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van der Straaten, J.

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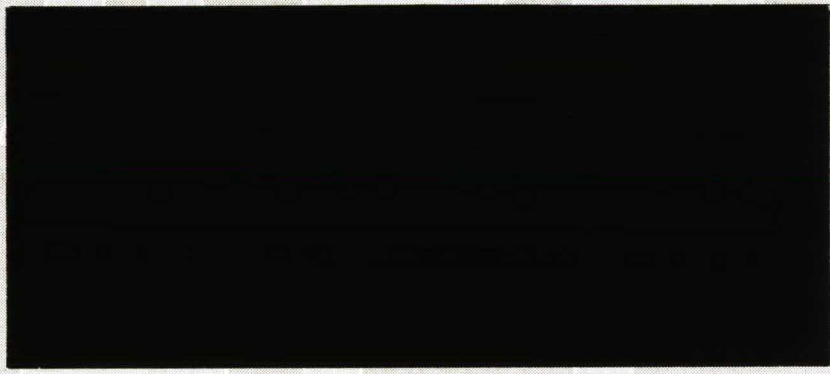
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**Sustainable Development
and Public Policy in Russia**

Dr Jan van der Straaten

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Paper presented at the Second International Workshop
of the ISEE Russian chapter Socio-Ecological-Economic Systems:
From Information and Simulation to Practical Solutions,
16-21 July 1995, Pereslavl-Zalessky, Russia

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Sustainable Development and Public Policy in Russia

Dr Jan van der Straaten

WORC, Tilburg University, The Netherlands

Keywords: sustainable development, public policy, transition processes, Russia, externalities

1. Introduction

In many economic textbooks it is argued that environmental policy should be implemented by the introduction of economic instruments. In the case of polluting activities a levy has to be introduced aiming to reduce the total level of pollution by creating a lower demand for the polluting products. Furthermore, authorities claim that sustainable development is the main goal of environmental policy. This can be demonstrated by the title of the recent environmental policy plan of the European Union: *Towards Sustainability* (Commission of the European Communities, 1992). This suggests that environmental problems can be solved by making a goal of sustainable development which can be realised by the introduction of economic instruments.

In my view, this overlooks the many complications connected with the implementation of environmental policies. These complications have to be analyzed before the introduction of economic instruments and implementation of sustainable development can be realised. We can learn from the difficulties regarding the implementation of environmental policies in Western countries. Is the ongoing deterioration of nature and the environment in Western countries caused by ignorance of the use of economic instruments or are there other, more relevant factors? The problem is that there are only a very limited number of cases where economic instruments have been introduced, while the plea for their introduction is already fairly old. Why did Western governments hardly introduce any economic instruments? What are the dominating factors in the process of implementing environmental policies? Furthermore, the concept of sustainable development has to be discussed. How did we come to a situation of unsustainable development? Are traditional environmental policies of Western countries so weak

that an unsustainable situation will be the result? Why has the concept of sustainable development, defined by the World Commission on Environment and Development (1987), not been introduced in an earlier period? Can a plea for sustainable development result in a strict environmental policy? These questions have to be discussed in depth before we can come to a conclusion with regard to the introduction of sustainable development in Russia.

The aim of this paper is to investigate the main barriers to the implementation of economic instruments in the environmental policies of Western countries. Furthermore, we will discuss the potential barriers against sustainable development in public policy. We will investigate how far the experiences in Western countries are relevant to a country like Russia, in which a market economy has been introduced quite recently.

2. The theoretical framework of environmental policies

In the traditional neoclassical framework dominant in Western countries the value of a good can be measured on a market. Producers sell products on a market where consumers can buy these products. The equilibrium price of the market is generally seen as a reflection of the economic value of the product. On the one hand, the price is related to the costs the producers have to make in the production process. Normally, these costs include the price of labour and capital and natural resources, when these are traded on a market, and all other intermediate deliveries to the producers. On the other hand, the market price bears a strong relationship to the consumer's willingness to pay resulting from the revealed preferences of consumers. So in this framework the economic value of a good is normally the same as the market price. In neoclassical theories, individual methodology is one of the cornerstones of the framework which implies that all individual preferences can be summarized to define national or total welfare.

This economic system brings about an optimal allocation of production factors due to the ability of the market mechanism to steer production and consumption into the societally desirable direction. One should not overlook the point that in this framework economic value can, by definition, only be measured on a market. Outside the market, it is assumed, there is no relevant economic value.

