it has adopted special procedures for local applicants only. However, it may be difficult to make a conclusive and final statement on whether patent protection is or is not beneficial to a technological importing country such as Saudi Arabia. It may be concluded that the legal protection of patent rights has potential for discouraging rather than encouraging the country's economic progress.

The Paris Convention for the Protection of Industrial Property was also discussed, and this revealed that a number of its provisions do not apply in favour of the Saudi Patent Law. Those provisions included the national treatment for nations of countries of the Union, priority right, independence of patents obtained for the same invention in different countries, and compulsory licencing and imports.

The Paris Convention prevents member countries from discriminating between patent applicants and owners on grounds of different nationalities. It also permits importation by a patentee without loss of monopoly advantage, while the applicant can rely on a right of

priority when filing an earlier application for protection of the same invention in another country. These provisions were not helpful to the local inventors in Saudi Arabia due to the lack of scientific and technical equality between those inventors and foreign inventors, particularly from industrialised countries. Therefore it is clear that the Paris Convention imposes constraints to the Saudi patent system, and may be considered as a block to its patent system as a means of transferring and developing a new technology.

The transfer of technology from developed to developing countries, and the effort by exporting countries to oversee and control this process, have been an important issue affecting large companies dealing in this way. Although national regulations have been extensive in this regard, the patent system is becoming a major factor affecting the transfer of technology in general.

In Chapter 5 we discussed the role of the patent system from an international view point and examined the current international rules and regulations. Another important study was done on the role of the Saudi Patent Law and system in such processes. It was observed that the Law does not appear to provide adequately for local technical and industrial development. As mentioned earlier, apart from the requirement to work the patent in the local industry, the Law does not include any provisions for control over technology agreements, nor for an influence on these agreements through instruments such as foreign direct investment (FDI) and joint-venture and patent licensing contracts. The law does not prevent any restrictive and anti-competitive clauses between local and foreign investment contracts.

The practice of the Patent Office does not include any procedures relating to the technology transfer process. It was indicated that the Patent Office did not, in any significant manner, reflect a technical and/or industrial progress to local research and development institution or to private or public enterprises. The Patent Office does not participate in identifying the technical need or help in any technology policy, or is it even integrated as part of an overall national technology planning.

Therefore, we argue that it is essential to value the adequacy of the present law and its contribution to the transfer of technology and the indigenous development of technology in general, and how it can be adopted so as to fit into existing efforts to develop a technology policy for the country. The Patent Office may need to reform its patent management, and internal procedures, and particularly, instead of its continuing registration of inventions, it could put more effort into the dissemination of new technical information contained in registered patent applications. Further, we argue that it should evaluate the current granting procedures of patent applications as well as evaluating important provisions in relation to the transfer of technology processes, in order to create new, more effective regulations governing such processes.

The economic role of the patent system in general has been discussed in Chapter 2. The main theory and the economic perspective of the Saudi Patent Law has been analysed in relation to the international justification of the patent system. However, it was revealed that the Saudi patent system has not accomplished its task in promoting local industry and getting the advantage of patents as a tool of technical and economic development. It does not provide alternative practices to solve the difficulties facing local industry in terms of exploiting non-working patents locally.

The law requires that a prescribed fee be paid by all applicants, local or foreign, without discrimination. It only distinguishes fees between individuals and corporations. We have discussed in detail the table of fees required by the Law and in our findings we argued that the Saudi Patent Law should reduce these payments of fees for local inventors in order to accomplish its mission of encouraging domestic inventive activity. On the other hand, it should increase to a significant sum of money these fees on foreign inventors, particularly firms and large corporations. Such increases can be equal to the patent fees required by most international patent offices. We argue that the Saudi Office should economically utilise these fees to the extent that it can bill in the administrative costs involved in its procedures. Also, the Patent Office should evaluate the economic merits of the invention and sectors of subjects

in patent application which may vary from one sector to another and have an impact on the technical and economic development.

The above argument arises as a result of the dissimilarities in the level of technological development between local and foreign inventors, particularly in developed countries. As a result, inventions that may be considered by the Saudi authority to be of immense economic importance may not necessarily be considered so in other countries, therefore preventing the grant of a patent. In addition, the inadequacy of resources and skilled research and developed personnel, and the expensive and heavy procedures involved in obtaining patent protection for the local inventor, should be easier instead, to enable the Patent Office to become encouraging and helpful.

