Best Practices Matrix

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FRESHWATER

Externality: Scarcity of freshwater

Throughout the 20th century, water governance efforts emphasized the local and/or regional scales, in part because water challenges were largely perceived as local issues. However, there is growing recognition that the scope and complexity of water-related challenges extend beyond national and regional boundaries and therefore cannot be adequately addressed solely by national or regional policies. In particular, widespread water scarcity and lack of access to water supply and sanitation threaten socioeconomic development and national security for countries around the world. Additionally, people around the world share and exchange water directly and indirectly through natural hydrological units/systems and through global trade (i.e. virtual water). Climate change and the growing presence of multinational companies within the water sector also play a role in globalizing water issues (Hoekstra 2006).

Governance

Intergovernmental organizations lack clear leadership and coordination

» Secure a sustainable funding source and a stronger mandate for coordinating intergovernmental organizations.

» Promote greater collaboration to build understanding and coordinate action.

Role of non-governmental processes is unclear

» Explore and develop guidelines and principles to help govern non-governmental processes.

Lack of transparency and accountability limits the effectiveness of water sector investments and fosters corruption

» Adopt new standards, codes, and best practices for water resource development and management to promote greater transparency and participation.

» Empower communities through long-term and short-term education and outreach efforts.

Failure to adopt broad-based agreement on transboundary watercourses

» Bring the UN Convention on the Law of the Non-Navigational Uses of International Watercourses into force.

Existing inter-basin agreements lack flexibility

» Improve flexibility of existing inter-basin agreements.

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Monitoring

Knowledge and technology transfer efforts remain largely top-down

» Promote open-access knowledge transfer.

» Facilitate effective technology transfer by engaging local communities in the decision-making process.

» Improve understanding and communication of risk and uncertainty.

Data collection efforts are inadequate

» Develop a centralized, global water data portal.

- The metering of water consumption is a prerequisite for the application of efficient water pricing policies.

Leverage new data collection technologies.

Incentives

Water sector funding is inadequate and narrowly focused

» Develop financing mechanisms to support ongoing operation and maintenance costs.

- Efficient and effective water pricing systems provide incentives for efficient water use and for water quality protection. They also generate funds for necessary infrastructure development and expansion, and provide a good basis for ensuring that water services can be provided to all citizens at an affordable price.

There is no single best practice that can be recommended to one country or sector.

» Water-using sectors in various locations face different situations and needs for pricing approaches. Future scarcity affected by climate change will most likely lead to different water pricing needs than past schemes.

Agricultural water use remains heavily subsidized

» Greater transparency, including in the level of implicit subsidies provided through undercharging for infrastructure use, could help build public support for further reforms.

New funders (e.g. commercial banks, energy and construction companies) fail to abide by environmental and social lending standards

» Establish new lending standards and compliance strategies

Transition to market mechanisms being hindered by high costs of establishing property rights, monitoring, and enforcing.

BIOSPHERE INTEGRITY

Externality: Loss of functional and genetic diversity

Biodiversity loss is a unique externality — the impacts of a particular action are often distant in space and time (e.g., local rainforest loss may affect the global carbon cycle, with consequences for future generations). This makes effective regulation difficult, as no single body has jurisdiction over the world's biodiversity. It also makes transaction-based solutions difficult, because those who damage biodiversity are often widely separated (in space or time), from those who experience the consequences. Actors have few incentives or opportunities to change their behavior, whether they are smallholder households planning their annual agricultural cycles or large multinational companies determining their corporate priorities. Understanding and managing biodiversity as a global public good, which must be provided through conscious collective choices, is fundamental to achieving its conservation.

Governance

Incorporate biodiversity objectives and provisions into on-going and future international standards, agreements, plans, operations and/or other tools specific to development in key ecosystems.

» This should include, but is not limited to, oil and gas development, shipping, fishing, tourism and mining.

Advocate ecosystem-based management efforts as a framework for cooperation, planning and development.

