



An overview of the international regulatory frameworks that influence the conservation and use of underutilized plant species





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"An overview of the international regulatory frameworks that influence the conservation and use of underutilized plant species" was prepared by the Global Facilitation Unit for Underutilized Species (GFU), in cooperation with the Genetic Resources Policy Initiative (GRPI).

This publication is an effort of the GFU to set the scene and provide an instrument for policy and decision makers.

The principal objective of this study is to review and analyze some of the important international policy instruments that affect the conservation and extended use of underutilized plant species. It examines international treaties and conventions and, where necessary, some regional treaties and regulatory instruments. This is done with the aim of identifying gaps or constraints that impede the conservation and extended use of underutilized plant species and also to highlight opportunities which these legal frameworks offer to enhance the conservation and greater use of these species.

A separate publication "The role of policy in the conservation and extended use of underutilized plant species: a cross-national policy analysis" is available in hardcopy or on line (www.underutilized-species.org/Documents/PUBLICATIONS/cross_national_policy_analyses.pdf) and emphasizes on the impact of national policies on the use of currently underutilized plant species and is based on the analysis of existing policies in eight different countries. The policy studies commissioned and carried out by the GFU are to be found here: [http://www.underutilized-species.org/search_by_family.asp?id=Policy analysis](http://www.underutilized-species.org/search_by_family.asp?id=Policy%20analysis)

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Contents		iii
Acronyms		iv
Introduction		v
Part 1	Agriculture and natural resources	1
	Introduction	2
	Agriculture	3
	International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)	3
	EC Directive (870/2004) on Establishing a Community Programme on the Conservation, Characterisation, Collection and Utilisation of Genetic Resources in Agriculture	4
	FAO–CGIAR agreements	5
	The FAO Global Plan of Action (GPA)	5
	The International Convention on New Varieties (UPOV)	6
	Biodiversity	7
	Convention on Biological Diversity	7
	CBD-Agricultural Biodiversity Programme of Work	8
	CBD Cross-cutting Initiative on Biodiversity for Food and Nutrition	9
	UNESCO Man and Biosphere Programme	10
Part 2	International policies outside the agricultural sector with an impact on agriculture	11
	Introduction	12
	Education	
	UNESCO	12
	The Convention concerning the Protection of the World Cultural and Natural Heritage	12
	Recommendations concerning the protection, at national level, of cultural and natural heritage	13
	Education for Sustainable Development Programme	14
	Health	15
	World Health Organization (WHO)	16
	The Global Strategy on Diet, Physical Activity and Health	16
	World Declaration and Plan of Action on Nutrition	16
	Trade	?
	The Codex Alimentarius	18
	The WTO Sanitary and Phytosanitary Agreement	18
	The European Union Novel Food Regulation	19
Part 3	Conclusion and recommendations	21
	Recommendations for policy and for action by advocacy/research groups	25
	Agriculture sector	26
	Biodiversity sector	26
	Education sector	27
	Health sector	27
	Trade sector	28
References		29

Acronyms

CBD	Convention on Biological Resources
CGIAR	Consultative Group for International Agricultural Research
EC	European Commission
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GFU	Global Facilitation for Underutilized Species
ICOMOS	International Council of Monuments and Sites
IPR	Intellectual Property Right
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
IUCN	World Conservation Union
PGRFA	Plant genetic resources for food and agriculture
UNCCC	United Nations Convention on Climate Change
UNCD	United Nations Convention to Combat Desertification
UNESCO	United Nations Education, Scientific and Cultural Organization
UNEP	United Nations Environmental Programme
UPOV	International Union for the Protection of New Varieties of Plants
TRIPS	Trade Related Aspects of Intellectual Property Rights
WHO	World Health Organization
WTO	World Trade Organization

'International policies are joint responses to common problems that two or more national governments work out with one another. . . Global policy is directed toward the achievement of the goals of the world community' (Soroos, 1986)

At a time when the international community is consolidating efforts to regulate the conservation and use of agricultural biodiversity through international policy instruments such as conventions and treaties, it is becoming evident that not all natural resources (including plant and animal species) and uses of those resources (e.g. diversity for nutrition) are receiving the same degree of attention. International regulatory instruments are being formulated to assist in managing some of these resources. Examples that immediately come to mind include; the United Nations Conventions on Biological Diversity, Desertification and Climate Change, the FAO Treaty on Plant Genetic Resources for Food and Agriculture, the FAO Global Plan of Action, the International Convention for the Protection of New Varieties and the FAO/WHO Food Standards. Other international policy documents with clear implications for the way agricultural activities are conducted include: declarations and policy statements from the World Health Organization (WHO), the United Nations Education, Scientific, and Cultural Organization (UNESCO), and the World Trade Organization (WTO). Despite the existence of these instruments, some plant species are not being effectively managed to ensure their conservation and sustainable use.

In particular, the plant and animal species referred to as underutilized species are of primary concern to the author. Some scholars call them neglected, local, traditional, orphan, or lost species (Gündel et al. 2003). While different, but not necessarily opposing, definitions have been proposed, it is clear that these species are not being conserved and utilized to the same degree as conventional or 'circular' species. The Global Facilitation for Underutilized Species (GFU) defined underutilized plant species as "...those with a potential, not fully exploited, to contribute to food security and poverty alleviation..." This paper adopts the GFU definition.

This paper attempts to highlight gaps in international conventions, treaties and policies that hinder the conservation and use of underutilized plant species, with the aim of providing optional recommendations that could contribute to the goal of the extended use of underutilized species. The phrase 'conservation and use' is used in this context to include all activities that result in the sustainable and extended utilization (including commercialization) of currently underutilized species for the benefit of custodians and users of those resources. These include activities related to production at farm level, marketing and consumption at the market and consumer level. The paper also highlights provisions and policy statements that enhance the conservation and use of underutilized species. The utility of the policy recommendations that ensue from this study, from an international institutional system perspective, are meant to provide political strategy options for international policy reform. They are not meant to address issues pertaining to institutional political will and political capacity, which are beyond the scope of the paper.

The first section of the report is devoted to examining international policy instruments for agriculture and natural resources. The second section interrogates international instruments outside the agricultural and natural resources sector but with relevance and implications for agricultural management. The third section, the conclusion, provides a synthesis of the gaps and suggests recommendations to address them.

Objective and methodology

Objective

The principal objective of this paper is to review and analyze some of the important international policy instruments that affect the conservation and extended use of underutilized plant species. It examines international treaties and conventions and, where necessary, some regional treaties and regulatory instruments. This is done with the aim of identifying gaps or constraints that impede the conservation and extended use of underutilized plant species and also to highlight opportunities to enhance the conservation and greater use of these species. It is acknowledged from the outset that the policy instruments analyzed are not exhaustive in their geographical scope. For instance, while regional EU regulations are discussed, policies from other regions are not¹. This is because the analyzed policies were selected on the basis of policy sectors in order to give the study a representative sectoral, rather than geographical, scope.

Methodology

The research was conducted through a desk study of various international conventions and treaties from various sectors. Secondary sources such as academic papers were also reviewed.

International conventions and treaties were sourced from their respective sponsoring organizations including the United Nations Environmental Programme (UNEP), FAO, UNESCO, WHO, WTO and the European Commission (EC).

¹ With regards to the EU policies and regulations, the paper discusses the EU Novel Food Regulation and Directive 870/2004 on establishing a Community Programme on the Conservation, Characterisation, Collection and Utilisation of Genetic Resources in Agriculture because they represent examples of trade restrictive and conservation enhancing policies in the Community.

The Global Facilitation Unit for Underutilized Species (GFU) and the Genetic Resources Policy Initiative (GRPI)

This publication has been commissioned by the Global Facilitation Unit for Underutilized Species (GFU), created to ease and increase information and knowledge exchange in the field of neglected and underutilized species (NUS). GFU's mission is to promote and facilitate the sustainable deployment of underutilized plant species to increase food security and alleviate poverty among the rural and urban poor. Its objective is to support and strengthen organizations and networks working on different aspects of underutilized species through:

- providing improved access to information and financial resources;
- increasing public awareness on the role of underutilized species for improving livelihoods; and
- giving advice to policy-makers on how to create an enabling policy environment for the deployment of underutilized species.

By doing so, GFU aims to attract an increasing number of assistance agencies, research institutions, extension services, policy- and decision-makers to include neglected and underutilized species in their development programmes (see www.underutilized-species.org).

The Genetic Resources Policy Initiative (GRPI) is a project that aims to strengthen the capacity of developing countries to design comprehensive policy frameworks for genetic resources (see <http://www.grpi.org/>)

An overview of the international

regulatory frameworks that
influence the conservation and use
of underutilized plant species

Agriculture and natural resources

Introduction

The role of agriculture and natural resources policies and laws in the conservation and use of crops can best be understood in the context of a 'food production chain'. A 'food production chain' draws linkages between various segments such as access to inputs for farm production, farm production itself, processing, transportation of final products, marketing, and the influence of consumer opinion on product consumption and product sale (University of Melbourne 2005). In this segmented chain, the role of policies and laws related to the agriculture and natural resources sector would appear to fit best in the farm production segment. The thrust of most of these laws and policies is geared towards agricultural production and conservation at the farm level. They focus on agricultural production activities and rarely extend their scope towards facilitating the sale or consumption of agricultural products, for instance. Such activities are usually found in other segments of the production chain such as processing, transportation, marketing, export and health and nutrition sectors, which will be discussed in the second part of this paper.

Agricultural production activities at the farm level generally include the following: (i) conservation of agrobiodiversity both *in situ* and *ex situ*, (ii) sourcing or accessing inputs such as seeds etc., (iii) cultivation and animal husbandry, and (iv) harvesting. Examples of relevant national policies and laws include agricultural and biodiversity laws, seed laws and land laws. Corresponding policies exist at the international level although they usually have different names or classifications. For instance, there are international policies that regulate the conservation of agricultural biodiversity, such as the International Treaty on Plant Genetic Resource for Food and Agriculture, while others provide incentives for the production of seeds and planting material, such as the International Convention for the Protection of Plant Varieties. In the natural resources sector, international conventions such as the Convention on Biological Diversity, regulate the conservation and use of biodiversity.

