

Instrument, Institutions and the Strategy of Sustainable Development: The Experiences of Environmental Policy

Hans Th. A. Bressers

University of Twente

Kenneth I. Hanf

Nijenrode University and Erasmus University Rotterdam

1. Introduction

Effective instruments for sustainable development

The sustainability discussion usually inspires policies from the perspective of the necessary, not the feasible. One country after another makes solemn promises regarding its commitment to ambitious objectives of sustainable development. However, such promises are not the end but the beginning of the road. The forgotten dimension is the actual feasibility of change in these countries. It may be emotionally satisfying enough to accuse such countries of a lack of 'political will' to change, but it would be naive to believe that political will alone is enough to overcome all obstacles to change. In addition, necessity and feasibility must be brought together in clear policy frameworks. Discussing whether the Netherlands should cut its energy consumption by 30 percent or 80 percent is academic if the country is unable to stop its energy consumption growing further in the first place. To prevent 'sustainable development' from becoming a sermon without deeds, it is not only necessary to assess the tasks but also the possibilities of countries to make good on their policy promises. In this chapter, therefore, we shift the focus of attention from the 'what' to the 'how', that is, from the

policy objectives to the policy instruments through which these goals are to be achieved.

Since the 1970s, the regulatory power of policy instruments has been the subject of much scientific debate, particularly in the field of economic science. However, this debate long remained an exchange of theoretical arguments concerning the influence of instruments based on the blind assumption that these instruments were applied completely and correctly to the policy target groups. Problems relating to policy implementation were largely ignored, and there was no comprehensive database of empirical research on the practical effects of these policy instruments. This changed in the 1980s when a great many empirical studies on the practical effects of environmental policy instruments were carried out in the Netherlands. The following section presents an overview of some of these studies. The Netherlands is an interesting example because it is internationally reputed to be a country with a forward-looking environmental policy. As we will see, however, even the less ambitious environment targets of the 1970s were not, by any means, achieved.

In accepting 'sustainability' as the main goal of environmental policy, the 1990s began by presenting an enormous new challenge to the regulating power of environmental policy. Section 3 assesses various forms of guidance and control against the background of the new tasks. It discusses how various groups of policy instruments can help to bring about behavioural change in a democratic society, particularly in the light of the more ambitious environmental targets and the general crisis in public administrative control capacity that is now widely acknowledged.

Finally, in section 4, we present some remarks regarding a rather neglected dimension of the discussion of policy instruments. Most discussions of the relative advantages of different instruments or combination of policy instruments have little or nothing to say about the institutional context within which these are to be used. Even where the 'institutional question' is raised, one receives the impression that instruments are self-executing, at least in so far as little is said regarding the organisational and managerial consequences entailed in using a particular instrumental strategy. We conclude the overview of instruments and sustainability by examining briefly some of the implications that such choices have for the way in which government organises and manages its own business and its relationships with other actors in the structures through which decisions regarding sustainability and environmental quality are to be implemented. In this sense, the notion of feasibility is enlarged to include administrative and management aspects as well as questions of political will and support.

2. Partial success in meeting the old challenge: the Dutch experience

Introduction

The Dutch situation regarding environmental policy is exceptional, not primarily for its environmental policy as such but because of the enormous amount of studies devoted to this policy in all of its different aspects. More than 100 policy evaluation studies have taught us much about the actual effect of permits and other policy instruments. This section looks at some of these studies which provide information on the implementation and effectiveness of Dutch environmental policy instruments in the 1970s and 1980s.

Dutch environmental policy deploys a large number of different policy instruments designed to influence the environmental behaviour of firms. The policy instruments break down into a number of categories. Some aim to create new behavioural alternatives or, alternatively, to make existing forms of behaviour impossible. Others manipulate the information that the target group receives about the behavioural alternatives and their specific characteristics or influence the importance that the target group attaches to these characteristics. Finally, we have a large group of policy instruments that manipulate the characteristics of the behavioural alternatives themselves. Their purpose is to make one or several behavioural alternatives either more or less attractive to the target group. This is by far the largest category of policy instruments in Dutch environmental policy and includes regulations as well as financial incentives. Policy instruments that enlarge or restrict the number of behavioural alternatives have so far been negligible in Dutch environmental policy. The category of policy instruments that provides information and moulds the target group's perception of the environmental impact of its behaviour is rapidly gaining ground. Such 'communicative' instruments can be conceived to include not only public information programmes but also mediation, covenants and environmental impact assessment.

Licensing systems in practice

The central instrument in Dutch environmental policy is the ban on performing any environmentally harmful activities without a licence. The 1970s in particular brought legislation covering virtually every aspect of the environment. For a long time, the licensing systems based on the ban were virtually the only available instruments for manipulating environmental behaviour. The most important

licensing systems concern nuisance, air quality, surface water quality (chemical) waste substances and ionising radiation. Recently nearly all of these licensing systems were integrated into one Environmental Protection Law. A survey of a large number of Dutch evaluation studies gives us the following overall picture of the implementation and effectiveness of this dominating policy instrument.

The first major studies of the effects of licensing systems centred on the Nuisance Act. The results of these initial studies came as a bombshell. It was estimated that in 1976 only 25 percent of the relevant businesses had a valid licence. Almost all of the applicants were operational long before the licence was granted, so no one was in too great a hurry. In a follow-up study in 1979, researchers concluded that only 38 percent of approximately half a million businesses falling under the Nuisance Act actually possessed a licence, and only 20 percent of industry had a licence that was sufficiently far-reaching. In light of this situation, some researchers (Aalders, 1984) claimed that it was only through 'social side-effects' (i.e. manipulation of perceptions and attitudes) and informal consultation that the Act had any practical effect at all.