A comparative study of the United Kingdom Patent Office was undertaken and Chapter 7 examines the practices and future plans of performance and service provided for its users. This was with regard to the promotion of domestic applications, innovation in local industry and its economic outturns as a revenue. This study is to be utilised for a better and more effective Saudi Patent Office. It reveals that the Saudi Office needs to put in a lot of effort and to introduce reforms to many of its patent provisions, particularly in terms of promoting local innovation and encouraging local inventors to keep their inventive activity generating as well as to keep the flow of international patent applications. We argue that the Saudi Office should establish new procedures for its local users and distinguish them (without discriminating) from foreign inventors through the system of utility model registration. These procedures impose less burden in terms of novelty and financial and administrative cost, because there is no substantive examination. Also the term of protection is shorter. On the other hand, the existing requirement for foreign applications should be kept in order to maintain the flow of foreign technology.

We argue that the Patent Office should promote public awareness of the patent system by establishing a target scheme planned towards education in this field. It should be directed to special groups such as students, researchers, and public and private enterprises. It should

concentrate on local individuals and small and medium-sized firms, to encourage more use of patent protection and help them obtain value for money in the outcome for their efforts by the awareness of economic aspects of invention. All this and more can be done through seminars and lectures given by the Patent Office in an annual schedule organised to include training on patent practices to every interested party in the country.

The present Patent Office in Saudi Arabia, however, should effectively hold the monopolistic regime during its operation. It is now possible for local inventors to ensure technical and commercial production of patent products without delay. It is also possible for scientists and researchers to develop cost-effective processes suited to Saudi Arabia conditions which can be utilised not only for self-reliance and domestic markets, but also for exports internationally. It is also possible to find considerable qualitative improvements in the field of science and technology, particularly in the field of process development research, both in public and private laboratories.

While all these developments of the patent law and system in Saudi Arabia can be regarded as significant accomplishments, it is still difficult to appreciate its full and effective impact on technical, industrial and economic development in the country. However, since there is a tendency for reaching a significant success in its rules, regulations and practices, it is very important to establish an effective back-up monitoring system to avoid any defect or weakness in its regulatory system and to ensure significant progress as a final result, so that the Patent Law becomes a useful instrument and contributes to all major technical and economic policies and developments in the country.

APPENDICES

Requirements for filing a Patent Application in Saudi Arabia

Source: (with some modification) : T.M.P (Tagi News), October, 1989, pp 21 - 23.

First: General Conditions

1. The Applicant shall include Form No. (1) "Patent Application" the patent specification, and any enclosures relating thereto.
2. The application shall be written in the Arabic language.
3. The title of the invention shall comply with the conditions laid down for filling out the application form and may not vary from the title indicated on the specification.
4. The documents submitted shall be original copies or photocopies certified by the competent authorities.
5. The filing fee shall be paid, and the same shall be (400) Riyals for individuals and (800) Riyals for firms. The fee shall be payable on submitting the application.
6. The application for a patent shall fulfill all that the General Directorate for Patents may request relating to the application.

Second: conditions for filling out Form No. (1) "Patent Application"

form No. (1) "Patent Application" shall be filled out legibly in the Arabic language. It is preferable to add the title of the invention, the applicant's name, the inventor's name, and the particulars of foreign documents, in the English language. Filling out the parts of the form shall be serially in accordance with their numbers as follows:

1 The title of Invention: The title of the invention shall be concise and specific, preferably no more than 7 words. It shall not be considered a title for an invention general phrases like "chemical process", "Electronic device", "electric apparatus" or "organic compound with novel characteristics". In order to abbreviate the title of the invention, there shall be no use of phrases like "New method for....", "Improvements on.....", or "Developments in.....". for example, "Improvements on a Building Structure Comprising Prefabricated Elements Prepared for Easy Assembly" shall become "Building Structure Made of Prefabricated Elements Adopted for an Easy Assembly".

2. The Name of the Applicant: Regarding individuals, the name shall be the same as that in his identity card and in the following order: The first name, the father's name, the grandfather's name and the family name, As to institutions and firms, the applicant's name shall be in conformity with its official name. If there is more than one applicant, the particulars relevant to the first applicant shall be written in the relevant blank. The particulars relating to the rest of the applicants shall be written in the relevant appendix (Form No 1 - A). The correspondence between the General Directorate of Patents and the applicants shall be carried out through the first applicant in the event of there being no agent.

3. The Name of the Inventor: The name of the inventor shall be in agreement with that in his identity card in the following order: The first name, the father's name, the grandfather's name and the family name. If there has been more than one real inventor who has, in fact, participated in the invention, the particulars of the first shall be written in the relevant blank. The particulars relevant to the rest of the inventors shall be written in the relevant appendix (Form No 1 - B).