This section examines international laws and policies that affect agricultural production, including access to and production of underutilized species. It explores various questions relating to access provisions and underutilized species. It examines the role played by these instruments in providing an incentive or disincentive for the conservation and use of underutilized species.

A plethora of international policies and laws affect agricultural production. As such, only the instruments that have either direct experienced or potential impact on the conservation and use of underutilized species will be examined in detail. Those instruments whose impact is not so clear or direct, but still significant, will be highlighted but not discussed in detail. The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA); the EC Directive (870/2004) on Establishing a Community Programme on the Conservation, Characterisation, Collection and Utilisation of Genetic Resources in Agriculture; the FAO–CGIAR Agreements; the FAO Global Plan of Action, the International Convention for the Protection of New Varieties of Plants, the Convention on Biological Diversity (CBD), the CBD Agricultural Diversity Programme of Work, the CBD Cross-cutting Initiative on Biodiversity for Food and Nutrition, and the UNESCO Man and Biosphere Programme are examined below.

Agriculture

International policy instruments on agriculture affecting the use of underutilized species

International treaty/agreement

The International Treaty on Plant Genetic Resources for Food and Agriculture (adopted in 2001; came into force in 2004)

EC Directive (870/2004) on Establishing a Community Programme on the Conservation, Characterisation, Collection and Utilisation of Genetic Resources in Agriculture (Adopted in 2004)

FAO-CGIAR Agreements

International Convention for the Protection of New Varieties of Plants (adopted in 1961; came into force in 1968; revised in 1972, 1978 and 1991)

FAO Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture

International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)

The International Treaty on Plant Genetic Resources for Food and Agriculture (FAO 2001) is an international legal instrument that aims to regulate, amongst other things, access to plant genetic resources for food and agriculture. The Treaty's provisions are in line with and complement the framework agreement on biodiversity (CBD). The treaty does not however cover all biological resources (which the CBD does); its scope is limited to plant genetic resources for food and agriculture. While there is special reference to underutilized species in some of the provisions, such as in Article 6 (e), concerning sustainable use of plant genetic resources for food and agriculture (PGRFA), that provides for the expanded use of locally adapted crops and underutilized species, such reference is not replicated in provisions related to access to genetic resources.

The provisions relating to access to genetic resources for food and agriculture are contained in Articles 10, 11, and 12 of the Treaty. Like the CBD, the Treaty acknowledges the sovereign rights of national governments over their genetic resources. However, unlike under the CBD, where the means by which parties will exercise those rights is not specified, under the Treaty, parties exercise their sovereign rights by agreeing 'up front' to the terms and conditions of the multilateral system of access and benefit sharing. Those terms and conditions are established 'once and for all' to facilitate efficient, effective and transparent movements of PGRFA for the purposes of '...utilization and conservation for research, breeding and training for food and agriculture' (Article 12.3 (a) of the ITPGRFA). The Treaty further limits the crops and forages that are included in the multilateral system to those listed under Annex I to the Treaty. The list includes crops and forages that were selected on the basis of their importance to food security and their interdependency among countries. The crops listed in Annex I are mainly conventional crops such as maize, potato, yam and beans. However, the list also covers naturalized local varieties of those crops that may be underutilized. Some of the forages listed in Annex I, such as *Canavalia ensiformis*, *Lathyrus cicera*, *L. odoratus*, *L. sativus*, *Lupinus albus*, *L. angustifolius*, *L. luteus*, *Medicago truncatula*, *Dactylis glomerata*, *Atriplex halimus* and *Salsola vermiculata*, are also underutilized.

The fact that the Treaty lists particular crops and forages to be exchanged under the multilateral system is a limitation to accessing a wider spectrum of underutilized species. However, more crops and forages can be added to the list by consensus of contracting parties.

An overview of the international

regulatory frameworks that influence the conservation and use of underutilized plant species

The Treaty's scope is limited to facilitate access only for '...the sole purpose of utilization and conservation for research, breeding and training for food and agriculture [as long as this does not include] chemical, pharmaceutical and/or other non-feed/feed industrial uses' (Article 12 (3)). This limitation has the potential of restricting the inclusion of underutilized species in Annex I as these species are relevant not only for food and agriculture; they also have other functions, including include the provision of non-material benefits, such as cultural identity, and the provision of environmental services, such as stabilizing ecosystems and occupying important ecological niches (Gündel et al. 2003). While PGRFA may also provide the same non-material functions, the fact that the Treaty specifies the purpose for which the accessed genetic material should be used may lead to strict and/or varied interpretation of the purpose.

EC Directive (870/2004) on Establishing a Community Programme on the Conservation, Characterisation, Collection and Utilisation of Genetic Resources in Agriculture

The EC Directive 870/2004 established a programme to promote the conservation, characterisation, collection and utilization of agricultural genetic resources in the member states of the European Union (EU). Even though the programme was created for a specific period (2004–2006), some of its principles and policy statements are useful in understanding its role in the conservation and use of underutilized species in the EU.

The Directive establishes a programme that aims to undertake activities related to the characterization, collection and utilization of genetic resources. It sets out the eligible and targeted actions that the programme may consider, criteria for selecting the actions and administrative guidelines to ensure the efficient functioning of the programme. The Directive is useful in indicating whether the programme includes underutilized species in its activities.

In its preamble, the Directive highlights the importance of conserving genetic resources and increasing the use of underutilized breeds and varieties in agricultural production. While the significance of preambles in legal documents has been a topic of protracted debate for a long time, it is becoming accepted that they carry some weight in the interpretation of legal text. Winckel (1999) noted that preambles can be seen as having contextual and constructive roles in statutory and legal interpretation. The contextual role is portrayed where the preamble assists in confirming the ordinary meaning of the text. The constructive role, on the other hand, is illustrated where the preamble clarifies or modifies the meaning of ambiguous text in the substantive part of the document. The preamble statement in this instance seems to play more of a constructive role. The substantive text of the Directive does not specially mention the importance of increasing the use of underutilized species. The issue of promoting their increased use is inferred, at most, and ambiguous, at least. The preamble statement, therefore, clarifies the ambiguity by clearly highlighting the importance of increasing the use of underutilized species.

Although the substantive text of the Directive does not specifically mention the need to increase the use of underutilized species, it does however include underutilized species in its scope. Article 2 (1) of the Directive states that it shall apply '... to plant, microbial and animal genetic resources which are or could be of use in agriculture'. In essence, the Directive applies to all plant, microbial and animal genetic resources that (i) are already useful for agriculture and (ii) could be of use to agriculture probably at some point in future or in another locality. The scope deliberately makes a distinction between genetic resources that are already in mainstay agriculture and those that have the potential of becoming important for agriculture in space and in time. This distinction emphasizes the recognition of two groups of genetic resources: conventional and those with potential, i.e. neglected or underutilized. The definition given to plant genetic resources and animal genetic resources also supports this distinction. Plant genetic resources are defined as "...those of agricultural crops, horticultural crops, medicinal plants and aromatics, fruit crops, forest trees and wild flora *which are or could be of use in the field of agriculture*" [emphasis added]. Animal genetic resources are defined as "...farm animals (vertebrates and invertebrates) and wild fauna *which are or could be of use in the field of agriculture*" [emphasis added]. It therefore follows that the scope of the Directive and the programme envisaged by the Directive extends to conventional species as well as underutilized species.

FAO–CGIAR agreements

In 1994, the Centres of the Consultative Group on International Agricultural Research (CGIAR) signed agreements known as in-trust agreements with the Food and Agricultural Organization of the United Nations (FAO). The purpose was to protect crop diversity found in the crop germplasm collections held by the CGIAR centres. By signing the agreements the CGIAR centres were in effect placing their germplasm collections under the auspices of the FAO which will in-turn hold them 'in-trust' for the international community. With the coming into force of the ITPGRFA, however, these in-trust agreements have been succeeded by another series of agreements entered into between the CGIAR centres and the Governing Body of the Treaty that place the collections under the Treaty. The agreements were signed on 16 October 2006. These agreements replaced the 'in-trust' agreements of 1994.

More than 650 000 crop and forage germplasm accessions are held under the agreements mentioned above (SGRP 2006). The crops range from the conventional, such as wheat, rice, maize and potato, to the less conventional and those that are considered underutilized in some countries, such as cow pea, pearl millet and other, not so commonly used, wild species. The agreements, therefore, seem to contribute towards the conservation of some underutilized species in this respect.

Furthermore, the agreements read and applied together with the Treaty and the standard material transfer agreement (sMTA)¹, allow for the facilitated access of the crops and forages that are also listed under Annex I of the Treaty. The crops and forages not listed in Annex I can also be accessed through an interim material transfer agreement that is currently being used by the centres. This means that, besides the crops and forages listed in Annex I of the Treaty, farmers or researchers can also access the collections held under these agreements according to the terms of the interim MTA.

The FAO Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture (GPA)

The GPA is part of the FAO Global System for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture. It is a 'rolling action plan' consisting of programmes and activities aimed at addressing constraints identified by the FAO Report on State of the World's Plant Genetic Resources.

The activities that make up the plan of action fall into 20 areas categorized into four groups, namely (i) *in situ* conservation and development (ii) *ex situ* conservation (iii) utilization of PGR and (iv) institutions and capacity building.

Category (i), *In-situ* conservation and development, prioritizes the following activities: surveying and inventorying PGRFA, on-farm management of PGRFA, disaster assistance to restore agriculture and promoting *in situ* conservation of wild crop relatives and plants.

Category (ii), *Ex-situ* conservation, prioritizes the following activities: sustaining *ex situ* collections, regenerating threatened *ex situ* accessions, planned collecting of PGRFA and expanding *ex situ* conservation.

Category (iii), Utilization of PGR, prioritizes the following activities: expanding core collections to facilitate use, increasing genetic enhancement, sustainable agriculture through diversification, commercialization of underutilized species, seed production and distribution and new markets for local varieties.

Category (iv) Institutions and capacity building, prioritizes the following activities: strengthening national programmes, networks for PGRFA, information systems for PGRFA, monitoring for loss of PGRFA, improving education, and promoting public awareness.