In 1972 the Air Pollution Act entered into force. By 1 January, 1976 about half of the businesses concerned had applied for licences and in 60 percent of these cases licences had indeed been issued (Twiinstra Gudde, 1976), so it is fair to say that things got off to a rather slow start. One study in the early 1980s concluded that about eight years after the Act went into effect, three-quarters of the businesses concerned had been issued with licences. According to the provincial authorities, only two-thirds had adequate licences (VAR, 1981). A study of the Rijnmond area (where the refineries are concentrated) revealed that while the levels of SO₂ emissions had fallen between 1974 and 1980, this improvement was not necessarily due to the licensing requirements - far from it, in fact. Licences that had been granted would have permitted pollution levels 1.5 times higher than those actually achieved.

The implementation of the licensing system under the Surface Water Pollution Act was also far from perfect (Audit Office, 1987). This even holds true for heavy metal pollution, one of the water management boards' top priorities. Various researchers have observed similar results with regard to the disposal of *chemical waste*. Here disposal often takes place illegally. Similarly, in the case of *land fills* for ordinary waste conditions laid down in the licences were often not compatible with the policy guidelines, and even these requirements were not fully observed at a single dump.

Clearly the mere existence of a licensing system in an environmental act does not necessarily mean that the businesses falling within the act will actually have adequate licences. Even those that do have licences are not compelled to comply with them due to the lack of efficient enforcement. The ability of the system to respond to altered circumstances - for example, by issuing revised licences - is also questionable considering its inability to issue all businesses with proper

licences in the first place. On paper, the licensing system is an effective means of controlling the operational activities and environmental behaviour of businesses, but practice shows the system to be fraught with uncertainties, and therefore often ineffective.

One reason for this situation may be that the implementation costs of the licensing system are underestimated, resulting in a lack of manpower (both in numbers and skills). On the other hand, adequate implementation would probably be very expensive. Another problem is that the degree of implementation varies from region to region. As a result, businesses in a relatively strict area will pay more in the way of environmental costs than a business in a more lax area. This, in turn, could distort domestic competitiveness. However, notwithstanding all of these drawbacks, the universality of the licensing system in Dutch environmental policy does indicate that this instrument is still very much politically feasible.

Communicative instruments

Direct regulation through licences and other regulatory measures has not been selected as the main policy instrument in all environmental sectors. In the field of energy saving and products policy, for instance, there is a clear preference for communicative instruments. We have defined communicative instruments as instruments that provide information (e.g. through public information programmes) in an attempt to manipulate the target group's behaviour or to change the significance that the target group attaches to environmental values (persuasion). These instruments became particularly popular in the 1980s because they seemed to fit in with the new relationship which had developed between government and society. The 1980s witnessed the emergence of government and the private sector as partners who were both instrumental in the shaping of social developments. Within the framework of Dutch environmental policy, the following instruments have been applied and assessed: information on energy saving to industry and households, so-called covenants between government and (representatives of) business and industry, and the environmental impact assessment. Although the latter instrument is based on regulations, its purpose is to increase the environmental awareness of the various actors (and so influence their environmental behaviour) by guaranteeing the availability of sufficient relevant environmental information. For this reason, it certainly belongs among the communicative instruments.

Van der Doelen (1989) studied the application and effectiveness of policy instruments in the field of *industrial energy-saving* from 1977 to 1986. This study shows that information sent to businesses in the form of publications had some positive effects on energy management but failed to stimulate other forms of

energy-saving behaviour. Two more information instruments which were studied - that is, visits from information officers and grants to pay for external advisers - had no visible effect on any form of energy-saving behaviour.

In the 1980s, the Dutch government concluded covenants in diverse fields with (representatives of) business and industry in an effort to counter various environmental problems, especially involving certain *products*. A covenant is a written agreement that is deliberately denied formal legal status. The government hoped that industry would be more willing to do business on this basis and also that it would be more committed to such arrangements than to regulations imposed from above. Covenants were concluded in such fields as mercury oxide batteries, alkaline batteries, drinks packagings, PET bottles, cadmium in crates, air pollution from heavy commercial vehicles, CFCs in aerosols and phosphates in detergents. Klok (1989) concludes that considering the objectives of the Ministry of Housing, Physical Planning and Environment, the content of the covenants was satisfactory in five of eight cases. In three of the five cases, agreement was not difficult to reach as industry had already decided on its own accord - albeit for different reasons - to aim for the same result. In four of eight cases it looks as if the objectives will be achieved, but again the actual significance of the covenants is open to question. In the other four cases, it is either still too early to judge or there are already signs that the covenants will prove unsuccessful. All in all, this is an unimpressive result. However, this should be seen against the background of the equally limited effectiveness of regulatory measures as used in Dutch environmental policy. It is highly questionable whether alternative instruments would have provided better results.

Like most industrialised countries, the Netherlands operates an *environmental impact assessment* (e.i.a.) system. The system came into force in 1987. The scheme was designed to put the environment firmly on the decision making agenda. Despite doubts voiced by some when the scheme was first introduced, the actual implementation seems to pose only few problems. Thanks to the e.i.a; there is also a plentiful supply of good-quality information, but whether this information has helped to give the environment added weight in the decision making process is doubtful. A more realistic view would probably be to assume that - in addition to the objectives and sources of power of the various actors - information is only one of the factors that determine the decision making process and, as such, the importance attached to the environment within that process.

