Environment Agency


# Guidance on combining policy instruments

Report: SC070063/R2

Better regulation programme

Evidence Directorate

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It's our job to make sure that air, land and water are looked after by everyone in today's society, so that tomorrow's generations inherit a cleaner, healthier world.

Our work includes tackling flooding and pollution incidents, reducing industry's impacts on the environment, cleaning up rivers, coastal waters and contaminated land, and improving wildlife habitats.

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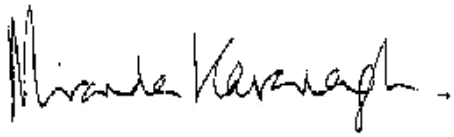


Miranda Kavanagh

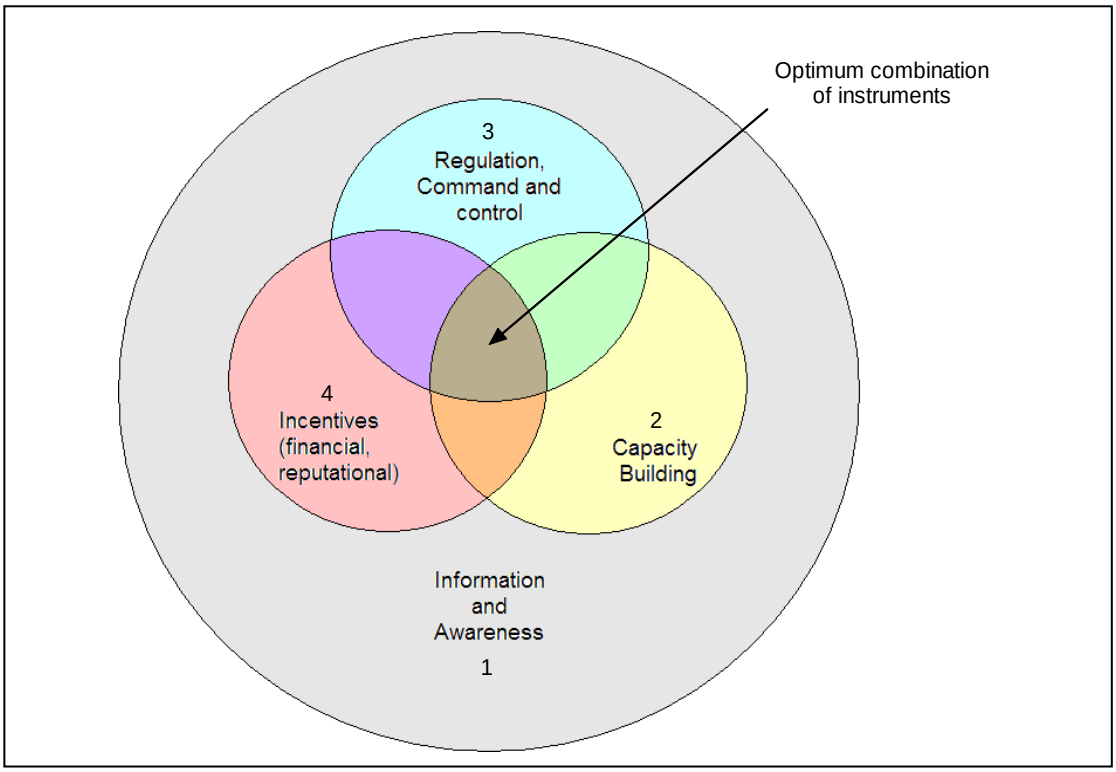
**Director of Evidence**

# Practical implementation for use by policy and operational staff to deliver environmental outcomes

This guidance sets out how combinations of policy instruments and approaches can be used for delivering environmental outcomes in the most effective way. It is for use by the Environment Agency and provides practical information on how to implement the policy instruments selected by the EU or UK governments, and how to adopt complementary approaches at a more operational level. It is for use by both policy and operational staff. The guidance within this document has been developed as a result of the in-depth analysis of case studies detailed in Environment Agency Report SC070063/R1.

