The IGES Proposal for Rio+20

- Version 1.0

Inputs to the compilation document of the outcome document of Rio+20

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IGES Policy Report

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Disclaimer

This proposal has been developed in response to the call by the United Nations Department of Economic and Social Affairs (UNDESA) for stakeholders' input to a compilation document to serve as the basis for preparation of the zero draft of the outcome document of the United Nations Conference for Sustainable Development (UNCSD: Rio+20). The views and opinions contained within are based upon IGES research and include inputs from various international conferences, such as the 3rd International Forum for Sustainable Asia and the Pacific (ISAP2011).

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Abbreviations

ADB	Asian Development Bank
AECEN	Asian Environmental Compliance and Enforcement Network
AEO	Asian Environmental Organization
ATCs	Asian Topic Centres
CAREC	Regional Environmental Center for Central Asia
COP	Conference of the Parties
CRED	Centre for Research on the Epidemiology of Disasters
EEA	European Environment Agency
EIONET	European Environment Information and Observation Network
EPI	environmental policy integration
EPR	extended producer responsibility
G20	Group of Twenty
GA	General Assembly
GC	Governing Council (UNEP)
GHG	greenhouse gas
GMEF	Global Ministerial Environment Forum (UNEP)
HFA	Hyogo Framework for Action
IEG	International Environmental Governance
IFIs	International Finance Institutions
IFSD	institutional framework for sustainable development
IGES	Institute for Global Environmental Strategies
IMF	International Monetary Fund
IPBES	Intergovernmental Science and Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
ISAP	International Forum for Sustainable Asia and the Pacific
JIU	Joint Inspection Unit
MDGs	millennium development goals
MEAs	multilateral environmental agreements
MRV	measuring, reporting and verifying
NAMAs	nationally appropriate mitigation actions
NEASPEC	North-East Asian Sub-regional Programme for Environmental Cooperation
NGO	non-governmental organisation
NRCs	National Reference Centres
OECD	Organisation for Economic Co-operation and Development
PES	payment for ecosystem services
REDD	reducing emissions from deforestation and forest degradation
SACEP	South Asia Co-operative Environment Programme
SCP	sustainable consumption and production
SD	sustainable development
SDGs	Sustainable Development Goals
SPREP	Secretariat of the Pacific Regional Environment Programme
TEEB	The Economics of Ecosystems and Biodiversity
UKG	Union of Kansai Governments

UN	United Nations
UNCRD	United Nations Centre for Regional Development
UNCSD	United Nations Conference for Sustainable Development
UN CSD	UN Commission on Sustainable Development
UNDESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UN ECOSOC	UN Economic and Social Council
UNEO	United Nations Environment Organisation
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNISDR	United Nations International Strategy for Disaster Reduction
WCDR	World Conference on Disaster Reduction
WEO	World Environment Organisation
WTO	World Trade Organization

EXECUTIVE SUMMARY

Vision Statement

IGES maintains that sustainable development can only be achieved by addressing the three interdependent dimensions of economy, society and environment in an integrated manner. A **Green Economy,** supported by a strengthened **Institutional Framework for Sustainable Development** is based on safe, secure and low-carbon energy, with integrated climate change and development priorities taking into account **resilience to natural and manmade hazards**.

Simultaneously, over the next few decades, international society will need to focus on achieving global goals that address these dimensions:

(1) **Eradicate poverty** and meet the basic human needs of all people including safe food, safe drinking water, adequate sanitation, health care and universal primary education;

(2) **Reorient the world's economic system** towards a low-carbon approach, sustainable resource use and sustainable use of ecosystem services; and

(3) **Secure environmental integrity**, particularly through dealing with climate change and biodiversity.

In the Asia-Pacific region, these challenges have become more significant due to population growth, industrialisation, urbanisation and economic growth based on unsustainable consumption and production patterns. The IGES vision foresees the emergence of interlinked global governance institutions and **resilient social and economic systems** based on the principles of sustainable development.

IGES believes that one of the key concepts underpinning integration of the three dimensions of sustainable development is ***resilience***, and this should be revisited by all countries. The international community has been reminded by the recent disaster in Japan not only of the severe consequences of unchecked vulnerabilities, but also of the value of resilience to minimise the impact of disasters and hasten recovery. Greater emphasis in policy and research should be given to resilience, vulnerability and risk management in sustainable development.

To achieve such a resilient and sustainable society in the long-term, discussions should begin in the Rio+20 process to develop **Sustainable Development Goals** (SDGs) aimed at reducing absolute and relative poverty, changing consumption patterns, securing sustainable energy systems (including renewable energy targets), and increasing resilience.

Resilient and Sustainable Society

A resilient society has the adaptive capacity and robustness to handle shocks while maintaining functionality, and over time, grow stronger. Sudden extreme events can damage past achievements and delay progress on sustainable development. The world's poor are disproportionately exposed to risk, but vulnerability is not necessarily mitigated

simply through economic development or increased income. Globalisation, climate change and unsustainable development paths will contribute to increasingly frequent extreme events with global implications, such as natural disasters and economic crises. The key components for a sustainable and resilient society recommended by IGES include:

(1) **Multi-stakeholder/multi-level governance** with better participation and a pro-poor and vulnerable approach for agile, flexible and effective social/political support through better coordination and utilisation of local social ties and knowledge;

(2) **Financial schemes for immediate and medium-term recovery** which supports households and small-medium business; and

(3) **Decentralised and diversified infrastructure** for energy, water, transportation etc. with balanced management of supply/demand sides.

The extent to which these components are adopted and integrated in each country is determined by the local context and through the development of enabling conditions.

Green Economy in the Context of Sustainable Development and Poverty Eradication

IGES recognises that a key challenge in pursuit of sustainable development is the social, economic and environmental vulnerability caused by a one-sided pursuit of economic growth and efficiency. An emerging paradigm shift to overcome these key challenges is the concept of a green economy supported by investment, job creation, international policy coordination, and the precautionary approach. Towards this goal, IGES proposes the following:

(1) **For a low-carbon economy with a resilient, secure energy system**

- Investing in renewable energy, storage and a smart grid is vital to reducing vulnerability, by enhancing a decentralised electricity supply which would secure a backup system during a disaster, and by enhancing demand-side management. Governments should promote this trend by introducing incentives such as feed-in-tariffs and then phasing out of fossil fuel subsidies.

(2) **For sustainable consumption and production**

- Policy for requiring producers to internalise the costs of recycling and other actions for reducing resource consumption, e.g. **extended producer responsibility (EPR) and green tax**, as well as for making environmental impacts visible to consumers, e.g. **green labelling,** must be introduced and supported by increased efforts on education, training and skills enhancement. The effectiveness of these interventions depends on the environmental awareness of consumers as well as the ability of producers to improve product design and production processes.
- A phased approach to introduce these policies taking into account the developmental stages of implementing countries along with international policy cooperation will be most effective.
- An international fund for sustainable resource management should be established.

(3) **For sustainable use of ecosystem services**

- Wide application of payment for ecosystem services (PES) will contribute to appropriate pricing and sustainable use of ecosystem services in the context of poverty eradication. To promote this, **accounting systems should incorporate the economic benefits of ecosystem services** from project level to national accounts.
- Current practice of pricing ecosystem services based on our willingness-to-pay does not necessarily promise sustainable use of ecosystems. To overcome this limitation, the price of ecosystem services can be determined such that policies or actions to ensure sustainable use of ecosystem services would improve social welfare.

Institutional Framework for Sustainable Development

As the challenges to sustainable development have outgrown existing institutional capacities, it is now time to update the institutional framework for sustainable development (IFSD).

IGES's vision on the key principles and directions for IFSD is that it should include: multilevel governance and participation; integration and mainstreaming among the three dimensions of sustainable development; the subsidiarity principle; and strengthening environmental governance, because environment is the foundation for all other human and economic activity. IGES believes that fundamental reform of IFSD and international environmental governance (IEG) should be undertaken with a graduated and phased approach. Each sequence will provide necessary momentum for subsequent steps.

For the short-to-medium term, **IGES encourages governments to support the creation of a Sustainable Development Council** to better coordinate and oversee budgeting of all UN programmes and agencies. IGES also recommends appointing a High Commissioner for SD. Similarly, at the national level, SD concerns should receive greater attention and be harmonised and mainstreamed into sectoral work programmes through enhanced national coordination.

For IEG, **UNEP reform should start with universal membership of its Governing Council** to enhance legitimacy of IEG and eliminate the time-consuming elections of representatives to the GC. Subsequently, **UNEP should be upgraded to a specialised agency**, with a decision-making mandate and legal independence. In the longer term, IGES suggests the strengthening of regional environmental governance through, for example, formation of a regional environmental hub to be developed in the long run into an **Asian Environmental Organisation**, similar to regional cooperation frameworks in other regions.

Conclusion

IGES foresees the emergence of interlinked global governance institutions and **resilient social and economic systems** based on the principles of sustainable development. The **Green Economy** is an important interim milestone in this vision, in particular for poverty eradication and as a step towards sustainable consumption and production. To support this transition, a reinforced **Institutional Framework for Sustainable Development (IFSD)** is a necessary condition, in which multi-level and multi-stakeholder governance, as well as equity and social inclusiveness, are crucial.

1. Introduction

The Institute for Global Environmental Strategies (IGES)[1] proposes the following key messages and recommendations on the two themes of Rio+20, namely Green Economy in the Context of Sustainable Development and Poverty Eradication and the Institutional Framework for Sustainable Development (IFSD) and on the response to the triple disaster in Japan. Each section incorporates answers to the questions raised by UNDESA's Guidance Note, including the expectations for the outcomes of Rio+20 and views on existing concrete and new proposals, by considering forward-looking perspectives on the way forward post-Rio+20.