The adopted communicative instruments are too diverse to allow any general conclusions about their effectiveness. What goes for the e.i.a. probably also applies to communicative instruments in general. Communicative instruments can effectively manipulate behaviour only in so far as other factors create a decision making context in which the new information can tip the scales. If such a context does not already exist, it may be created by means of other policy instruments. This brings us back to policy instruments which are capable of changing the

consequences of behavioural alternatives for the target group. In the second part of this section we discussed the experiences with licensing systems. In the next section, our attention will centre on financial incentives.

Financial incentives

In the past, financial incentives have proved more stimulating to the imaginations of environmental policy scientists than to the willingness of businesses to change their environmental ways. Throughout the western world a wide range of financial instruments has been used, but rarely do these instruments show a clear relation between payments and pollution abatement (Opschoor and Vos, 1989). Still, a number of financial instruments with regulatory potential has been used in the Netherlands. The Dutch water pollution charge, for instance, is one of the most interesting examples in the world of a financial incentive used as an environmental policy instrument. The Netherlands also operates several subsidy schemes. Of these schemes, the results of the subsidies granted for industrial energy-saving, the reduction in water pollution from heavy metals and the reduced use of PCBs have been evaluated. Researchers have also evaluated the Dutch tax differentiations introduced for cleaner and dirtier cars and for leaded and unleaded petrol. Finally, an evaluation study has been made of a compensation scheme whereby industry is granted subsidies to cover 'abnormally high' costs for cleaning up, most specifically, the air.

In the same study as cited above in connection with information on *industrial energy-saving*, Van der Doelen (1989) also investigated the effects of the various subsidies on industrial energy saving. The investment grant scheme effective from 1980 to 1987 had no significant impact on the relative level of adjustment investments (insulation, heat recovery, etc.), but did have some positive effect on investments in independent energy supply systems. The energy credit scheme (soft loans) also encouraged businesses to a certain extent to invest in the replacement of energy-intensive parts of the production process. However, the policy instruments only had a modest independent effect. The over-riding factor in all forms of energy-saving behaviour is energy prices. Van der Doelen concludes that the effectiveness of the instruments is overshadowed by what he has called the Matthew effect after the apostle's words, 'To him that hath, shall be given'. Businesses that already have information and/or financial resources will get the most benefit out of the communicative and financial policy instruments without making any additional changes to their behaviour.

Heavy metals in industrial effluents contribute to water pollution. As a supplement to other policy instruments, one of the water managers decided to introduce a subsidy for businesses who removed heavy metal pollutants from their effluents. The scheme was successful in the sense that most businesses did indeed

proceed to clean up their effluents. Vermeulen (1988), however, argues that this was not directly attributable to the subsidy which, incidentally, only covered a small portion of the costs, but he does note an indirect effect of the subsidy: the scheme did wonders for relations between the water manager and industry and this, in turn, significantly enhanced the effectiveness of other policy instruments (licences and levies). Similar conclusions were drawn by the same researcher concerning subsidies for the replacement of PCB in coolants, transformers and condensers. The researcher points out that the subsidy not only acted as a financial incentive, but also prompted industry to think more about the problem (Vermeulen and Goes, 1989).

Dutch environmental law incorporates a compensation scheme to ensure that the principle 'the polluter pays' does not significantly distort the competitiveness of certain businesses. For this reason, businesses that incur 'abnormally high' costs are, in principle, entitled to compensation for the excess costs. An evaluation study of the effects of the *compensation scheme under the Air Pollution Act* investigated whether the compensation scheme enabled the authorities (provincial or local) to negotiate additionally stringent environmental regulations with the firm. The study of all 67 cases showed that in 40 percent of the cases, compensation did not stimulate the businesses to make 'abnormally high' investments in environmentally friendly facilities; and in a further 13 percent of the cases, such a causal relationship is doubtful. On the other hand, it seems that in about half of the cases compensation did induce businesses to take more far-reaching environmental measures than their competitors, and that these businesses would not even have contemplated such action without compensation.

The Dutch government is not completely free in the way it chooses to stimulate the introduction of *cleaner cars*. The European Community views national measures in this field with considerable distrust, fearing that such initiatives might lead to unfair competition. For this reason, and also because more can clearly be achieved through a pan-European approach, the policies of the individual member states are governed by a European policy. However, member states such as Germany and the Netherlands, who actually favour more radical action, were given permission to promote the introduction of cleaner cars (i.e. cars that already comply with the future European standards) by means of financial incentives on condition that the incentives did not exceed the additional costs. In other words, cleaner cars were not allowed to be cheaper than dirty ones, but at best just as expensive. The Netherlands achieved parity between the two kinds of cars by applying different rates of sales tax. The tax was reduced for cars that complied with future Euro-standards and raised for the dirtier models.

Although less drastic than originally envisaged, the measure was an immediate success (Klok, 1987). In the market for small cars (two-thirds of the market), the percentage of future Euro-standard cars jumped from 37 percent to 70 percent,

an increase achieved in half the time the Ministry of Housing, Physical Planning and Environment had expected. Considering the ineffectiveness of most environmental policy instruments, this was an exceptionally good result. In view of this success, it was not surprising that the Dutch government extended the measure to include compensation for compliance with the stricter American standards. This was initially done under protest of the European Commission, but with the general approval of the Dutch parliament. Again the measure caused the number of new cars fitted with a regulated three-way catalytic converter to shoot up. Because the European Commission was eventually reluctant to ban the measure, it even helped to reinforce the Community's overall commitment to the clean-car policy.