4. The Name of the Agent: The agent shall be duly authorised by virtue of a notarised power of attorney issued by the Ministry of Justice, if the mandator resides in the Kingdom. However, if the mandator lives abroad, the agent shall have to submit a power of attorney certified by the competent authorities and legalised up to (one of) the Kingdom's consulates abroad. Also, the agent shall annex documents which prove that he is officially permitted to practice his profession in the Kingdom.

The Enclosures: The general conditions for the specification hereunder and the specific conditions of each type of its contents shall be referred to. In the event that there are other enclosures, it is imperative to mention the title of the enclosure and the number of its pages, in figures and in letters.

6. Additional Information: There shall be a mention of the particulars of the previous applications or patents relating to the invention in the relevant appendix (form No. 1-C).

Also, if the invention has been disclosed, the documents which specify the date of , and the reasons for, the disclosure shall be appended.

7. Declaration: The name of the applicant or the agent and the signature of either shall be written in the relevant blank; the seal, if any, of the authorised agent shall be affixed.

Third: General Conditions for the Specification

1. The patent specification shall include the following contents and in the following order: “The abstract”, “the complete description”, “the claims” and “the “drawings”.
2. The beginning of each of the contents shall be on the beginning of a new page. The title of each content shall be written on the top of the page, centered in the middle of the line and underlined. The pages of the specification, except for the drawings, shall be serially numbered and the numbers be placed in the middle below the top margin, not within the margin.
3. The abstract and the complete description shall start by mentioning the title of the invention.
4. The specification to be submitted shall consist of the original along with two true copies of the same. It shall be possible to copy the original directly by all kinds of copying methods.
5. It is only white, flexible, smooth and highly durable paper of the size “A4” that shall be used.
6. The pages shall be clean with no erasing, amendments, effacing or carbon patches.
7. The writing thereof shall be in print, by using a typewriter or similar printing machines.
8. Only one side of each page shall be used.
9. The distance between the lines shall be about one centimeter.
10. The dimensions of the margins of all the pages shall be no less than the following: The top and the right margins - 2.5 centimeters and the bottom and the left - 2 centimeters. The margins shall be completely blank.
11. The letters shall be of the size 3.2 millimeters, and shall be dark, clear and distinct.

12. The lines of each of the pages shall be numbered. To this end, it shall be sufficient to number the fifth line, the tenth line and so forth. Those numbers shall be placed on the left end of the right margin of the lines, except for “the claims”, whereby every line for each claim shall be numbered separately (as in the model).

13. The abstract, the complete description, and the claims may contain formulas, mathematical and chemical equations, and scientific terms in English. On the other hand, it shall not be permitted for any of the aforesaid to contain drawings. As for tables, if any, they shall be inserted within the complete description.

14. Measures shall be in the metric system, while temperatures shall be in centigrade.

15. The drawings and the diagrams shall be annexed, if this is conducive to a clear and complete understanding of the invention.

Fourth: Special Conditions for the Abstract.

1. The abstract shall not occupy more than half a page, but in the case of dire necessity it may occupy one page.

2. If there are drawings, the reference in the abstract shall be to the diagram which represents the invention in general. The number of the said diagram is to be placed at the end of the abstract.

3. In the event that there is a reference in the abstract to components present in the manner as mentioned in the previous paragraph, and there are figures or letters used to make those components distinct, it is imperative to write those figures or letters in parenthesis within the text of the abstract (as in the model).

4. In the abstract, there shall be a mention of the technical field, a concise description of the most important components of the inventions, and its principal use.

5. The abstract shall be written in a plain style so that it may give a clear understanding of the solution to the technical problem, and the use of the abstract shall be suitable as a means to the diffusion of technology and serve as an aid to the field of academic research. It is noteworthy that the abstract shall never be used in the interpretation of the scope of protection.

6. Any mention of the importance, value, or advantages the invention may have in the future shall be avoided.

Fifth: Special Conditions Relating to the Complete Description.

The complete description of the invention shall contain the following subdivisions:

1. "The Invention Background" shall explain the technical field which the invention tackles and shall describe prior art, together with a mention of any complexities relative to the same or which the invention may solve.
2. "The General Description of the Invention" shall explain the advantages of the invention compared with the earlier prior art and the manner in which difficulties and problems can be overcome. It shall also manifest the aim of the invention along with a description of its field. All these points shall be stated clearly so as to enable a person skilled in the art to understand the invention. It is customary for this part to be closely related to the main protection claim.
3. "The Concise Description of the Drawings" shall explain in brief space the drawings and their sections, if any.
4. "The Detailed Description" shall explicate at length all the aspects of the invention, and the way it can be applied industrially. Also, the description shall include a revelation of the best way as to manufacturing, applying, using or working the invention. The description shall include a reference to the drawings attached in detail (as in the model).