As early as the nineteenth century Marshall (1890/1925) was aware of some pitfalls in this thinking. He formulated many assumptions which have to be fulfilled before this theoretical model of optimal allocation can function. One of these assumptions was the absence of significant external effects. These effects were the welfare effects on other economic agents than the current market parties. In Marshall's publications we find only positive external effects. When someone wants to allocate a new factory, for example, he or she will, in most cases, give priority to a location where many other services are available for which the investor does not need to pay. This will bring the newcomer positive effects which are external to his or her decision. Negative external effects cannot be found in Marshall's publications.

Pigou (1920/1952) was the first economist to pay attention to negative external effects. He argued that optimal allocation of production factors is no longer apparent if substantial negative external effects are the result of production processes. Authorities should, in this view, investigate the damage to non-market actors caused by polluting industries. This damage has to be given a monetary value. The monetary value of the damage is seen as that segment of the production costs that is shifted away to other economic actors. In this view, there is a dislocation of costs, resulting in a low level of costs in the polluting industry. The products are too cheap, as the production of these products is not confronted with all relevant costs. The dislocation can only be corrected by the government imposing a levy on the polluting industry. This levy can be seen as an attempt, by the authorities, to bring that part of the production that had been shifted away to others back to the polluting industry. If this is done the dislocation of costs is neutralised by the environmental policy. Pigou published his arguments as early as 1920, when environmental disruption was hardly relevant. Most economists were of the opinion that the Pigovian approach could be valued as an elegant solution of a difficult theoretical problem, which hardly bore any relationship to normal life.

When environmental pollution became a 'normal' phenomenon in the course of the fifties and the sixties, the discussion among economists to correct a dislocation of production factors resulting from environmental pollution came up again. Coase (1960) argued that the Pigovian approach need not lead to an optimal solution. If purification costs are high, a more cost-effective solution could result from negotiations between polluters and consumers suffering from pollution. We will not discuss the differences between Coase and Pigou here, as they are not relevant to our approach. What does require discussion is the fact that Coase used the same

assumption as Pigou. In both approaches the polluter and the victim are defined and there is a clear dose-effect relationship. In addition, in this approach the authorities can put a specific price on the societal costs of environmental pollution. Furthermore, the Coasian approach was not given serious attention.

In the course of the seventies and the eighties, Western countries were confronted with a growing level of environmental awareness among their citizens. This resulted in the implementation of many environmental laws in this period. In most cases, we do not find the introduction of Pigovian taxes in these laws. In the laws, a certain level of pollution is defined as acceptable and emissions have to be brought below that level. Permits and control were the normal instruments. In our context, the question is relevant why these authorities adopt another than the Pigovian approach. Perhaps we can answer this question when we investigate the pitfalls and barriers which can be found in the theoretical Pigovian neoclassical system.

3. Pitfalls and barriers in the theoretical framework

One of the most significant shortcomings of the Pigovian approach is that in the model only a limited number of polluters can be found, and it is known exactly who are the consumers. Of course, this is a cry far from current reality, since, for example, in the case of motor cars, there are many polluters and whole societies suffering from pollution. In such a situation, it is completely impossible to shift the environmental costs from consumers on to polluting industries. This is complicated by the fact that in the Pigovian model a national authority is the most relevant one to handle the environmental problem. However, in modern production processes, many emissions are transboundary, which means that only an international authority is able to deal with these types of environmental problems. However, in most cases, it is the national countries which have the jurisdiction, which makes the international environmental problems difficult to solve.

National authorities are in a difficult position when it is their intention to implement environmental policies with strict norms. In the Pigovian approach, the government is seen as an objective economic agent not involved in the controversies between polluters and consumers. The government has the power, in this approach, to implement an environmental policy with

strict norms when this is necessary to restore an optimal allocation of production factors. In modern societies, however, authorities are held responsible for the results of the economic process. When, for example, there is a high level of unemployment, it is the government which is to blame. When the implementation of environmental policies is accompanied by detrimental effects on employment or the international competitive position of national industries, authorities are in a difficult position. This implies that the government cannot be seen, in modern societies, as an objective economic actor, able to implement a strict environmental policy in the face of leading economic interests.

In the Pigovian approach, it is assumed that environmental damage can be translated into monetary value. However, there are often no markets for nature and the environment. Indeed, crude oil, natural gas and iron ore are traded on a market and therefore have a price. But this is not the case with the hole in the ozone layer, the greenhouse effect, the pollution of rivers and oceans, the decrease of biodiversity, and the damage done by acid rain. In the neoclassical approach, there is no economic value outside the market. This implies that nature and environment, when they are not sold and bought on a market, do not have an economic value. How is it then possible to shift the environmental costs back to the polluting industries? The Polluter Pays Principle is generally seen as a reflection of the Pigovian approach. But how can the polluter pay when we do not know how high the environmental costs are?