Cars fitted with catalytic converters run on *unleaded petrol*. For this reason, a regulatory levy - the only official regulatory levy in Dutch environmental policy - was introduced to ensure that unleaded petrol would be widely available. In this case, the absence of EC restrictions even made it possible to make unleaded petrol cheaper than leaded petrol. The result was that within the space of two months unleaded petrol had completely ousted normal petrol from the market (Klok, 1987).

The most far-reaching and best-known financial incentive in Dutch environmental policy consists of the *charges on water pollution*. In 1970 the Surface Water Pollution Act came into force delegating the task of water quality management to the provincial authorities and often, through these authorities, to the water management boards. An important aspect of the task in hand was the need to clean up sewage water. This required a great deal of money, so the water boards were permitted to introduce charges in order to cover their annual costs. Degradable organic pollution, for instance, was taxed with a hefty charge per unit of pollution. Each water board applied different rates, according to their costs and the number of units of pollution these costs have to cover in their district. Within a few years, almost every water board had raised the rates to such a level that it was beneficial to businesses to begin significantly reducing pollution levels. From 1970 to 1980 organic pollution from industrial effluents fell by two-thirds. Research (Bressers, 1980, 1983, 1988; Schuurman, 1988) has shown that almost all credit for this reduction can be attributed to the charges. The licences introduced at the same time as the charges had little effect. This is a striking result, considering that it was the licences, not the charges, that were officially designed to manipulate the environmental behaviour of businesses.

Bressers (1983) attributes part of the charges' success to the drastic change they bring about in the consultative climate between the water manager and industry. The keynote of the contacts is collaboration rather than conflict now that industry is able to achieve significant savings by cleaning-up pollution. In practice, therefore, environmental charges do not function as a purely economic mechanism. They do not replace consultation between authorities and industry,

but actually increase its beneficial effects on environmental conservation. Furthermore, an interesting observation was that most pollution abatement did not occur by add-on techniques but by what is today called process-integrated measures. In view of the damage that *heavy metal pollution* does to the sewage water treatment process and to the quality of the resulting purification sludge, most water boards also introduced a charge on the presence of heavy metals in effluents. Since the charge was relatively low, the water boards felt it had little to do with the 50 percent reduction of heavy metals in industrial effluents achieved between 1975 and 1980. Without negotiations and licensing regulations, so they thought, industry would be unwilling to budge. Statistical analysis (Bressers, 1988) showed, however, that negotiations in districts that had substantially raised the charges were much more successful than in other districts. So the regression analysis revealed that the charges, far from being insignificant, were in fact the most powerful policy instrument.

The Netherlands has used a number of financial incentives in its environmental policy. Generally speaking, these incentives have provided good results compared with the other instruments. In fact, these charges and tax differentiations lie behind the success stories of Dutch environmental policy in the 1970s and 1980s. One of the main strengths of financial incentives is that they do not simply operate as economic mechanisms, but also help to enhance the effects of consultation between government and industry.

Conclusion

This section has summarised the results of a number of studies on the implementation and effects of various policy instruments in Dutch environmental policy during the 1970s and 1980s, the period before the reformulation of Dutch environmental policy in the first National Environment Plan 1990-94. The overall picture is not very positive. The dominant policy instrument - that is, licences - has been, in practice, bedevilled by implementation problems and as a result largely ineffective. One could summarise the results of Dutch environmental policy in the 1970s and the 1980s in the following sentence. About half the policy objectives formulated in - and with the insights of - the 1970s have been achieved, but our current insights tell us we need to achieve objectives that reach twice as far. It is inevitable that a greater variety of policy instruments will need to be used to create and support the permanent environmental innovation that is required.

3. Instrumental strategies for meeting the challenge of sustainability

Introduction

In the previous section we looked at the limited effectiveness of the most frequently used policy instruments, but over the past 20 years Dutch environmental policy has undergone a radical reassessment: the original and with hindsight rather naive - belief that the pollution problem could be resolved within a single decade has made way for nothing less than the ambitious aim of bringing about drastic economic reform in order to achieve global 'sustainable development'. In both cases, the stated objective far surpasses the government's resources to realise it. The difference, however, is that we are now far more aware of this.

In order to stimulate the use of cleaner technologies and other behavioural changes needed to achieve a sustainable society, government will have to give an increasing variety of impulses. However, western governments, including the Dutch, cannot bring about the transition on their own because the required changes cut to the very heart of our production and consumption processes. There is no doubt that more needs to be achieved than is realistically possible. For this reason, to be successful, environmental policy must be directed at those factors (technical, political, financial and economic as well as aspects of international law, etc.) which set limits to the practicability of measures. In this context, government can no longer confine itself to 'authoritatively imposing limits' on the 'free interplay of social forces'. The government's role will have to be to provide guidance and create conditions conducive to social change. In creating the conditions for the effective performance of this role, attention will have to be paid to the changing nature of the relationship between government and society characteristic of advanced industrial societies.

In the highly developed western world, government and society are more closely intertwined than ever. Their diverse strands have become inextricably interwoven. It is no longer possible to make a distinction between what society would do of its own accord, that is, without government intervention, and what is added by government. At the same time, government itself has become extremely fragmented. There is a wide array of governmental bodies which in turn break down into diverse organisational parts. In addition, the multitude of different interests experienced within society are virtually all represented in one or more of these organisations. Therefore, the 'battle' to accelerate the pace of change in the direction of a sustainable society must also be fought out within the government's own ranks. In light of all this, government will have to share the role of providing guidance and creating the proper conditions with other organi-

sations active within society. In doing so, government must take care not to compromise its special status as democratically legitimate authority.