The above subdivisions shall be arranged serially under the following captions.

"The Invention's Background", "The General Description of the Invention", "The Concise Description of the Drawings" and "The Detailed Description". The caption shall be stated at the beginning of the line and shall be underlined. It is not necessary, however, to start a new page for each subdivision.

Sixth: Special Conditions for the Claims

1. The claims shall give a clear definition of the requested scope of protection, including the new components of the invention or the inventive steps. It is possible to use more than one claim so as to define the different aspects of the invention. These claims shall be numbered consecutively, provided that the claim with the number 1 shall be the claim which states the widest requested scope.
2. The claims shall be clear and related and shall define the substance of the invention, not its advantages. This shall be in such a specifying way that it shall be easy to ascertain the

protection scope without reference to the complete description of the drawings, except in cases of dire necessity.

3. Everyone of the claims shall be formulated in such a way as to render distinct the inventive step or the novel part within the scope of protection. For instance, the “product” to be protected shall be defined by demarcating its components and technical characteristics, and shall be followed by “characterised by...”. Afterwards, there shall be a mention of what is novel or inventive so as to distinguish this product from any other known product (as in the model).

4. The scope of the claims shall be limited to what has been disclosed in the complete description.

Seventh: Special Conditions Relative to the Drawings

1. For the purpose of the original copies of the drawings, a special paper shall be used in order to arrive at perfect and clear drawings which can be copied clearly after reducing them to fifty per cent.

2. The pages shall be numbered consecutively with a mention of the total number of the drawings' pages, for example 1/4, 2/4, 3/4 and 4/4 to be put just under the top margin at the middle of the line (as in the model).

3. The same page may include more than one diagram. Also, one diagram may be produced on more than one page, provided that it will be easy to put them side by side, thereby arriving at one diagram.

4. The diagrams shall be numbered independently of, and with no regard to, the number of the page. Whenever possible, care shall be taken to arrange and to group them consecutively.

5. The diagrams may not be shaded and may not be in dark black lines. The cross sections shall be marked with discontinuous lines.

6. The diagrams shall not include any words for the purpose of description or any other purpose. However, a few words may be used to make clear certain main features in the case of dire necessity.

7. The size of the figures used in the drawings or the letters used in distinguishing their contents may not be less than 3 millimeters. Also, their self-same figures and letters shall be used in the different diagrams so as to distinguish the same components.

OUTLINE PROCEDURES

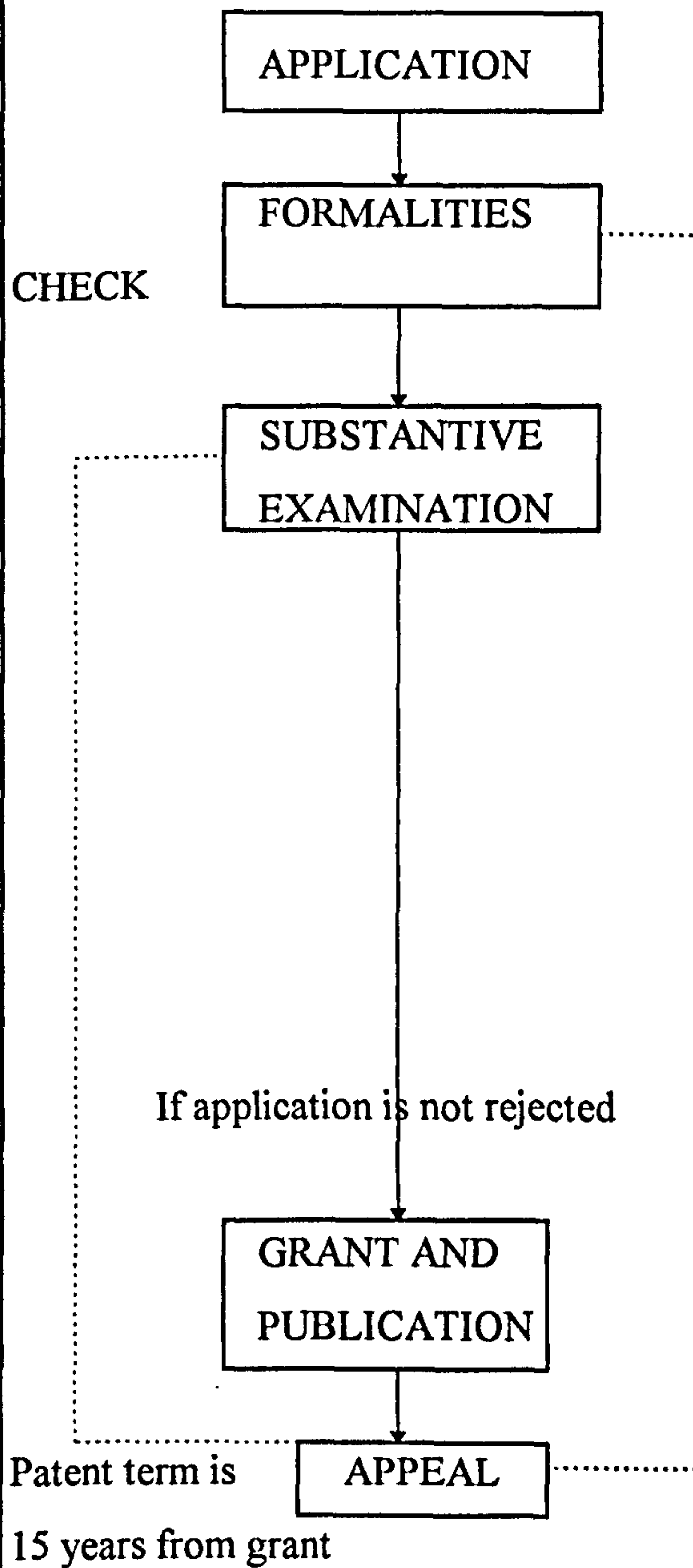
- filing fee
- application form
- patent specification

