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Best Practice on Environmental Policy in Asia and the Pacific: Chapter 3

Researching Environmental Policy in Asia and the Pacific: Lessons from the RISPO Good Practices Inventory

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This chapter introduces and describes the methodology used in a recent research program aimed at identifying useful lessons about what has made environmental policies successful in developing countries, particularly in Asia-Pacific. These lessons are intended mainly for policymakers. The study used qualitative research methods, including textual pattern matching, to analyze more than 100 good practices in the area of environmental policy that comprise the Good Practices database of the Research on Innovative and Strategic Policy Options (RISPO) project of the Institute for Global Environmental Strategies (IGES). This paper outlines how the original good practice case studies were gathered and documented and then the stages of research and analysis in the current study. It is intended as a part of the series of eight linked papers in this special issue of the *International Review for Environmental Strategies* (*IRES*).

Keywords: case study analysis, pattern matching, environmental policy, social learning

1. Introduction: Background to the study

Some writers have suggested that national institutions cannot and should not be entrusted with making policy decisions about environmental issues that affect the entire planet. For example, Ho-Won Jeong (2001) argues that "global interdependence requires limits on political sovereignty and the state's pursuit of its own self interest." Instead, these writers propose that global governance is the only answer to many of today's most pressing environmental issues. However, if convergence between the environmental policies of different states, particularly between those of the North and those of the South, can be accelerated through improved social learning, then it might be possible for the desired ends to be achieved through policy at the national level. In any case, there is no evidence that states have any intention of ceding sovereignty over environmental management to any international authority.

From the literature, it is evident that nations do learn from one another in environmental policy and related domains, sometimes voluntarily, sometimes under pressure from a wide range of actors. However, the process as it is practiced today appears to be rather hit-or-miss, as differing national characteristics—such as culture, politics, policy styles, institutional capacities, influence of vested interests, and level of public support—can make poorly thought-out or inadequately researched policy transfers not only ineffective but

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also highly costly for affected industries and communities. For example, the global ban on the insecticide DDT (without adequate alternatives in place) probably needlessly condemned millions of people to contract malaria (Lapkin 2003). Few developed countries have any formal comprehensive policy appraisal system in place; developing countries are even more prone to shooting in the dark. Provision of policy information in a form that facilitates policy convergence between countries should, therefore, be a global priority.

In 2005–2006, researchers at the Institute for Global Environmental Strategies (IGES) carried out a study to find lessons that could be useful for environmental policymakers in Asia and the Pacific, based on common features found in 139 case studies of good environmental policy practice. These good practices had been gathered and documented by the Research on Innovative and Strategic Policy Options (RISPO) project between 2002 and 2005. The RISPO project's findings about good practices and strategic policy options were presented at an annual conference of environmental ministers and senior officials, ECO-ASIA (the Environment Congress for Asia and the Pacific) 2004, and at several other international forums. They are also available via the IGES website.[1] However, IGES realized that if these remained the only means of dissemination of the Good Practice data, there was a risk that their full potential to prevent inappropriate policy instruments being chosen by inexperienced governments would not be realized —bringing the evolutionary process of environmental policy in disrepute and wasting scarce national resources.

The overall aim of this study was therefore to draw from the RISPO Good Practice Inventory database some useful guidance to policymakers about how to choose an optimal mix of policy innovations: how governments and other stakeholders in developing Asia and the Pacific, given the wide range of choices available, can decide on the most appropriate set of environmental policies for their particular circumstances, which will combine with existing policies to hasten the shift towards sustainable development.

This chapter provides some reflections on the processes of policy selection and social learning in Asia-Pacific. It then outlines the ways in which the good practice cases were selected and documented in the original RISPO study and describes in detail the methodology used to identify common patterns and lessons. The other chapters in the linked series presented in this special issue of the *International Review for Environmental Strategies (IRES)* provide conceptual background and findings when similar methodologies were applied to various policy themes and to the RISPO Good Practice database as a whole.

2. Social learning and environmental policy

The issue of social learning from environmental policy pioneers has been addressed by several studies on policy diffusion (for example, Busch, Jörgens, and Tews 2004; Tews, Busch, and Jörgens 2001). Policy convergence between countries is common. Not only did command-and-control regulation and the creation of new environmental agencies emerge along similar lines in different countries in the 1970s and 1980s, but also the new environmental policy instruments—market-based instruments,

1. The RISPO Good Practices Inventory can be accessed at http://www.iges.or.jp/APEIS/RISPO/inventory /db/index.html, and the Strategic Policy Options tool at http://www.iges.or.jp/cgi-bin/rispo/index_spo.cgi.

voluntary agreements, and informational regulation (see chapter 2 of this linked series of papers: King and Mori 2007b)—appear to be on equally parallel tracks (Jordan, Rüdinger, and Zito 2003).

Busch, Jörgens, and Tews (2004), in a study that examined 20 instruments from 43 countries suggest that the global spread of the new environmental policy instruments is due to diffusion of a new regulatory paradigm, and has been accelerated by the increased free access to information offered by the Internet. At the micro level, they say, such diffusion appears to be driven by "processes of social learning, copying or mimetic emulation." There is some disagreement, however, about how far such convergence happens through essentially voluntary adoption and adaptation of policies and how far it is coerced. According to Tews, Busch, and Jörgens (2001), convergence can generally be attributed to the inner dynamics of international policy diffusion, which make it difficult for countries to ignore the adoption of new environmental policy instruments by forerunner countries. Despite the fact that environmental problems—and perceptions of their severity—may vary greatly between countries, convergent adoption of environmental policies can be explained by countries' desire to orient their environmental policies to what is already being practiced in other countries. The rush by developing countries to sign multilateral environmental agreements, even when the problem the agreements address is of peripheral importance nationally, may be a further sign of this desire to appear as willing partners in the emerging global governance of the environment. This can be seen as peer pressure elevated to an international level.

That policy convergence is somewhat coerced rather than voluntary is harder to prove, as many countries want to put the best possible face on their adoption of new environmental policies. One form of quasi-coercion is regulatory competition (Busch, Jörgens, and Tews 2004): some countries seek to be the first to introduce or adapt regulatory policy in response to an emerging environmental concern, shaping the policy to their own domestic policy styles or other factors, thus avoiding more difficult adjustments later in the course of international or regional policy harmonization. Another source of coercion may be indirect pressure arising from trade negotiations, where countries with high environmental standards and relatively tough regulations may insist that their trade partners in the developing world adopt similar environmental policy approaches in order to prevent a "race to the bottom"—attracting industrial investment by lowering standards. International organizations, such as the multilateral development banks, also play a key coercive role by insisting on adoption of specific policy measures as part of the conditions for loans or under institutional capacity-building projects. Stone (2001) also points to the importance of non-state actors (think-tanks, research institutes, consultancy firms, non-governmental organizations, and others) as "policy entrepreneurs" (that is, using their influence over governments to promote "pet" policies) and the importance of information transfer through informal networks.

