IPCC Working Group III

Ch 13: Policies, Instruments and Co-operative Arrangements

Prof. Charles D. Kolstad (LA, Ch 13, WGIII, AR4, IPCC)
Bren School of Environmental Science & Management
University of California
Santa Barbara, CA, 93106 USA
www.ckolstad.org

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- Convening Lead Authors (CLA):
  - Sujata Gupta (India) and Dennis Tirpak (USA)
- Lead Authors (LA):
  - Nicholas Burger (USA), Joyeeta Gupta (Netherlands), Niklas Hohne (Germany), Antonina Boncheva (Mexico), Gorashi Kanoan (Sudan), Charles Kolstad (USA), Joseph Kruger (USA), Axel Michaelowa (Germany), Shinya Murase (Japan), Jonathan Pershing (USA), Tatsuyoshi Saijo (Japan), Agus Sari (Indonesia)
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The Goals of the Chapter

- Review policies, instruments and measures
  - Nationally, to implement GHG reduction goals
  - Internationally, to achieve broad consensus
- Review criteria for evaluating policies, etc.
- Evaluate experience with policies, etc.
  - What has worked
  - What has not
  - Where the experience is sparse or indeterminate

Why?

- Allow governments and industry to benefit from experience elsewhere in the world
- Reducing GHG is *NOT EASY*. Chapter serves to help decision makers define goals and achieve goals in a meaningful way.

Main Conclusions

- Define main criteria for evaluating policies
- Incentives generally more effective than commands
- Voluntary agreements between industry and government only modestly effective
- Government actions can serve to reduce GHG emissions; other non-GHG policies can inadvertently increase GHG emissions
- International agreements most effective when large proportion of global emissions included
- Initiatives of local authorities, companies and NGOs only significant if they lead to national actions

Organization of Presentation

- Evaluative Criteria
- National Policies
- Local, corporate and NGO activities
- International Agreements

Main Criteria for Evaluating Policies

- Environmental Effectiveness
  - Needs to actually achieve meaningful reductions in GHG emissions and climate change
- Cost Effectiveness
  - Needs to achieve environmental and distributional goals at costs which are as low as possible
- Distributional effects
  - Fairness is important, particularly to political practicality
- Administrative Feasibility
  - Some policies are much more administratively cumbersome
  - Legal constraints in an implementing country may reduce feasibility

A wide variety of national policies and instruments are available to governments to create incentives for action

- Applicability depends on national circumstances
- There are advantages and disadvantages for any given instrument
- Instruments can be designed well/poorly, lax/stringent and need to be monitored to improve implementation

Four main criteria are used to evaluate national (and international) policies

A Taxonomy of National Policy Instruments

- Regulations and Standards: These specify the abatement technologies (technology standard) or minimum requirements for pollution output (performance standard) that are necessary for reducing emissions.
- Taxes and Charges - A levy imposed on each unit of undesirable activity by a source.
- Tradable Permits - Also know as marketable permits or cap-and-trade systems, this instrument establishes a limit on aggregate emissions by specified sources, requires each source to hold permits equal to its actual emissions, allowing permits to be traded among sources.
- Voluntary Agreements - An agreement between a government authority and one or more private parties to achieve environmental objectives or to improve environmental performance beyond compliance to regulated obligations. Not all voluntary agreements are truly voluntary; some include rewards and/or penalties associated with joining or achieving commitments
- Subsidies and Incentives - Direct payments, tax reductions, price supports, or the equivalent from a government to an entity for implementing a practice or performing a specified action.
- Information Instruments - Required public disclosure of environmentally related information, generally by industry to consumers. Includes labelling programs and rating and certification.
- Research and Development (R&D) - Direct government spending and investment to generate innovation on mitigation, or physical and social infrastructure to reduce emissions. Includes prizes and incentives for technological advances.
- Non-Climate Policies - Other policies not specifically directed at emissions reduction but that may have significant climate-related effects.

Regulations and Standards

- Most common form of environmental regulation
- Advantages
  - Flexible; can be tailored to firm or problem
- Disadvantages
  - Innovation incentives reduced
  - Poor cost-effectiveness
  - Environmental effectiveness uncertain
- Example
  - China's mandating of energy efficiency in urban construction (from 2006)

Taxes and Charges

- Carbon tax -- ¥x/tonne carbon.
- Advantages
  - Provides clear incentive to reduce GHG emissions
- Disadvantages
  - Politically difficult to implement and maintain in some countries
- Examples
  - Used in Scandinavia
  - UK Climate Levy

Tradeable Permits

- Firms issued (via auction or free allocation) emission permits; permits may be bought or sold across firms
- Advantages
  - Similar to emission fees
  - Can be more politically palatable
- Disadvantages
  - Market power
  - Price volatility
- Example
  - EU Emission Trading System