There are also many complications in the ecosystem itself. First, there is the problem of the relationship between emissions and deposits. Which chimneys in the Netherlands, for example, are responsible for the dying off of German forests due to acid rain? Of course, it is possible to claim that Dutch refineries are responsible for acid rain in Germany, but this does not mean that we are able to calculate all dose-effect relations in Dutch industry. However, we should not overlook the fact that these dose-effect relations are a prerequisite in Pigovian approaches. Another problem is found in the thresholds which are often at work in ecosystems. Pollution will not have a really detrimental effect in the beginning of the pollution, as the ecosystem is able to neutralise this pollution. However, ecosystems can do this only up to a certain level. As soon as this level is passed, the ecosystem will be substantially damaged. In this situation there is the question which polluting industry can claim the free situation before the threshold is passed. Finally, in an ecosystem synergetic effects are at work. The combined effect of a number of pollutants is often more significant than would be expected on the basis of the sum

of all the damage done by these polluting factors separately.

We may conclude that the introduction of a Pigovian tax or any other type of economic instrument based on neoclassical approaches is very complicated. Many economists are aware of the shortcomings of an approach using these types of assumptions. In many cases, it is not possible to calculate the monetary value of the environmental damage. This is the reason why Baumol and Oates (1988) introduced a different approach. They argued that in cases where environmental costs cannot be calculated, a levy should be introduced aimed at reducing the level of pollution to a certain degree. This level of pollution had to be established outside the realm of economic theory. It had to be determined by political decisions. Later on, this approach was elaborated and given the name 'critical loads'.

4. The practices of environmental policies

The theoretical framework sketched in the previous section can hardly be recognised in current environmental policies. In most Western countries environmental awareness increased in the course of the 1960s, resulting in the opinion 'that something had to be done'. Generally speaking, authorities did not pay attention to the theoretical framework of environmental policies. They tackled the problem by introducing environmental legislation in which permits and norms were the general instruments. Economic instruments were virtually non-existent in these types of environmental legislation. It was said in these laws that environmental pollution and damage should be decreased. Permits were seen as the adequate instruments for realising that. However, permits can only be effective when certain norms are introduced.

In most cases, these norms were not related to critical loads, in which there is some idea of the relationship between the level of emissions and the level of deposits. In reality, these relationships are almost unknown. Environmental legislation used a different point of departure. The levels of the norms increasingly became the result of a bargaining process between the polluting industries and the national authorities.

This put the authorities in a difficult position. Generally speaking, the technical knowledge possessed by the Ministry of the Environment about pollution resulting from certain industrial

processes is relatively limited. It is the polluting industries that have the knowledge about these polluting production processes. This implies that the bargaining position of the polluting industries is considerably better than that of the government. The result is that there is a strong tendency for the norms that are implemented to be weaker than the government originally intended.

However, it is not only a lack of technical knowledge which puts the government into a difficult position. In the Pigovian approach, in which costs and benefits of environmental measures are known, there is a strong theoretical basis for the implementation of a levy. The government is assumed to be able to demonstrate that, in a given case, a levy would be desirable based on established economic theories. However, as was argued previously, governments are hardly able to make these types of calculations. When it is the government's intention to introduce strict norms, which are used to calculate the maximum level of the emissions or of the deposits, authorities are not able to 'prove' what the economic advantage is. Indeed, they are not able to bring forward the correct environmental improvements, as clear relationships between emissions, deposits and monetary values are not known.

This creates a situation in which the introduction of a strict norm used in the process could be defended by arguing that this is a good thing for the environment, as it will bring down the level of pollution. The government is not able to calculate the economic advantage of this introduction. The polluting industries, however, do know what the extra costs of production are after the introduction of the strict norms.

Polluting industries are very well informed about the shortcomings of this approach. They focus on the heavy economic burden which will be put on their shoulders as a result of the introduction of strict norms. Generally speaking, they will not argue against a sound environmental policy as such, but they will demonstrate the costs for their industries resulting from such a policy. It is this mechanism which, in many cases, has hindered the introduction of strict norms. We may conclude that the legislative framework provides sufficient possibilities for implementing a sound environmental policy. However, the Western European countries have not been able to reduce the level of pollution to an acceptable level in the last twenty years.

From this point of view, there are no differences between economic instruments on the one

hand, and command and control approaches with permits, on the other. In both cases a certain level of pollution has to be defined which can be reached either by strict norms in the permits or by the maximum level used in the process of implementation of economic instruments.