A probable lack of commitment to implementation and possible waste of official development assistance are particular concerns when coercion has been an important factor in adoption of a policy. Regardless of the source of coercion, adoption of policies without enforcement is meaningless unless new actors force governments to implement the policies they have already adopted (see Bell et al. 2004 on the role of the Supreme Court in India, which forced the government to implement its own pollution control policies).

The rate at which policy diffusion happens depends on many factors. According to Busch, Jörgens, and Tews (2004), these include the role of international organizations, the strength of opposition or other vested interests, the distribution of winners and losers, specific characteristics of the policy reform, and the common nature of the underlying problem across national borders. It is clear, however, that some new environmental policy instruments have spread very rapidly while others are only slowly being adopted—for example, about 140 countries have adopted environmental strategies (often based on Agenda 21) since the late 1980s, while only 13 have adopted energy/carbon taxes. All this suggests that if coercion is a dominant factor, it is not always effective.

2.1. Adoption of environmental policies

Adoption of new environmental policies may be due to incremental shifts, as old policies are found to be less effective for newly identified problems, or may be revolutionary, as fundamental paradigms shift regarding the relationship between humans and the environment. Caldwell (1996) notes that such a paradigm shift occurred some time before 1968, when the International Conference of Experts on a Scientific Basis for a Rational Use and Conservation of the Resources of the Biosphere was held in Paris. The final conference report stated that "…until this point in history the nations of the world have lacked considered, comprehensive policies for managing the environment," heralding the start of the new era of environmental policymaking. Jordan, Rüdinger, and Zito (2003) found that the adoption of new environmental policy instruments since the 1980s has been incremental rather than revolutionary, even though the number of such instruments being adopted is growing rapidly. Comparing different countries, they found that the drivers of these new policy instruments were dissatisfaction with existing regulations; the perceived superiority of the new environmental policy instruments; growing international competition and the need for more cost-efficient policies; growing domestic political support; and positive feedback interactions (where one policy has an unintended impact on another) between the policy instruments as a compatible policy mix is sought. They also identified the main barriers to adoption of innovative policies, which included lack of expertise and familiarity; opposition from vested interests; fears about loss of competitiveness; and distributional impacts (that is, having greater or lesser impacts on different groups of people).

2.2. Selecting the right environmental policies

Many factors can lead to flawed selection of innovative environmental policies. How, then, can policymakers increase their chances of success instead of blindly following forerunner countries? Few countries have adopted a formal and rigorous process of comparing policy alternatives (Swanson et al. 2004). Perhaps the best of those that exist is the UK's Regulatory Impact Assessment (RIA), introduced in 1998. RIA is a screening tool that examines the likely economic, social, and environmental impacts of a policy change, and where those impacts would fall. RIAs must be carried out on any policy change affecting any form of regulation, "whether European or domestic, which could affect the public or private sectors, charities, the voluntary sector or small businesses" (United Kingdom Cabinet Office 2005). All UK government policy proposals must meet five "principles of good regulation": they must be proportionate, accountable, consistent, transparent, and targeted. The options to be considered must include a do-nothing option and non-legislative options. Once a policy decision has been made, the

responsible minister must sign a final RIA stating that the "benefits justify the costs." The RIAs are detailed; for example, the RIA for the 2004 Energy Bill runs to 114 pages. In 2004 alone, the Department for Environment, Food and Rural Affairs submitted 24 such assessments. The UK's Environment Agency has begun work aimed at enhancing the RIA by incorporating additional consultation, specific guidance on social and environmental impacts, and formal risk assessment for residual risks after the policy has been decided (Environment Agency 2004). In 2004, Switzerland was developing a similar sustainability assessment procedure for projects and policies (Swanson et al. 2004; Swiss Federal Office for Spatial Development 2005), but according to Wachter (2005) there are no plans as yet to make it compulsory.

3. Research methodology for the RISPO case study analysis

3.1. Collection and documentation of the good practice case studies

Case study analysis is a form of qualitative research well suited to policy studies. It was thus fortunate that the present study was able to draw on a broad range of case studies from 17 countries, mostly in Asia and the Pacific (see table 1 in chapter 1 of this series, King and Mori 2007a) gathered as part of the RISPO project. RISPO was one of three sub-projects of the Asia-Pacific Environmental Innovation Strategy Project (APEIS). APEIS was funded by Japan as a type-2 partnership initiative at the World Summit on Sustainable Development in 2002. The partnership involved the Japanese Ministry of Environment in collaboration with 15 organizations in 9 countries.

Under the auspices of IGES's Long-term Perspective and Policy Integration Project, RISPO aimed to develop and maintain two knowledge-based tools, namely a Good Practices Inventory and Strategic Policy Options, in the expectation that policymakers in developing countries of Asia and the Pacific would find the experiences of other countries useful in drawing up their own policies when the need arose. To date, some 139 good practices and about 92 strategic policy options have been documented. In addition to the Good Practice Inventory, a further 160 best policy practices were collected by the same team in IGES from around the region under the Asia-Pacific Forum on Environment and Development (http://apfed-db.iges.or.jp/rstbpp.php) and it is intended that both databases will be merged in the future, linked with the United Nations Environment Programme environmental knowledge hub, and maintained as an evolving knowledge resource for the region.

One reason for focusing on the Asia-Pacific region was that most cross-case comparisons have been drawn from Europe and the USA, creating a gap in global coverage. More importantly, however, it was believed that there would be greater cultural and institutional similarities among neighboring developing countries in Asia and the Pacific, thus increasing the likelihood of an appropriate fit. The actual country coverage was largely determined by the participating organizations. These are listed in table 1.

Within APEIS, four trends at the cutting edge of environmental policy were considered most worthy of study: moving away from reliance on fossil fuels; material and energy efficiency in small and medium industries; sustainable urbanization; and the larger role of civil society in natural resource management. These were then further subdivided into eight subthemes. The trends and subthemes can be seen in table 2.