1.1. Vision Statement

IGES maintains that sustainable development can only be achieved by addressing the three interdependent dimensions of economy, society, and environment in an integrated manner. Simultaneously, over the next few decades, international society will be focusing on global goals that address these dimensions: (1) eradicate poverty and meet the basic human needs of all people including safe food and drinking water, adequate sanitation, health care, and universal primary education; (2) reorient the world's economic system towards a low-carbon approach, sustainable resource use, and sustainable use of ecosystem services; and (3) secure environmental integrity, particularly through dealing with climate change and biodiversity. In the Asia-Pacific region, these challenges have become more significant due to population growth, industrialisation, urbanisation, and economic growth based on unsustainable consumption and production patterns.

Over the years, gaps in interests and priorities within and among countries have hindered international cooperation for sustainable development. However, the international community has been reminded by the recent Great East Japan Earthquake and the subsequent tsunami and the nuclear accident of the severe consequences associated with modern development patterns. Japan may have not paid sufficient attention to vulnerability, rather, it may have too strongly pursued economic development to the detriment of social and environmental risks, thereby undermining the resilience of society to manmade and natural hazards—all with tremendous economic, social and environmental costs. One of the key concepts underpinning integration of the three dimensions of sustainable development is **'resilience**,' which should be revisited by all countries.

The IGES vision foresees the emergence of interlinked global governance institutions and resilient social and economic systems based on the principles of sustainable development. The **Green Economy** is an important interim milestone in this vision towards sustainable development. To support this transition, a reinforced **IFSD** is a necessary condition, in which multi-level and multi-stakeholder governance, as well as equity and social inclusiveness, are crucial. A Green Economy supported by a strengthened IFSD is based on safe, secure, and low-carbon energy, with integrated climate change and development priorities taking into account natural and manmade hazards.

[1] IGES is an international research institute conducting practical and innovative research for realising sustainable development with a special focus on the Asia-Pacific region.

To achieve such a resilient and sustainable society in the long-term, discussions should begin in the Rio+20 process to develop sustainable development goals (SDGs). Similar to the millennium development goals (MDGs), potential SDGs may include reducing absolute and relative poverty, changing consumption patterns, and restructuring energy systems including renewable energy targets. Indicators for the carrying capacity and boundaries of natural systems could provide an early warning system for human activities that potentially exceed thresholds of the planet's life support systems. Strengthening IFSD on issues such as climate change mitigation and adaptation, biodiversity and forests, oceans and water resources, and food security among other global issues, could be a solid foundation for goal setting in order to achieve sustainable development beyond Rio+20. This may require streamlining and harmonisation of multilateral environment agreements, with more quantitative targets to enable progress to be more accurately measured than is currently possible.

The following sections of this proposal introduce IGES views on (i) Resilient and Sustainable Society, (ii) Green Economy, and (iii) IFSD to contribute to effective policy formulation for sustainable development beyond Rio+20.

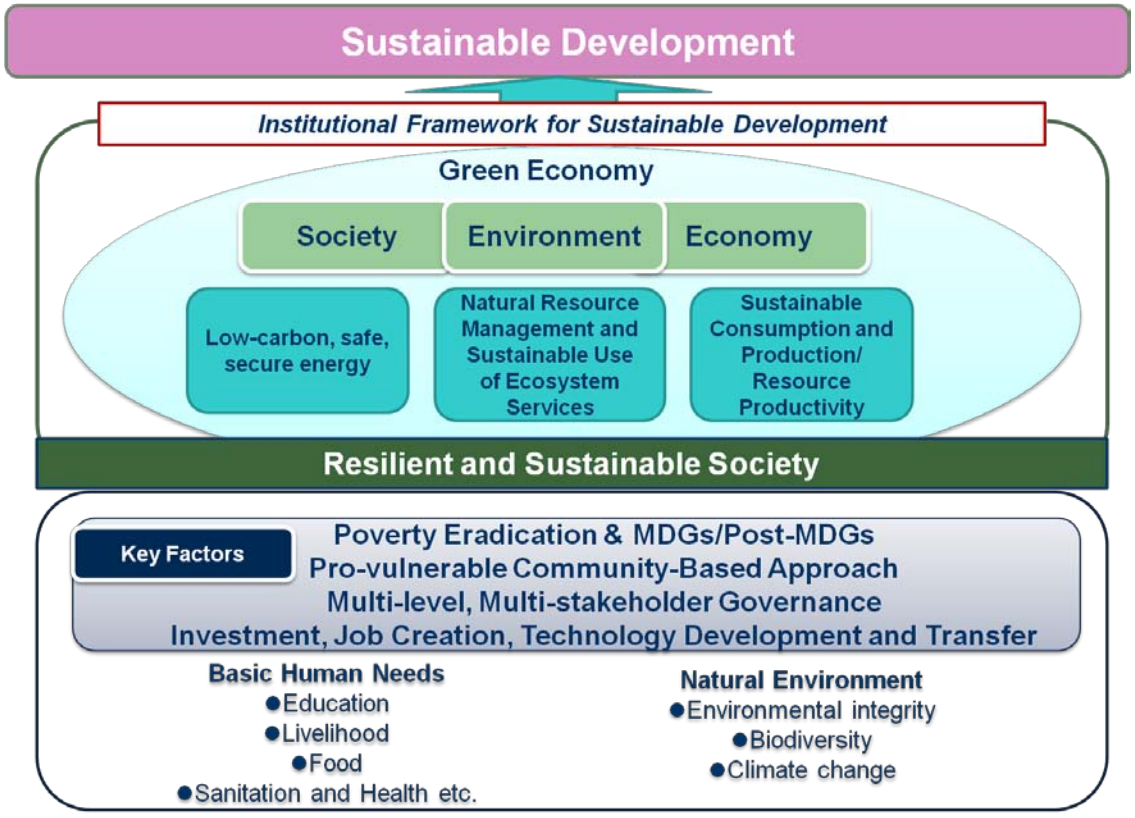

Figure 1-1 IGES vision for achieving sustainable development

2. Resilient and Sustainable Society

2.0. Background

To attain sustainable development, it is essential to understand the impacts of human activities on the environment and the environment's limited ability to recover from these impacts and support continued growth. However, in reality, society, the economy, and the environment are exposed to the devastating impacts of unforeseen events such as natural, social, and economic disasters. Natural hazards such as earthquakes, volcanic eruptions, and hurricanes occur every year. Climate-related natural hazards such as extreme floods and droughts are predicted to increase in frequency and intensity, in part due to the effects of climate change exacerbated by increasing levels of greenhouse gas (GHG) emissions from human activities. Social, cultural, and economic events also trigger disruptive clashes such as conflicts and economic crises. To make matters worse, these sudden, extreme events can quickly erase past achievements and delay progress towards sustainable development.

> "Loosely defined, resilience is the capacity of a system—be it an individual, a forest, a city, or an economy—to deal with change and continue to develop. It is both about withstanding shocks and disturbances (like climate change or financial crisis) and using such events to catalyze renewal, novelty, and innovation." (Folke, 2009)

A resilient society has the adaptive capacity and robustness to handle shocks while maintaining functionality, and over time, grow stronger. Japan has developed resilient social systems and invested heavily in disaster management, but the impacts of the triple disaster on March 11, 2011 showed a continuing vulnerability to such disasters. Globalisation, climate change, and unsustainable development paths will, *inter alia*, contribute to the increasing occurrence of extreme events with global implications, such as natural disasters and economic crises**.** Thus, greater emphasis in policy and research should be allocated to the relationship between resilience and vulnerability in sustainable development.

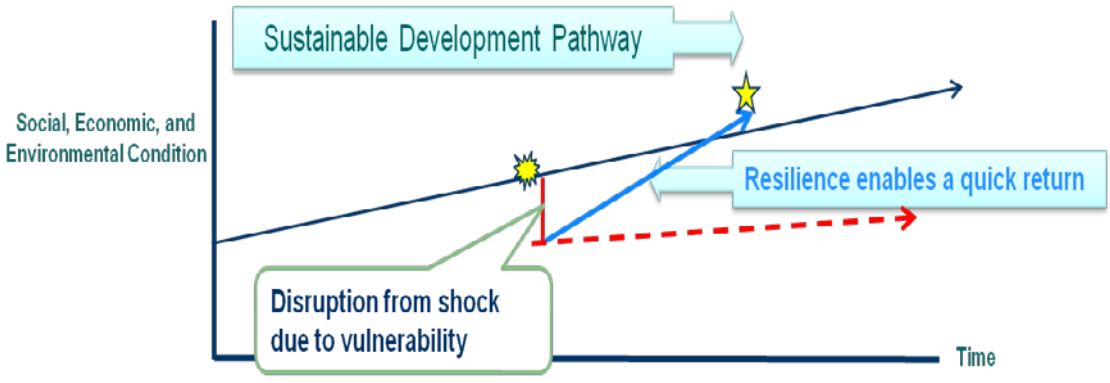

Figure 2-1 Sustainable development and resilience

2.1. Key Challenges

Japan is one of the few countries in the world with sophisticated disaster management policies and practices and has played an important role in establishing an international cooperation framework for disaster risk reduction by hosting two world conferences on natural disasters (Yokohama, May 1994 and Kobe, January 2005). In Kobe at the World Conference on Disaster Reduction in 2005, Japan contributed to the development of the Hyogo Framework for Action (HFA) with priorities for action expected to result in "the substantial reduction of disaster losses, in lives and in the social, economic and environmental assets of communities and countries" (UNISDR, 2007).[2]

However, despite Japan's excellent early warning system on extreme weather, the disasters in the northeast of Japan on March 11, 2011 revealed the vulnerability of Japan's highly centralised socio-economic and political systems. The earthquake and tsunami affected a broad area and resulted in widespread damage,[3] including a major accident at the Fukushima Daiichi Nuclear Power Plant which has triggered a persisting crisis.