There are two other mechanisms which exacerbate this situation. The first is the mechanism of economic growth. In certain cases, such as the instalment of catalysts in automobiles, European Union countries have been able to introduce strict norms. These catalysts reduce the level of pollution by 90 percent. The catalysts are installed in new cars. People buy a new car about once every ten years. Thus, after a period of ten years all cars will have a catalyst. At that moment the level of emissions by cars will have been reduced by 90 percent. However, the increase in the mileage of cars and the numbers of cars is so high, that this will neutralise the effect of the catalyst. The result is that ten years after the introduction of catalysts in cars the emissions of acidifying substances will not have been reduced at all. It is the mechanism of economic growth which neutralises the beneficial effects of the introduction of strict norms.

This mechanism of economic growth often leads to a situation in which the level of pollution does not decrease in the long run. There are societal reasons why there is pressure to increase the number of cars and the mileage of the cars. When lower income groups achieve a higher level of income due to economic growth, there is a strong tendency to buy a car as soon as they are able to do so. Hence, the distribution of income and emancipatory tendencies increase pollution, even after the introduction of strict norms.

The second mechanism is the increasing effect of international environmental problems, as in the case of transboundary pollution. Furthermore, global effects, such as the greenhouse effect and acid rain, cannot be neutralised by the actions of one country. Here, the introduction of strict norms will benefit the environment of other countries as well. Hence, there is a strong need to come to international cooperation in order to reduce transboundary pollution. However, this problem is extremely complex, as will be illustrated in the next section.

5 International complications in the case of acid rain

Sweden brought the deterioration of their lakes on the international agenda of the United Nations Stockholm Conference of 1972. They argued that transboundary air pollution was the main cause of these problems. It was the first time that the problem of transboundary air pollution has been discussed on an international platform. In particular the countries which caused the pollution, such as the Federal Republic of Germany, the Democratic Republic of Germany, Poland, England, and the Netherlands, argued that it had not been 'proved' that they were responsible for the ecological situation of the Swedish lakes. They said that further investigation would be necessary to make clear what the real causes of the problems could be.

Of course, serious investigations of this type take a certain amount of time. So, it was only at the end of the seventies and the beginning of the eighties that the results of these studies were published. The studies made clear that it was the emissions of the countries mentioned previously which caused the deposition of acidifying substances in Sweden. In addition, it became clear how the mechanisms of acidification worked in reality. However, the polluting countries were hardly willing to pay attention to the results of these studies. In the beginning of the 1980s, it became clear that the German and, later on, the Dutch forests were suffering considerably from the deposits of acid rain. Now these countries were suddenly victims of acid rain. This changed the opinion of the Dutch and German authorities completely. They became great advocates of the abatement of acid rain in Europe.

However, there were many polluting countries, all of them having their own polluting industries and their own interests. It took a long time for these countries to come to certain types of agreements about the reduction in the emission of acidifying substances. In this period the emissions of sulphur dioxide were seen as the main cause of acid rain. Sulphur dioxide is emitted when fuel which contains a certain percentage of sulphur is used. Oil refineries and electric power plants using oil and coal as a fuel are the main emitters.

However, in certain countries natural gas, which does not contain sulphur, was used in power plants. Other countries use a high percentage of nuclear power. This implies that not all countries were at the same disadvantage when strict norms were introduced. In addition, there was the problem that certain countries had already taken many measures at an earlier stage.

These countries proposed taking these measures into account. In that case these countries were able to introduce weak norms. These complications, due to the different position of the countries involved, resulted in a long period of bargaining before an agreement was reached. The result of these difficult negotiations was that it took until 1985 for a protocol to be signed in Helsinki about a 30 percent reduction of the transboundary emissions of sulphur dioxide. Recently a protocol has been signed in which more attention is given to costs and benefits. It was investigated by using the RAINS model (Alcamo, Shaw and Hordijk, 1992) which emissions should be reduced for the damage to be undone in a cost-effective fashion.

A few years later a standstill protocol was signed regarding the reduction of the emissions of nitrogen oxide, which is a significant contributor to acid rain. No international agreements have been reached about the emissions of ammonia, which is also responsible for acid rain.

These reduction percentages are too low to meet the critical loads of acid rain (Downing, Hettelingh and De Smet, 1993). This brings us to the conclusion that in most European countries a deposition of acidifying substances below the level of a critical load is far from being realised.

In the case of acid rain in particular it took many years to achieve any results. It became clear that countries suffering from air pollution needed to demonstrate with scientific research that acid rain was caused by the emissions of other countries. Subsequently, a long period of bargaining was necessary to obtain certain results.