Table 1. Organizations participating in the Research on Innovative and Strategic Policy Options (RISPO)

Organization	Country
Bangladesh Resource Centre for Indigenous Knowledge (BARCIK)	Bangladesh
Energy Research Institute	China
University of Hong Kong	China
The Energy and Resources Institute (TERI)	India
Indonesian Ecotourism Network (INDECON)	Indonesia
Indonesian Institute for Forest and Environment (RMI)	Indonesia
Institute for Global Environmental Strategies	Japan
National Institute for Environmental Studies (NIES)	Japan
Management Association of the Philippines (MAP)	Philippines
Asian Institute of Technology (AIT)	Thailand
Kasetsart University	Thailand
Mahidol University	Thailand
Thailand Environment Institute (TEI)	Thailand
Vietnam National University	Vietnam
UNEP Risoe Centre on Energy, Climate and Sustainable Development (URC)	Denmark

The lead researchers in APEIS assigned the researchers from the collaborating institutions to find good policy practices within these environmental areas: climate change, air pollution, water resource management, ecosystem and biodiversity conservation, urban environment, rural environment, waste management, and forest conservation; and of critical policy instruments: regulatory, economic, institutional, partnerships, self-regulation, technologies, awareness/capacity building, and design, planning and management. The researchers were given some freedom to identify innovative good practices based on their experience, but were expected to follow general selection criteria. The cases should:

- lead to actual improvement in the environmental area considered or break new ground with non-traditional approaches;
- involve indicators for some visible or measurable change;
- demonstrate innovation (uniqueness of either the product or process) and replicability;
- be self-sustaining; and
- involve a range of actors through a participatory process.

It was not necessary that every case study selected should be excellent in all aspects, but each must have some good and noteworthy elements.

The researchers were provided with a data-collection protocol. They could use field assessments, interviews, media articles and other secondary materials, and other sources in a process of triangulation to obtain a clear picture of each case and identify its most important features. Besides basic facts such as location, participants, duration, and funding of the policy initiative, the basic format for documenting the good practices required them to collect information in the following categories for each case study:

Table 2. Environmental policy trends and subthemes for the RISPO good practice case studies

Policy trends	Subthemes
Accelerating the societal shift to a post-fossil fuel era.	Innovative finance for renewable energy development.
	Promotion of biomass energy use.
Finding material and energy-efficiency gains outside major industries.	Inter-boundary recycling market for promoting a resource-recycling society
	Improving environmental performance of small and medium enterprises
Orienting urban life to ecological principles.	Development of environmentally sustainable transport systems in urban areas
Retreat of "big" government and co-option of civil society into natural resource management.	Promoting environmental education by NGOs
	Facilitating protected-area management using community-based tourism
	Promoting sustainable resource management based on local/indigenous knowledge

- background
- objectives
- description of the initiative
- critical instruments
- impacts
- lessons learned
- potential for application elsewhere.

Each of the documented cases was quality checked by the IGES subtheme coordinator, and where necessary was sent back to the original researchers for revision. Finally, the approved case studies were entered into the RISPO Good Practices Inventory to make them accessible to the public.

3.2. Analysis of the case studies

Comparative policy research has a long and legitimate history (Dierkes, Weiler, and Antal 1987), which can be traced back to Aristotle and his comparative analysis of the constitutions of 128 city states that formed the basis of his famous treatise *Politics* (Deutsch 1987). Comparative policy research in the area of environment started in earnest in the early 1980s, following a sudden proliferation of new environmental agencies after the Stockholm Conference on the Human Environment in 1972. Writing in 1987, Vogel and Kun (1987) were only able to find 25 examples of comparative environmental policy studies, covering a limited number of countries. The analysis of the RISPO good environmental policy practices clearly belongs to the category of qualitative research and, within that, the case study approach. Research methodologies from this rich field of research were thus applied to the RISPO findings—possibly the first time such methodologies have been applied to environmental policy research in Asia and the Pacific. The methods were based on those suggested by Yin (2002).

The methodology was applied to four categories of dataset: the good practices within each of the eight subthemes; the good practices under each policy trend; the good practices from each country; and then the entire Good Practice Inventory. To focus the research, hypotheses were formulated at the policy trend and full database levels. The hypotheses for the full database study are given later in this paper. For the hypotheses for each policy trend, see the appropriate paper in this issue of *IRES*.

The first stage of analysis was to study the case studies in each dataset individually and look for interesting features that reflected on the hypotheses. A textual pattern-matching exercise was then carried out on the relevant case studies in each dataset. Finally, the results of the pattern matching and the individual case study reviews were analyzed together to shed light on the starting hypotheses. The studies at policy trend and subtheme level are described in chapters 4 to 7 of this linked series of papers. Chapter 8 presents findings and conclusions from the entire study, including the outcomes of the textual pattern matching country by country and for the entire Good Practice Inventory.

3.3. Classifying environmental policies

One of the first tasks of the analysis was to find a way of classifying the types of policy represented by the good practices. Much space has been devoted in the literature to alternative classifications or typologies of environmental policies, ranging from the simplistic notion of "carrots, sticks and sermons" to much more complicated systems (for example Jordan, Rüdinger, and Zito 2003; Roberts 2004; Sterner 2003). For RISPO, the following classification was used:

(a) *Regulatory instruments*, such as:

(i) Command and control: a regulatory regime where governments attempt to control those who would damage the environment in some way—typically employing rules, regulations, standards, policing, and compliance; and

(ii) Direct provision: governments use fiscal resources to invest directly in environmental infrastructure or other forms of environmental protection, often recouping the capital cost through user charges.

(b) *Economic instruments*, such as:

(iii) Market-based instruments: the power of the market is used to change the behavior of producers and consumers towards environmental protection—typically charges, taxes, tradable permits, and subsidies; and

(iv) Creation of new markets: governments attempt to overcome market flaws (or the absence of markets) by promoting new markets or property rights—typically financial incentives, assignment of property rights, quotas, green procurement, and seed funding.

(c) *Social instruments*, such as:

(v) Voluntary agreements: firms or industry associations enter into some form of voluntary agreement or code of practice designed to protect the environment; and

(vi) Informational regulation: information about environmental conditions or environmental performance is provided to the public so that they can take informed decisions on how to react.

3.4. Pattern matching

An important element in the case study research was textual pattern matching, based on the approach of King, Annandale, and Bailey 2000b. The aim of the exercise was to find common factors or combinations of factors; the most frequently occurring factors and combinations were assumed likely to be more important in the success of the good practices, and therefore worthy of consideration by policymakers embarking on new environmental policies.

The rival theory (Yin 2002) was that highly infrequent occurrence, or even complete absence, of the expected success factors would demonstrate that policymakers were not using the full range of decision tools and techniques available prior to deciding on a particular policy option or during implementation of specific policy instruments. Such omissions may raise concerns about the long-term sustainability of apparently good practices. Policymakers, therefore, should examine some of these less frequently observed factors and make sure that they are not overlooking valuable decision-assisting tools or processes. The research institutions proposing the good practices should also continue to monitor these cases and conduct follow-up evaluations to ensure that the final outcomes and impacts are consistent with initial predictions of success.