» This includes an approach to development that proceeds cautiously, with sound short and long-term environmental risk assessment and management, using the best available scientific and traditional ecological knowledge, following the best environmental practices, considering cumulative effects and adhering to international standards.

Support international efforts addressing climate change - reducing stressors and implementing adaptation measures - as an urgent matter.

» Of specific importance - reduce greenhouse gas emissions and reduce emissions of black carbon, methane and tropospheric ozone precursors.

Advance the protection of large areas of ecologically important marine, terrestrial, and freshwater habitats, taking into account ecological resilience in a changing climate.

» Build upon existing networks of terrestrial protected areas, filling geographic gaps, including underrepresented areas, rare or unique habitats, particularly productive areas such as large river deltas, biodiversity hotspots, and areas with large aggregations of animals such as breeding colonies and calving grounds.

Promote the active involvement of indigenous peoples in the management and sustainable use of protected areas.

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Monitoring

Increase and focus inventory, long-term monitoring, and research efforts to address key gaps in scientific knowledge to better facilitate the development and implementation of conservation and management strategies.

Research and monitor individual and cumulative effects of stressors and drivers of relevance to biodiversity, with a focus on stressors that are expected to have rapid and significant impacts and issues where knowledge is lacking.

» This includes: modeling potential future species range changes as a result of stressors; developing knowledge of and identifying tipping points, thresholds, and cumulative effects for biodiversity; developing robust quantitative indicators for stressors.

Build upon existing and ongoing domestic and international processes to complete the identification of ecologically and biologically important.

Develop guidelines and implement appropriate spatial and temporal measures where necessary to reduce human disturbance to areas critical for sensitive life stages of species that are outside protected areas, for example along transportation corridors.

Recognize the value of traditional ecological knowledge and work to further integrate it into the assessment, planning and management. This includes involving indigenous peoples and their knowledge in the survey, monitoring, and analysis of biodiversity.

Incentives

There is a need to set in place a mix of compatible and mutually reinforcing incentives to reach a given biodiversity conservation goal.

The choice of incentive measures for biodiversity conservation must take into account the specific groups, activities, and sectors which they aim to work on.

» They must be based on practically implementable actions and be acceptable and sustainable within the broader social, political, and cultural context.

Incentive packages must contain a balanced combination of positive incentives which reward or induce conservation and disincentives that discourage or penalize biodiversity degradation.

» Incentive measures that focus only on providing disincentives to biodiversity degradation run the risk of losing the support of producers and consumers.

» Similarly, positive incentives for biodiversity conservation commonly need some kind of reinforcement and enforcement.

Economic incentives should avoid increasing the external dependency and decreasing the local/national sovereignty of local communities, conservation agencies, and host countries where biodiversity is found.

Incentive measures should be simple to implement, and aim to minimize transaction, enforcement, and participation costs, if they are to be sustainable over the long-term.

OCEAN ACIDIFICATION

Externality: Destruction of marine ecosystems

Governance

Develop a global oceans strategy (including a list of marine-based sustainable development goals) for consideration by the UN General Assembly.

» The strategy should be taken up and implemented at regional, national, and local levels.

Negotiate a new agreement under UNCLOS (Law of the Sea) for the protection and conservation of high seas biodiversity in areas beyond national jurisdiction - in order to ensure global accountability and improve international marine governance,

» This new agreement could fill existing gaps in high seas governance and promote precautionary, ecosystem-based management measures to ensure the long-term sustainability of marine species and ecosystems in areas beyond national jurisdiction.

Strengthen and extend regional ocean governance.

» In the context of the UNEP Regional Seas Program, the development of regional agreements for all marine regions should be encouraged.

Expand marine-protected areas.

» At least 20–30 % of the area of marine ecosystems should be included in an ecologically representative and effectively managed system of protected areas.

Develop a global marine spatial planning initiative.

» A multilateral system of marine spatial planning that ensures cross-national coordination in order to realize large-scale environmentally friendly uses across zones should be established.