6. The principle of the introduction of strict norms for sustainable development and the role of the state

From the description given in the previous section, it becomes clear that in the case of acid rain negotiations have been very difficult. The traditional neoclassical theories were hardly relevant during this bargaining process. This is caused by the absence of the assumptions used in these theories. It is the national authorities bargaining with each other about the level of pollution.

The implementation of economic instruments did not play any role in the bargaining process.

Legislation and treaties were the instruments which were used when transboundary pollution came up for discussion. During the 1980s, the results of these negotiations were not impressive. The World Commission on Environment and Development was formed in the eighties in order to find a better starting point for the implementation of environmental policies. In their report *Our Common Future* (1987) they formulated the concept of Sustainable Development. This concept has been accepted by most Western countries as a starting point for their environmental policies. In many publications this is seen as a great step forward in the direction of a sound environmental policy.

However, this principle does not neutralise the problems discussed in the previous sections. The various countries in Europe have different polluting industries and this implies the frustration of the reduction of pollution. The modern state plays a significant role in this problem. In Western countries the interests of labour and capital have been able to solve a large proportion of their controversies by economic growth, which made it possible to increase the income of labourers without reducing the interests of capital. In this process the interests of labour and capital have been able to penetrate in the state machinery to consolidate their positions. The process of modern industrialisation has secured income and employment situations for the interests of labour as well as of capital. This implies that these two production factors are strongly interested in the mechanisms which made it possible to solve their problems.

Labour and capital are used in the production process and they have a price on the market. Many natural resources, however, do not have a price. This has resulted in a situation in which nature and the environment have been used free of charge or at a very low price. In the political process the modern state is held responsible for the level of income and employment. This is seen as the main factors of economic development. This puts the state in a very difficult position as soon as environmental policies have to be implemented by strict norms. Strict norms will always have an effect on the level of the production costs: it will increase. The vested interests of labour and capital in the polluting industries are able to put pressure on the national states not to implement strict norms.

The principle of sustainable development does not change this situation. On the contrary, all polluting industries accept the principle of sustainable development as a starting point for the national economy. However, as soon as there is discussion about the pollution in their sector,

they use strong arguments based on traditional economic theories. The government is then always in the difficult position of having to demonstrate that the implementation of strict environmental standards will benefit the economy. In many cases they are not able to do it.

In the case of transboundary pollution the situation is complicated too. On the one hand, there are the traditional interests of the polluting industries in some countries, and on the other hand, there are the interests of countries suffering from pollution. In that case the controversy is between the traditional economic interests of the polluting industries against the general interests of the environment in other countries.

7. Conclusions

From the previous discussion the following conclusions can be drawn:

- * The concept of sustainable development can be taken as a principle to be used in the policies of industrialised countries. However, the concept has been developed due to the difficulties and shortcomings of traditional policies.
- * The crucial point is that it is not the wrong choice of instruments which frustrated environmental policies in Western countries, but the of polluting industries to influence the state machinery in the desired direction. In modern societies the government is not only responsible for the implementation of strict norms, but it is also held responsible for the traditional economic parameters, in particular regarding the level of income and production and the employment situation of workers.
- * The concept of sustainable development cannot neutralise the controversy between polluting industries and other interests in society. Transboundary pollution often puts national authorities in a difficult position. Polluting industries argue that the implementation of strict norms will only benefit the environment in other countries, while the national polluting industries are confronted with higher costs, which will affect their international competitive position. National authorities are held responsible for the level of income and employment.
- * The interests of labour and capital often use traditional mainstream theoretical arguments to neutralise environmental policies. Unpriced natural resources do not have the same position in mainstream theories as the priced production factors labour and

capital. The result of this is that it is easy to stress the economic importance of labour and capital, while the economic importance of unpriced natural resources cannot be demonstrated in the same way.

- * Public policy is the only way out when dealing with environmental problems. However, the problems mentioned previously, cannot be overcome by using the concept of sustainable development or by saying that the introduction of economic instruments is the most efficient way to solve environmental problems. The interests of labour and capital have to be convinced that in the long run a sound environment is in their interests too. Political pressure and the behaviour of consumers are the most significant factors which can affect this situation.
- * Of course, the most crucial question for us is whether or not this experience in the Western countries will bring us to the conclusion that the same type of development regarding environmental policies will take place in countries like Russia. The differences between Western countries and Russia are, of course, many. But I cannot see that public policy in Russia will work in a different direction than in other countries. This implies that the concept of sustainable development entails societal controversies which can only be solved through Russian public policy.

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Dr Jan van der Straaten
Department of Leisure Studies/European Centre for Nature Conservation
Tilburg University
P.O. Box 90153
5000 LE Tilburg
The Netherlands
tel 31-13-663420, fax 31-13663250. Email Straaten@kub.nl

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