Each case study was coded for occurrences of 540 "success" factors (see Annex 1). Coding records were retained so that the coding could be matched with the relevant text extract for later verification. An independent sample was coded by a senior policy advisor in IGES to check the quality of coding and a minimum level of 80 percent matching was set. Some minor recoding was carried out as a result. Using linked Excel spreadsheets, the presence or absence of each variable was noted for the different cases in the dataset used in each part of the study, summed, and the frequency of each variable calculated (expressed as a percentage of the total cases in the relevant dataset).

3.5. Factors influencing success

Identification of "success" and "impeding" factors in the implementation of environmental policies was a core component of the King, Annandale, and Bailey (2000a, 2000b, 2003) study of integrated economic and environmental planning in Asia. The most important impeding factors they identified were (i) wrong choice of agencies; (ii) inadequate human resources and funding; (iii) lack of political support, (iv) inadequate stakeholder participation; (v) excessive effort on the planning product, detracting from implementation; (vi) inadequate understanding of the planning unit as an ecosystem; (vii) excessively narrow scenarios; (viii) inadequate project screening; (ix) poor vertical linkages between planning levels; (x) no agreed plan for monitoring and revision; and (xi) excessive delays between planning and implementation.

Similarly, an inter-country comparison of national strategies for sustainable development by Swanson et al. (2004) identified key common impeding factors, which included (i) lack of indicators to measure trade-offs and linkages or institutional mechanisms to provide feedback on progress; (ii) lack of

coordination between sustainable development strategies and national budgets; (iii) lack of vertical linkages to sub-national and local levels; and (iv) sub-optimal mixes of policy initiatives. Of 95 separate policy initiatives covered in the 19 case studies, almost half (43) were institutional initiatives, while only 16 were economic initiatives.

Table 3. Major coding of expected success variables for environmental policies and instruments used in the pattern-matching exercise

Actors	Processes	Content
Politicians	Preparation	Direct provision
Stakeholders	Formulation	Command and control
Institutions	Linkages	Market-based instruments
・organizations	Implementation	Voluntary agreements
・funding	Monitoring/revision	Informational regulation
・staff resources		Creation of new markets

For the present study, the list of factors believed likely to influence the success of an environmental policy were identified, based on a literature review (including the two studies mentioned above) and brainstorming within IGES. The variables were expressed in a list of 540 key terms or phrases that might appear in the good practice case studies. These 540 variables were roughly divided into three major groups: actor variables, process variables, and content variables. This was based on the assumption that success in innovative environmental policies and policy instruments could be attributable to the roles played by key actors, the care taken in the processes of the policy cycle (preparation, formulation, linking with other policies, implementation, monitoring, and revision), the appropriate choice of policy content, or, in most cases, a combination of all three. The subheadings in each of these three groupings are shown in table 3. The full list of expected success factors is given in the annex to this paper.

4. Hypotheses

Four overarching hypotheses were tested over the entire research, based on a basic understanding of the evolution and diffusion of environmental policy over the past 30–40 years obtained from the literature. These were:

Hypothesis 1: Innovative environmental policies emerged in response to increasing recognition of the interaction between environment and other sectors, but only as particular problems were identified and governments were pressured to react by concerned stakeholders.

Hypothesis 2: Although there has been relatively little innovation in the formulation of environmental policies in developing countries compared with the developed countries, they have shown much more innovation and diversity in policy implementation, reflecting particular national circumstances.

Hypothesis 3: Environmental policy innovation in developing countries of Asia and the Pacific, in the few cases where it has emerged, has built on unique cultural and social characteristics.

Hypothesis 4: Lack of a supportive policy framework and suitable market conditions act as impediments for policy innovation and adaptation.

Some other questions were raised by the case studies, but had inadequate data to answer them confidently:

Have innovative environmental policies been borrowed from other sectors, especially those sectors that intersect with environmental concerns?

Has the domain of modern environmental policy expanded so far that it could ultimately converge with, and be indistinguishable from, economic development policy?

Chapter 8 of this linked series of papers (King and Mori 2007c) attempts to address these hypotheses, drawing on textual pattern matching and on the findings in each of the four policy trend areas.

References

Bell, R. G., K. Mathur, U. Narain., and D. Simpson. 2004. Clearing the air: How Delhi broke the logjam on air quality reforms. *Environment* 46 (April): 24–39.

Busch, P.-O., H. Jörgens., and K. Tews. 2004. *The global diffusion of regulatory instruments: The making of a new international environmental regime*. European Integration Online Papers 8, no. 21. http://eiop.or.at/eiop/texte/2004-021a.htm.

United Kingdom Cabinet Office, Better Regulation Executive. Regulatory Impact Assessment (RIA) overview. http://www.cabinetoffice.gov.uk/ regulation/ria/overview/the_ria_process.asp (updated June 16, 2006).

Caldwell, L. K. 1996. *International environmental policy: From the twentieth to the twenty-first century.* Durham, NC: Duke University Press.

Deutsch, K. W. 1987. Prologue: Achievements and challenges in 2000 years of comparative research. In *Comparative policy research: Learning from experience,* ed. M. Dierkes, H. N. Weiler, and A. B. Antal, 5–12. Aldershot, UK: Gower.

Dierkes, M., H. N. Weiler, and A. B. Antal, eds. 1987. *Comparative policy research: Learning from experience*. Aldershot, UK: Gower.

Jeong, H., ed. 2001. *Global environmental policies: Institutions and procedures. Global Issues series.* Basingstoke and New York: Palgrave.

Jordan, A., K. W. W. Rüdinger, and A. R. Zito, eds. 2003. *"New" instruments of environmental governance? National experiences and prospects*. Environmental Politics series. London: Frank Cass.

King, P., D. Annandale, and J. Bailey. 2000a. A conceptual framework for integrated economic and environmental planning in Asia. *Journal of Environmental Assessment Policy and Management* 2 (3): 279–315.

———. 2000b. Integrated economic and environmental planning at the sub-national level in Asia. *Journal of Environmental Assessment Policy and Management* 2 (3): 317–38.

———. 2003. Integrated economic and environmental planning in Asia: A review of progress and proposals for policy reform. *Progress in Planning* 59 (4): 233–315.

King, P. and H. Mori. 2007a.: The development of environmental policy: Best Practice on Environmental Policy in Asia and the Pacific: Chapter 1. *International Review for Environmental Strategies* 7 (1): 7–16.

———. 2007b. Policy selection and diffusion theory: Best Practice on Environmental Policy in Asia and the Pacific: Chapter 2. *International Review for Environmental Strategies* 7 (1): 17–38.