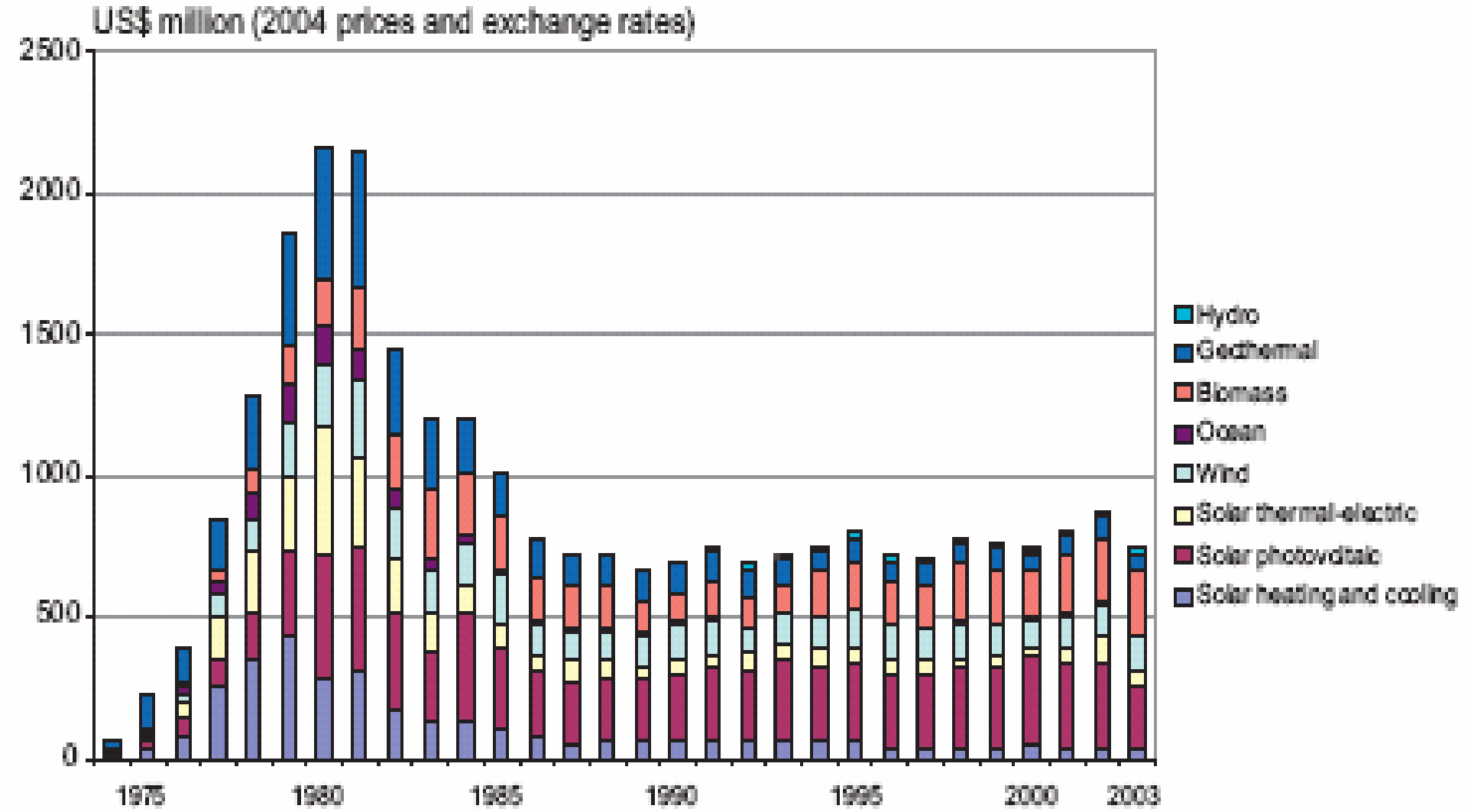
Voluntary Agreements

- Voluntary agreement between government and private firms (not same as voluntary actions)
- Advantages
  - Can be lower cost than direct regulations
- Disadvatages
  - Environmental effectiveness may be low
  - Evidence of effectiveness disappointing
- Examples
  - Keidaren Voluntary Action Plan (JP) – for GHG emissions
  - Climate Leaders (US)
  - European Automobile Agreement (to reduce average GHG emissions from new cars).
  - Greenhouse Challenge Plus (Australia)—for reduction of GHG emissions

R&D

- Direct investment in R&D or incentives for R&D (eg, Golden Carrots)
- Advantages
  - R&D into energy efficiency, renewable energy or other GHG reducing technologies can have tremendous payoff
- Disadvantages
  - Direct R&D has had a mediocre record
  - Commercialization harder to incentivize