## 1 Background

Better regulation is focused on securing improved environmental outcomes in improved ways. Theory from existing literature suggests that applying a combination of policy instruments can secure better outcomes, as measured against key criteria such as efficacy and efficiency, than individual policy instruments delivered on their own. To illustrate, imposing a tough regulatory standard without raising awareness of those affected and ensuring they have the capacity to comply reduces both the efficacy and the efficiency of policy. This is depicted in the diagram below which suggests that change is most achievable where there is a level of awareness, where there are capacities for change and where there are mutually reinforcing imperatives and incentives for change. This mix of policy signals can come from one or more instruments and approaches – and the sequencing of these signals (as depicted in the numbers assigned to each) can be an important element of successful implementation.



## 2 Definitions

Whilst implementing agencies such as the Environment Agency do not select policy instruments, they do choose how to apply them, and they can adopt complementary approaches to improve policy outcomes at a more local level. We therefore distinguish between *instruments* and *approaches* throughout this document.

- **policy instruments** – these are the policy tools that the Agency is asked by government to apply. They can come in a number of forms:
  - direct regulation - including permits, registrations or the direct application of legislation, for example for setting certain areas of farmland as Nitrate Vulnerable Zones.
  - alternative approaches – including market based approaches (taxes or trading schemes) , education or advisory campaigns and voluntary or negotiated agreements.
- **policy approaches** – these include the range of measures (i.e. awareness raising or capacity building measures) that the Agency can choose to apply as a complement to the instruments they are required to apply. Policy approaches can have a significant effect on policy outcomes, including the costs of implementation and the costs of compliance.

## 3 Combinations of instruments and approaches

Policy instruments and approaches can work in a number of ways as illustrated by the Defra diamond[1]:

- They can **engage** - new initiatives that allow people to take better decisions and to work together more effectively.
- They can **enable** - by educating and raising awareness, or by building the capacity of people to participate and to contribute to the delivery of environmental goals. This has tended to be done via education or by the provision of facilities/infrastructure to allow behavioural change, for example by providing recycling facilities or water meters.
- They can **encourage** - by adopting or incentivising more desirable forms of behaviour and disincentivising the less desirable forms of behaviour. Typically, this has been done through economic or tax-based instruments, however it can also be done by recognising and rewarding good behaviour with positive publicity.
- Or they can **exemplify** - by those seeking the change setting a good example in the way they conduct their business.

Evidence from the case studies indicates that a combination of measures (legislative and/or non-legislative mechanisms) often works best. Non-legislative mechanisms can be used either instead of (as an alternative) or as well as (to complement) regulations or economic instruments. Experience as reinforced by the case studies shows that they tend to work best when they are applied as part of a `complementary mix' of instruments and approaches – with each reinforcing the influence of another.

[1] HMSO (2005) UK Sustainable Development Strategy model of behaviour change

For example, an instrument that is introduced to encourage changes in behaviour, for instance by introducing tax-based economic incentives, will have little effect unless target groups are able to respond to these incentives. Similarly information based approaches usually work best when combined with measures to increase the ability of the target group to apply the information. Many programmes or initiatives therefore adopt a range of mechanisms.

# 4 Combining approaches at regional/field level

This section provides a check list of key points to consider for combining policy instruments and approaches to aid effective delivery in order to tackle environmental problems. Following these guidelines will allow the application of combinations of policy instruments and approaches to be carried out in a coordinated manner, with a formal process used for design, implementation, monitoring and analysis. Environmental policy should take into account the dynamic nature of the issues so a process of continually reviewing the choice of policy instruments should be applied.

**Raise awareness amongst the target group**

In most cases the first approaches that should be taken are those which will raise awareness of the issue, and the requirements associated with that issue amonst the target group.

This step might involve carrying out bespoke research to understand who the target group is, and the best ways of targeting information at that audience. The benefits of investing time and money into this research were shown in the waste crime study, where research enabled the most appropriate locations to target information to be determined and prevented wasted advertising cost elsewhere. This research also enabled the policy leads to gain a better understanding of the motives for current behaviour amongst the target group.