The GPA activities listed above have the potential to contribute to the conservation and extended use of underutilized species. Some of the activities listed under category (i) for instance, are designed to promote surveys

¹ The sMTA is the operational standard contract that facilitates the exchange of PGRFA under the Treaty

An overview of the international

regulatory frameworks that influence the conservation and use of underutilized plant species

and inventories of PGRFA *in situ*. This presents an opportunity for underutilized species to be properly inventoried for purposes of conservation. Another activity under category (i) aims to promote the conservation of wild crop relatives. Although wild crop relatives are not synonymous with underutilized species, some wild crop relatives are also underutilized. Some activities under category (iv) also have the potential to enhance conservation of underutilized species. For example, monitoring losses of PGRFA and promoting awareness of such losses may provide important information for intervention to restore the loss. If underutilized species are being eroded, this may be a vital activity that contributes to their conservation.

Some of the activities under category (iii) are specifically aimed at promoting the extended use of underutilized species. In particular, activity 12 of the GPA listed under category (iii) recognizes the potential for widespread use of underutilized plant species and notes that promoting them could contribute to food security, agricultural diversification and income generation. It encourages member countries to develop appropriate conservation strategies and sustainable management practices for underutilized species and to improve their marketing. It also encourages governments and national agricultural research institutes to work with international agricultural research centres and other stakeholders to promote policies that are consistent with the sustainable use, management and development of underutilized species.

Activity 12 of the GPA provides further opportunity for capacity building of scientists, extension specialists, farmers and local communities, especially women, in the management of underutilized species. It provides for training and capacity building in the following areas (i) identification of underutilized species with potential for increased sustainable use (ii) developing and implementing sustainable management practices for underutilized species of importance to food and agriculture (iii) developing post-harvesting processing methods and (iv) developing marketing methods. With regard to research coordination, activity 12 also encourages regional networks working together with national agricultural research institutes, international agricultural research centres and other stakeholders to regularly review the status of underutilized species in their region. The purpose of such review will be to (i) identify possibilities for greater sustainable use (ii) identify common research and development needs and (iii) facilitate and coordinate requests for relevant financial and technical assistance.

The International Convention for the Protection of New Varieties of Plants

The International Union for the Protection of New Varieties of Plants (UPOV) is an inter-governmental organization that aims to create and promote a system of plant variety protection as a way of encouraging the development of new varieties of plants. It bases its plant variety protection system on intellectual property rights (IPRs). The Union was established by an International Convention for the Protection of New Varieties of Plants that was adopted in 1961 and later revised in 1972, 1978 and 1991. As of June 18 2007, it had 64 members, including developing countries such as Bolivia, Chile, Ecuador, Kenya, Mexico, Morocco, Nicaragua, South Africa, Trinidad and Tobago, Tunisia, Uruguay, Uzbekistan and Vietnam.

UPOV's main objective is to create a system that provides an incentive to facilitate and encourage innovation for breeders to develop new plant varieties. Some studies carried out by UPOV, for example the *Impact Study*, reveal that such a system could result in improved and competitive rural economies (UPOV 2005). Evidence also suggests that a system of IPRs over biological resources, such as the UPOV system, creates incentives for private investment in innovation that generates new products for the benefit of society (Mansfield 1993; Levin et al. 2003).

However in countries where UPOV has been adopted, the seed industry has tended to have dominance over seeds used by farmers (GRAIN 2007). Such dominance is manifest in the strict requirement that to be protected a variety must be new, distinct, uniform and stable. This has had the effect of excluding breeders, especially traditional breeders, from protecting local varieties that cannot meet these conditions. The dominance is also noticeable in the scope of the protection. For instance, UPOV 1991 extends the breeder's right not only to restrict

the reproduction, marketing and sale of the new protected reproductive material but also restricts the use of farm-saved seeds. The use of farm-saved seed can be allowed but it requires the government to exercise such an option. The breeder's right also stretches to restrict the use of harvested material and products made from it. UPOV 1991 expanded minimum duration of the rights to 20 years for all plant species except trees and vines whose minimum duration is 25 years. All of these provisions have the potential combined effect of promoting the exclusive use of UPOV protected seeds at the expense of traditionally or locally produced seeds, including those of underutilized species. WCMC (1992) also noted this potential threat. It noted that the use of IPRs can have the effect of eroding traditional crop varieties that typically contain diversity within, as well as among, varieties by replacing the traditional varieties with the 'new and improved'. It noted that when the use of IPRs over plant varieties increases, there is a significant disappearance of traditional crop varieties during the same period.

Having recognized the potential impact of UPOV on traditional and underutilized species, it should be stated that the actual impact of UPOV on conservation is not yet clear. For example, where one would have expected the use of farm-saved seeds to decline at the same rate as the expansion of UPOV—especially its 1991 version—a high use of farm-saved seeds has still been observed in both developing and developed countries. GRAIN (2007) estimates that in regions with a significant proportion of small-scale farming, such as South Asia and Sub-Saharan Africa, 80–90% of planting material is produced on-farm. Leask (2005) noted that farm-saved seeds consist of between 20 and 40% of the planting material used by farmers in developed countries. The use of farm-saved seed by major cereal producing developed countries, such as Canada and Australia, was noted to be between 65 and 95%. It has also been argued that IPRs over plant varieties can provide an indirect incentive for conservation, provided they are combined with mechanisms to transfer benefits to local farmers. In this instance IPRs will be used, so the argument goes, to encourage and reward the value addition of traditional varieties used as 'raw material' for the seed industry (CBD 1996).

Biodiversity

International policy instruments on biodiversity affecting the use of underutilized species

International treaty/agreement

The UN Convention on Biological Diversity (adopted in 1992; came into force in 1993)

The CBD Agricultural Biodiversity Programme of Work

The CBD Initiative on Biodiversity, Food and Nutrition

The UNESCO Man and Biosphere Programme (adopted in 1972)

Convention on Biological Diversity

The Convention on Biological Diversity (CBD) is a framework agreement that aims to provide a basic legal scope that guides the manner through which biological resources are managed globally. The general objective of the Convention is to promote the conservation, sustainable use and equitable sharing of the benefits arising from the use of genetic resources. The term 'genetic resources' is defined in the Convention as '...genetic material of actual or potential value'. Genetic material, on the other hand, is defined as '...any material of plant, animal, microbial or other origin containing functional units of heredity'. The implication of this definition is that while the Convention does not specifically mention underutilized species in its text, its scope generally extends to such species because they are also genetic resources, by definition.

An overview of the international

regulatory frameworks that influence the conservation and use of underutilized plant species

The key provision that regulates access to genetic resources and, for our purposes, access to genetic resources of underutilized species, is Article 15. It broadly leaves the decision of whether or not to create an enabling environment for access to national governments. This provision, that gives States national sovereign rights over their natural resources, has mixed effects. Depending on various factors, including the national government's priorities and on which side of the political fence the country is in terms of the global access and benefit sharing debate, it may either hinder or enhance access to genetic resources of underutilized species. For instance, some developing countries have tended to view the notion of developing access legislative, administrative or policy measures as not important and instead preferred to focus on more 'urgent developmental needs' such as poverty, HIV/AIDS and drought. While in most States the lack of legislative and policy measures may promote unauthorized access, it may also discourage the facilitated access to genetic material which the CBD intended to achieve. Other countries have tended to use the national sovereignty principle as a basis to develop restrictive access legislative and policy instruments, thereby negating the concept of facilitating the flow and exchange of genetic material.

Article 15(2) of the CBD attempts to provide a safeguard against the possibility of arbitrary limitation of access by national governments. It makes it mandatory for national governments not to impose restrictions that run counter to the objectives of the Convention. For instance, it would not be in keeping with the letter and spirit of the CBD if a national government were to restrict access to genetic resources of underutilized species in a manner that led to the erosion of those genetic resources.

Article 13 of the CBD provides for the promotion of knowledge and understanding on the importance of biological diversity (which includes underutilized species as described above). It specifically promotes and encourages the integration of these topics in national educational programmes, and their propagation through media. This provision is crucial for enabling students and the general public to be aware of the importance of these resources. However, the text does not specifically make reference to underutilized species.

Some of the challenges faced by countries in implementing the CBD, particularly on the aspect of facilitated access of plant genetic resources for food and agriculture, have been resolved by the multilateral system of exchange of the ITPGRFA. The main objective of the multilateral system of exchange is to ensure that there is facilitated exchange of PRFA between countries. In order to avoid the delay occasioned by the application of the State Sovereignty principle under the CBD, the ITPGRFA member states agreed to limit the application of this principle by following the terms and conditions of the multilateral system of exchange on matters relating to access.

CBD Agricultural Biodiversity Programme of Work

The Agricultural Biodiversity Programme of Work under the CBD consists of the following four operational objectives:

1. assessment of the status and trends of the world's agricultural biodiversity and their underlying causes
2. identification of management practices, technologies and policies that promote the positive and mitigate the negative impacts of agriculture on biodiversity and enhance productivity and the capacity to sustain livelihoods
3. strengthening the capacity of farmers, indigenous and local communities, their organizations and other stakeholders to manage agricultural biodiversity in a sustainable manner, so as to increase benefits and to promote awareness and responsible action
4. support the development of national plans or strategies for the conservation and sustainable use of agricultural biodiversity and promote their mainstreaming and integration in sectoral and cross-sectoral plans and programmes.

These objectives have a potential positive impact on the conservation of underutilized species. Objective 1, for instance, encourages the assessment of, amongst other things, additional components of agrobiodiversity

that provide ecological services. It also encourages the assessment of knowledge, innovations and practices of farmers and local communities in sustaining agricultural biodiversity and agro-ecosystem services for food production and security. It further promotes the assessment of the interactions between agricultural practices and the conservation and sustainable use of the components of biodiversity. Such assessments, that are also linked with the FAO reports on the State of the World's Plant Genetic Resources for Food and Agriculture, help reveal the role of traditional crops and underutilized species, the traditional knowledge of farmers in the management of these species and their benefits to agro-ecosystems and food security. Locally adapted crops that also include some underutilized crops are very important for sustainable agriculture. Zhu et al. (2000) and Gliessman (1998), amongst others, noted that locally adapted crops can improve ecosystem health by their reduced needs for pesticides and fertilizers and their effect on improving soil structure. Jarvis et al. (2000) also highlighted that locally adapted crops found in particular micro-niches are important to local farmers, especially resource-poor farmers, because they maintain and increase production.