This, in a nutshell and at a high level of abstraction, is how we see the general task of environmental policy in the Netherlands (and other developed western countries) and the context within which the objectives of sustainability will be pursued. What then does this tell us about the capability of various types of policy instruments to reduce the environmental load and consumption of raw materials, and thus help to ward off the global environmental threat? Below, the various types of policy instruments are discussed individually for the sake of clarity. We emphasise, however, that the various instruments should not be seen as alternatives for each other. On the contrary, as we hope to show, a combination of the various types of measures would be the best policy by far.

Direct regulation

Evaluation studies sketch a fairly gloomy picture of the practical effects of licensing systems in the Netherlands. Of course, this picture is largely based on the 1970s and 1980s and need not necessarily apply to the 1990s and the next century. If, as these studies suggest, the practicability and effectiveness of policy instruments not only depend on the characteristics of these instruments but at least as much on the circumstances in which they are deployed, changes in the general situation could affect the relative effectiveness of instruments under these new conditions. Consequently, it is fair to assume that heightened environmental awareness could cause governments to give implementation higher priority as well as make target groups more willing to cooperate.

Indeed, a number of measures are being taken to make direct regulation a more effective way of controlling environmental behaviour. The introduction of general regulations, integral licences, the development of emission standards, the official preference for target regulations and the expansion of the implementation and enforcement machinery are all helping to make direct regulations a more effective policy strategy. Nevertheless, despite these measures the question remains: are direct regulations alone capable of countering the imminent threat to the environment?

In the first place, there is the intrinsic problem that direct regulations set hard and fast standards and tend to draw a rather draconian line between right and wrong. Consequently, much time and effort are spent on determining where the line is to be drawn and whether a particular kind of behaviour is on the right or wrong side of the line. This gives rise to complex issues of guilt and proof. The strict limits set by direct regulations are impossible to enforce and policy implementors in western European countries are therefore inclined to use the system for a different purpose, namely to strengthen their negotiating position. This is

understandable and, under the circumstances, probably also the most effective approach. It also serves to undermine the logic of the system and leads to problems such as the tacit toleration of infringements on a more or less permanent basis.

Secondly, and perhaps more important, direct regulation does not provide a positive stimulus to do more than what is strictly required. In other words, the efforts to control environmental behaviour are mainly static. This would not be a problem if the technologies used by the target-group businesses were also static and, therefore, the required level of environmental protection more or less fixed. However, this is by no means the case. The pace of technological development is accelerating, leading to new business processes with different environmental consequences. Licences often become rapidly outdated due to the introduction of new technology. In addition, the aim to achieve a 'sustainable society' is so far-reaching that we still cannot grasp its implications for more concrete environmental objectives. Given the state of current technology, many of these objectives will be either unaffordable or impossible to realise for other reasons.

To remedy this situation, the environmental behaviour of businesses should not be restricted but should be stimulated to develop in the direction of sustainability. Environmental efficiency (including the efficient use of raw materials) must be made a key priority in the continuous process of innovation, just as productivity improvement has been for a long time. Only then can we, as a society, hope to bring the all-embracing objective of sustainability within reach. What this means is that the government must be able to rely not only on the business community's cooperation, but also on its creative power. Direct regulation is hardly the best instrument for winning such whole-hearted support.

In the third place, the reforms currently being implemented in the field of direct regulations (e.g. target regulations, general regulations, etc.) mean that the government is distancing itself from detailed involvement in the operational decision making within companies. This non-involvement, however, is clearly not compatible with the need to arrive at integral chain management. Take, for instance, the case of a company undergoing rapid technological development. In order to use direct regulation to influence not only the emission of pollutants but also the quantity, origin and nature of raw materials, (semi-finished) products, equipment and energy, the government must seek intensive involvement in the company's internal decisions. The 'logic' of this intervention strategy could lead to a situation in which the government directly plans the flows of goods and/or substances within the economy. Earlier publications have warned of the danger that this could result in a new kind of command economy (Maier-Rigaud, 1990), with possible implications for other aspects of our society such as the degree of personal freedom and distribution of power.

There is every likelihood that the 'social and ecological market economy', which would support a strategy of sustainable development, will be characterised

by a different moral and cultural environment from present-day society. Most people today accept that there is a direct link between the former Eastern European 'solution' for the social question and the lack of respect for individual human rights, so effecting a transition to a sustainable economy is not the only matter of importance. What is equally important is *how* this transition is brought about. Change is required on such a vast scale that one-sided emphasis on direct regulation, even if potentially successful, would be unwise. In our view, incidentally, exclusive direct regulation would not so much lead to a command economy in the western world, but to a breakdown of policy on the grounds of lack of legitimacy.

Information

It is not surprising, therefore, that other, less state-controlled ways of influencing environmental behaviour are being sought to supplement direct regulation. One alternative is to provide information. The results of Dutch evaluation studies show, however, that information is not a very effective way of influencing environmental behaviour, but information can be used for purposes other than the direct stimulation of behavioural change. Public information campaigns, for instance, seem to be mainly aimed at influencing people's attitudes toward the environment. The underlying reasoning is that lack of environmental awareness is a fundamental cause of pollution, and that a change of attitude would help to reduce pollution.

However people's attitudes cannot be used as a crowbar to pry open the door to a clean environment. Attitude, in general, follows behaviour. A new attitude is mainly important to embed environmentally friendly behaviour within society and thus ensure that measures are practicable and enforceable in the long term. To the extent that this new behaviour becomes internalised, there is no need for continuous policing.