———. 2007c. Lessons, Conclusions, and Recommendations from the RISPO Good Practice Case Studies: Best Practice on Environmental Policy in Asia and the Pacific: Chapter 8. *International Review for Environmental Strategies* 7 (1): 133–146.

Lapking, T. 2003. DDT and the new colonialists. *Quadrant* 47 (11) http://www.quadrant.org.au/php/archive_details_list.php?article_id=421.

Roberts, P. 2004. *The end of oil: On the edge of a perilous new world*. New York: Houghton Mifflin.

Sterner, T. 2003. *Policy instruments for environmental and natural resource management*. Washington, DC: RRF Press.

Stone, D. 2001. *Learning lessons, policy transfer and the international diffusion of policy ideas.* CSGR Working Paper 69/01. Warwick, UK: Centre for the Study of Globalization and Regionalization, University of Warwick.

Swanson, D., L. Pintér, F. Bregha, A. Volkery, and K. Jacob. 2004. *National strategies for sustainable development: Challenges, approaches and innovations in strategic and coordinated action*. Winnipeg: International Institute for Sustainable Development and Eschborn, Germany: Deutsche Gesselschaft für Technische Zusammenarbeit (GTZ). http://www.iisd.org/pdf/2004/measure_nat_strategies_sd.pdf.

Swiss Federal Office for Spatial Development. 2005. Assessing sustainability. http://www.are.admin.ch/are/en/nachhaltig/beurteilen/index.html (dated April 18, 2005).

Tews, K., P. Busch, and H. Jörgens. 2001. The diffusion of new environmental policy instruments. Paper prepared for the European Consortium for Political Research 2001 Grenoble Joint Session of Workshops, Workshop no. 1: "New Environmental Policy Instruments".

Vogel, D., and V. Kun. 1987. The comparative study of environmental policy: A review of the literature. In *Comparative policy research: Learning from experience,* ed. M. Dierkes, H. N. Weiler, and A. B. Antal, 99–179. Aldershot, UK: Gower.

Wachter, D. 2005. Sustainability assessment in Switzerland: From theory to practice. Paper presented at the EASY-ECO 2005–2007 conference, June 15–17, Manchester, UK. (A more detailed account of the approach can be found at http://www.are.admin.ch/are/en/ nachhaltig/beurteilen/index.html).

Yin, R. K. 2002. Case study research: Design and methods. 3rd edition. Applied Social Research Methods series 5. Thousand Oaks, CA: Sage Publications, Inc.

Annex 1. Variables that could affect the success of environmental policies

Factors related to the actors involved

1. Political factors
   1.1 Political context
      1.1.1 Conducive
         1.1.1.1 Strong tradition of environmental policymaking
         1.1.1.2 Green political party
         1.1.1.3 Constitutional provision
      1.1.2 Not conducive
         1.1.2.1 Political squabbling
         1.1.2.2 North–South difference
         1.1.2.3 Imbalance between developed and developing countries' conditions
   1.2 Political support
      1.2.1 Maintained
         1.2.1.1 Cross-party
         1.2.1.2 Partisan
      1.2.2 Not maintained

2. Stakeholder factors
   2.1 Democratic traditions
      2.1.1 Political freedom to participate
         2.1.1.1 Academic freedom
         2.1.1.2 Media freedom
      2.1.2 Lack of political freedom to participate
         2.1.2.1 Poor democratic traditions
         2.1.2.2 No bottom-up planning
   2.2 Civic engagement and public participation
      2.2.1 Willingness to participate
         2.2.1.1 Future-oriented, participative communities
         2.2.1.2 Racial and/or religious similarities
         2.2.1.3 Private sector involved
         2.2.1.4 Industry associations involved
         2.2.1.5 Non-governmental organizations (NGOs) involved
         2.2.1.6 Formal public-private partnerships
         2.2.1.7 Networking
         2.2.1.8 Informal partnerships
         2.2.1.9 Multiple stakeholders
         2.2. 1.10 Media involved
      2.2.2 Lack of willingness to participate
         2.2.2.1 Economic interests threatened
         2.2.2.2 Other vested interests
   2.3 Conflicting groups
      2.3.1 Involved in policy processes
         2.3.1.1 Conflicting local groups convinced that policy is needed
         2.3.1.2 Careful selection of participants
      2.3.2 Not involved
         2.3.2.1 Transboundary conflicts
         2.3.2.2 Opposition from vested interests

- 2.4 Agreement on policies
  - 2.4.1 Negotiated
  - 2.4.2 Forced
  - 2.4.3 Open-ended
- 2.5 Conflicts and controversy
  - 2.5.1 Mediated
    - 2.5.1.1 Due to pressure from domestic interest groups
    - 2.5.1.2 Due to pressure from international groups
  - 2.5.2 Resolved
    - 2.5.2.1 Through courts
    - 2.5.2.2 Through informal agreements
  - 2.5.3 Public controversy continues
    - 2.5.3.1 Public controversy over losers and winners
    - 2.5.3.2 Public controversy over compensation
- 2.6 Cultural factors
  - 2.6.1 Confrontational
  - 2.6.2 Consensus-seeking
  - 2.6.3 Fatalistic

3. Institutional factors
- 3.1 Economic and environmental agencies
  - 3.1.1 Both involved
  - 3.1.2 One involved
    - 3.1.2.1 Only economic agencies involved
    - 3.1.2.2 Weak environmental agency
    - 3.1.2.3 Lack of transparency
  - 3.1.3 Neither involved
    - 3.1.3.1 Poor choice of responsible agency
    - 3.1.3.2 No agency responsible
    - 3.1.3.3 Lack of institutional incentives
    - 3.1.3.4 Lack of accountability
- 3.2 Sectoral agencies
  - 3.2.1Coordinated
    - 3.2.1.1 Integration with sectoral policy
    - 3.2.1.2 Internalization of policy
  - 3.2.2 Not coordinated
    - 3.2.2.1 Excessive bureaucracy
    - 3.2.2.2 Culture of expediency
    - 3.2.2.3 Agreement without commitment
    - 3.2.2.4 Lack of ownership
    - 3.2.2.5 Poor institutional arrangements for implementation
    - 3.2.2.6 Institutional conflicts
- 3.3 Sub-national/local government
  - 3.3.1 River basin commission/authority
  - 3.3.2 Protected area management agency
  - 3.3.3 Provincial/county/local government
    - 3.2.3.1 Local environmental agency
    - 3.2.3.2 Urban planning agency
    - 3.2.3.3 Municipal authority
    - 3.2.3.4 Public utility