The potential impact of objective 2 on the conservation of underutilized species is even clearer. Amongst other things it encourages member countries to undertake regional case studies in order to identify key goods and services provided by agricultural biodiversity and to identify best management practices. These case studies would be aimed at highlighting the multiple goods and services provided by the different levels and functions of agricultural biodiversity and the interactions between the various components while focusing on the '...role and potential of wild, underutilized and neglected species, varieties...and products'. The case studies on the role of underutilized species in the provision of goods and services for the different levels and functions of agricultural biodiversity have the potential effect of enhancing scientific data and information on the subject. While some research on the subject has been undertaken, for example Morris et al. (1998) and Smale et al. (2001), a much more focused and entrenched approach to research envisaged by objective 2 is significant.

The CGIAR is also taking this approach. The CGIAR System Priorities for 2005–2015 highlighted the need to promote the conservation and characterization of underutilized plant genetic resources, as a priority research area².

CBD Cross-cutting Initiative on Biodiversity for Food and Nutrition

The CBD Cross-cutting Initiative on Biodiversity for Food and Nutrition was established by a CBD conference of Parties (CoP) decision VIII/23 A. It aims to promote the sustainable use of biodiversity in programmes contributing to food security and human nutrition (CBD 2006). It is based on four operational objectives, namely: (i) substantiating the links between biodiversity, food and nutrition while clarifying the relationship between biodiversity, dietary diversity and food preferences and the relevant links between human health and ecosystem health (ii) mainstreaming the conservation and sustainable use of biodiversity into agendas, programmes and policies related to nutrition, health, agriculture and hunger and poverty reduction (iii) countering the loss of diversity in human diets and in ecosystems by conserving and promoting the wider use of biodiversity for food and nutrition and (iv) raising awareness of the links between biodiversity, food and nutrition and the importance of biodiversity conservation in meeting health and development objectives.

While the objectives outlined above have been categorized into four groups to emphasize certain differences, they all have a common thread, which is the need to link the role of biodiversity with food diversity and nutrition. Objective (i) emphasizes substantiating the link between biodiversity, food and nutrition by creating a pool of scientific data and information through research activities that aim to analyze existing scientific information and traditional knowledge. As well as investigating the link between them, the research is also expected to look at the value of biodiversity for food and nutrition. Objective (ii) encourages member countries to mainstream and

² Priority 1B of the CGIAR System Priorities (2005-2015)

An overview of the international

regulatory frameworks that influence the conservation and use of underutilized plant species

integrate biodiversity concerns into nutrition instruments and integrate biodiversity for food and nutrition concerns into food security and national poverty reduction strategies. Objective (iii) promotes the maintenance of the link through conservation and sustainable use of biological diversity. Objective (iv) places emphasis on the use of awareness raising and advocacy tools as a way of raising awareness of the importance of the link.

While all the objectives have potential impact on the conservation of underutilized species, objective (iii) is most directly relevant. It encourages member countries to maintain the link between biodiversity, food and nutrition by undertaking activities that lead to the conservation and sustainable use of biological diversity. It specifically promotes the identification, conservation and sustainable use of '...species that are currently underutilized or of a potential value to human food and nutrition'. The link between biodiversity for food and nutrition that the above objectives are meant to achieve is clearly manifest in the potential diversity value of underutilized species in enhancing food security and nutrition. Padulosi et al. (1999) noted that underutilized species contribute, amongst other things, towards agricultural diversification, dietary diversification and food security. They went on to note that many underutilized species are particularly nutritionally rich. If underutilized species are conserved and become fully exploited they can make a significant contribution in cementing the link between biodiversity, food and nutrition.

UNESCO Man and Biosphere Programme

The Man and Biosphere Programme is one of the programmes sponsored by the UNESCO aimed at enhancing the linkage between biological diversity conservation, education and environmental governance. The programme was adopted in 1972 and revised in 1995. Its goal is to highlight the ecological, social and economic dimensions of biodiversity loss and to understand how such loss can be mitigated. It uses the concept of Biosphere Reserves (i.e. protected areas) as a medium for sharing knowledge, research, education, training and participatory decision-making activities. After more than 35 years the programme boasts more than 507 Biosphere Reserve sites in over 100 countries (Wright 2006).

The programme does not specifically mention underutilized species. However, the conservation of underutilized species can be inferred from its objectives and action plans. Biosphere reserves are a unique type of protected area, distinct from national parks and wilderness areas through their three-pronged objectives, namely (i) conservation of genetic resources, species and ecosystems (ii) scientific research and monitoring and (iii) promotion of sustainable development in communities surrounding the reserve (Wright 2006). The interaction of the three objectives, particularly the conservation and sustainable development of communities objectives, creates an opportunity for the conservation and use of biological resources including underutilized species.

An example of a biosphere reserve that creates this type of opportunity is the Las Yungas biosphere in Argentina. It is located in the southernmost part of the eastern mountainous forest of the Andean chain in the provinces of Salta and Jujuy. It encompasses a rich diversity of landscapes from the high Andean ecosystems with mountain forest, 'Chaco Serrano' cloud forests to subtropical low mountain jungle, with montane forests, grasslands and agricultural land with sugar cane, citrus fruits, soya bean and cotton among others. Some 203 bird species and 89 mammal species are represented in the biosphere reserve. The reserve had more than 33 700 inhabitants in 2002, mostly farmer descendants from the 'Kollas' culture. Some of them, such as the 'San Andres' and 'Finca Santiago' communities, have developed traditional subsistence agriculture activities. Others work on extensive sugar-cane plantations and in the fruit industry (Wright 2006). The Strategic Plan for the Reserve engages the local population to participate in decision-making processes related to conservation and sustainable forestry activities and local development. Under such an arrangement, the local farmers have an opportunity to identify the crops they prefer to include in their programme and activities. This creates prospects for the conservation of selected species, including underutilized traditional species.



**International
policies outside the
agricultural sector**
with an impact on
agriculture

An overview of the international

regulatory frameworks that influence the conservation and use of underutilized plant species

Introduction

Outside the agriculture and natural resources sectors, other sectors also have an impact on the conservation of crops, including underutilized species. These include education, health, trade and marketing. In the food production chain these sectors are relevant in the processing and transportation of final products, marketing, and the influence of consumer opinion on product consumption and sale.

This section of the paper examines the international policies and laws in these sectors with the purpose of determining whether or not they provide a conducive environment for the conservation and use of underutilized species.

Education

International policy instruments in education affecting use of underutilized species

International treaty/agreement

The UNESCO Convention on the Protection of World Cultural and Natural Heritage (adopted in 1970; came into force in 1972)

The UNESCO Recommendation on the Protection of World Cultural and Natural Heritage

UNESCO initiative on the Decade for Education for Sustainable Development (adopted in 2002)

UNESCO

The United Nations Education and Scientific Organization (UNESCO) is an international body that aims to improve people's lives by developing enhanced education strategies. Over the years the organization has sponsored the adoption of various treaties and policy statements that have shaped the education sector. Some of the relevant international treaties that are under the auspices of UNESCO include the Convention on the Protection of the World Cultural and Natural Heritage and the Recommendations on the Protection (at national level) of Cultural and Natural Heritage. More contemporary policies by UNESCO include the mandate of the Johannesburg Earth Summit in 2002 to take the lead in developing and implementing the 'Decade of Education for Sustainable Development' initiative. This initiative aims to incorporate biodiversity aspects at tertiary educational level with a particular focus on developing countries.

These international conventions and policies are discussed below.

The Convention concerning the Protection of the World Cultural and Natural Heritage

The Convention, which was formulated in 1972, defines 'natural heritage' as "natural features consisting of physical and biological formations or groups of such formations, which are of outstanding universal value from the aesthetic or scientific point of view". It also defines it as "geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of outstanding universal value from the point of view of science or conservation". The third definition states that it consists of "natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty".

The definitions can be construed to contain elements that are somewhat consistent with the protection of natural plant and animal species in general (and underutilized species by extension to some degree). They place emphasis

International policies outside the agricultural sector

on natural, biological features or bodies that have aesthetic and universal value. Underutilized plant species do have important, aesthetic and potentially universal value. In fact, their value is potentially universal because it is usually appreciated locally, although they may have the capacity of being valuable globally. If it is accepted that underutilized species are, to some degree, encapsulated by the definition of 'natural heritage' within the context of the Convention, it follows that the relevant provisions of the Convention may be applicable to them as well.

Generally the Convention contributes towards the conservation of natural and cultural heritage, including underutilized species. It mandates and encourages member countries to put in place measures that will ensure the effective conservation of these resources. Article 4 of the Convention commits party states to identify, protect and conserve natural and cultural heritage situated within their respective borders for future generations. It encourages member countries to cooperate amongst each other and with multilateral agencies in order to achieve this objective.

Article 5 suggests ways that member states can, within their national jurisdictions, contribute towards the conservation of such natural and cultural heritage. These measures include the development of a general national policy that aims to integrate the conservation of natural and cultural heritage in the overall development strategy of the country, the establishment of national institutions (including training institutes) mandated with conservation and conducting research and making recommendations for the protection of natural and cultural heritage.

The Convention, in Article 6, makes provision for the international protection of natural heritage. International protection in this context refers to the establishment of a system of international cooperation and assistance that is designed to support member countries whose natural heritage is under threat of depletion.

The Convention also establishes an inter-governmental body tasked with the protection of natural heritage. The inter-governmental committee established through Article 8 of the Convention, consists of representatives from member countries (up to 21 in total), a representative from the International Center for the Study of the Preservation and Restoration of Cultural Property (Rome Centre), a representative from the International Council of Monuments and Sites (ICOMOS), and a representative from the World Conservation Union (IUCN). These representatives are co-opted into the committee at the request of the general assembly of the members of UNESCO.

A trust fund called the 'World Heritage Fund' is also established by the Convention under Article 15. The purpose of the fund, which is administered by the inter-governmental committee, is to pursue the objective of conservation of natural heritage in member countries.

Article 27 of the Convention implores member states to develop educational and information programmes that will strengthen the appreciation and respect by people of natural cultural heritage.