Monitoring

Marine knowledge has to be increased significantly by intensifying marine research activities and creating binding commitments for long-term ocean observations and services.

Support and enhance international efforts and cooperation to identify, assess, and reduce existing and emerging harmful contaminants.

Support the development of appropriate prevention and clean up measures and technologies that are responsive to oil spills, especially in ice-filled waters, such that they are ready for implementation in advance of major oil and gas developments.

Encourage local and national action to implement best practices for local wastes, enhance efforts to clean-up (legacy) contaminated sites, and include contaminant reduction and reclamation plans in development projects.

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Incentives

The prices for ecosystem services should be taken into consideration, harmful subsidies should be cut back, funding should be provided for sustainable capacity building.

Strengthen and expand private governance.

» Private certification initiatives aiming to encourage the sustainable use of the oceans (e.g., Marine Stewardship Council, Friend of the Sea, Aquaculture Stewardship Council) should be promoted.

Implement a well-designed carbon price as part of a strategy for efficiently reducing greenhouse gas emissions while also fostering growth.

Establish an international system for financing the conservation and sustainable use of the seas

» Internalize the costs for preserving marine ecosystems.

Set up a stricter liability regime.

» A much more effective international liability regime should be created covering all activities across all sectors involving a potential risk to the seas.

Shift economic incentives to align conservation and economic benefits by implementing well-designed rights-based or secure-access fisheries and ecosystem service accounting.

LAND USE

Externality: Disruption of land-based ecosystems

Governance

Reform land institutions to support more equitable tenure and responsible management.

» Stable access to land and water, incentives for responsible management, and obligations not to pollute.

Adjust systems of land tenure/rights that can allow farmers to exploit comparative advantage in food staples and cash crops

Develop and strengthen institutions for integrated land and water management at the project or scheme level

» Include programs for modernization of irrigation institutions and infrastructure

» Users need to be part of decision-making and financing.

Put into place the framework for the efficient working of competitive input and output markets.

Develop a multisector strategy and investment framework.

» Detail how a shared strategy can be made operational, with tangible milestones, human and financial resource requirements, and detailed roles and responsibilities of the various actors: public sector, international organizations, non-governmental organizations, community organizations, and the private sector.

Monitoring

The progressive impact of institutional reform and investment need to be monitored and evaluated carefully.

» This can be done as part of an investment framework. Indicators to be measured would draw from the inventory on supply and demand of land and water, and could include: status and changes of land use, land cover and land degradation; changes in water and soil health; indicators of biodiversity and carbon stocks below and above ground; changes in access to land and water by the poor; changes in agricultural productivity; changes in rural poverty; and rates of adoption of sustainable land and water management practices.

» The GEF and the UNCCD have developed sets of standard indicators that could be adapted.

Research and determine the physical and socio-economic circumstances under which different farming systems are stabilized.

» This includes data on production technology but also socio-economic factors such as farm size, family size, food security, and access to capital and markets.

Develop an "Inventory of the World's Land and Water Systems," with a focus on systems at risk, and a capacity for regular monitoring and reporting on their status and trends

» The global inventory could guide choices at the international, regional and national levels, help set principles and approaches, and assist countries and their partners in priority setting.

Further work is needed on ecosystem services valuation in the framework of natural capital accounting.

» No agreed method of assessing and valuing ecosystem services has yet emerged, and tools to classify the priority of land for conversion or protection and to assess and validate outcomes are still lacking.

» These methodologies would measure and cost direct relationships such as those between soil health and production, quantify and cost externalities, assess the overall costs and benefits, the synergies and trade-offs of degradation, and measures to prevent, mitigate or reverse it.

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Incentives

Encourage the multiple synergies strategy and determine the tradeoffs involved in intensification of agricultural production or in expansion of the cultivated area – synergies between sustainable production systems and food security, conservation and sustainable use of biodiversity, and climate change adaptation and mitigation.