**Build capacities to change and to comply**

The target audience needs to have all the information and resources required to be able to comply with a piece of legislation. The approaches taken to implementing policy need to account for this and ensure that there are no barriers to complying with new requirements.

The catchment sensitive farming initiative offers a good example of capacity building amongst the target audience, through the provision of dedicated catchment officers working one to one with farmers.

**Ensure all instruments and approaches adopted support the same environment objective**

When considering approaches to take, the same environmental outcome must be the goal for all of the instruments and/or approaches being considered. If the outcome is not consistent, negative interactions might be encountered. By keeping consistent termninology and objectives the target audience will be clearer on the ultimate goal as it will appear simple.

Taking reduction of municipal waste to landfill as a case study offered an example of differing environmental objectives causing negative interaction between policy instruments. Whilst the majority of instruments work towards the reduction of all types of municipal waste to landfill, the landfill allowances schemes focus on the reduction of biodegradeable waste to landfill. This causes conflict when, for instance, a

separate glass recycling collection is implemented which reduces the total volume of municipal waste to landfill, but results in a higher proportion of biodegradeable waste to landfill which affects the landfill allowance.

**Work with other actors to ensure regulations support rather than contradict**

Investing time in building partnerships with key stakeholders to make them as effective as possible is important and can affect the cost effectiveness of any initiative. Involving partners in all stages of the initiative from planning through to monitoring and analysis can help ensure that regulations support rather than contradict and can also mean that a wider suite of policy instruments or approaches is available to use.

The use of the national intelligence model approach to illegal waste export highlights the benefit of working with partner agencies to effect the most beneficial results. Time has been invested in building partnerships with the Vehicle and Operator Services Agency (VOSA), Driver and Vehicle Licensing Agency (DVLA), Immigration, the police, the Scottish Environment Protection Agency (SEPA), Northern Ireland Environment Agency (NI EA) and the dutch Ministry of Housing, Spatial Planning and the Environment (VROM). In addition they work closely with major shipping lines to gain information. It has been found that in some cases it is more effective (cost, or time) to call upon another organisation to solve a particular problem, for instance immigration dealing with a key player involved, than it is for the EA to tackle the problem using the policy instruments available to them. In addition, the waste crime study highlighted the effectiveness of clearly defining the roles of different partners; for flytipping the EA have responsibility for the ‘big, bad and nasty’ whilst LAs have responsibility for smaller incidents.

**Consider ways of adopting incentives (financial, reputational) to reward change and compliance**

Incentives can either positively reward those who comply with legislation, financially or reputationally, or alternatively the incentive to comply can be as simple as the threat of enforcement action if the target audience does not comply.

Therefore it is important that the enforcement action taken is representative of the scale of the environmental problem and is not seen as a simple inconvenience if caught for non-compliance.

For waste crime, the inclusion with the awareness raising campaign of examples where vehicles had been seized for non-compliance and the public crushing of those vehicles acted as an incentive for other non-registered waste carriers to complete the necessary paperwork.

An alternative approach is taken for the catchment sensitive farming initative where grants are available to assist with the costs of complying. These grants can cover up to 60% of the capital costs required – but many of the measures result in significant cost savings to farmers in avoided fertiliser or pesticide costs, and also crop yield improvements.

**Sequencing of policy approaches and instruments**

The sequencing of implementation of different policy instruments and relevant approaches can result in a more cost-effective implementation if considered from the start. As the diagram on page 1 indicates, it is common for information and awareness raising to be completed first, followed by capacity building, then the introduction of incentives and finally hard regulation and control to come into force.

This sequencing fits well with a risk based approach to implementation whereby the initial softer steps result in wins from some of the target audience, with the second step resulting in more behaviour change, the introduction of incentives reaching most of the target audience and leaving only the most high risk offenders to be left to be dealt with hard regulation and enforcement action. Whilst this is a recommended starting point for consideration of timing and sequencing of approaches and instruments, it is not always the most appropriate and it should be though about for any given initiative.

Examples from the study of waste crime show that whilst the suggested approach works for dealing with illegal waste carriers, where illegal waste export is involved the information and awareness raising needs to occur at a later stage as too much information can inhibit the collation of evidence to enable the national intelligence model approach to work effectively.