- compliance with formalities

- examination cost
- non-exclusion from patentability?
- full disclosure?
- clarity of claims?
- novelty? etc.

- grant/publication fee
- publication of decision of grant, abstract and bibliographic data

- upholding or revocation of grant or other decision



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VICOM/Decision T208/84, (1987) EPOR 74; see EPO Policy discussed above.

ABBREVIATIONS

KACST:	King AbdulAziz City for Science and Technology
EC:	European Community
ECP:	European Patent Convention
UPOV:	The International Convention for the Protection of New Varieties of Plants
EIPR:	European Intellectual Property Review
EPO:	European Patent Office
EU:	European Union
GATT:	General Agreement on Tariffs and Trade
GCC:	Gulf Co-operation Council
IIC:	International Review of Industrial Property and Copyright Laws
MFN:	Most Favoured Nation
OECD:	Organisation For Economic Cooperation and Development (Seven most industrialised countries)
PCT:	Patent Co-operation Treaty
TRIPs:	Trade Related Aspect of Intellectual Property Rights
TNC:	Transnational Corporations
UCC:	Universal Copyright Convention
UN:	United Nations
UNCTAD:	United Nations Conference on Trade and Development
UNDP:	United Nations Development Programme
UNIDO:	United Nations Industrial Development Organisation
WIPO:	World Intellectual Property Organisation
WTO:	World Trade Organisation

and products, domestic and foreign investment in goods and services growth industries may be jeopardized.⁹³

One controversial issue involves whether Saudi Arabia qualifies for WTO membership as a developing country as it proposes, or whether it should be classified as a developed country as the United States and other major trading partners propose.⁹⁴ WTO members who are classified as developing countries enjoy wider latitude under WTO obligations to protect their local industry and to create and maintain other protectionist policies.⁹⁵

Meanwhile, classification as a developed country could jeopardise the existing 20 percent protective tariffs against competing imports in such protected industries (i.e. lubricating oil, pipe, acid and plastic).⁹⁶ However, in the case of intellectual property protection, it is submitted that the reform and modification of the Saudi intellectual property legislation would require more than one year to reach the minimum requirements of the WTO-TRIPs Agreement if Saudi Arabia was classified as a developed nation. This is due to the absence of protection in numerous areas of technology, notably biotechnology, plant and animal varieties as well as computer program-related inventions.

It is important to realise the difficulties of the transitional arrangement under the Agreement, since for many developing countries including Saudi Arabia the TRIPs Agreement is likely to require some fundamental reforms of the existing laws of intellectual property and practice. Allowance for this will need to be made in combination with other internal trade rules, in particular, before the accord of the Agreement can become fully operational.

Saudi Arabia realized the international commercial relationship and has paid attention to its activities. This is in the hope of increasing confidence in dual commercial activities between Saudi Arabia and other countries, and to free commercial progress from the

(Year 30).

⁹³ Ibid.

⁹⁴ Legal Brief. International Business Lawyer. November (1993).

⁹⁵ Ibid.

⁹⁶ Ibid.