» Trade-offs to consider: short term vs the longer term, production vs conservation of existing ecosystem services, food crops vs biofuel feedstocks, commercial farming vs smallholder farming, resource allocation to agriculture vs to urban and industrial sectors, local benefits vs global goods.

A supportive incentive structure is necessary, but it needs to match user interests.

» Incentives are different at local, national, and global levels

» Equitable and fair distribution of costs and benefits is essential for sustainable land management.

Design some form of a smart subsidy to farmers who bear costs but do not receive benefits (e.g. through payments for ecosystem services (PES) contracts).

» Incentives may also need to be built in to compensate farmers for the lag between investment and the arrival of benefits.

» Care needs to be taken to ensure that any subsidies are targeted to policy objectives, environmental conservation, and are pro-poor.

Promote rural credit and finance that suits specific agricultural systems.

» This can be based on annual production credit, as well as longer-term finance for investment in land.

» These initiatives will complement dissemination of technology, and will therefore require adequate levels of public investment.

Encourage private and market-based institutions to promote sustainable land and water management, such as Fairtrade and ecological labelling

Global trade agreements should favor sustainable agricultural practice.

POLLUTION

Externality: Contamination of water and soil

Governance

Existing international agreements lack coordination

» Membership gaps (i.e. different levels of membership in the various agreements - Basel, Rotterdam, and Stockholm Conventions, and CLRTAP POPs protocol) make it difficult to link two or more agreements in attempts to save time and to benefit from previous work in setting up effective regulations

» Set up a general framework convention or single all-encompassing multilateral environmental agreement (MEA) for sound management of chemicals and wastes within which issue-specific protocols are then created (e.g. "law of the atmosphere")

Limited number of chemicals are covered

» Regulatory gaps exist across the four agreements (Basel, Rotterdam, and Stockholm Conventions, and CLRTAP POPs protocol). They focus on different activities and do not cover identical sets of substances, with the result that some industrial chemicals and pesticides are not controlled throughout their entire life cycle, or geographically

» Introduce comprehensive controls to address the problems of hazardous pesticides and industrial chemicals on such substances throughout their life cycle production, use, trade, and disposal

Lack of coherent risk reduction strategies among the various government authorities responsible for chemicals and wastes

» Develop more coherent risk management strategies through multi-stakeholder approaches to coordinate government policies and instruments with corporate skills and resources

Implementation is poorly resourced and often fragmented and ineffective across all current global agreements and other comprehensive programmes on chemicals

Monitoring

Data collection efforts are inadequate

» Develop coherent approaches for monitoring of chemical exposures and environmental and health effects that allow spatial assessments and establishment of time trends

» Include as baseline information on chemicals not only data on chemical exposure and health and environment effects but also on chemicals throughout their lifecycle

» Develop and strengthen global, regional and national integrated health and environment monitoring and surveillance system for chemicals to make timely and evidence-based decisions for effective information management of environmental risks to human health.

Knowledge and technology transfer efforts are inadequate

» Implement a global monitoring plan, which aims to generate frequent, comparable and comprehensive data in core matrices (e.g. ambient air, surface water, soil).

» Establish and update a comprehensive chemical databank, which identifies operational laboratories worldwide and provides information on their capabilities to analyse different chemicals.

Efforts so far have concentrated on phasing out existing hazardous chemicals

» Set up effective mandatory screening and assessments of new substances to prevent novel substances, later to be discovered to be equally hazardous, from replacing the substances now being banned

Technology lags in distinguishing point-source and nonpoint-source pollution

» Public support for R&D into new monitoring technologies

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Incentives

It is difficult to establish the monetary value for the marginal damage associated with pollution (e.g. of groundwater or air)

» Nonuniform input taxes (incentive to switch to input-saving tech)

- Use revenues to subsidize adoption of pollution reduction technologies or R&D of such technologies