**Undertake careful monitoring and formal evaluation**

If a policy instrument is to be effectively evaluated information is needed on both the costs of the policy as well as on its physical achievements. This requires collection of data prior to the implementation of the policy instruments and approaches, during their implementation and (if relevant) after the policy instruments and approaches have been concluded. The evaluation of the instruments and approaches can be compromised as a result of inadequate data, which reflects a lack of sufficient and timely monitoring.

The first task is to establish as clearly as possible a baseline, which provides data on environmental impacts in the region where the policy is to be introduced as well as in other comparable regions prior to the introduction of the policy. This should cover all major environmental burden indicators, as well economic data on costs of any mitigative measures that are currently in place. Such a baseline is critical to the evaluation of any policy action.

The second task is to collect data on the same variables during the implementation of the program. In some cases the program is introduced gradually, in which case the degree of enforcement over time should be recorded. If the program has a regional aspect, it is very helpful to continue collecting data in similar areas where the instrument is not being invoked. This allows for the use of econometric techniques based on spatial matching, which are becoming increasingly effective in comparing ‘policy’ areas with areas where the policy is absent.

Both these monitoring exercises need to be planned for well in advance of the implementation of the instrument, and need to be continued for the entire duration of the implementation as well as well after the program has ceased operating.

The third task is to collect as comprehensive a data set on the instrument itself. These will include costs of compliance for the affected parties, as well as costs of administration and monitoring. Such costs may include capital and variable costs in which case an estimate of annualized costs will need to be constructed from the primary data.

It may be appropriate to undertake formal evaluation between comparative case studies after an interval of e.g. 3 to 5 years after implementation of any initiative to determine whether or not it is cost effective and to begin a process of review to ensure the instruments and approaches being taken are the most appropriate solution to a given environmental problem.

# 5 Useful tools and techniques

More information on the evidence behind this guidance, sources of literature relating to combining policy instruments and details of the three case studies referred to can be found in EA Science report 070063/SR.

A useful tool to consider using during the design stage is the 'log-frame matrix'.

The logical framework can help to clarify the objectives of any project, program, or policy. It aids in the identification of the expected causal links (program logic), outcomes, and impact. It can lead to the identification of performance indicators at each stage in this chain, as well as risks which might impede the attainment of the objectives.[2]

During implementation the LogFrame serves as a useful tool to review progress and take corrective action.

More information on using a LogFrame can be found in *The Logframe Handbook* (World Bank 2000) available at http://www-wds.worldbank.org/.

It may be possible to employ a quantitative technique, such as conjoint analysis, to aid decision making as to what the optimum combination of policy approaches to take is. Conjoint analysis, or discrete choice modelling, could be used to determine both the most preferred combination of policy instruments and the preferred values of each instrument of the regulated group. This information could allow the regulators to target policy instruments in such a way to achieve optimal behavioural change.

The use of conjoint choice analysis to determine preferences of policy-makers between different combinations of instruments is possible, but it would need careful specification. It would be necessary to define the objective clearly, for example, it could be to reduce green house gasses, or in the case of water, to meet certain water quality objectives in a given river basin. This specification would have to be exact because in defining each set of instruments the policy-maker must be provided with a measure of how the 'package' performs with respect to these objectives. In addition, the information set would have to include data on changes in government spending (positive or negative), the 'acceptability' of the package to different stakeholders etc. It is important to note that the results of this type of analysis cannot be easily transferred to another application.

More information on the use of conjoint analysis can be found in various locations. Two useful weblinks are provided here:

http://www.sawtoothsoftware.com/

http://www.marketvisionresearch.com

A useful overview of Impact evaluation can be found at http://www.worldbank.org/ieg/ie/

An overview of general principles and methodologies that are applicable across sectors for economic analysis, including quantitative risk analysis can be found in *Economic Analysis of Investment operations* (World Bank 2001) and can be found here at http://www-wds.worldbank.org/

[2] World Bank. Operations Evaluation Department, Washington, DC: Monitoring and Evaluation: Some Tools, Methods and Approaches, 2002

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