As the disasters unfolded, it became immediately apparent that emergency and relief operations would be needed on a massive scale; but there were frustrating delays, amongst other factors, due partly to the time consuming process of decision making within the central government, and to damage to the key functions of local governments.

Japan has also suffered massive damage to key economic activities as a result of the disasters. Factories in the area producing essential components for automobiles and electric appliances were demolished. This resulted in stoppages in the automotive and consumer-electronics industry in the eastern part of Japan and shortages around the world for weeks after, which highlighted the short-term vulnerability of global supply chains and "just-in-time" manufacturing systems. The power shortages caused subsequent to the nuclear accident led small and medium enterprises and households to dramatically reduce energy consumption. The radioactive materials leaked from the nuclear power plant resulted in heavy damage to the local agriculture and fishing industries, not to mention the impact on domestic tourism and exports.

These damages represented significant obstacles to recovery and reconstruction of society and the local economy. Moreover, due to the damage and subsequent reconstruction, earlier progress to protect the environment and develop a sustainable society and economy are also at risk. For instance, radioactive contamination of farmland, water resources, and fishing areas impose a heavy burden on the government and residents in terms of livelihood and safety. The disposal of waste material–including those contaminated by nuclear radiation–and the rebuilding of homes and infrastructure will also have substantial environmental implications. To make up for the power deficit due to the stoppage of nuclear plant operations throughout the country, conventional coal power plants have resumed operations, which is making it more difficult for Japan to reduce GHG emissions in accordance with international agreements.

[2] The HFA, based in part on Japan's experience in the Hanshin-Awaji Earthquake in 1995, was the first document of its type on disaster risk reduction developed and agreed upon internationally.
[3] Major damages include the loss of about 20,000 lives, thousands of residences, key production bases and sources of livelihood, and damage to supply chain linkages.

As reported in the International Disaster Database EM-DAT, maintained by the Centre for Research on the Epidemiology of Disasters (CRED), global damages caused by natural disasters are on an upward trend. Asia is particularly vulnerable. From 2000-2009, almost 85% of global deaths from natural disasters occurred in the region (UNISDR, 2010). The trends are set to continue mainly due to unplanned urbanisation, environmental degradation and climate change.

In order to pursue sustainable development in a world repeatedly hit by such crises and disasters, including those related to climate change, IGES proposes that national governments and international society draw lessons from the challenges that Japanese society is facing following these disasters. The following issues are not only important with regard to disaster responses, but also for associated issues which require comprehensive action, such as climate change adaptation.

2.2. Key Approaches/Principles

Achieving a sustainable and disaster resilient society requires multi-level and multi-stakeholder adaptive governance, protection of vulnerable people, financial schemes to insure against and mitigate natural disasters, and decentralised and diversified infrastructure for energy, water, and transportation suitable to the local conditions.

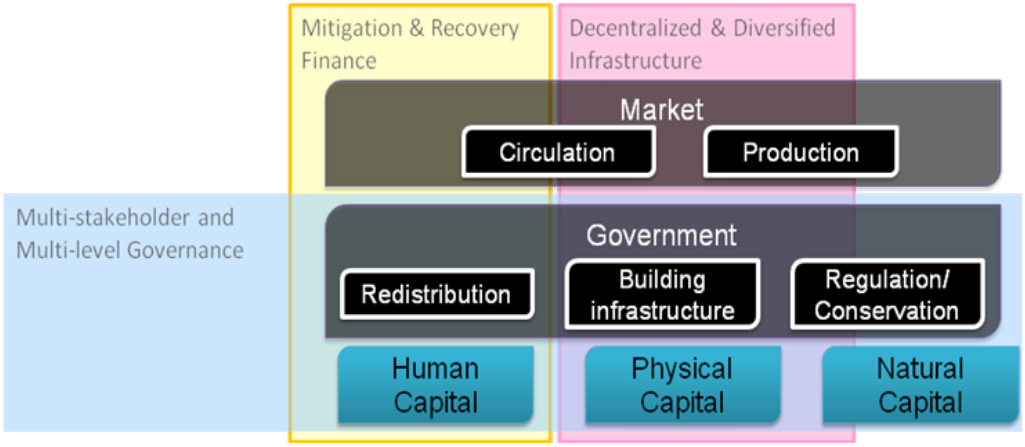

Figure 2-2 Key directions and principles

2.2.1. Governance for a resilient and sustainable society

Multi-stakeholder collaboration

In order to build a resilient society, a multi-level governance scheme needs to be developed in which each stakeholder must conduct complementary actions which can be delivered most efficiently (WCDR, 2005; Leighton et al., 2011). A flexible system of collaboration among various national and local governments and communities works more effectively than simple systems, such as an independent, centralised system or decentralised systems with no internal collaboration.

Multi-stakeholder collaborative approaches should be incorporated into economic and social development planning, environmental policies, and disaster management plans. Neither top-down nor bottom-up approaches alone are sufficient in dealing with major natural

disasters; rather, there is a need for a balanced and convergent approach. Policy frameworks have come under scrutiny in light of the increasing number and intensity of climate-related disasters, and often conflicting actions by different ministries responsible for climate change and disaster risk reduction indicate the importance of horizontal cooperation. Resilient societies should build upon cooperation among local municipalities, as well as between municipalities, NGOs and private companies. A challenging task is to aid the progress of sustainable relief aid from these stakeholders, which requires that national governments create an enabling environment to facilitate sustained voluntary relief from different groups of stakeholders. It is also critical to establish aid and volunteer coordination mechanisms for the early stages of a disaster. Long-term partnerships, twinning, and pairing between local governments, schools, a wide range of experts, and business sectors have proven to be useful in responding to disasters. Important lessons can be learned through international cooperation and capacity development where countries share their experiences and best practices.

Public participation

Characteristics of each local community and government, such as geography and industrial and population structure, vary by region and by the type of disaster. Thus, there is a need to respect such differences in planning and implementing disaster management, mitigation measures, disaster relief aid, and reconstruction policies. On this account, it is vital to encourage public participation in disaster management policies as well as overall socio-economic development (Tobin, 1999; Godschalk et al., 2003; Shaw & Goda, 2004; Palen et al., 2007), particularly for two reasons. First, the local community may often have greater in-depth knowledge of the local environment and society than other stakeholders. Their collective historical knowledge is vital for disaster prevention and during the recovery stage. Second, reliable and consistent information sharing and crisis management is vital to strengthen people's awareness, preparedness, and cooperation among governments at all levels as well as local communities. Public participation is a key element to make relief aid and rehabilitation sustainable, in a similar fashion, it is necessary to point out "(a) *id is to support the self-reliance of the disaster victims, not to obtrude assistance*" (Tama, 2011). The Japanese experiences in disaster relief and recovery well illustrate this point.

For emergency rescue activities, the first few days following a disaster are absolutely critical. Thus, a strong community can better manage rescue efforts immediately following a disaster using their collective knowledge of the area and local society, as well as their well-developed lines of communication with different stakeholders. However, if the affected area is too broad, communities experience difficulty in providing support to each other. In this regard, inter-community and inter-municipality relief aid as elaborated by Box 2-1 below is considered to be an effective solution for larger areas. When organising relief in the aftermath of the Sichuan earthquake, the Chinese central government paired disaster affected communities with communities in unaffected areas (UNCRD, 2009).

Box 2-1 Case study: Inter-community/inter-municipality relief in Japan

The value of inter-community support during the relief and recovery stage has been observed in the aftermath of the earthquake/tsunami as well as disasters in other countries. As national and sub-national governments must cover all areas directly impacted by the disaster and because of their internal rigidities, they have often found it difficult to supply timely relief on a priority basis. Community-to-community relief has been observed as more flexible than the vertical relief channel of national government to local community.

Tono City, located in Iwate Prefecture, where the impacts of the earthquake and tsunami were particularly severe, escaped relatively unscathed and acted as a base for the relief supply activities of NGOs. An advantage of this inter-community aid was Tono City's proximity to the devastated areas, which facilitated information collection and logistics. This is a somewhat unusual example as in a widely damaged area it is often difficult to find less-affected communities that can extend assistance. Communities further removed from the disaster affected areas can also provide important support, however. Suginami Ward in Tokyo and the Union of Kansai Governments (UKG) are good examples. Suginami Ward and other cities have a long shared history with Minami Souma Cho, one of the areas affected by radiation from the Fukushima Daiichi Nuclear Power Plant, as sister cities. Suginami Ward used its inter-municipality network to provide relief assistance to Minami Souma Cho, while UKG sent water and sewerage technical teams to the area.

In Kurihara City, which suffered from the Iwate-Miyagi Nairiku Earthquake three years ago, the city focused on tightening neighbourhood relations through *jichikai* (local neighbourhood community associations), in which every household takes on a particular role in the community. After the disasters, the Kurihara City officials could easily assess the level of damage within a few days, thanks to the *jichikai*. Since then, Kurihara City has become a centre of inter-municipality relief aid, especially for neighbouring towns and cities along the coastal area. Kurihara learned from its past experiences and strengthened information technologies in conjunction with Keio University. The technologies significantly helped open up communication with the most affected areas and facilitated estimates of the demand for different levels of assistance in the area. Kurihara's autonomous relief is based upon the city's disaster resilient mitigation and lessons from past events.