- 3.4 Funding sources
  - 3.4.1 National government
    - 3.4.1.1 Policy formulation phase
      - 3.4.1.1.1Adequate
      - 3.4.1.1.2 Inadequate
    - 3.4.1.2 Implementation phase
      - 3.4.1.2.1 Adequate
      - 3.4.1.2.2 Inadequate
    - 3.4.1.3 Monitoring
      - 3.4.1.3.1 Adequate
      - 3.4.1.3.2Inadequate
    - 3.4.1.4 Policy revision
      - 3.4.1.4.1 Adequate
      - 3.4.1.4.2 Inadequate
  - 3.4.2 External sources
    - 3.4.2.1 Preparation of terms of reference
      - 3.4.2.1.1 Adequate
      - 3.4.2.1.2 Poor
    - 3.4.2.2 Implementation supervision
      - 3.4.2.2.1 Adequate
      - 3.4.2.2.2 Inadequate
    - 3.4.2.3 Follow-up
      - 3.4.2.3.1 Adequate
      - 3.4.2.3.2 Inadequate
  - 3.4.3 Local government involvement
    - 3.4.3.1 Policy formulation phase
    - 3.4.3.2 Institutional strengthening
    - 3.4.3.3 Implementation
    - 3.4.3.4 Monitoring and revision
  - 3.4.4 Private sector
    - 3.4.4.1 Illegal payments to bend rules
    - 3.4.4.2 Lobbying groups
    - 3.4.4.3 Commissioned research
    - 3.4.4.4 Voluntary co-funder
    - 3.4.4.5 Polluter pays
    - 3.4.4.6 Extended producer responsibility
    - 3.4.4.7 Donations/memberships/community funding
  - 3.4.5 Users
    - 3.4.5.1 Prepayment systems
    - 3.4.5.2 Tax payments
    - 3.4.5.3 Fees and charges
  - 3.4.6 Affordability analysis
    - 3.4.6.1 Funding sources for implementation of analysis
      - 3.4.6.1.1 Identified
      - 3.4.6.1.2 Not identified
    - 3.4.6.2 Major changes in government budgets
      - 3.4.6.2.1 Required
      - 3.4.6.2.2 Not required
    - 3.4.6.3 Funds available for implementation
      - 3.4.6.3.1 Adequate
      - 3.4.6.3.2 Inadequate

- 3.4.7 Willingness to pay for environmental quality
  - 3.4.7.1 Through cost-recovery mechanisms
  - 3.4.7.2 Unwilling to pay
- 3.4.8 Market mechanisms
  - 3.4.8.1 Tax concessions
  - 3.4.8.2 Economic sanctions
- 3.5 Staff involved
  - 3.5.1 Trained in environmental policy
    - 3.5.1.1 To an adequate level
    - 3.5.1.2 To an inadequate level
  - 3.5.2 Well equipped
  - 3.5.3 Willingness to work on implementation
    - 3.5.3.1 Willing
    - 3.5.3.2 Unwilling
      - 3.5.3.2.1 Because of competing commitments
      - 3.5.3.2.2 Because they genuine unwillingness to be involved
  - 3.5.4 Task force approach
    - 3.5.4.1 Willingness to share data
      - 3.5.4.1.1 Willing
      - 3.5.4.1.2 Unwilling
    - 3.5.4.2 Emergency task force
  - 3.5.5 Ability to communicate in English
    - 3.5.5.1 Able
    - 3.5.5.2 Translation required
  - 3.5.6 Emergence of champions
    - 3.5.6.1 Return of champions
    - 3.5.6.2 Loss of champions in implementation
  - 3.5.7 Incentive for staff
- 3.6 Consultants/researchers/think tanks
  - 3.6.1 Previous policy experience
    - 3.6.1.1 Credible and trusted
    - 3.6.1.2 Inadequate
  - 3.6.2 Guidelines or manual
    - 3.6.2.1 Available
    - 3.6.2.2 Not available
  - 3.6.3 Time allocated for analysis
    - 3.6.3.1 Adequate
    - 3.6.3.2 Inadequate
  - 3.6.4 Mix of skills
    - 3.6.4.1 Adequate
    - 3.6.4.2 Inadequate
  - 3.6.5 Independent policy advice to government on affordability
    - 3.6.5.1 Available
    - 3.6.5.2 Not available
  - 3.6.6 Terms of reference for policy drafting
    - 3.6.6.1 Clear
    - 3.6.6.2 Not clear
  - 3.6.7 Incentives and rewards
  - 3.6.8 Communication to policymakers
    - 3.6.8.1 Communication skills
    - 3.6.8.2 Communication tools

- 3.7 Local/regional NGOs and other civil society organizations (CSOs)
  - 3.7.1 Involved
    - 3.7.1.1 Local customary owners
    - 3.7.1.2 Interest group(s)
    - 3.7.1.3 Youth group(s)
  - 3.7.2 Capability strengthened
    - 3.7.2.1 By training/workshops
    - 3.7.2.2 By technical assistance
    - 3.7.2.3 By funding
  - 3.7.3 Division of responsibility
    - 3.7.3.1 Clear
    - 3.7.3.2 Unclear
- 3.8 Monitoring organization
  - 3.8.1 Mandated
  - 3.8.2 Adequately funded
- 3.9 Policy revision organization
  - 3.9.1 Mandated
  - 3.9.2 Adequately funded
  - 3.9.3 Not identified
- 3.10 Private sector/public corporation
  - 3.10.1 Environmental unit
  - 3.10.2 Board/management
  - 3.10.3 Operational unit
  - 3.10.4 Public relations
  - 3.10.5 Small and medium enterprise
    - 3.10.5.1 Capacity constraints
    - 3.10.5.2 Finance constraints
  - 3.10.6 Informal sector

Factors related to the policy processes

- 4. Policy formulation process
  - 4.1 Preparation phase
    - 4.1.1 Setting goals and objectives
      - 4.1.1.1 Based on research
      - 4.1.1.2 Based on public pressure
      - 4.1.1.3 Coerced by international pressure
      - 4.1.1.4 Based on strong political will
      - 4.1.1.5 To overcome difficulties of existing policies
    - 4.1.2 Scope
      - 4.1.2.1 Preparation in proportion to implementation
      - 4.1.2.2 Hierarchy of policies
        - 4.1.2.2.1 Clear
        - 4.1.2.2.2 Unclear
      - 4.1.2.3 Environmental coverage
        - 4.1.2.3.1 Comprehensive
        - 4.1.2.3.2 Restricted
      - 4.1.2.4 Policy boundaries
        - 4.1.2.4.1 Issue-based
        - 4.1.2.4.2 Spatial
        - 4.1.2.4.3 Sectoral