Table 13.1: R&D Budgets for Renewable Energy



Information Instruments

- Examples: Public disclosure, labelling
- Advantages
  - Can be useful in enhancing effectiveness of other instruments
- Disadvantages
  - Programs may be overly burdensome on firms
- Examples
  - Appliance and automobile fuel efficiency labels
  - US Toxic release inventory – effective but not climate

Table 13.1: *National Environmental Policy Instruments and Evaluative Criteria*

	Criteria			
Instrument	Environmental effectiveness	Cost-effectiveness	Meets Distributional Considerations	Institutional Feasibility
Regulations and Standards	Emissions level set directly, though subject to exceptions. Depends on deferrals and compliance.	Depends on design, uniform application often leads to higher overall compliance costs.	Depends on level playing field, Small/new actors may be disadvantaged.	Depends on technical capacity, Popular with regulators, in countries with weak functioning markets.
Taxes and Charges	Depends on ability to set tax at a level that induces behavioural change.	Better with broad application; Higher administrative costs where institutions are weak	Regressive; can be ameliorated with revenue recycling.	Often politically unpopular; May be difficult to enforce with underdeveloped institutions.
Tradable Permits	Depends on emissions cap, participation and compliance	Decreases with limited participation and fewer sectors	Depends on initial permit allocation May pose difficulties for small emitters	Requires well functioning markets and complementary institutions.
Voluntary Agreements	Depends on programme design, including clear targets, a baseline scenario, third party involvement in design and review, and monitoring provisions	Depends on flexibility and extent of government incentives, rewards and penalties	Benefits accrue only to participants	Often politically popular. Requires significant number of administrative staff,
Subsidies and Other Incentives	Depends on programme design. Less certain than regulations/ standards.	Depends on level and programme design; Can be market distorting	Benefits selected participants, possibly some that do not need it	Popular with recipients; potential resistance from vested interests. Can be difficult to phase out
Research and Development	Depends on consistent funding; when technologies are developed and polices for diffusion. May have high benefits in long-term;	Depends on programme design and the degree of risk.	Benefits Initially selected participants, Potentially easy for funds to be misallocated.	Requires many separate decisions. Depends on research capacity and long-term funding
Information Policies	Depends on how consumers use the information; Most effective in combination with other policies.	Potentially low cost, but depends on programme design.	May be less effective for groups (e.g., low-income) that lack access to information.	Depends on cooperation from special interest groups

Non-climate Policies

- Many non-climate policies have climate effects
  - Land use policies
  - Poverty policies
  - International trade policies
  - Population policies
  - Energy security policies
- Important to be cognizant of the climate effects of such policies

Local, Private and NGO Initiatives

- Sub-national initiatives
  - Eg, California (9th largest emitter in world)
- Corporate unilateral actions
  - Eg, BP
- Associations (groups) of firms taking action
- Other actions by non-governmental actors

Box 13.9: Examples of Private Partnerships and Programs

- **Business Leader Initiative on Climate Change, BLICC:** Under this initiative, five European companies monitor and report their greenhouse gas emissions and set a reduction target.
- **Carbon Disclosure Project**. Under this project, 940 companies report their GHG emissions. The project is supported by institutional investors controling about 25% of the global stock markets.
- **Carbon Trust**: The Carbon Trust is a not-for-profit company set up by the U.K. government to reduce carbon emissions. The Trust provides technical assistance, investment funds and other services to companies on emission reduction strategies and for the development of new technologies.
- **Cement Sustainability Initiative**: Ten companies have developed "The Cement Sustainability Initiative" for 2002-2007 under the umbrella of the World Business Council for Sustainable Development. This initiative outlines individual or joint actions to set emissions targets and monitor and report emissions.
- **Chicago Climate Exchange**: The Chicago climate exchange is a greenhouse gas emission reduction and trading pilot program for emission sources and offset projects in the United States, Canada, and Mexico. It is a self-regulatory, rules based exchange designed and governed by the members who have made a voluntary commitment to reduce their GHG emissions by four percent below the average of their 1998-2001 baseline by 2006.
- **Offset Programs**: Braun and Stute (2004) identified 35 organizations that offer services to offset the emissions of companies, communities and private individuals. These organizations undertake emission reduction or carbon sequestration projects or acquire and retire emission reduction units or emission allowances.
- **Pew Center on Climate Change Business Environmental Leadership Council**: Under this initiative, 41 establish emissions reduction objectives; invest in new, more efficient products, practices, and technologies; and support action to achieve cost-effective emissions reductions.
- **WWF Climate Savers**: The NGO World Wide Fund of Nature (WWF) has build partnerships with individual leading corporations that pledge to reduce their global warming emissions worldwide 7% below 1990 levels by the year 2010. Six companies have entered this programme.

International Climate Agreements

- Relevance
  - Applies not to Kyoto but to post-Kyoto agreement
- Issue
  - What lessons have we learned?
  - What does the literature tell us regarding design of agreements?