Recommendation Concerning the Protection, at National Level, of Cultural and Natural Heritage

The definition of 'natural heritage' proffered by the Convention on the Protection of World Cultural and Natural Heritage discussed above is identical to the one in the UNESCO Recommendation. If it is accepted that this definition includes underutilized species to some degree, it follows that the Recommendation is applicable to underutilized species to the extent of their relevance.

The importance of the Recommendation to the conservation of natural heritage is best shown in the preamble, which states that "...in a society where living conditions are changing at an accelerated pace, it is essential for man's equilibrium and development to preserve for him a fitting setting in which to live, where he will remain in contact with nature and the evidences of civilization bequeathed by past generations, and that, to this end, it is appropriate to give the cultural and natural heritage an active function in community life and to integrate into an overall policy the achievements of our time, the values of the past and the beauty of nature...such integration into social and economic life must be one of the fundamental aspects of regional development and national planning at every level".

An overview of the international

regulatory frameworks that influence the conservation and use of underutilized plant species

The above preamble statement encourages member states to integrate natural heritage elements within their national developmental agenda. This, it seems to suggest, will enable countries to ensure that such natural heritage resources do not get lost but remain relevant to the needs of current and future generations. This approach is synonymous with what civil society and research organizations are advocating as a means of keeping underutilized species relevant to present day needs. It can ensure that, amongst other things, underutilized plant species are conserved through sustainable and extended use.

Like the Convention, Article 3 of the Recommendation encourages member countries to develop a national policy whose aim is to coordinate and make use of scientific, technical and other resources to ensure the protection and conservation of natural heritage resources. It also has similar provisions to the Convention relating to conservation and protection and the promotion of the use of educational campaigns to arouse public interest in natural heritage (Articles 61 and 62).

The Recommendation, however, goes further than the Convention by suggesting additional measures to achieve such conservation and protection. These include measures such as the establishment of national advisory bodies and technical and scientific assistance services (Article 14, 18 and 19). The notable amongst these is the adoption of legal measures that will ensure the individual or collective protection of the resources. It suggests the use of supplementary protection measures that promote conservation. To this end it advocates for the use of measures that should apply to individual owners and to public authorities where components of these resources are found within their respective properties. This will, for instance, preclude the erection of new buildings in areas with such resources or deforestation within the vicinity of the protected site without authorization (Articles 41 and 42).

The Recommendation also provides for use of financial measures for the conservation of natural heritage resources. It suggests the use of personal funds (of individual owners of property for conservation activities) where such natural heritage is found on privately owned land, provided they are given tax concessions, grants or loans for such work (Articles 48, 50 and 51).

Articles 5 and 6, however, have the potential effect of undermining the extended use of natural heritage while at the same time ensuring its protection. These provisions emphasize the consideration of natural heritage in its entirety and not separately from its surroundings. Article 6 categorically states that, as a general rule, natural heritage resources should not be dissociated from their environment. This means that they can only be conserved within the environment they are found in and cannot be removed or harvested for extended use. This has the potential effect of limiting the harvesting of natural heritage resources even where they are found on private land and consequently of impeding the sale, trade and ultimate use of natural heritage resources.

Education for Sustainable Development Programme

In December 2002 the United Nations General Assembly adopted resolution 57/254 on the United Nations Decade of Education for Sustainable Development (2005–2014). UNESCO was designated as lead agency for its promotion. The goal of the Decade for Education for Sustainable Development initiative is aptly stated in the UN resolution as “[that which should encourage] Governments to consider the inclusion ... of measures to implement the Decade in their respective education systems and strategies and, where appropriate, national development” (UN General Assembly Resolution 59/237).

The concept of education for sustainable development entails using education as a way of developing widespread understanding of the interdependence and fragility of life support systems and natural resources. It aims to assist in highlighting the importance of addressing threats to natural resources in sectors such as agriculture and biodiversity as part of a broader agenda of sustainable development. The desired result is the adoption of new behaviours in the protection of the world's natural resources.

International policies outside the agricultural sector

The Education for Sustainable Development initiative aims to demonstrate the following:

- Interdisciplinary and holistic learning for sustainable development embedded in the whole education system and not as a separate subject
- Making explicit the shared values and principles behind sustainable development to enable them to be examined, debated, tested and applied
- Engendering confidence in addressing the dilemmas and challenges of sustainable development
- Re-thinking of teaching approaches that simply focus on passing on knowledge and the development of new approaches in which teachers and learners work together to acquire knowledge and play a role in shaping the environment of their educational institutions
- Addressing local as well as global issues, and using the language(s) which learners most commonly use. Concepts of sustainable development must be carefully expressed in other languages—languages and cultures say things differently, and each language has creative ways of expressing new concepts (UNESCO 2006).

The Education for Sustainable Development initiative provides several opportunities through which crucial issues of agro-biodiversity degradation, including the threat to underutilized species, can be highlighted. Its implementation is based on the following four major thrusts: promotion and improvement of basic education, re-orienting existing education programmes, developing public understanding and awareness on sustainability, and training. The themes on re-orientation of existing education programmes and raising awareness and understanding on sustainability provide clear opportunities to highlight the issues of underutilized species.

Under the re-orientation of existing education programmes, the initiative encourages governments to revise their education systems from nursery school to university level with the aim of integrating the areas of society, economics and environment. This will enable students to appreciate the intricacies in these three areas in an interdisciplinary manner. When governments are re-orienting their programmes, the issues and concerns surrounding underutilized species can be incorporated in them.

The theme on development of public awareness and understanding on sustainability promotes the evolution of a society that is aware of the purpose of sustainability and has the knowledge and skills to contribute to that goal (UNESCO 2006). The evolution of such a society entails undertaking awareness raising campaigns to foster the required understanding on the intricacies of sustainability. The concerns surrounding underutilized species can also be factored in to such awareness raising activities.

The implementation framework for the education for sustainable development initiative does not prescribe a particular model. It allows governments and countries to tailor make their interventions based on their particular local context and priorities. This provides an opportunity for developing countries that place considerable value on underutilized species to include them on the agenda as they reform their respective national education sectors.

Health

International policy instruments on health that affect use of underutilized species

International treaty/agreement

WHO Global Strategy on Diet, Physical Activity and Health (Adopted in 2004)

WHO Declaration and Action Plan for Nutrition (Adopted in 1992)

WHO Food Based Dietary Guidelines

An overview of the international

regulatory frameworks that influence the conservation and use of underutilized plant species

World Health Organization (WHO)

The WHO is a United Nations special agency on health matters. It aims to ensure that the people of the world attain the highest possible health standards through working with governments and civil society organizations. The WHO defines health as a 'state of complete physical, mental and social well-being and not merely the absence of disease or infirmity' (WHO constitution).

The WHO produces policy documents in various areas aimed at guiding action as part of its goal of improving the health standards of people in the world. Some of the policies developed include the Global Strategy on Diet, Physical Activity and Health and the World Declaration and Plan of Action on Nutrition. These policies are discussed below.

The Global Strategy on Diet, Physical Activity and Health

The Global Strategy on Diet, Physical Activity and Health aims to improve public health by promoting healthy eating and physical activity. The section on ensuring good public health through healthy eating is relevant to the discussion on the conservation and use of underutilized crops.

The Global Strategy was developed upon the realization that there is a growing and significant change in the dietary habits of people world-wide as a result of industrialization, urbanization, economic development and increasing food market globalization (WHO 2004). This, more often than not, causes malnutrition, including undernutrition and nutritional deficiencies. This shift in dietary habits is reflected in the growing cases of chronic diseases such as cardiovascular conditions, diabetes, stroke, cancers and respiratory diseases. These account for approximately 59% of the 57 million deaths annually and 46% of the global disease burden (WHO 2004).

The Strategy acknowledges, in its preamble, the socio-economic importance and potential health benefits of traditional dietary practices including those of indigenous people. Article 4 of the strategy reinforces this statement by urging countries to develop measures to preserve and promote traditional foods. This call is in keeping with the need to conserve and use traditional crops and has positive implications for the extended use of plant species that are propagated and bred traditionally. Such crops also include species that are underutilized.

Article 5 goes further, to urge the promotion of continuous monitoring of scientific developments and research in relation to diet, including claims of dietary benefits of agricultural products that constitute a significant part of the diet of individual countries. This would enable member countries to tailor-make their dietary programmes to suit their particular national contexts and would also be beneficial for countries, especially developing countries that appreciate the intrinsic value of traditional underutilized plant species, to include these in their national dietary programmes.

In order to achieve these objectives, the Global Strategy encourages the involvement of all concerned social and economic groups in its implementation. It also calls for compliance with existing commitments in international and multilateral agreements, including the Codex Alimentarius, when developing national policies to implement the strategy. It should however be noted that while compliance with the standards stated in the Codex Alimentarius is intended to promote food safety in the international trade of food, it may also hinder the trade of underutilized crops and their products, which may not meet set standards. The Codex Alimentarius and its effect on the use of underutilized species is discussed in more detail in the section on Trade below.

World Declaration and Plan of Action on Nutrition

The World Declaration and Plan of Action on Nutrition was sponsored jointly by the WHO and the Food and Agriculture Organization of the United Nations (FAO). The purpose of the Declaration is to ensure that hunger and all forms of malnutrition are eliminated from the world. This is seen as crucial, especially with regard to the fact that more than 200 million people (mostly women and children) are deficient in one or more micronutrients, and that

International policies outside the agricultural sector

a considerable number of women and children are affected by iodine deficiency, especially babies who are being born mentally retarded and going blind or dying from lack of Vitamin A (WHO 1992)

The Declaration and Action Plan is premised on the observation that while there is enough food for everyone in the world, inequitable access is the main challenge. It is also supported by the fact that everyone has a right to an adequate standard of living (including food) as contained in the Universal Declaration of Human Rights.

The Declaration commits member countries to ensure that, as they develop their national policies and programmes, the multifunctional role of agriculture—especially its role in nutrition—is taken into account. This presents an opportunity for the function of underutilized crops (insofar as they provide a source of nutrients and nutrition) to be incorporated in national policies and development programmes.