- 4.1.3 Terms of reference
  - 4.1.3.1 Developed by government
    - 4.1.3.1.1 Adequate
    - 4.1.3.1.2 Inadequate
  - 4.1.3.2 Developed by donor
  - 4.1.3.3 Developed by community/NGO
- 4.1.4 Source of policy innovation
  - 4.1.4.1 Experience of developing country/ies
  - 4.1.4.2 Experience of neighbouring country
  - 4.1.4.3 Experience of other developing country/ies
  - 4.1.4.4 Original innovation
    - 4.1.4.4.1 Through local trials
    - 4.1.4.4.2 From local champion
  - 4.1.4.5 Source not clear
- 4.2 Formulation phase
  - 4.2.1 Phasing
    - 4.2.1.1 One phase
    - 4.2.1.2 Two phases
    - 4.2.1.3 Multiple phases
  - 4.2.2 Policy analysis
    - 4.2.2.1 Analysis of conflicting policies
    - 4.2.2.3 Resistance to foreigners scrutinizing national policies
    - 4.2.2.4 Decision-making process
      - 4.2.2.4.1 Adequate
      - 4.2.2.4.2 Inadequate
    - 4.2.2.5 Transparency and flexibility
  - 4.2.3 Effectiveness of existing policies
    - 4.2.3.1 Baseline data
      - 4.2.3.1.1 Adequate current data
      - 4.2.3.1.2 Inadequate or obsolete data
      - 4.2.3.1.3 Repeatability of data gathering
      - 4.2.3.1.4 Excessive time
    - 4.2.3.2 Comparative assessment of experiences from other countries
      - 4.2.3.2.1 Developed countries
      - 4.2.3.2.2 Developing countries
    - 4.2.3.3 Indigenous/customary rules
    - 4.2.3.4 Policy impact assessment
  - 4.2.4 Models and scientific research
    - 4.2.4.1 Trend analysis
    - 4.2.4.2 Model development or adaptation
      - 4.2.4.2.1 Environmental models available
      - 4.2.4.2.2 Lack of reliable cause–effect models
      - 4.2.4.2.3 Reliability of computer models
    - 4.2.4.3 Predictions of future damage/losses
      - 4.2.4.3.1 Projections based on new data
      - 4.2.4.3.2 Projections based on published data
    - 4.2.4.4 Policy synthesis
      - 4.2.4.4.1 Adequate
      - 4.2.4.4.2 Inadequate
    - 4.2.4.5 Display of results
      - 4.2.4.5.1 Visual display
      - 4.2.4.5.2 Geographic information system applications
    - 4.2.4.6 Model integration

- 4.2.5 Scenarios
  - 4.2.5.1 Objectives, targets, and standards
    - 4.2.5.1.1 Measurable objectives
    - 4.2.5.1.2 Lack of measurable objectives
  - 4.2.5.2 Feasible development envelope
    - 4.2.5.2.1 Range of economic growth paths
    - 4.2.5.2.2 Fixed economic growth projections
  - 4.2.5.3 Social, environmental, natural resource, and economic dimensions
    - 4.2.5.3.1 Equal treatment of environmental and economic objectives
    - 4.2.5.3.2 Unbalanced treatment of any dimensions
  - 4.2.5.4 Preferred scenario
    - 4.2.5.4.1 Use of no-regrets strategies
    - 4.2.5.4.2 Precautionary principle
    - 4.2.5.4.3 Expenditure forecasts
    - 4.2.5.4.4 Cost/benefit analysis
  - 4.2.5.5 Visual display
- 4.2.6 Relationship to policies in other sectors
  - 4.2.6.1 Divergence
  - 4.2.6.2 Convergence
  - 4.2.6.3 Mainstreaming
  - 4.2.6.4 Optimum policy mix
- 4.2.7 Screening of policy impacts
  - 4.2.7.1 Economic assessment
    - 4.2.7.1.1 Environmental externalities internalized
    - 4.2.7.1.2 Economic and financial internal rates of return
    - 4.2.7.1.3 Cost/benefit ratios
  - 4.2.7.2 Cumulative environmental impact assessment
  - 4.2.7.3 Social impact/equity assessment
  - 4.2.7.4 Consideration of policy alternatives
    - 4.2.7.4.1 Adequate
    - 4.2.7.4.2 Inadequate
  - 4.2.7.5 Trade-offs
    - 4.2.7.5.1 Considered
    - 4.2.7.5.2 Not considered
  - 4.2.7.6 Policy prioritization
    - 4.2.7.6.1 Adequate
    - 4.2.7.6.2 Inadequate
  - 4.2.7.7 Implementability assessment
    - 4.2.7.7.1 Adequate
    - 4.2.7.7.2 Inadequate
    - 4.2.7.7.3 Not conducted
- 4.2.8 Policy documentation
  - 4.2.8.1 Legal document
    - 4.2.8.1.1 Available to the public
    - 4.2.8.1.2 Confidential
  - 4.2.8.2 In local language(s)
  - 4.2.8.3 In simple language
  - 4.2.8.4 Media campaign to disseminate
- 4.2.9 Technology assessment/development
  - 4.2.9.1 Technology new to this policy area
  - 4.2.9.2 Existing technology
  - 4.2.9.3 Best available technology
  - 4.2.9.4 Cleaner technology

- 4.2.9.5 Intellectual property rights/patents
- 4.2.10 Pilot testing
  - 4.2.10.1 Successful
  - 4.2.10.2 Unsuccessful

5. Linkages with other policy levels
- 5.1 Upwards national linkages
  - 5.1.1 To national economic development policies
    - 5.1.1.1 Linked
    - 5.1.1.2 Not linked
  - 5.1.2 To national sustainable development plan
    - 5.1.2.1 Linked
    - 5.1.2.2 Not linked
  - 5.1.3 To existing legislation
  - 5.1.4 To constitutional provisions
- 5.2 Downwards national linkages
  - 5.2.1 To local environmental policies
  - 5.2.2 To corporate policies
  - 5.2.3 To community rules/traditions
- 5.3 Linkages to other countries' or regions' policies
  - 5.3.1 To regional or sub-regional agreement or treaties
  - 5.3.2 Bilateral agreements
- 5.4 Linkages to multilateral environmental agreements
  - 5.4.1 Mandating national policies
  - 5.4.2 Aspirational
- 5.5 Linkages to global action plan/Agenda 21