The danger of presenting a change in attitude as a universal panacea is that the government urges people not to make certain behavioural choices, while leaving the advantages of these behavioural choices intact. This could make a rather hypocritical impression. In the Netherlands, for instance, the government has been accused of applying double standards by stimulating the growth of the national airport while appealing to people to spend their holidays in the Netherlands on environmental grounds. This kind of double-think not only affects policy effectiveness but also the government's credibility and, hence, its ability to exercise control in the longer term. At the very least, information must be backed up by additional negative signals, such as price stimuli (as with alcohol and tobacco) or even regulations and bans. Without such measures, policy will lack credibility.

Attitude is extremely important, not as a means in itself but as a way of creating a broad base of support for policy measures. The base of support within society is the most important limitation on the feasibility of environmental policy and also the first limitation to become visible, but it is very doubtful whether government can influence people's attitudes directly through campaigns. An appealing policy which is promoted with enthusiasm and provokes widespread discussion in the media and society at large is probably a more appropriate and more effective way for government to influence environmental attitudes.

Financial incentives

Above we have mentioned the example of price stimuli as one method of control. This is one kind of financial incentive. Studies show that the use of financial incentives in the Netherlands has led to some notable success stories: the strong reduction in the quantity of oxygen-binding substances and heavy metals in industrial effluents in the 1970s and the rapid introduction of unleaded petrol and cleaner cars. These instances concerned duties (negative incentives) and tax differentiations (combinations of positive and negative incentives).

Subsidies (positive incentives) generally have a much lower success rate. This may not necessarily be due to the fact that positive incentives are less effective than negative ones. Subsidies generally only cover part of the additional costs, while duties and tax differentiations are not expected to work unless they at least cover all of the additional costs. The problem is that subsidies which cover all of the additional costs of environmental measures are, even more than lower subsidies, in breach of the international principle that 'the polluter pays'. One frequently mentioned disadvantage of duties is that the 'perception costs' are much higher than with other forms of taxation. In our opinion, this is a misunderstanding. What a tax lawyer sees as 'perception costs' are actually, within the framework of environmental policy, concrete efforts to monitor and enforce proper environmental behaviour of businesses. The belief that direct regulation requires less intensive monitoring is largely misguided.

The variety of duties is at least as wide as the variety of direct regulations. At the micro-level, control can be exercised through product levies (e.g. on normal leaded petrol in Europe) applied alongside or in combination with other direct instruments. On a larger scale the Dutch water-pollution charge gave rise to a context in which negotiations with companies were more successful than in other environmental sectors. The introduction of 'green taxation' (broadly speaking; a tax on the material inputs into the economy instead of monetary transactions within the economy) would entail an application of financial incentives on an even wider scale. In this way, the general direction of economic innovation can be brought more into line with the transition to a sustainable society.

'Countervailing power' from society at large and interventions from government to protect the environment will thus stand a better chance of success: as the reduction in emissions leads to the benefit of reduced charges, there is a continuous incentive to produce in a 'more environmentally efficient' manner.

Without such financial and fiscal measures, it is difficult to see how a successful conversion to a sustainable market economy can be made. Without the financial weapon, environmental policy is doomed to 'sail against the wind'. Charges, however, have one major drawback: their political infeasibility. We suspect that the strong resistance to these measures is, at least partly, due to their effectiveness. Charges run up against more objections than any other policy instrument. Many of these objections are either spurious or could be applied equally to other instruments. Nevertheless, this political sensitivity is a problem that must be reckoned with, both by trying to increase the feasibility of such instruments and by not entertaining unrealistic expectations regarding the rapid introduction of large-scale, charge-based systems.

Self-responsibility

The last type of approach to be discussed in this summary is not really a policy instrument; rather, it makes use of a variety of instruments. Some instruments were discussed in section 2 as forms of communicative instruments. Others are seen as a special type of regulation. These are aimed at stimulating society and other governmental bodies to accept responsibility for sustainability and environmental quality. This is done through target-group consultation and the resulting covenants, company or personal liability, emissions trading, research and information obligations, requirements for companies to employ staff with certain level of expertise, the creation of institutional facilities (environmental impact assessment, company environment departments and internal company environmental management systems), etc. Many of these instruments also operate indirectly through intermediary organisations and sometimes even lead to the creation of such intermediary organisations. This approach is becoming much more widespread, not only in the Netherlands but - since the Fifth Environment Action Programme of the European Union - also at the European level.

When the western world first embarked on its environmental policy, the focus was on emission control and limited emission reduction. When the policy came up for a major review at the end of the 1980s, the targets were stepped up to emission reductions as high as 70 percent to 90 percent and integral chain management. Such dramatic changes can only be brought about with a broad base of support in society. In fact, the consequences of these changes are so far-reaching that we really have no idea to what extent they are feasible, let alone whether they are affordable.

As we have already noted, the challenge of environmental policy has shifted from winning corporate cooperation to harnessing corporate creativity. Creativity cannot be squeezed out of the companies by a regulatory strangle-hold, at least not where so many aspects are involved concurrently. For this reason, countries with more forward-looking environmental policies are now emphasising consultation between government and target groups while encouraging self-regulation among businesses. Such a policy calls for a delicate balance between external pressure and internal motivation. This form of consultation can only succeed if the realisation of the environmental objectives is ultimately perceived by all participants to be 'inevitable', and this perception can only be achieved by means of sufficient social and political pressure. In such a twin-track policy, therefore, it is vital to achieve an optimal fine-tuning of legislation and enforcement on the one hand and consultation and self-regulation on the other.