» Uniform pollution taxes

» Subsidies for pollution reduction

» Tradable pollution permits

Many current incentives encourage suppliers to increase the amount of chemicals they sell, rewards the supplier if chemicals are used inefficiently, and inhibits progressive and environmentally sound industrial development

» Remove perverse incentives

» Production phase-out provisions

» Establish incentives to improve conveyance facilities of waste products so that environmentally harmful leakages are minimized

Lack of knowledge about the behavior of individual producers is an obstacle to implementing pollution taxation (since many pollution problems are non point-source)

» Implement ambient tax to address non point-source pollution

Heterogeneity

» Zoning and direct control

Multidimensionality

» Reduce exposure

BIOGEOCHEMICAL FLOWS

Externality: Overabundance of nitrogen and phosphorus in soil which drains into and pollutes water bodies

Governance

Global policy leadership is lacking

» The multilevel nature of nitrogen and phosphorus flows, and the limited international attention on the topic, has produced weak and unconnected governance structures

- Strengthen the Global Partnership on Nutrient Management (GPNM) - a structure of polycentric governance (i.e. deliberate attempts for mutual adjustments and self-organized action)
  - * This wprovide synergies in the context of insufficient governance
- Extend and strengthen national and regional efforts (e.g. Japan, Netherlands, Europe).
  - * These serve as examples for global collaborative knowledge-creation, target-design, and process-implementation for sustainability innovation, all in a transdisciplinary framework

» On a global level, serious engagement and fruitful collaboration among stakeholders is lacking

- This is partly because stakeholders with very different views and interests are involved in the phosphorus and nitrogen supply chain, ranging from exploration, mining, and shipping, to farming and recycling
- Extend and strengthen existing mandates to include nitrogen and phosphorus management into current frameworks - UN Framework Convention on Climate Change, UN Convention on Biological Diversity, Global Programme of Action for Protection of the Marine Environment from Land-based Activities (GPA)

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Monitoring

No independent source of data or a governance system set up to provide independent monitoring of the knowledge and resource base

» Establish global assessment of nutrient linkages, benefits, and threats

» Investigate practice options, agree on indicators, and set targets for improved N and P management

» Quantify the multiple benefits of meeting the targets and determine how these support other global treaties

Inefficient communication among farmers, scientists, and economists

» Implement knowledge-sharing programs to promote the use of the environmental and economic optimal N rate (EEONR) and best nitrogen management practices (BNMPs) while providing scientific data and leadership to address this issue

» Regardless of the tools used to promote change (legislative, economic), education programs need to be put in place immediately to promote the environmental and economic benefits of the optimal use of fertilizers

Incentives

Fertilizer use requirements need to be reassessed in all agricultural systems, from an economic and environmental perspective.

» Best nutrient management practices

Economic and environmental models need to be integrated and made user-friendly, particularly in those developed and developing countries where excessive fertilizer use occurs

Countries need to ensure that government programs do not discriminate against producers who voluntarily choose to use less fertilizer

» Remove perverse incentives

» E.g. crop insurance often requires the farmer to apply fertilizers at the recommended (but potentially out-dated) rate, otherwise they will not be compensated for potential crop losses.

Develop economic tools to better inform and drive changes in N and P application rates.

» Implement “green taxes” (i.e., taxes on fertilizers and agrichemicals).

» Eliminate “negative green incentives”, which often provide direct subsidies to farmers to use fertilizers.

ATMOSPHERIC AEROSOLS

Externality: Air pollution [Similar challenges and best practices to chemical pollution.]

Governance

Globally uncoordinated regional policy frameworks exist

» Extend and strengthen national and regional efforts (e.g. Europe, Southeast Asia).