(Scheyvens et al., 2011)

In Japan, inter-community relief gained popularity after the Hanshin earthquake in 1995. After the triple disaster in March 2011, relief was provided by various communities and municipalities, from both inside and outside the disaster affected areas. Matching affected and unaffected cities to ensure that the relief provided is timely and based on actual needs can be challenging immediately after a major disaster. In particular in disaster-prone areas having pre-established sister city relationships would facilitate this process by making use of existing networks and relationships for relief and rebuilding. Further thought is now required on how governments can encourage and finance inter-community/inter-municipality

relationships as part of the process to build more effective channels to provide relief in the aftermath of disasters.

Pro-poor and vulnerable approach

A pro-poor approach has been recognised as vital to the achievement of sustainable development (UNDP, 1997; United Nations, 2000; World Bank, 2001) and to reducing vulnerability to natural disasters (OECD, 2009; World Bank, 2011). In a disaster, both rich and poor alike are affected, however as history has shown, it is the poor who are disproportionately affected and the least resilient. This is not simply because of a lack of finances or other resources but due to the way socio-political systems influence how hazards affect different social groups. Reducing vulnerability to hazards requires an approach that is based on an integrated assessment of social, economic, environmental and geographical vulnerability factors as these are the factors which affect vulnerability and determine if hazards will become disasters. This type of integrated vulnerability assessment is valid for both developed and developing countries. After a disaster occurs and after the emergency relief phase has ended and the community shifts to rebuilding, governments, NGOs, and the private sector need to closely cooperate and coordinate so as to ensure that all receive the necessary level of support and are not further adversely affected as a result of personal conditions such as nationality, family structure, or language ability.

2.2.2 Financial schemes for risk mitigation and smooth recovery

As time passes, the focus of disaster reconstruction moves from life saving activities and distribution of aid supply to revitalisation of livelihoods and local economic activities. When discussing 'resilience' in the case of extreme disasters, financial support for reconstruction is crucial especially in the intermediate to long run (Cummins and Weiss, 2009). Considering the impacts of natural disasters on economic activities, the country's fiscal balance may be under considerable strain. Consequently, development of financial schemes to alleviate risks and stimulate post disaster economic recovery is an important point that must be addressed.

Damage to public facilities and infrastructure causes considerable financial strain; nonetheless, the impact of the disaster also requires quick and appropriate financial support to be provided to local businesses and livelihoods. Coordination among different ministries and other stakeholders to deliver financial support for those affected is certainly needed. Consequently, a significant challenge is to mobilise sufficient finances to satisfy the monetary demands needed to revamp the economy and livelihoods of those in the affected areas (Carpenter, 2010).

The establishment of a disaster reconstruction fund is one example of a public finance scheme for disaster recovery. Exemplary cases include the reconstruction fund for the earthquake in Taiwan in 1999, as well as the Hanshin-Awaji reconstruction fund in Japan in 1995.

After experiencing the Great Hanshin Earthquake in 1995, Japanese government established an *Act Concerning Support for Reconstructing Livelihood of Disaster* (Cabinet Office, Government of Japan, 2011), which generated a fund to assist financial rehabilitation of business and people's livelihoods. For this fund, Japan's national government promises 50% of financial support on the budget of the fund. Nonetheless, since the fund is organized nationwide, it is still necessary to meet people's monetary needs in a timely manner.

Consequently, after the Great East Japan Earthquake, new funds were created by local governments, NGOs, private companies, and local stakeholders to provide financial support for designated people and business on time. For economic recovery, it is crucial to have start-up cost for business equipment, raw materials, facilities, and labour. It is important to provide such financial support quickly, since the community needs to be self-reliant, otherwise the community will lose the opportunity for self-sustaining recovery.

Another scheme is Alternative Risk Transfer for disaster risks utilising the financial market, such as insurance linked securities (catastrophe bonds) and weather index derivatives. These approaches are often discussed as potential responses to climate change adaptation. The Caribbean Catastrophic Risk Insurance Facility (CCRIF) for natural disasters is a successful example. The Facility plays a significant role to provide timely financial support to businesses and communities since *"(t)he CCRIF offers an efficient solution to the short-term liquidity gap faced by CARICOM governments in the aftermath of a major hurricane or earthquake"* (World Bank, 2007). It is important for policy makers to use these schemes to reflect social needs and support individuals and small businesses. The availability of financial support in the intermediate/long run is necessary for planning disaster resilience and building a pro-vulnerable society.

For the local businesses in affected areas, quick and fair distribution of relief funds is crucial; nonetheless, it is frequently observed that people in need do not receive financial support in a timely manner. Consequently, micro-finance schemes are often developed for local businesses and industries. The growing number of 'micro funds' meets the monetary demands of local businesses and significantly supports the rebuilding of the local economy and livelihoods in the months and years after devastating events.

2.3. Decentralised and diversified infrastructure

Decentralised and diversified infrastructure is characteristic of an economy that is able to mitigate the impact of disasters and quickly spring back to normalcy after a major crisis. In Japan, large scale and regionally centralised electric supply systems, and the tightly integrated structure of manufacturing supply chains, which were considered most effective economically, ended up being particularly vulnerable to disruptions caused by the disaster. Since being highly dependent upon a single energy system discriminates against alternative energy supply, it means that "*society excludes the backup system*" (Niitsuma, 2011).

For an economy to be resilient, there must be integration of continuity planning into business practices, building in a certain amount of redundancy, making sure that various scenarios for disaster losses have been considered, and fully understanding the residual risks and underwriting them with relevant insurance policies.

Safe, secure, and green energy systems

An island country having no significant indigenous fossil fuel resources, Japan finds it difficult to meet its enormous domestic energy demand without a stable, reliable and affordable fuel supply from overseas sources. This may be one of the major reasons for the country's continued reliance on and promotion of nuclear energy programmes. However, the accident at the Fukushima nuclear power plant revealed that the risks related to any nuclear accident are enormous in terms of geographical expanse, tenure of impacts and array of damage. Thus, faced with huge energy demands, uncertainty surrounding the safety of nuclear

energy and climate change implications of increasing use of fossil fuels, Japan is now at a crossroads trying to figure out how to balance energy demand and supply and which direction to take to secure future energy supply for the country. Japan now needs to come up with much enhanced demand-side management in the short to medium-term and a new long-term supply strategy that will be sustainable and acceptable from an economic, environmental and social perspective.

IGES' research on post-disaster impacts to Japan's energy policy aims at exploring potential policy options for filling gaps created by the nuclear power plant accident with a mix of renewable sources, advanced clean energy technologies and intensive energy demand-side measures. Scenario assessment suggests that Japan may abandon nuclear energy from its supply mix in the middle of this century with a moderate cost burden on the economy as a whole. Using existing conventional fossil fuel facilities to full capacity can reduce the financial burden of setting up new green field power plants in the immediate future (Asuka, 2011). In the longer term, renewable sources can minimise dependence on energy imports with extremely high costs and enhance energy security. Indigenous resources like solar, wind, geothermal and tidal power will need to be explored further and should be supported by strengthened renewable energy promotion policies, e.g. a new feed-in-tariff law to promote renewable energy in Japan, introduced in August 2011.

However, sudden fuel switching could leave the domestic economy vulnerable, especially because of potential power shortages. It is therefore imperative that the reframing of Japan's energy policy be carefully monitored and precisely managed, taking into consideration the socio-political and economic landscape. It is also critical to re-examine the overall balance of energy demand and supply in order to strengthen the policy processes towards energy transition (Katayama, 2011). Policy discussion in the past tended to excessively emphasise supply side measures. We need to place a greater emphasis on demand side management, including at the household and small- and medium-size enterprise level. The level of electric power conserved in the eastern part of Japan this past summer was more substantial than the government anticipated.

To address the post-Fukushima electricity supply constraints in Japan, policy makers and civil society should promote a comprehensive energy policy package which would encompass: (1) analysing the energy demand structure and enhancing demand-side management; (2) diversifying energy supply sources; and (3) reforming the electric power system and distribution grid to enable expanded use of renewable sources. These reforms should be supported by policy and regulatory measures along with greater participation of civil society. Strengthening regulations and policy tools towards reframing energy policy is hence an urgent priority.

In conclusion, the promotion of renewable energy through feed-in-tariffs and appropriate policies, as well as policies to promote energy saving, are considered to be an important part of achieving a safe, secure and green energy system.

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3. Green Economy in the Context of Sustainable Development and Poverty Eradication

3.1 Key Challenges

IGES recognises that a key challenge in pursuit of sustainable development is the excessive social, economic and environmental vulnerability caused by one-sided pursuit of economic efficiency (see Figure 3-1).