In the Netherlands both tracks are being developed rapidly, but this is taking place without sufficient synchronisation. As a result, the new environmental policy is threatening to become an ambitious high-speed train railway with the right and left tracks each following a very different course through the landscape. Strong pressure is required to make the two tracks run parallel again. As things stand in the Netherlands, we think this process will cause direct regulation and enforcement to increasingly become derivatives of consultation with target groups.

Clearly, we believe that consultation and self-regulation form an indispensable track in environmental policy. In our view, every move that serves to discourage target-group consultation, covenants, company environmental departments, environmental management systems, and so on, is a move in the wrong direction. However, this track soon clashes with direct regulations which stipulate requirements concerning, for example, equipment or technology and even with those that set specific targets. Sometimes, for instance, arrangements are based purely on the capabilities and limitations of an industry without any regard to differences in regional environmental circumstances. Companies which feel placed at a disadvantage can use such arrangements as a bargaining counter when negotiating licensing conditions and as an excuse for not fully complying with the regulations. Vice versa, irritation provoked among the business community by such 'two-track control' can easily undermine the good will and commitment which are precisely the key benefits of target-group consultation.

The only way out of this dilemma is to differentiate in terms of both the application and nature of the legal instruments, between positive-active companies, law-abiding but passive companies and uncooperative companies. In other words, legal instruments, which will certainly continue to be based on licensing requirements for some time must be applied more flexibly. Companies with an environmental management system - which is recognised by the authorities and, preferably, also certified by an external body - can qualify for an integral licence on the basis of that system and an approved business

environmental plan. In such cases, policy enforcement can partly take place through audited progress reports. With other companies, however, government must retain the possibility of issuing instructions, even, where necessary, by demanding certain clean-up technologies.

Such wide discrepancies in the content of the instruments may seem rather unusual from a legal perspective but, as the evaluation studies show, such differentiation has already occurred, albeit unintentionally, to a significant extent in the past decades. This differentiation was not based on concrete policy considerations, but rather resulted from a lack of capacity and priority for the enforcement of environmental legislation. In the former situation by no means all companies had licences, many of these licences were inadequate and virtually no systematic monitoring took place. By comparison, a well-founded differentiation in the application of the law is really only a limited form of differentiation. One significant advantage of this approach would be that this inevitable and functionally necessary differentiation would no longer occur 'under the table' but would be out in the open as part of the negotiations every one could see.

4. Concluding remarks: policy, instruments and institutions

One of the central lessons to be drawn from policy evaluation studies is that the effectiveness of policy instruments cannot be judged on the basis of the characteristics of a particular instrument alone. The appropriateness of an instrument, and its potential effectiveness, depend on the nature of the problem to be dealt with and the conditions under which action is taken. Moreover, in dealing with policy problems it will seldom be the case that one instrument alone will do the trick. Instruments will need to be used in varying combinations, again depending on the nature of the problem, the kinds of behavioural or other changes required for arriving at a satisfactory solution, and the conditions under which these modifications of actors' behaviour are sought.

Although it may indeed be a sign of the intellectual times that government is seen as (relatively speaking) in 'retreat', it is equally clear that environmental policy cannot do without such rules and regulations that are effectively enforced as limits upon permissible social behaviour. With all our interest in covenants, communicative instruments and financial incentives, we should not forget the continuing importance of the more traditional instruments of direct regulation. As we have seen in section 3, the instrumental strategy at the heart of the emerging approach to environmental management in the Netherlands continues to make significant use of direct regulation to translate collective decisions regarding available environmental space and desired environmental quality into the limits and parameters within which individual choices and activities are to take place.

Such 'direct' regulation can also work indirectly, by shaping the conditions under which the decisions of economic actors are made. Guided by both ethical and practical, economic consideration of 'rational market behaviour', a weighing of the environmental impacts of activities can be internalised into the decision making of producers and consumers. In this sense, facilitating and stimulating instruments can be used within the framework set by government regulations and policy decisions spelling out the responsibilities of different actors. In an important sense, bargaining among the different actors occurs and agreement is sought under the stimulus and in the shadow of government regulation.

A further conclusion that can be drawn is that whatever combinations are deployed, these instruments need to be used flexibly and in a differentiated manner. Government intervention has to be tailored to the requirements of specific situations and the variations in the behaviour of the target group. It is at this point, at the very latest, that we should begin to look more closely at other factors which determine the effectiveness of a given instrumental strategy. In this connection, important questions arise with regard to the implementation structures through which decisions are made regarding which instruments will in fact be used, in what way and to what end. These questions draw attention to the factors that determine the capacity of a given administrative system for applying such a differentiated instrumental strategy. Indeed, more generally, we need to examine the kinds of demands are made on governmental organisations and management when environmental quality objectives are sought under conditions characterised by high degree of self-regulation on the part of the target groups and a joint-responsibility of government and these groups for the realisation of policy goals.