Discriminatory practices and laws are identified as some of the major factors hindering nutritional well-being. In this regard, the Declaration encourages member countries to develop and implement people-focused policies and laws that increase access to and control of resources by the vulnerable in society including the rural and urban poor. It also supports the participation of these vulnerable groups in decision-making processes. Since it is the rural or indigenous folk that usually possess the relevant traditional knowledge on, and are custodians of, traditional underutilized species, such an approach to policy-making may also create a chance for underutilized crops (and related issues concerning their conservation and use) to be incorporated into policy.

The Declaration calls for a balance between the need to provide food relief and maintaining nutrition levels in food aid programmes. It notes that food aid and emergency programmes should not create a dependency syndrome where recipients are made to depend on external sources of food. Rather, steps should be taken to alert recipient countries in advance so that they can identify alternate sources of food with local participation. This will at least ensure that available nutrition-rich foods are distributed instead of externally sourced food whose nutrition content is not necessarily guaranteed.

Trade

The popularization and use of certain crops can be hampered or enhanced, as the case may be, by policies related to trade in food or agricultural commodities. This sub-section examines some international trade law instruments with the aim of identifying gaps that hinder the extended use of underutilized plant species. The Codex Alimentarius, the WTO Sanitary and Phytosanitary Agreement and the EU Novel Food Regulations are examined below.

International policy instruments in trade affecting use of underutilized species

International treaty/agreement

The Codex Alimentarius (The Codex Alimentarius Commission was created in 1963)

WTO Agreement on Agriculture (adopted in 1994)

WTO Sanitary and Phytosanitary Agreement (adopted in 1994)

WTO Agreement on Technical Barriers to Trade (adopted in 1994)

WTO Agreement on Subsidies and Countervailing Measures (adopted in 1994)

WTO Agreement on Trade Related Aspects of Intellectual Property Rights (adopted in 1994)

International Commodity Agreements

EU Novel Food Regulation (adopted in 1997)

An overview of the international

regulatory frameworks that influence the conservation and use of underutilized plant species

The Codex Alimentarius

The Codex Alimentarius was developed jointly by the United Nation's Food and Agriculture Organization (FAO) and the World Health Organization (WHO) for the purpose of protecting the health of consumers and facilitating international fair trade in food products. Although the Codex standards, guidelines and related texts are voluntary, the WTO recognizes them as a reference, particularly when it comes to international trade disputes.

The Codex does not make any specific reference to underutilized species in its texts. Its regulatory scope is limited to the extent of its definition of the food production chain. It regulates food that is processed, semi-processed or raw, for distribution to consumers. It does not regulate activities that occur at the stage prior to primary production, i.e. activities to do with the choice of crops grown for food production by the farmer. It is at this point that the conservation and use of underutilized species would ordinarily be directly relevant. That notwithstanding, it is important to note that the Codex contains elements that may affect the use of underutilized crops and food.

The Codex, which includes provisions related to food hygiene, food additives, pesticide residues, contaminants, labelling and presentation, methods of analysis and sampling, at face value, seems to apply to both conventional foods and those prepared from underutilized plant species. The tests of food safety do not seem to discriminate between underutilized or conventional foods. However, on closer examination of the text, particularly the wording used under paragraph 2 of the General Principles, it appears to limit the scope of the type of food regulated. It states that the Codex includes standards for '...all *principle foods*' [own emphasis]. The phrase 'principle foods' is not defined. However if one takes the ordinary definition and applies it in the context of the Codex and what it intends to achieve it seems to proffer the meaning that the Codex applies to 'standard', 'ordinary' or 'conventional' foods which may be seen as distinct from underutilized or unknown foods.

The Codex may also hamper the trade and use of underutilized foods through the high level of standards it requires. The level of detail and the extent of analysis recommended by some guidelines may be too onerous and expensive for developing countries with respect to particular products based on, or using, underutilized species. For instance, the principles and guidelines for the conduct of microbiological risk assessment require governments to undertake a risk analysis of all food. Microbiological risk assessment is a developing science and implementation of the guidelines may require a period of time and specialized training. Developing countries may not have such capacity.

An important strength of the Codex system, however, is its ability to adjust and to keep abreast with changes in the area of food production. This enables the Codex Commission to constantly review its codes and allow for wider coverage and innovation in the development of new food products whilst maintaining the scientific basis for consumer protection. Under such a flexible system, new, unknown and underutilized foods can be introduced and traded.

The WTO Sanitary and Phytosanitary Agreement

The WTO Sanitary and Phytosanitary Agreement (SPS) aims to create a multilateral rules-based system that regulates the development, adoption and enforcement of sanitary and phytosanitary measures in member countries. The Agreement endeavours to foster a harmonized system of standards globally. This is expected to 'level the playing field' and allow standards to be used in an objective manner and not as disguised barriers to trade. To this end, the SPS obligates member countries to put in place measures necessary to protect only human, animal, plant life or health and based on scientific principles. It also obligates members not to apply their measures in a way that discriminates between countries with the same or identical conditions.

Underutilized crops, food or commodities, being relatively new and unknown items of trade, are more likely to be subjected to higher sanitary and phytosanitary standards within the realms of the SPS. This may have negative implications for trade in such underutilized commodities, where such higher measures create delays.

International policies outside the agricultural sector

Article 5(7) of the SPS obligates the importing country, in cases where there is insufficient scientific evidence to allow importation, to seek additional information necessary for it to make a more objective risk assessment. This is likely to take considerable amounts of time at the expense of the exporting country.

The SPS, however, contains some 'checks and balances' that try to balance the need for effective sanitary and phytosanitary measures on the one hand and the need to facilitate international trade on the other. For instance, Article 5(8) allows an exporting country, which feels that a specific sanitary measure is constraining or has the potential to constrain its exports, to request for an explanation from the importing country for the reasons for such measures.

The principle of equivalence in Article 4 also provides 'checks and balances'. It obligates importing member countries to accept the measures in exporting countries (where these differ from their own) as equivalent to their own, provided the exporting country demonstrates that such measures achieve the importing country's appropriate level of protection.

The European Union Novel Food Regulation

The EU Novel Food Regulation (Regulation (EC) No. 258/97) (EU 1997) aims to regulate the importation of 'novel foods' into the European Community. Novel foods are defined as foods and food ingredients that have not been used for human consumption to a significant degree within the EC before the coming into force of the Regulation and which fall into the following categories:

1. Foods and food ingredients that contain or consist of genetically modified organisms
2. Foods and food ingredients produced from genetically modified organisms
3. Foods and food ingredients with new and intentionally modified molecular structure
4. Foods or food ingredients consisting of or isolated from micro-organisms, fungi or algae
5. Foods or food ingredients consisting of or isolated from plants and animals (not including foods or food ingredients obtained by traditional propagating or breeding practices and having a history of safe food use)
6. Foods and food ingredients produced through an outdated production process that gives rise to significant changes in the composition or structure of the foods or food ingredients that affect their nutritional value, metabolism or level of undesirable substance.

In order for the Regulation to apply to food produced from underutilized plant species, the food or food ingredients should fall within the ambit of the above definition. The first part of the definition, which states that novel foods include food that has not been used for human consumption to a significant degree in the European Community before the enforcement of the Regulation, is broad and may apply to underutilized species. However, the phrase 'to a significant degree' is not defined and creates some uncertainty. What test or yard stick is used to determine a 'significant degree'?

The second part of the definition, which categorizes the specific forms of foods or food ingredients that the Regulation should apply to, is even less clear. It would appear that under this formulation only some food produced from underutilized species, but not all, is subject to the application of the Regulation.

Categories 1–3 are not necessarily relevant for underutilized species. However categories 1 and 2 could potentially apply to transgenic underutilized species if these are being developed and commercialized. Categories 4, 5, and to some extent 6, may apply to some food produced from underutilized species. Category 4 is applicable if the underutilized species are either microorganisms, fungi or algae. Category 5 is applicable if the underutilized species are either plants or animals that are new but not produced through traditional practices and without a history of safe food use. Two important points arise here. The first one is that traditionally propagated plants and traditionally bred animals (regardless of the extent of their being un- or under- utilized) are not defined as 'novel foods' by this definition as long as they have a history of safe food use. The phrase 'history of safe food use' is not

An overview of the international

regulatory frameworks that influence the conservation and use of underutilized plant species

defined either. However, taking its ordinary meaning and applying it in the context of the Regulation, it would seem to mean 'food from traditionally propagated plants and traditionally bred animals that have been consumed and used by a particular society and whose consumption did not cause ill-health or death to the consumers'.

If this meaning is accepted, it would follow that the Regulation applies to the importation of underutilized species of microorganisms, fungi, algae and underutilized varieties of plants and breeds of animals developed from non-traditional means, whose safe history of consumption in a particular society cannot be ascertained. The implication of this formulation is that exporting countries which can demonstrate that their underutilized foods have been produced through traditional propagation and breeding practices and have a 'history of safe food use' can successfully introduce their products in the European Community.

That notwithstanding, the EU has on several occasions restricted the importation of underutilized plant and animal species that were traditionally produced and had a 'history of safe food use' in the exporting countries. For example, stevia and nangai nuts are produced through traditional propagation and have a 'history of food use' in the countries that produce them but the EU denied the notification for their importation on the basis that there was insufficient scientific information on their safe food use in the European Community (Mück 2003).

The EU's interpretation of the Regulations, in practice, seems to rely on scientific information to prove a history of 'safe' food use—not just food use. Most of the exporting countries are either least developed or developing countries and do not have the capacity to produce scientific information to prove 'safe' food use. The EU also seems to interpret the place where the history of safe use should have been proved to be the European Community and not the exporting country.

The application of the Novel Food Regulation by the EU greatly impedes the trade and extended use of food produced from underutilized plant species. It makes it difficult for poor exporting countries to successfully place food products produced from underutilized species on the European market.

Unfortunately, the cases of rejection are on the increase. Several papers have documented these cases (Corrina 2004). The aim of some of these is to create an argument and basis for lobbying for an amendment to the EU Novel Food Regulation to enable food produced from underutilized species to be imported into the European Community. This effort seems to have borne fruit because in January 2008 the European Commission published a new draft of the Regulation, which takes into account some of the concerns raised above and echoed by third countries regarding the trade implications for traditional foods. The draft will be notified to WTO under the SPS and TBT agreements.