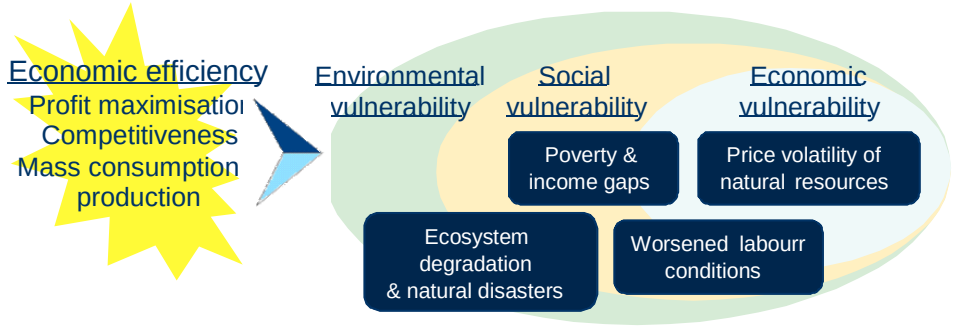

Figure 3-1 Vulnerability caused by excessive pursuit of economic efficiency

While rapid economic growth in Asia and the Pacific has improved the material standard of living for hundreds of millions of people, many have been left behind in poverty, and expanding income gaps are undermining social and political stability. In the name of competitiveness and labour productivity improvement, employment conditions have deteriorated in many countries, and the consequent loss of stable livelihoods, including increasing unemployment, has aggravated social vulnerability. Rapidly increasing consumption of food, energy and natural resources such as crude oil and iron ore triggers price volatility of these commodities, which is further amplified by financial speculation. Over-consumption of such resources mainly driven by the lifestyles and consumption patterns of the richer segment of the world has accelerated climate change and ecological degradation, which worsens vulnerability to natural disasters.

An emerging paradigm shift to overcome these key challenges is the concept of a **green economy**, although at this stage an internationally agreed definition does not yet exist.

3.2 Key Approaches/Principles

The principles or directions of a green economy in the context of sustainable development and poverty eradication can be discussed under three major economic-environmental domains, i.e. low-carbon economy, sustainable consumption and production, and sustainable use of ecosystem services (see Table 3-1). The political momentum for a green economy is predicated on investment on green technologies and infrastructure, and "green" job creation with due attention to current environmental challenges. Such transitions are already underway (UNEP, 2011b), but further acceleration is required to achieve the implied paradigm shift. International policy coordination is another aspect to avoid green protectionism and to make a global green economy attractive and beneficial for developing countries.

Table 3-1 Key approaches/principles

Goal	Low-carbon economy	Sustainable consumption and production	Sustainable use of ecosystem services
Key issue	-Further investment in renewable energy	- Change in consumption patterns	- Sustainable agriculture and green production supply chain
Key tool/ measure	- Carbon tax and emissions trading	- Resource consumption reduction policies, e.g. green procurement policies, and natural resource tax	- Wide application of PES and green accounting scheme
Additional merit	- Mitigation of natural disaster risks - Creation of green jobs - Improvement in energy access	- Provision of more opportunities for resources use in developing countries and of future generations	- Contribution to food and water security - Creation of green jobs

3.2.1 Low-carbon economy

In the face of climate change and the accompanied risks of intensifying natural disasters, IGES believes that a precautionary (no-regrets) approach is needed, starting with building a low-carbon economy with a resilient, secure energy supply system. Investing in renewable energy coupled with enhanced demand-side energy efficiency measures has the potential to supplement and eventually replace nuclear and thermal fossil fuel power in the country's energy mix and can contribute to establishing a decentralised electricity supply which would secure a backup system during a disaster (Bhattacharya, 2011). Renewable energy can also help mitigate natural disaster risks associated with climate change, create thousands of new green jobs (OECD, 2011; UNEP, 2011b), and improve access to green technology through investment in research and development and subsequent unit price decline, which will benefit the poor in developing countries through improved energy access.

Governments should promote this trend by introducing incentives, e.g. shifting the tax base from labour and income to taxing environmental damage such as pollution and unsustainable resource consumption (OECD, 2011; UNEP, 2011b), and gradually phasing out environmentally harmful subsidies (Bhattacharya and Kojima, 2010a). However, most countries fear that such reforms may put their export industries at a disadvantage, making it difficult for individual countries to take the lead. The acceptance of tax and subsidy reforms will be significantly enhanced if a large number of countries agree on a joint schedule. While a global agreement may not be feasible in the short run, major economies having more financial and human resources, such as the G20, have agreed on phasing-out harmful fossil fuel subsidies. Therefore, if they agreed on a more comprehensive integrated approach to ecological tax reform, this would be a significant step towards a global green economy.

Moreover, the mechanisms to promote international cooperation, such as regional energy market integration (Bhattacharya and Kojima, 2010b), and technology transfer between countries, not only North-South but also within the South, need to be further developed. Such international cooperation, however, should not encourage exports of highly polluting brown sectors from one country to another. Also, a number of countries are concerned about green protectionism (UN-DESA, 2011).

Technology transfer for low carbon economy only works if there is capacity to effectively use the adopted technology, so emphasis should be given to promoting information sharing and knowledge building rather than concentrating on funding arrangements only. To this end, promoting existing national information centers, or establishing new ones, could help develop comprehensive technology needs assessments for each recipient country and a comprehensive technology availability assessment for each provider country. Strengthening existing regional technology centers, such as UNEP and APEC environmental knowledge hubs, to include not only collecting and sharing information but also knowledge building and advisability, could be done at the regional level and international level (IGES, forthcoming in 2012).[4]

IGES believes that, in the short-run, border carbon adjustments should not be implemented unilaterally, but should be done under the umbrella of an international agreement that ensures trust and shared understanding of the purpose of the measures and limits the scale and scope to clearly address leakage concerns (Zhou et al., 2011). In the medium-term, promoting nationally appropriate mitigation actions (NAMAs) in Non-Annex I countries of the UNFCCC is a more effective and important approach than border carbon adjustments. A layered approach which categorizes NAMAs and defines what to measure, report and verify for each category is quite a useful and practical framework for the emerging measuring, reporting and verifying (MRV) system (Fukuda and Tamura, 2010).

3.2.2 Sustainable consumption and production

Under the internationally growing demand for limited natural resources, the decoupling of economic growth and resource use and environmental impacts through the promotion of green technologies is one instrument to combat resource depletion. Promotion of 3R (reduce, reuse, recycle) policies and "top-runner" approaches play an important role in this regard. Policy interventions for requiring producers to internalise the costs of recycling, e.g. introduction of extended producer responsibility (EPR), green tax and subsidies, as well as for making environmental impacts clearly visible to consumers, i.e. green labelling are needed. These policies should be introduced in parallel with increased efforts on education, training and skills enhancement as effectiveness of these interventions depends on environmental awareness of consumers as well as ability of producers to improve product design and production processes.

However, there is a limit to pursuing decoupling via increasing resource efficiency at the unit level of each product, service, and technology. Indeed, decoupling is not a panacea for the world as a whole: individual countries can achieve a certain degree of decoupling by outsourcing polluting and resource consuming activities to other countries, but at the global level there is no opportunity for outsourcing. On the contrary there is growing literature showing that very little (if any) decoupling has been achieved to date and indicating that rebound is likely to render global efforts on decoupling ineffective (UNEP, 2011a; Jenkins et al., 2011). Therefore, to tackle overconsumption against the carrying capacity of the Earth,

[4] IGES publishes its White Paper every two years, comprehensively compiling its strategic research results. IGES Fourth White Paper, which will be published in 2012, focuses on environmental governance and institutions in Asia Pacific and its contribution to international environmental governance, tentatively entitled as "*Greening Governance in Asia Pacific: Institutional for Greener Economy.*" For more information on IGES White Paper, please see http://www.iges.or.jp/en/news/topic/wp3_about.html.

innovative policies for reducing resource consumption, e.g. introduction of resource tax or resource consumption cap, may need to be introduced. In this regard, further efforts to improve sustainability of resource consumption with a full examination of the appropriate stage of policy intervention along the life cycle of the products (life cycle assessment) must be made (Kojima, 2011).

Considering the significant disparities in the level of development of industrial infrastructure, major stakeholders, awareness, and market structure needed for greener and sustainable consumption and production activities, the priority tasks of policy intervention to create a green economy naturally differ between the developed, emerging, and least developing countries as well as among different regions in any one country. In this sense, a phased approach to introduce these policies considering the developmental stages of implementing countries along with international policy cooperation will be effective in setting priorities in production and consumption. The priorities of policy intervention for SCP should in general be assigned to policies that satisfy basic needs, such as sanitation and health and other public services for less-developed economies, and then to the integration of externalities into consumption and production patterns for emerging economies and into systems innovation for greener designs and systems for goods, services, and infrastructure for more developed economies. The consumption patterns of the richer segment of the world, which includes both ordinary consumers in the North and the rapidly expanding consumer class in the South, need to be drastically reconsidered. Changes in the way these groups live and consume goods and services are prerequisites for freeing up natural resources necessary to meet the needs of the poor and future generations. Such changes are not possible without a significant shift in mindsets—to the point that increased consumption becomes socially unfashionable, in the way that littering is no longer acceptable in most developed countries.

Thus, current policies should be revised to promote less resource-intensive development, resource circulation, resource substitution, total reduction of environmental impact from consumption, and wider investment for green industries through development of packaged policy at all stages of the life cycle of products and services. To develop a persuasive argument for policy makers, analytical tools must be developed to identify effective policy interventions so as to facilitate a shift in consumption and production patterns and achieve positive social, economic, and environmental impacts from such a shift. To avoid negative impacts and secure the effectiveness of policy intervention in consumption and production patterns, internationally integrated policy approaches are necessary. To financially back-up such policy integration for SCP, IGES is examining the possibility of establishing an international fund for sustainable resource management or resource efficiency by utilising a portion of tax-income from economic policy instruments at different stages of the life cycle of products and services.