» Reinforce regional legal framework and human capacities, thereby facilitating greater global convergence

» These serve as examples for global collaborative knowledge-creation, target-design, and process-implementation

Monitoring

Limited interaction among numerous uncoordinated aerosol monitoring networks, regional and global in scope (e.g. Global Atmosphere Watch Aerosol Programme)

» Require coordination of networks for in situ observations

» Establish an aerosol lidar network in cooperation with existing networks

» Integrate satellite, aircraft, and surface-based aerosol observations with aerosol modelling

» Encourage greater data submission, utilization, and real-time exchange of aerosol data

» Enhance the coverage, effectiveness, and application of long-term aerosol measurements

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Monitoring

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» Tradable pollution permits

Lack of knowledge about the behavior of individual producers is an obstacle to implementing pollution taxation (since many pollution problems are non point-source. E.g transportation)

» Implement ambient tax to address non point-source pollution

Efficient and effective carbon pricing provides incentives for reducing emissions. Carbon pricing could also generates funds for necessary infrastructure development and expansion.

There is no single best practice that can be recommended to one country or sector

» Polluting sectors in various locations face different situations and needs for pricing approaches. Future climate change impacts will most likely lead to different carbon pricing needs than past schemes

Clubs

Low-carbon infrastructure development incentives in urban areas

OZONE DEPLETION

Externality: Unsafe levels of UV radiation [Largely managed through effective global processes, though new regulations are emerging for further

Governance

Montreal Protocol is one of the most successful and effective environmental treaties ever negotiated and implemented

» Unprecedented level of cooperation and commitment shown by the international community, and negotiations relied heavily on leadership and innovative approaches

» Precautionary principle

- Highly flexible instrument which could increase or decrease controls as the science became clearer (e.g. the protocol was amended to include stricter controls: more ozone-depleting substances added to the control list and total phase-out, rather than partial phase-out, called for)
- People negotiating the treaty also included scientists, which lent credibility

» Trade provisions

- Encouraged countries to ratify the Montreal Protocol by limiting signatories to trade only with other signatories
- Once main producing countries signed up, eventually all countries had to sign up or risk not having access to increasingly limited supplies of CFCs and other ozone-depleting substances (ODS)

» Common, but differentiated, responsibility (CBDR)

- Developing countries given longer to phase-out ODS
- Facilitates technology transfer for developing countries to meet their commitments

» Implementation

- The chemicals and involved sectors (refrigeration, primarily) are clearly articulated, allowing governments to prioritize the main sectors early
- Provided a stable framework that allowed industry to plan long-term research and innovation
- It was merely coincidental that there were benefits for industry of moving away from ODS
  * CFCs were old technology and long out of patent
  * Transitioning to newer, reasonably priced formulations with lower- or no-ozone depleting potential benefited the environment and industry
- Non-punitive compliance procedure
  * Prioritised helping wayward countries back into compliance

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Monitoring

Montreal Protocol and its Amendments point to crucial importance of continued monitoring of the different halogen source gases, and the climate in general

» Large, coordinated network of measurement stations provides high frequency measurements of the source species

» Techniques for measuring these gases at their current levels and historically (e.g. in ice cores) have advanced significantly in the past decades

» Industrial production and estimated emission figures are regularly updated by both industry and UNEP

» Ongoing efforts at intercomparison and cross-calibration are expected to reduce any measurement discrepancies and disputes

Technology and Economic Assessment Panels

» Exist to provide independent technical and scientific assessments and information to help Parties reach informed decisions

Future assessment and atmospheric monitoring needs to include emerging ozone-depleting chemicals

» DCM and other short-lived ozone depleting substances are an emerging issue for stratospheric ozone, but government signatories have yet to take action to limit their emissions

Incentives

Protocol seen by industry as a useful mechanism for providing the necessary economic incentive to develop and market suitable alternatives

Multilateral Fund for the Implementation of the Montreal Protocol provides funds to help developing countries comply with their obligations under the Protocol to phase out the use of ODS at an agreed schedule

» Not only binds countries, it contains financial provisions to assist in phase-outs

» First financial mechanism to be borne from an international treaty

» Provides finance for activities including the closure of ODS production plants and industrial conversion, technical assistance, information dissemination, training and capacity building aimed at phasing out the ODS used in a broad range of sectors

Selective incentives to developing countries allowed them to delay compliance by up to ten years, gain technical and financial assistance, increase their per capita CFCs consumptions, and escape trade sanctions

» Phase-down includes schedules for both developed countries and developing countries, with developed countries going first to prove new alternatives

CLIMATE CHANGE

Externality: Global temperature increase [Currently evolving process; "true" best practices yet to be determined.]