Conclusion and recommendations

An overview of the international

regulatory frameworks that influence the conservation and use of underutilized plant species

The art of policy analysis involves 'determining which of various alternative policies will most achieve a given set of goals in light of the relations between the policies and the goals' (Nagel 1999)

There is no single international policy instrument that is specifically dedicated towards ensuring the conservation and extended use of underutilized species. Like any other natural and biological resource, underutilized species are governed by a plethora of sector-focused international policy instruments, all aiming to ensure the effective management of their respective sectors. The result is not usually favourable for the conservation and use of underutilized species. Some policy instruments directly inhibit the conservation and use of the species while others create negative effects that indirectly affect them (Table 1). That notwithstanding, some international policy statements and provisions do create opportunities for the conservation and use of these species (Table 2). While these statements do not necessarily provide direct support for conservation and use, they have the potential to provide such support.

Due to the peculiarity of the conservation and use needs of these species, which stem from the fact that they are not adequately utilized at the same level as conventional species, it is tempting to advocate for an international policy specifically dedicated towards addressing such peculiarities as a way of filling the policy gap. However, it is becoming accepted in both national and international law and policy studies that the creation of a new legal and policy instrument that specifically addresses gaps in an existing regulatory framework is not necessarily a viable solution. This is because it is usually considered prudent to first identify and assess existing policy alternatives and to consider the political viability of those alternatives before an appropriate type of reform can be chosen and adopted (Walsh 2006). The idea of creating a new law or policy to address weaknesses in existing policies may have the negative effect of creating superfluous and duplicate laws and policies. In the case of international policies governing the management of underutilized species, reforming or amending the existing policy framework to address the identified gaps could be more effective than creating new policies.

Regardless of which reform format policy-makers decide to adopt in this case, it remains apparent that the international policy environment necessary for the conservation and use of underutilized species is not conducive. The specific gaps identified in the policies examined are highlighted in Table 1. Despite the gaps, these policies do provide some opportunities for the conservation and use of underutilized species (Table 2).

Conclusion and recommendations

Table 1. Summary of gaps identified

Agriculture	Natural resources	Education	Health	Trade
<p>ITPGRFA</p> <p>a) Annex 1 to the treaty does not include underutilized species</p> <p>b) The scope of the treaty does not specifically make room for the extended use of plant species for cultural purposes and provision of ecosystem services</p> <p>2. UPOV</p> <p>a) The actual impact of UPOV on the conservation of underutilized species is not clear</p>	<p>CBD</p> <p>a) It does not specifically mandate member countries to develop particular policies. National governments are given too much discretion</p>	<p>1. World Cultural and Heritage Recommendations</p> <p>a) It emphasizes the use of natural heritage resources within their environments thereby impeding the harvesting, trade and extended use of such resources. This is so even on privately owned land.</p>	<p>1. Global Strategy on Diet</p> <p>a) It calls for compliance with existing commitments even when such commitments run counter to the extended use of underutilized species</p>	<p>1. Codex Alimentarius</p> <p>a) Seems to limit its application to 'principal' foods which may mean conventional foods as opposed to underutilized foods</p> <p>b) It recommends high level and complicated standards that may be too onerous for poor exporting countries</p> <p>2. WTO SPS</p> <p>a) Underutilized species are likely to be subjected to higher SPS standards</p> <p>b) Underutilized species are more likely to face delay in SPS procedures</p> <p>3. EU Novel Food Regulation</p> <p>a) It is applied and interpreted in a way that disqualifies underutilized species from entering the EU market</p>

An overview of the international

regulatory frameworks that influence the conservation and use of underutilized plant species

Table 2. Summary of some of the opportunities for enhancing the use of underutilized species

Agriculture	Natural resources	Education	Health	Trade
<p>1. ITPGRFA</p> <p>a) The list of crops in Annex 1 to the treaty is not exhaustive. More crops (including underutilized species) can be added to it in future</p> <p>2. EC Directive on Conservation</p> <p>a) The programme established by the directive extends to the conservation and increased use of underutilized species.</p> <p>3. FAO–CGIAR agreements</p> <p>a) PGR of underutilized species can be accessed from collections held by the CGIAR centres</p> <p>4. GPA</p> <p>a) Underutilized species can be surveyed, inventoried and documented under the GPA</p> <p>b) The conservation of underutilized species can be enhanced through the opportunity to develop conservation strategies and management practices made available by the GPA</p>	<p>1. CBD</p> <p>a) Allows for the integration of topics related to biodiversity in national education programmes. This presents an opportunity for the concerns of underutilized species to be included in these programmes</p> <p>2. Man and Biosphere Programme</p> <p>a) Creates opportunities for local farmers to include underutilized species in the biosphere programme for conservation and sustainable use.</p> <p>3. Agro-Biodiversity Programme of Work</p> <p>a) Creates an opportunity to assess the role played by components of agrobiodiversity, including underutilized species, in sustainable agriculture and providing ecosystem services</p>	<p>1. World Cultural and Heritage Convention</p> <p>a) The integration of natural heritage resources into the developmental agenda of member countries. Allows member states to bring the concerns of natural heritage resources into relevance</p> <p>b) The development of educational and information programmes that strengthen the appreciation and respect of natural heritage resources by people</p> <p>c) Use of an intergovernmental body for the better conservation and use of underutilized species</p> <p>d) Possible access to the World Heritage Fund to finance projects and activities leading to the conservation of natural heritage resources</p> <p>2. World Cultural and Heritage Recommendations</p> <p>a) integration of natural heritage resources into social and economic life of member countries to ensure their relevance</p>	<p>1. Global Strategy on Diet</p> <p>a) Opportunity for member countries to tailor-make their dietary programmes to suit their particular context. This can allow the inclusion of underutilized species</p> <p>2. World Nutrition Declaration</p> <p>a) Allows member states to acknowledge the multifunctional role of agrobiodiversity including the role of underutilized species in the provision of nutrition</p> <p>b) allows the development of pro-poor laws and policies that recognise the role played by traditional knowledge in the provision of nutrition</p> <p>c) an opportunity to re-examine emergency relief programmes and how to incorporate the distribution of nutritious foods. Underutilized foods can be incorporated as well</p>	<p>1. Codex Alimentarius</p> <p>a) It is flexible and has the ability to adjust as a way of keeping abreast of changes in the area of food production. Underutilized foods can be introduced with this flexibility</p>

Conclusion and recommendations

Table 2 (contd). Summary of some of the opportunities for enhancing the use of underutilized species

Agriculture	Natural resources	Education	Health	Trade
<p>c) The GPA provides an opportunity for capacity building activities on the management of underutilized species</p> <p>d) The GPA allows for the regular review of activities related to underutilized species</p>	<p>b) Creates an opportunity to undertake research on the role and potential of wild and underutilized species⁴. Biodiversity, Food and Nutrition Initiative</p> <p>a) Allows for the recognition of the importance of conserving and sustainably using underutilized species to draw the link between biodiversity, food and nutrition</p>	<p>b) Development and/or use of established advisory bodies for scientific and technical assistance</p> <p>3. Education for Sustainable Development</p> <p>a) opportunities for countries to re-orient their education programmes from the nursery school level to university</p> <p>b) the use of public awareness programmes to popularize the use of underutilized species</p>		

Recommendations for policy and for action by advocacy/research groups

Policy recommendations are meant to give basic information and guidance on how to revise or reform policy instruments and, in particular, to address identified policy gaps and weaknesses in existing policy frameworks. Recommendations can also extend to suggested actions that can be taken in order to fully utilize opportunities found in existing policy frameworks. The policy recommendations listed below flow from the analysis of international policy frameworks affecting the conservation and use of underutilized species, undertaken in this paper. They are directed towards policy makers, on the one hand, and research and advocacy groups, on the other, with the aim of presenting political strategic options for policy reform. Policy makers at the international level are people, or groups of people, with power to influence or determine policies and practices at an international level (Millennium Ecosystem Assessment 2005). These would be international forums that have decision making powers, such as the collective membership of the UN sitting in various UN decision making forums, the Conference of the Parties of the CBD or the Governing Body of the ITPGRFA, for instance. Advocacy groups, on the other hand, are an organized collection of people who seek to influence political decisions and policy without being in public office (Wright and Austen-Smith 1994). These are exemplified by non-governmental and research organizations.

An overview of the international

regulatory frameworks that influence the conservation and use of underutilized plant species

Agriculture sector

Recommendations for policy-makers

Recommendation: Develop a proposal within the Governing Body of the ITPGRFA that outlines the need to expand the list of crops and forages in Annex I of the Treaty to include certain underutilized species. The proposal will be discussed by member states at a Governing Body meeting.

Recommendations for advocacy groups

Recommendation: Develop and undertake research work (involving all relevant stakeholders) to identify the impact of a UPOV style IPR protection system on the conservation of local crops and underutilized species.

Recommendation: Cooperate with the FAO under the GPA in the development of conservation strategies and management practices for underutilized species.

Recommendation: Cooperate with the FAO in implementing Activity 12 of the GPA, by developing a proposal(s) to engage national governments, international agricultural research centres and other stakeholders to develop national policies for the sustainable management of underutilized species.

Recommendation: Cooperate with the FAO, international research centres and other stakeholders to develop capacity building initiatives for the sustainable management of underutilized species in pursuance of Activity 12 of the GPA.

Recommendation: Cooperate with the CGIAR to implement Priority 1B of the CGIAR System Priorities (2005–2015) that aims to promote the conservation and characterization of underutilized plant genetic resources

Biodiversity sector

Recommendations for policy-makers

Recommendation: Develop a proposal for the Conference of the Parties (CoP) of the CBD highlighting concerns about the restrictive nature of national access regulations and the impact it has on the exchange of underutilized wild species. The proposal will be discussed by member States in a CoP meeting.

Recommendations for research and advocacy groups

Recommendation: Cooperate and work with the CBD secretariat in implementing the CBD Agrobiodiversity Programme of Work by participating in developing the research agenda on the role and potential of wild and underutilized species in the provision of multiple goods and services envisaged by the programme.

Recommendation: Make a formal suggestion to UNESCO to mainstream underutilized species in its Man and Biosphere Programme, particularly in the text where it talks about the loss of biodiversity in the biospheres.

Recommendation: Promote awareness among local farmers in UNESCO biospheres to include underutilized species in their programmes for conservation and sustainable use.