3.2.3 Sustainable use of ecosystem services

Especially for the poor who are more directly dependent on ecosystem services, ecosystem degradation due to human activities casts a dark shadow over stable livelihoods in terms of food and water security, natural disaster risks and loss of traditional culture (TEEB, 2011). Appropriate pricing and sustainable use of ecosystem services in the context of poverty eradication will be essential for a green economy. An economic system that does not internalise or recognise nature's contribution to the air we breathe, the water we drink, or the soil that provides our food, cannot be regarded as "green". In this context, biodiversity

conservation is an essential tool as loss of biological diversity undermines the value and resilience of ecosystems (Elmqvist et al., 2003).

Policymakers should internalise negative ecological externalities into the current economic system, and thereby promote sustainable agriculture and greening of the production supply chain. The keys to achieving this will be enhancement of economic incentives, e.g. payment for ecosystem services (PES), and visualisation of the benefits and costs relevant to ecosystem services, e.g. an accounting scheme incorporating valuation of ecosystem services. The PES approach encourages shifts from conventional practices that extract maximum production from the land to more sustainable agriculture and forestry through payments to landholders in exchange for providing more regulating services (Pagiola and Platais, 2007). PES also helps to create jobs in local areas because sustainable agricultural practices are more labour intensive than those depending on excessive use of chemical fertilisers and machinery. One limitation of this approach is that pricing ecosystem services which are currently unmarketable based on our willingness-to-pay does not necessarily promise sustainable use of ecosystem services. For example, pollution charges are one way of pricing the ecosystem sink services provided by receiving waters or the atmosphere. While there is a price incentive to reduce the level of pollution, lack of enforcement, poor collection of fees, or inadequate fines may result in failure to reduce the level of pollution. . An alternative "ecological economic valuation" approach is suggested (Kojima, 2011) in which the price of ecosystem service is determined such that policies or actions to ensure sustainable use of ecosystem services would improve social welfare.

The relatively new mechanism of reducing emissions from deforestation and forest degradation (REDD+) is another approach to reward forest managers for maintaining a carbon sink, as one way of mitigating the greenhouse gases causing climate change. Combining REDD+ with community-based forest management may be an effective way of recognizing the valuable ecosystem services provided by the stewardship of forest-dependent communities and contribute to their economic well-being. Designing such a system to verify the carbon sequestration benefits and to avoid capture by elites, however, still requires further work and trial in a range of countries.

Accounting that incorporates the economic benefits of ecosystem services, as well as the costs of environmental degradation will enable decision-making on a country's natural capital, based on a longer-term perspective (World Bank, 2010). As a first step towards the application of such an accounting scheme, governments need to evaluate the full costs of loss of ecosystem services due to the construction of public infrastructure, such as hydropower dams, and make final decisions based upon a comparison of the potential gains and losses. Simultaneously, green procurement needs to be re-evaluated from these perspectives to visualise not only its positive environmental effects, but the economic benefits derived from less ecological degradation as well. Following these governmental initiatives, enterprises should be required to assess the ecological impacts of their projects and production processes, through enhanced environmental impact assessment procedures, review their supply chain management in this regard, and be required to report on the sustainability impacts of the company through regular annual reporting procedures, using models such as those developed by the Global Reporting Initiative.

Box 3-1. Community forest management and REDD+

By stabilizing the Earth's climate through carbon sequestration and storage, forests provide an ecosystem service that is critical for human survival. Recognizing that deforestation and forest degradation are contributing to global warming, Parties to the United Nations Framework Convention on Climate Change (UNFCCC) are in the process of agreeing on a global mechanism known as REDD+ that foresees the provision of incentives to developing countries to manage forests for climate change mitigation. REDD+ encompasses activities to reduce/avoid emissions from deforestation and forest degradation (REDD), and to enhance and conserve carbon stocks (symbolized by the "+").

In their search for more sustainable models of forest management and to rehabilitate forests degraded by logging, governments in the Asia-Pacific region have enacted legislation and established support programmes to provide forest rights to local communities (Scheyvens et al. 2007). Today, community forest management (CFM) is widely accepted as essential for promoting sustainable forest management and human wellbeing. CFM has developed particularly in areas of degraded (logged over) forests (Sam and Shepherd 2011), and has played a significant role in the rehabilitation of landscapes, forests and environmental services. In South and Southeast Asia, millions of hectares of degraded forests are being managed by communities (Pfoffenberger 2006), making them key REDD+ stakeholders (Chhatre and Agrawal 2009).

Even though some countries in Asia-Pacific are more advanced than others in the implementation of CFM, and in spite of – legal, technical and human – limitations that different CFM models face (Scheyvens et al. 2007; Scheyvens 2011), several aspects make CFM conducive to the implementation of REDD+. CFM promotes the management of forests through local consensus-based organizations with democratically elected leaders/committees, and it supports the drafting of norms and regulations (by communities) to control forest access and use. CFM thus can provide strong local institutional foundations for forest rehabilitation and management, as well as for the realization of the social and environmental safeguards for REDD+ that international negotiators have agreed upon. The safeguards include respect of knowledge and rights of indigenous peoples and local communities, and full and effective participation of indigenous peoples and local communities in REDD+ (UNFCCC 2010). Additionally, CFM could also facilitate the participation of communities in forest measurement and monitoring, reporting and verification, which are all essential elements of REDD+ (Skutsch 2010). Elaborating the existing CFM models to enable local people to play these roles would contribute to address concerns over effective engagement of indigenous peoples and local communities in REDD+.

(IGES , forthcoming in 2012)

3.3. Roadmap

IGES recommends developing a green economy roadmap to move in the directions mentioned above. As indicated in Table 3-2, we propose several policies and actions in the short, middle and long term for each major economic-environmental domain.

Table 3-2 Roadmap green economy in the context of sustainable development

	Low-carbon economy	**Sustainable consumption and production**	**Sustainable use of ecosystem services**
Short-term: Greening current economic activities	-Establishment of plan for energy supply - Establishment of a scheme to promote renewable energy investment	-Promotion of 3R policies and top-runner approach - Development of analytical tools to identify effective policy interventions	-Good practices on economic incentives contributing to sustainable use of ecosystem services will be compiled and provided through the on-line database
Mid-term: Introducing key regional/ global policies to change the course of regional/ global economy	-Agreement on gradual removal of energy subsidies at the East Asia Summit -Establishment of regional cooperation mechanism to promote technology transfer, in particular of green technologies, at the East Asia Summit -Agreement on implementation rules for the MRV framework at UNFCCC-COP - Promotion of NAMAs in Non-Annex I countries	-Establishment of international fund for sustainable resource management	-Globally accepted measures for economic valuation of ecosystem services will be framed under the initiation of the IPBES -As indicated by the global partnership for green accounting initiated by the World Bank, a definitive methodology on green accounting will be developed
Long-term: Reforming global economy	- Establishment of regional arrangement for energy market integration -Establishment of the WTO rule on Environmental Goods and Services through regional mechanisms such as those of the East Asia Summit	-Development of innovative reduction policies along with recycling and reuse policies	-As pursued in the Aichi Biodiversity Target, economic aspects of biodiversity and ecosystem services will be integrated in all decision making processes - Global assessment of key ecosystem services similar to IPCC's assessment

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4. Institutional Framework for Sustainable Development (IFSD)

4.1. Key Challenges

Scientists have identified nine planetary boundaries which should not be crossed if human civilisation is to continue to thrive (Stockholm Resilience Institute, 2009). Three boundaries (climate change, biological diversity, and nitrogen input to the biosphere) have been crossed already, with potentially devastating consequences for environmental, economic and societal stability if this trend is not reversed (assuming it is possible to reverse these trends once a threshold has been breached). It is clear that current environmental and sustainability governance arrangements are inadequate to halt the continuing environmental degradation. To change the direction of economic systems and stave off ecosystem collapse, fundamental institutional changes and coherent goals that are reinforced at global, regional, national, and local levels by consistent incentives, regulations, policies, and action will be required.

It is widely agreed that the current institutional structure, much of which was developed in the middle of the 20th century, prior to the recognition of SD, is no longer adequate to address current challenges. Some progress has been made, as there are now over 500 multilateral environmental agreements (MEAs) and nearly every country has environmental laws and a national level environment agency responsible for implementation. Governments and organisations at all levels—including the UN, regional, national, and local levels, as well as businesses and individual persons—are now making efforts to work on sustainable development. However, these efforts do not adequately match the magnitude of the challenges or the pace of change. Current IFSD—at all levels and in many countries—suffers from several serious challenges such as inadequate leadership and coordination, fragmentation, insufficient funding and human resource capacity, as well as inadequate compliance and enforcement. At the global level, the sheer number of treaties, organisations, and meetings complicate effective attendance at meetings and conferences, and may also divert human resources from urgently needed implementation.

4.2. Key Approaches/Principles

IGES considers the following three principles/approaches to be critical in strengthening IFSD: 1) multi-level and multi-stakeholder governance; 2) subsidiarity; and 3) compliance and enforcement.

4.2.1. Multi-level and multi-stakeholder governance

The challenges to sustainability will have to be addressed by intergovernmental institutions and governments, and not only at one level. Multi-level governance is necessary for coherent and effective action. Vertical and horizontal cooperation between and within levels is needed to minimise policy tradeoffs and maximise synergies between traditionally

separate sectors and policy domains, and sustainability goals need to be mainstreamed into all major societal decisions and sectoral plans. Key functions of multi-stakeholder participation are to improve coordination among stakeholders, create consensus on information input into decisions, cohesive implementation, legitimacy, and accountability of governing stakeholders and decisions made. While multi-stakeholder participation is already practiced in the intergovernmental arena, it should be strengthened further to include genuine, effective participation rather than token consultation, not only for the sake of awareness, but also to improve accountability of decision makers, which can lead to better enforcement and compliance of environmental laws and regulations (Antonio, 2011). Progress on other governance levels is required to empower stakeholders by promoting greater institutionalisation of participation. At the practical level, securing transparency of decision making processes, involving stakeholders in the early stages of planning, and effective facilitation functions are vital to synchronise top-down and bottom-up governance aimed at achieving common goals as seen in Box 4-1 below.