6. Policy implementation
- 6.1 Immediate
  - 6.1.1 Action simultaneous with policy formulation process
  - 6.1.2 Immediately after policy decision
- 6.2 Medium term
  - 6.2.1 Delays due to approval process
  - 6.2.2 Delays due to budgeting
- 6.3 Long term
  - 6.3.1 Legal challenges
  - 6.3.2 Poor implementation arrangements
- 6.4 Compliance with policy
  - 6.4.1 self-regulation/self-determination
  - 6.4.2 Enforcement
    - 6.4.2.1 Public sector enforcement
      - 6.4.2.1.1 Adequate
      - 6.4.2.1.2 Inadequate
    - 6.4.2.2 Private sector enforcement
      - 6.4.2.2.1 Adequate
      - 6.4.2.2.2 Inadequate
  - 6.4.3 Support for compliance
- 6.5 Delays
  - 6.5.1 Maintaining momentum
  - 6.5.2 Delayed implementation

- 6.6 Ease of, and obstacles to, implementation
  - 6.6.1 No difficulty in implementation
  - 6.6.2 Difficult to implement
  - 6.6.3 Innovative solutions in implementation
  - 6.6.4 Technical support for implementation
    - 6.6.4.1 Capacity strengthening
    - 6.6.4.2 Awareness raising
    - 6.6.4.3 Outreach services
    - 6.6.4.4 Technical assistance
- 6.7 Level of implementation
  - 6.7.1 Village
  - 6.7.2 Watershed/ecosystem
  - 6.7.3 Urban area
  - 6.7.4 Sub-national
  - 6.7.5 National

7. Progress monitoring and policy revision
- 7.1 Monitoring and revision approach institutionalized
  - 7.1.1 Agency/ies mandated for monitoring and revision
    - 7.1.1.1 Monitoring agency
      - 7.1.1.1.1 Identified
      - 7.1.1.1.2 Not identified
    - 7.1.1.2 Policy revision agency
      - 7.1.1.2.1 Identified
      - 7.1.1.2.2 Not identified
  - 7.1.2 Human and financial resources for monitoring and revision
    - 7.1.2.1 Allocated
    - 7.1.2.2 Not allocated
  - 7.1.3 Self-monitoring
  - 7.1.4 Third-party monitoring
- 7.2 Monitoring of policy impacts
  - 7.2.1 Indicators
    - 7.2.1.1 Identified
    - 7.2.1.2 Not identified
  - 7.2.2 Environmental monitoring system and database
    - 7.2.2.1 Designed and implemented
    - 7.2.2.2 Designed but not implemented
    - 7.2.2.3 Not designed
  - 7.2.3 Impact and effectiveness monitoring system
    - 7.2.3.1 Adequate
    - 7.2.3.2 Inadequate
- 7.3 Evaluation and feedback
  - 7.3.1 Reporting and procedures
    - 7.3.1.1 Simple
    - 7.3.1.2 Complicated
  - 7.3.2 Independent review of policy impacts
    - 7.3.2.1 Implemented
    - 7.3.2.2 Not implemented
- 7.4 Policy revision
  - 7.4.1 Fallback position in case of unforeseen events
    - 7.4.1.1 Identified
    - 7.4.1.2 Not identified

7.4.2 Sunset clauses
7.4.2.1 Identified
7.4.2.2 Not identified
7.4.3 Review effectiveness of earlier policies
7.4.4 Comparative assessment
7.4.4.1 Quantitative
7.4.4.2 Qualitative

Factors related to the content of the policy

8. Policy content
8.1 Command-and-control type
8.1.1 Quantitative standards/objectives
8.1.1.1 Based on national research
8.1.1.2 Based on international research
8.1.1.3 No research basis
8.1.2 Qualitative standards/objectives
8.1.2.1 Based on national research
8.1.2.2 Based on international research
8.1.2.3 No research basis
8.1.3 No standards or objectives
8.1.4 Permits/restrictions
8.1.4.1 Mandatory environmental impact assessment
8.1.4.2 Licensing
8.1.4.3 Development permits
8.1.4.4 Permitting
8.1.4.4.1 Condition of entry
8.1.4.4.2 Condition of use
8.1.4.5 Banning
8.1.4.6 Quotas
8.1.4.7 Mandatory relocation
8.1.5 Incentives/disincentives
8.1.5.1 Sanctions
8.1.5.2 Financial incentives
8.1.5.3 Management responsibility
8.1.6 Monitoring and reporting
8.2 Market-based instruments
8.2.1 Aimed at producer behavior
8.2.1.1 Choice of raw materials
8.2.1.2 Choice of energy sources
8.2.1.3 Materials/energy efficiency
8.2.1.4 Recycling
8.2.1.5 Take-back schemes
8.2.1.6 Producer subsidies
8.2.1.7 Green procurement
8.2.2 Aimed at consumer behavior
8.2.2.1 Deposit refunds
8.2.2.2 Luxury tax
8.2.2.3 Carbon tax
8.2.2.4 Subsidies/cross-subsidy

- 8.2.3 Service industries
  - 8.2.3.1 Reduce inefficiency
  - 8.2.3.2 Tax concessions
  - 8.2.3.3 Maintenance services
- 8.3 Voluntary agreements
  - 8.3.1 Governments and producers
    - 8.3.1.1 Backed by legislation/enforcement
  - 8.3.2 Producer associations
    - 8.3.2.1 MNC and small and medium enterprise supply chain
    - 8.3.2.2 Industry association standards
  - 8.3.3 Producers and consumers
    - 8.3.3.1 Community agreements
  - 8.3.4 Unilateral agreement
    - 8.3.4.1 Corporate governance
    - 8.3.4.2 Corporate social responsibility
    - 8.3.4.3 Self-empowerment of communities
  - 8.3.5 Environmental management system
    - 8.3.5.1 ISO 14000 series
    - 8.3.5.2 EMAS
    - 8.3.5.3 ECO-ACTION 21
    - 8.3.5.4 Other EMS
- 8.4 Informational regulation
  - 8.4.1 Right of access to information
  - 8.4.2 Labelling and certification
  - 8.4.3 Environmental performance assessment
  - 8.4.4 Sustainability auditing/reporting
  - 8.4.5 Use of information technology
- 8.5 Direct intervention
  - 8.5.1 Public funding with full cost recovery
  - 8.5.2 Tax-funded infrastructure
  - 8.5.3 Build-own-transfer/buy-own-operate-transfer (BOT/BOOT)
  - 8.5.4 Decommissioning and removal
  - 8.5.5 Ecosystem rehabilitation/restoration
- 8.6 Creation of new markets
  - 8.6.1 Revised property rights
    - 8.6.1.1 Private parks
    - 8.6.1.2 Traditional ownership recognized
    - 8.6.1.3 Co-management
    - 8.6.1.4 Collective management
  - 8.6.2 Facilitating market creation
    - 8.6.2.1 Preferential treatment
    - 8.6.2.2 Seed funding
    - 8.6.2.3 Exclusive licensing
    - 8.6.2.4 Protected sector