International Climate Agreements

Limitations in Existing Agreements

- Lack of Explicit long-term goals
- Targets are inadequately stringent
- Agreements to not engage enough countries
- Agreements are too costly
- Agreements do not have adquate compliance mechanisms
- Inadequate incentives for R&D/innovation
- Consensus of literature on Kyoto: effect small unless leads to subsequent more stringent agreements

Box 13.6: Elements for Climate Change Agreements

- **Goals**: Most agreements establish objectives that implementation is supposed to achieve. In the climate context, a variety of goals have been proposed, including those related to emissions reductions, stabilization of GHG concentration, avoiding "dangerous" interference with climate, technology transfer, and sustainable development. Goals can be set with varying degrees of specificity.
- **Participation**: All agreements are undertaken between specific groups of participants. Some have a global scope while others focus on a more limited set of parties (e.g., regional in nature, or limited to arrangements between private sector partners). Obligations can be uniform across participants, or differentiated among them.
- **Actions**: All agreements call for some form of action. Actions vary widely and can include: national caps or targets on emissions, standards for certain sectors of the economy, financial payments and transfers, technology development, specific programmes for adaptation , and reporting and monitoring.
- **Institutions and compliance provisions**: Many agreements contain provisions for establishing and maintaining supporting institutions. These perform tasks as varied as serving as repositories for specific, agreement-related data, to facilitating or adjudicating compliance, to serving as clearing houses for market transactions or information flows, to managing financial arrangements. In addition, most agreements have provisions in case of non-compliance.
- **Other elements**: Many (although not all) agreements contain additional elements, including, for example, "principles" and other preambular language. These can serve to provide context and guidance for operational elements, although they may be points of contention during negotiations. In addition, many agreements contain provisions for evaluating progress – with a timetable for reviewing the adequacy of efforts, and evaluating whether they need to be augmented or modified.

Actions

- Targets
  - Target may be bottom up
  - Target may be formula for computing obligations
  - Target may be regional or in terms of groups of countries
- Flexibility
  - How, when, where, what
- International linkages and emissions trading
  - Proliferation of diverse national systems may be problematic
- Project-based mechanisms (eg, JI and CDM)
- International sectoral approaches (eg, aviation)
- Coordination/harmonization of policies significant
  - Potential conflicts with WTO (eg, Toprunner program and autos; project-based mechanisms are FDI)

Table 13.3: Assessment of International Agreements on Climate Change

Approach	Environmental effectiveness	Cost effectiveness	Meets distributional considerations	Institutional feasibility
National emission targets & intl emission trading (incl offsets)	Depends on participation, and compliance.	Decreases with limited participation and reduced gas and sector coverage	Depends on initial allocation	Depends on capacity to prepare inventories and compliance. Defections weaken regime stability
Sectoral agreements	Not all sectors amenable to such agreements, limiting overall effectiveness. Effectiveness depends on whether agreement is binding or non-binding	Lack of trading across sectors increases overall costs, although may be cost-effective within individual sectors. Competitive concerns reduced within each sector.	Depends on participation. Within-sector competitiveness concerns alleviated if treated equally at global level.	Requires many separate decisions and technical capacity. Each sector may require cross-country institutions to manage agreements
Coordinated policies and measures	Individual measures can be effective; emission levels may be uncertain; success will be a function of compliance	Depends on policy design	Extent of coordination could limit national flexibility; but may increase equity.	Depends on number of countries; (easier among smaller groups of countries than at the global level)
Cooperation on Technology RD & D	Depends on funding, when technologies are developed and policies for diffusion	Varies with degree of R&D risk Cooperation reduces individual national risk	Intellectual property concerns may negate the benefits of cooperation.	Requires many separate decisions. Depends on research capacity and long-term funding
Development oriented actions	Depends on national policies and design to create synergies	Depends on the extent of synergies with other development objectives	Depends on distributional effects of development policies	Depends on priority given to sustainable development in national policies and goals of national institutions.
Financial mechanisms	Depends on funding	Depends on country and project type	Depends on project and country selection criteria	Depends on national institutions
Capacity building	Varies over time and depends on critical mass.	Depends on programme design	Depends on selection of recipient group	Depends on country and institutional frameworks

Implications for Global Climate Change Policy

- Several questions remain from 20 years of IPCC
  - Why has the application of policy been so modest?
  - What is the global community not on a faster track?
  - What have hedging strategies not emerged?
  - Is the scale of the problem too large for current institutions?
  - Is there a lack of information on potential impacts or low-cost options?
  - Has policy-making been excessively influenced by special interests?
- Answers to these questions
  - Complex nature of policy-making process
  - Overriding goal of all governments for cheap and secure energy and economic growth
- Conclusions of this chapter
  - the policy solutions are not simple
  - the literature can provide guidance on moving beyond current arrangements