Box 4-1 Supporting multi-level governance through information exchange and networks

Information exchange via networking among cities is a simple and effective option to strengthen relationships between local and national governments and improve capacity and enhance local actions for environmental management. The nature of the exchange varies by the type of network, which can be categorised into three types according to size: (1) networks with many members mainly for information sharing among them; (2) networks with limited number of members, designed for more intensive information exchange; and (3) bilateral, or city-to-city, relationships for learning directly from each other. A fourth type is based on having an award programme for recognizing outstanding achievements or innovation.

Over its lifetime a network may evolve to take on any of these forms, and may at times simultaneously perform the function of more than one type of network through the action of individual members. A typical network function is establishing an information sharing platform for members. For example, the Kitakyushu Initiative for a Clean Environment (KI) has organised meetings every 2-3 years by convening member cities to exchange knowledge and experience on effective environmental practices. Thematic seminars were also held in parallel almost once a year on specific environmental subjects such as solid waste management, water supply and sanitation, and use of information and communication technologies. Although the KI ended in 2010 the secretariat, IGES, has continued on a similar path with the High Level Seminar on Environmentally Sustainable Cities. This was developed under the framework of the East Asia Summit Environment Ministers Meeting, where central government officers and local government officers, as well as other organisations and research institutions are invited to exchange views and activities toward development of environmentally sustainable cities. In this way, the networking function has expanded not only horizontally but also vertically, providing opportunities to connect various types of organisations through multiple levels of government.

Multi-level networking can be enhanced through information sharing platforms – such as offering awards and giving opportunities to outstanding cities to present their activities and achievements in front of other member cities and other stakeholders, thereby sharing best practices and giving recognition and further encouragement for them to perform better. In addition such platforms are also an opportunity to attract external support from central governments and other supporting organisations.

(IGES, forthcoming in 2012)

4.2.2. Subsidiarity

The outcomes of Rio+20 on strengthening IFSD must address how institutions can best secure vertical integration of policies from international agreements, through national policy

to local implementation. Decisions relating to the implementation of environmental and SD governance should therefore be carried out in accordance with the subsidiarity principle, which prescribes that issues ought to be dealt with by the smallest, lowest or least centralised competent unit (Elder, 2011). Doing so may help integrate aspects of top-down and bottom-up environmental governance. For subsidiarity to really work coherently with the goals set at the intergovernmental level, it is also important to establish clear procedures for advancement from policy formulation to action and from planning to implementation, and to also ensure that the necessary resources are made available at each stage. Under the principle of common but differentiated responsibility, those who can afford it (not just developed countries) should assist vulnerable groups and developing countries to build the necessary human resource capabilities to implement sustainable development activities at the local level.

4.2.3. Compliance and enforcement

Laws and regulations suited to country specific conditions are among the most important instruments for transforming environmental and development policies into action. Generally MEAs can only be implemented if there are matching national laws and regulations. Without effective compliance and enforcement of these laws and regulations, however, the intended improvements in human wellbeing and sustainable development inevitably will fail. Accordingly, it is critical to enhance cooperation between countries to share best practices on environmental compliance and enforcement, to provide technical assistance to developing countries in need of capacity strengthening, and to continuously upgrade regional, national, sub-national and local compliance and enforcement actions.[5]

4.3. Roadmap and Main Proposals

IGES believes that fundamental reform of IFSD together with international environmental governance (IEG) should be undertaken through a phased approach at all levels. Each sequence will provide necessary momentum for subsequent steps, as can be seen in the following figure:

[5] One of the examples of compliance and enforcement in Asia is Asian Environmental Compliance and Enforcement Network (AECEN). Since 2005, national and sub-national environmental agencies throughout Asia, with support from the United States Agency for International Development, have cooperated through AECEN, sharing information on innovative policies and best practices in compliance and enforcement. Member agencies include Cambodia, India, Indonesia, Japan, Republic of Korea, People's Republic of China, Lao PDR, Malaysia, the Maldives, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, and Vietnam. AECEN's predominant cooperation mode is through South-South cooperation, where a mentor country is "twinned" with a beneficiary country, and environment agency staff from the mentor agency conduct on-the-job capacity strengthening and training. For more details, see http://www.aecen.org.

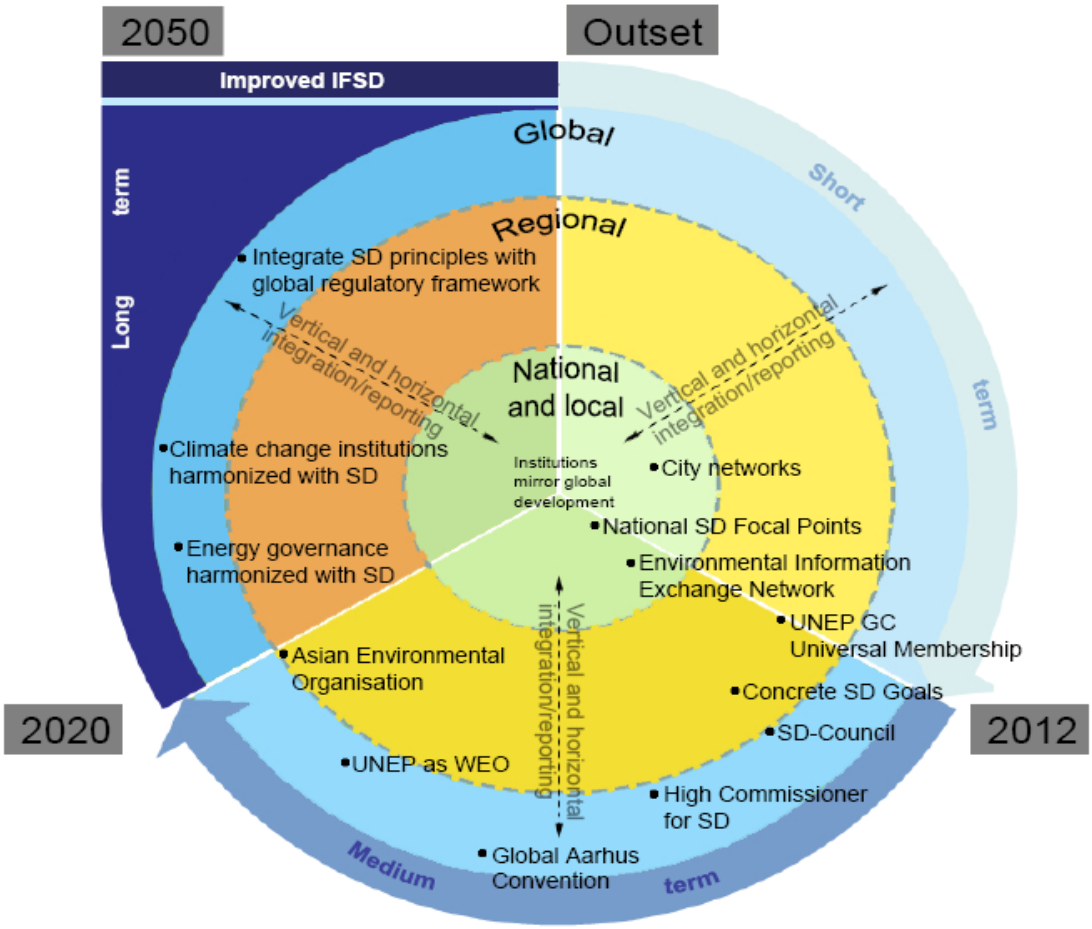

Figure 4-1 Reform phases for IFSD

For the short-to-medium term, we encourage governments to support the creation of an SD Council to better coordinate and oversee budgeting of all UN programmes and agencies. To function more effectively, IGES recommends that the SD Council cooperate closely with international finance institutions (IFIs) and Bretton Woods Institutions, along with the G8/G20, as currently financial and environmental agendas are not well coordinated and sometimes offset each other. For IFSD, IGES's long-term vision is for a revision of the UN Charter to (1) enhance the global focus on sustainability issues; and (2) to equip a globalised world in the 21st century with rules and regulations for the future, not of the past.

Table 4-1 Short/medium and long-term IFSD reforms

Level	Short /Medium Term (-2020)	Long Term (-2050)
Global IFSD	• Establish SD Council (coordination w/ BWI, IFIs, etc. and overseeing of budgeting within UN) • High Commissioner for SD	• Enhance SD Council's powers (budgetary, regulatory) • UN Charter amendment
	• Concrete SD Goals harmonised w/ MDGs	• Harmonise climate, energy w/ SD
	• Global Aarhus Convention	• Integrate SD principles w/ global regulatory framework
IEG/UNEP	• 1) Universal membership of Governing Council; 2) WEO • MEA synergy	• Stronger regulatory power of environmental governance actors • MEA harmonisation
Regional	• Strengthen regional institutions & coordination among them	• Regional organisations (Asia Environment Organisation)
	• Environmental information exchange, capacity development, and support for funding application	• Reporting between levels • Cooperation on implementation
National & Subnational	• National SD focal points & coordinating bodies at apex of government	• Formalise participation of local governments and stakeholders in regional & global organisations
	• Networking of cities	
	• Reporting/ coordinating between levels	• Reporting/ coordinating between levels

For IEG, we recommend that UNEP should have universal membership of its Governing Council. This is important to enhance legitimacy of international environmental governance and will also eliminate the necessity of Governing Council elections (although may impose minor additional costs). Subsequently, IGES recommends that UNEP be upgraded to a specialised agency, with a decision making mandate and legal identity. Both these IEG reform steps can strengthen environmental governance and support downstream implementation.