Governance

Effective governance is challenged by long time horizons on a variety of scales

» For example — Incremental (but accelerating) changes to the composition of the atmosphere; effects of current emissions reductions will take decades to work through climate system; existing political institutions scaled to human activities and life-spans, with 4-5 year electoral cycles and development plans/annual budgets

» Link short term, medium term, and long term policy targets to ensure incremental progress towards substantial emissions reduction in the future (for example, through national and international carbon budgets)

» Establish institutions with a mandate to 'think long' and promote the low carbon emissions economy

Greenhouse gas (GHG) reduction targets set forth in existing governance arrangements are still far from what would be required to limit temperature increases to 2°C

» Do not wait for international agreements to initiate national and local action

» Establish sectoral initiatives

Future emissions trajectory uncertain and its impacts on local, regional, and global climates unclear

» Uncertainty can be used as an excuse to defer action by those who fear their material interests will be impacted by mitigation

» Apply hedging strategies (precautionary principle) and emphasize avoiding high impact events rather than optimizing

» Educate decision makers and public about the nature of scientific knowledge, research, and uncertainties

Dissonance between internationalized production chains and primarily national regulatory systems

» Consider national responsibility for embedded emissions (total emissions generated by national consumption) rather than just territorial releases

Paradigm shifts in energy production and consumption, and dramatic changes in transportation, manufacturing, construction, agriculture, forestry management, land use and urban development are needed

» Build change oriented governmental and non-governmental coalitions

» Develop a climate friendly public ethos (for example, by using the educational system, and 'opinion makers' in the media, cultural industries, ethical, and religious circles)

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Monitoring

Lack of reliable (national) monitoring of GHG emissions

» GHG emissions have to be monitored, reported and verified in order for carbon pricing to work

» Establish monitoring programs to track climate related changes and the impacts of policy

Limited scientific understanding of regional and local climate change, and ecosystem and societal impacts

» No strong awareness on the link between extreme climate events and GHG emissions

» Strengthen monitoring capacity and further research efforts

In regards to country emissions reporting, data is highly heterogeneous and are difficult to compare across countries and over time without substantial additional information

» Qualitative analysis of submissions could help identify potential strategies to harmonize submissions and thus increase comparability and transparency

» For example:

- What are the common characteristics of the most effective policies?
- Are countries that report more policies better at reducing their emissions and what are the most significant policies in terms of GHG reductions and other effects?

Incentives

Economic costs of emissions reduction must be born today, but benefits accrue decades in the future

» Align short term incentives with long term policy goals

» For example:

- Place a price on carbon emissions (through a carbon tax) or implement congestion pricing intiatives
- Establish rewards for immediate movement towards low carbon solutions (renewable feed-in tariffs and portfolio standards);
- Use funds to support low-carbon R&D

A carbon price gives an economic signal - polluters decide for themselves whether to discontinue their polluting activity, reduce emissions, or continue polluting and pay for it

» A carbon price should not be considered as an isolation, but a variable dependent on fossil fuel prices

» Stimulates clean technology and market innovation, fuelling new, low-carbon drivers of economic growth

» Subsidize technology improvement/adoption on industry level (e.g. positive-return capital projects)

Hybrid policies that aim to combine taxes and permits are a promising way forward

» Removal of perverse incentives

» Subsidies for the extraction or production of fossil fuels

» Exemptions from energy taxes,

» Fossil fuel subsidies to keep the price level low

Regulatory standards to raise minimum efficiency requirements for industrial equipment, consumer products, and building standards