Recommendation: Cooperate and make contributions to the implementation of the CBD Agro-biodiversity Programme of Work by assisting in the agro-biodiversity assessment activities in order to highlight the importance of underutilized species in sustainable agriculture and as providers of ecosystem services.

Education sector

Recommendations for policy-makers

Recommendation: Initiate a formal process within UNESCO to consider the possibility of allowing the harvesting of underutilized species that are defined as natural heritage resources, especially those found on private land.

Recommendation: Encourage the preparation of curriculum development guidelines that can be used to highlight the importance of underutilized species and incorporate such guidelines in UNESCO-sponsored educational and information programmes.

Recommendations for advocacy groups

Recommendation: Develop and submit project proposal(s) to the World Heritage Fund to access funding for the conservation of underutilized species that are also considered natural heritage resources.

Recommendation: Cooperate with existing established UNESCO advisory bodies for scientific and technical assistance to mainstream concerns related to underutilized species in their programmes and activities.

Recommendation: Cooperate with UNESCO under the United Nations Decade for Education and Sustainable Development initiative to incorporate educational material and curricula on underutilized species for nursery school level to university.

Recommendation: Cooperate with UNESCO under the United Nations Decade for Education and Sustainable Development initiative to develop and disseminate awareness raising material on the importance of underutilized species.

Health sector

Recommendations for policy-makers

Recommendation: Under the WHO and within the context of the Global Strategy on Diet, Physical Activity and Health, consider the potential negative impact of adhering to existing food standards on the use of food produced from underutilized species. This may involve considering alternative text to the relevant sections of the Global Strategy on Diet, Physical Activity and Health.

Recommendations for advocacy groups

Recommendation: Cooperate with the WHO in its programme of monitoring dietary benefits of agricultural products that constitute a significant part of countries' dietary needs. Through such cooperation, the nutritional importance of some underutilized species can be demonstrated and incorporated in the dietary strategies of these countries.

Recommendation: Cooperate with the WHO and FAO to use the World Declaration and Plan of Action on Nutrition as a basis and justification to review national policies on nutrition. (The Declaration encourages the development of people-focused nutrition policies). The review will be an opportunity to highlight the nutritional value of some underutilized species in national policies.

Recommendation: Cooperate with the WHO and FAO to develop a proposal for the World Food Programme that outlines the importance of sourcing for local foods, including food from underutilized species, in its food relief strategies

An overview of the international

regulatory frameworks that influence the conservation and use of underutilized plant species

Trade sector

Recommendations for policy-makers

Recommendation: The Codex Alimentarius (WHO and FAO) to provide clarity regarding the scope of the application of the Codex, particularly on the use of the phrase 'principal' foods. If the interpretation refers to foods from major, or conventional, crops, it can be a basis for revision of the text to incorporate foods from underutilized species as well.

Recommendation: The Codex Alimentarius secretariat (WHO and FAO) to consider developing a guideline for traditional foods that also clarifies the potential negative impact that may be caused by the high-standard recommendations, especially on the export of food produced from underutilized species in developing countries. The guideline can highlight various options such as introducing the international trade law doctrine of 'equivalence' as with regard to food produced from underutilized species originating from developing countries

Recommendations for advocacy groups

Recommendation: Develop proposal(s) for the EU that outlines the negative impact its interpretation of the Novel Food Regulation has on the importation of certain foods, especially those produced from underutilized species, into the EU market.



An overview of the international

regulatory frameworks that
influence the conservation and use
of underutilized plant species

- CBD. 1996. Convention on Biological Diversity. Conference of the Parties 3. Consideration of Agricultural Biological Diversity under the Convention on Biological Diversity. UNEP/CDB/COP/3/14. Secretariat of the Convention on Biological Diversity, Montreal, Canada.
- EU. 1997. The EU Novel Food Regulation. Available from: http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexapi!p rod!CELEXnumdoc&lg=EN&numdoc=31997H0618&model=guichett. Date accessed: 28 June 2008
- FAO. 2001. The International Treaty on Plant Genetic Resources for Food and Agriculture. Available from: www.fao.org/AG/cgrfa/itpgr.htm. Date accessed: September 2006.
- Gliessman SR. 1998. Agroecology: Ecological Processes in Sustainable Agriculture. Ann Arbor Press, Chelsea, MI, USA.
- GRAIN. 2007. The end of farm-saved seed? Industries wish list for the next revision of UPOV. GRAIN briefing June, 2007. Available from: <http://www.grain.org/briefings/?id=202>. Date accessed: 29 July 2008.
- Gündel S, Höschle-Zeledon I, Krause B and Probst K. 2003. Underutilized Plant Species and Poverty Alleviation. International Workshop on Underutilized Plant Species, Leipzig, Germany, 6 - 8 May, 2003. In: WEnt, Zschortau, Germany, and GFU, Rome, Italy. Available from: <http://www.underutilized-species.org/Documents/PUBLICATIONS/leipzig%20proceedings.pdf>. Date accessed: 29 July 2008.
- Hawkes C. 2004. Nutrition labels and health claims: the global regulatory environment. World Health Organization, Geneva, Switzerland.
- Jarvis DI. et al. 2000 cited in Jarvis DI and Skilton J, editors. Overview of Crop Genetic Resources in Agrobiodiversity: CBD Operational Objectives, Principles and Best Practices, draft report 2004. Available from: <http://www.cbdcprogram.org/final/issues/agro-biodiversity.pdf> Date accessed: 1 July 2008.
- Leask B. 2005. Intellectual Property in the Seed Industry. Tools Available and Their Effect on Investment, Public Institutions and Management of Intellectual Property Rights. Canadian Agriculture Innovation Research Network, Toronto, Canada.
- Ledda B. nd. Market Opportunities for Underutilized Species Products: What Does the Market Want? IPGRI, Rome, Italy. Available from: www.underutilized-species.org/documents/PUBLICATIONS/Market_opport_final_report.doc. Date accessed: 1 July 2008.
- Levin CE, Long J, Simler KR, Johnson-Welch C. 2003. Cultivating Nutrition: A Survey of Viewpoints on Integrating Agriculture and Nutrition. FCND Discussion Paper 154. IFPRI, Washington, USA.
- Mansfield E. 1993. Unauthorized use of intellectual property: effects on investment, technology transfer and innovation. In: Wallerstein MB, Moguee ME, Schoen RA, editors. Global Dimensions of Intellectual Property Rights in Science and Technology. National Academy Press, Washington, USA. pp. 107–145.
- Morris et al. 1998. cited in Jarvis DI and Skilton J, editors. Overview of Crop Genetic Resources in Agrobiodiversity: CBD Operational Objectives, Principles and Best Practices, draft report 2004. Available from: <http://www.cbdcprogram.org/final/issues/agro-biodiversity.pdf> . Date accessed: 1 July 2008.
- Mück O. 2003. Trade Barriers NFR? Available from: http://www.underutilized-species.org/Documents/PUBLICATIONS/trade_barrier_nfr.pdf. Date accessed: 29 July 2008.
- Nagel SS, editor. 1999. Policy Analysis Methods. New Science Publishers, Inc.
- Padulosi S, Eyzaguirre P, Hodgkin T. 1999. Challenges and strategies in promoting conservation and use of neglected and underutilized crop species. In: Janick J, editor. Perspectives on New Crops and New Uses. ASHS Press, Alexandria, United States.

- SGRP. 2006. Annotated Bibliography Addressing the International Pedigrees and Flows of Plant Genetic Resources for Food and Agriculture. IPGRI, Rome, Italy.
- Smale et al. 2001. cited in Jarvis DI and Skilton J, editors. Overview of Crop Genetic Resources in Agrobiodiversity: CBD Operational Objectives, Principles and Best Practices, draft report 2004. Available from: <http://www.cbdcprogram.org/final/issues/agro-biodiversity.pdf>. Date accessed: 1 July 2008.
- Soroos M. 1986. Beyond Sovereignty: the Challenge of Global Policy. University of South Carolina Press, Columbia SC, United States.
- The Millennium Ecosystem Assessment. 2005. Ecosystems and Human Well Being: Synthesis. Island Press, Washington, United States.
- UNESCO. 2006. United Nations Decade of Education and Sustainable Development; UN Resolution 54/275. Available from http://www.unesco.at/pdf/sustainable_development.pdf Date accessed: June 2007
- UNESCO. 1970. The World Natural Heritage and Cultural Convention. Available from: <http://www.icomos.org/unesco/>. Date accessed: June 2007. UNESCO (2002). Education for Sustainable Development Programme also available at <http://portal.unesco.org/education/en/> UNESCO (2002); Accessed in June 2007
- United Nations General Assembly 2003 Resolution 59/237. Available from: <http://www.un.org/esa/sustdev/documents/docs>. Date accessed: June 2007.
- University of Melbourne 2005. <http://www.unimelb.edu.au/HB/subjects/208-322.html>. Date accessed: November 2007.
- UPOV. 2005. The Impact Study. Available from: www.upov.org. Date accessed: August 2007.
- Walsh JI. 2006. Policy failure and policy change. *Comparative Political Studies* 39:490–518.
- Winckel A. 1999. The Contextual Role of a Preamble in Statutory Interpretation. *Melbourne University Law Review*.
- WCMC. 1992. World Conservation Monitoring Centre Report. Available from: www.unep-wcmc.org. Date accessed: June 2007.
- WHO. 1992. World Declaration and Plan of Action on Nutrition. Available from: <http://www.fao.org/docrep/U9920t/u9920t0a.htm>. Date accessed: November 2006.
- WHO. 2004. The Global Strategy on Diet, Physical Activity and Health. Available from: http://www.who.int/dietphysicalactivity/publications/facts/chronic/en/in_ex.htm. Date accessed: June 2007.
- Wright G. 2006. The UNESCO Man and the Biosphere Program: What's Its All About? Available from: <http://www.georgewright.org>. Date accessed: May 2007.
- Wright JR, Austen-Smith D. 1994. Counteractive Lobbying. *American Journal of Political Science* 38: 25-44
- Zhu YY, Wang YY, Chen HR, Lu B-R. Conserving traditional rice varieties through management for crop diversity. *Bioscience* 53:158–162.

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