Unfortunately, most discussions of policy instruments remain organisationally disembodied. To be sure, arguments regarding the need to move beyond direct regulation often take as a point of departure, among other things, the perceived enforcement and information problems that result in an overburdening of government and consequently ineffective policy implementation (WRR, 1992). Similarly, studies of effective policy implementation have also wrestled with the question of the optimum level of government action for dealing with problems of a particular scope or scale (Van Soest and De Wit, 1992: 62-78). On the whole, treatises on policy instruments seem to take for granted that whatever combination of instruments has been determined to be the most appropriate for the problem at hand can, in principle, be implemented in concrete situations. When we begin to talk about tailoring instruments to specific situations and types of active/passive, good/bad firms, it becomes imperative to ask how we organise and manage the processes through which such differentiated responses are designed and applied in concrete cases; for it should be clear - or at least can be argued subject to verification by further research - that different kinds of instruments make different kinds of demands on organisation and management. For example, organisational arrangements and procedures designed to work with

subsidies may not be appropriate for granting and enforcing permits. Similarly, managing the more indirect and permissive relationships between regulatory agencies and 'self-responsible' firms at the same time that closer supervision and control of environmentally less-reliable firms is undertaken may make contradictory demands on personnel and organisation. These contrasting patterns of action may cause no problems when the application of different instruments or the populations of different types of firms can be organisationally and procedurally segregated within the agency, but one of the preconditions of preventive policy is the treatment of the environmental impacts of a firm's activities systematically and in their inter-relationships. Therefore, when we argue for employing different combinations of instruments in different ways to targets of varying 'quality', it behoves us at least to examine the organisational and managerial conditions under which such regulatory activities are to take place.

It is not that the kind of differentiated application of policy instruments within a broader context defined by a combination of direct regulation and self-responsibility is impossible. It is simply that it is necessary to look at who is supposed to be doing what together with whom in carrying out such strategies. It seems to us that more attention needs to be paid to the kinds of organisational changes that are taking place (or are necessary) at the different levels of decision making both within the individual governmental and societal organisations and in the inter-relations among them. Of course, important ingredients for such an analysis can be extracted from remarks made regarding the enforcement problems and information needs of direct regulation and the resulting overload of the government's capacity for effective enforcement; or from the ruminations regarding the appropriate scale of government jurisdiction. Also, there have been suggestions of the kinds of institutional changes that are required if our strategy of environmental management is to combine self-regulation and market incentives within the framework set by environmental legislation. Such discussions usually deal with institutions of a higher level of generality, such as the system of taxation.

One interesting exception is the discussion of the institutional repercussions for the present implementation structure, especially the role and position of municipalities and provinces in a system of territorially based decentralisation, of the system of self-regulation at present being promoted (Van Soest and De Wit, 1992). Another, more explicit treatment of institutional arrangements - in terms of the organisational and management consequences of target group approach - can be found in such documents as Ministry of Housing, Physical Planning and Environment's White Paper on the Target Approach Industry (and in the follow-up position paper on the implementation aspects of this approach) (VROM, 1990, 1991). Here a clear description is given of how the central government (in particular, the Ministry of Housing, Physical Planning and Environment) is organising itself to handle its responsibilities for target-group

management as well as how the consultation process between the different government actors and organised representatives of business community in the different industrial sectors is to be managed. This position paper describes the division of labour among actors from different levels of decision making, and the inter-relations among them, in connection with the process of consultations and bargaining leading up to the various agreements on which the definition of the 'integral environmental task setting' for different branches, and on the programmed implementation of the different measures entailed by these objectives at the level of the individual firms. Discussions of the numerous flanking measures designed to provide the requisite infrastructure at the level of individual municipalities and firms shed light on the kinds of organisational changes that are necessary if the individual actors are to have the capacity to fulfil their particular roles in this process of joint regulation and management. A similar description of the way in which networks of public authorities, target groups and other affected actors are being set up or planned to deal with problems of agricultural pollution also shows the kind of information and analysis that is required if discussions of the effectiveness of instruments are to be embedded in the institutional arrangements through which they are applied (Vos, 1994).

Target-group consultation, as both the context within and the processes through which the goals of sustainability are to be realised, is playing an increasingly central role in the Netherlands and various other European countries. The importance of this strategy for defining the way in which society and government jointly translate the collective decisions on environmental usable space into the parameters for individual action demands that more attention be devoted to the organisational consequences of this strategy for the effectiveness of the policy instruments used in the implementation of environmental policy. The institutionalisation of this approach needs to take place at different levels. In more general terms, it is necessary that we look for ways to institutionalise this consultative process in such a manner so as to protect the legal and democratic integrity of government.

One model that could be followed in this context is the institutionalisation of the consultation between government, industry and the trade unions. Like collective labour agreements, covenants could be given retrospective binding force. One advantage of this would be that companies which refuse to participate in the consultative process can no longer claim that this exempts from the arrangements made. Naturally, institutional reforms create their own dynamics and the consequences of this must be carefully weighed out in advance. However, the far-reaching scope of the aspiration to achieve sustainable environmental development (in our view comparable with the social reform movement at the turn of the century) and the growing significance of various forms of consultation make it imperative to find an appropriate institutional form. At another level, as we have seen, it is necessary to develop appropriate structures and procedures to

give organisational form to activities of individual actors and their joint undertakings and to manage the decision processes through which combinations of instruments are applied in concrete situations.

The effectiveness of a particular instrument, or combination of instruments viewed as appropriate for the particular conditions under which environmentally friendly behaviour is to be promoted, ultimately depends on our ability to organise and manage the implementation of this policy strategy. At the moment there appears to be a sharp split between the more theoretical discussions of policy instruments without much attention to how these processes are organised in practice, and the more practice-orientated policy notes and commentary of practitioners are confronted with the concrete need to 'get something done'. A useful - and indispensable - contribution to increasing the effectiveness of policy instruments could be made by research into the institutional arrangements for delivering environmental policy under conditions defined by the configuration of actors and instruments implied by a commitment to some variation on the target group approach. In this way, the study of instruments could be reunited with the study of the organisational and managerial infrastructure for the implementation of public policy.

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