Given a clear need to strengthen currently dispersed regional as well as sub-regional environmental governance in Asia, IGES suggests the formation of a regional environmental focal point, which in the long run could be developed into an Asian Environmental Organisation, similar to increased regional cooperation that is happening in other regions such as Africa, the Americas, and the EU, and is commensurate with the increased regional cooperation on economic, trade, and security fronts in Asia. Asian countries should work towards creating a multilateral environmental information exchange network. Issues related to energy, resource-use, biodiversity, climate change, and disaster management are transboundary and can be addressed cost-effectively by regional cooperation, capacity building, and exchange of information and expertise.

At the national level, IGES recommends that high level focal points and coordination committees be appointed above the sector ministries to ensure that SD concerns receive sufficient attention and are vertically integrated and mainstreamed. Specific actions are mostly taken at the local level, thus initiatives such as those promoting low carbon cities are of great importance. The national level environmental governance should be improved in such a way that will further promote local level actions in close collaboration with municipalities.

The following sections provide more detailed information on each reform step, as well as elaborate on essential issues related to functions, funding, and other crucial issues.

4.3.1. Umbrella organisation for SD

Options for creating an umbrella organization for SD include: (1) a reformed ECOSOC with a change in name and mandate to focus on promoting SD; (2) a new Sustainable Development Council, separate from ECOSOC; and (3) a reformed and strengthened CSD, by according it a stronger mandate.

Option 1, changing ECOSOC's mandate to SD and changing its name, would require revision of the UN Charter, but if SD is a high priority, countries can agree to limit the discussion and amendment of the UN Charter to this one issue. Changing the name and mandate of ECOSOC to that of SD Council would institutionalise participation of non-environment ministries of each country, a crucial requirement for the mainstreaming of sustainable development governance. ECOSOC already works on SD to some extent. However, a name change is important to signal that SD is its main focus. With the current name, there may still be some resistance to SD efforts by ECOSOC, and some may think that non-sustainable economic activities can still be promoted as ECOSOC's main responsibility, while SD is a side effort.

Option 2 would maintain ECOSOC in its present form, but establish a new SD council. This could either be new, or as in option 3, be based on a restructuring of the CSD. The CSD could continue to function as a forum for intergovernmental discussions on SD. However, its focus would have to be sharpened; it would undertake assessments of the progress towards SD and work to attract key decision makers from ministries other than environmental ministries. Regardless of the specific institutional form of the umbrella organisation for SD, in the long term, it will be necessary to align the efforts to combat climate change with the work on sustainable development, including their respective institutional frameworks. Agencies and programmes representing the three dimensions of SD need to work harder to cooperate, convening regularly to ensure coherence and synergy.

4.3.2. High profile individual to promote SD

It is highly desirable to have a high level person to lead and promote SD, regardless of which form the umbrella organisation eventually may take. This person could have the title of High Commissioner for Sustainable Development. Previous efforts to promote coordination of SD have centred on the establishment of committees. Several coordinating committees have been formed and disbanded over the years, but their effectiveness has been limited. Also, UNEP has not been very successful in coordinating UN activities on environment for a variety of reasons, although steady progress on integrating environmental concerns into other agencies has been made by the efforts of these agencies. Overall, it is difficult to expect UN agencies to coordinate themselves, and a main result of past coordination efforts has resulted in turf battles. A high profile person in charge of SD could be beneficial in terms of coordination and mainstreaming of SD concerns within the UN, and as a public face of SD in

the media and to the public. Sadako Ogata, who was the UN Commissioner for Refugees, has had considerable success in promoting refugee issues and could be a good model to follow.

4.3.3. Greater participation and coordination with Bretton Woods Institutions and regional development banks

Bretton Woods institutions and regional development banks should more actively participate in a system-wide committee to better align their work with SD objectives. A system-wide committee may have a better chance of success with a high level individual as its chair. It could be worth considering participation of the proposed High Commissioner for SD at Board of Directors Meetings of IFIs such as the World Bank, International Monetary Fund, Asian Development Bank and other development banks.

Bretton Woods institutions and G20 central bankers should attend Rio+20 and clarify how they will promote SD and coordinate with other actors. Moreover, development banks should be called upon to expand the SD aspect of their development assistance at the Rio+20 conference. Some are already extensively engaged in SD work, and have emphasised their SD contributions. However, SD is typically not part of their official mandate. Calling on these organisations to officially change their mandate could be considered. In addition, new donor countries should be called upon to "green" their development assistance and orient it towards SD objectives.

4.3.4. SD financing mechanisms

Securing additional financing and making effective use of existing financing are crucial for enhancing the effectiveness of SD institutions. One way to persuade countries to provide more funding is to help them understand that SD issues can have security implications and should be the focus of more interest from defence ministries. For example, environmental degradation may have grave consequences for food and water supply, which in turn could lead to security concerns and conflicts over resources. Environmental refugees may potentially also pose security related problems. Countries should allocate a small amount from their defence budgets for environmental and sustainable development funding. Increased small contributions from defence budgets to UN organisations such as UNEP and MEA secretariats could be a cost effective way to mitigate problems before they degenerate into expensive and difficult security problems. Other innovative funding options could include taxes on international financial transactions (Tobin Tax), mining of virgin materials, international air-passenger mileage and freight transport, etc. Currently the EU is strongly supporting the introduction of a Tobin Tax and other countries should seriously consider supporting this initiative. These financing options have the advantage that they do not derive directly from countries' budgets. Nevertheless, governments of UN member countries would still oversee the spending.

4.3.5. Convention on Access to Information and Participation

To institutionalise participation and access to environmental information and decision making, IGES recommends supporting a regional or global convention on Rio Principle 10

(Murharjanti and Paramita, 2011). Such a convention would strengthen multi-level governance by improving stakeholder dialogue, policy adoption, and ownership at local levels. For Europe, a convention on Rio Principle 10 already exists in the form of the Aarhus Convention, but up-scaling it to the global level is necessary. Moreover, the provision of a global convention on Principle 10 of the Rio Declaration would help to institutionalise it at all levels of governance.

4.3.6. Two-phased reform for IEG: universal membership for UNEP, and then a specialised agency (WEO/UNEO)

IGES believes that incremental reforms to the IEG system are important and should be undertaken, such as those already underway in, for instance, greening of UN initiatives as well as clustering of MEA secretariats (JIU, 2010). However, ultimately these measures will be insufficient, so IGES supports more ambitious and fundamental reform options. Specifically a two-phased approach to enhance UNEP is recommended. In the first phase, the UNEP Governing Council could adopt universal membership. In the current system, the UNEP Governing Council only has 58 members, and decisions must be sent to the Second Committee of the General Assembly for approval. There is universal participation in the UNEP GC, in which non-members may participate in discussions, but non-members may not vote. Non-members already send delegates to the Global Ministerial Environment Forum, which meets in conjunction with the GC. Universal membership would lend greater legitimacy for UNEP GC to be the "global voice for the environment" which is difficult with only 58 members. Universal membership would also eliminate the need for governing council elections, which consume much time and energy.

Universal membership might also help improve coordination and synergies among MEAs, which, due to comprehensive membership and centralised decision making of the GC forum, could be deliberated in clusters, as already practiced in biodiversity related conventions and the chemicals cluster. It would make it possible have MEA COPs to coincide with the UNEP GC, thereby creating significant financial as well as time efficiencies. Currently, without universal membership it is difficult for UNEP GC to make recommendations to MEAs that have members which are not represented in UNEP's GC. Moreover, IGES suggests that any new MEA secretariats should be placed at either UNEP in Nairobi, or in Geneva. Recent IGES research (Olsen, 2011) shows that, compared to the current status, the financial implications of establishing universal membership are not very large.

In the longer-term, IGES recommends upgrading UNEP to a Specialised Agency i.e. World Environment Organisation (WEO) or United Nations Environment Organisation (UNEO). Legally, this might be accomplished through a GA resolution (UN Charter Article 57) rather than a treaty, which could be difficult to ratify in some countries. This would mean that decisions no longer have to be referred to the General Assembly where they might be affected by unrelated issues. Thus, a WEO would provide a legal mandate and autonomy to enhance the strength of environment ministers. Capacity building should be an important function of a WEO/UNEO, particularly in areas related to policy formulation, reporting, negotiation, and implementation of MEAs, and there is evidence that developing countries

are interested in more capacity building from UNEP. UNDP, the World Bank, and regional development banks, among others, already undertake some capacity building, although this tends to be more focused on projects. However, overall efforts are still inadequate. Increased effort should take place in cooperation and coordination with other agencies' work according to the "Delivering as One" UN initiative, including adequate representation of UNEP in UN Country Teams. Of course, additional funding would be needed. But the mandate would need to be agreed on before contentious issues regarding funding could be deliberated, perhaps agreeing on innovative funding options, such as those summarised in previous sections. The flowchart below depicts how reforms could be undertaken in phases, each creating momentum for the next step:

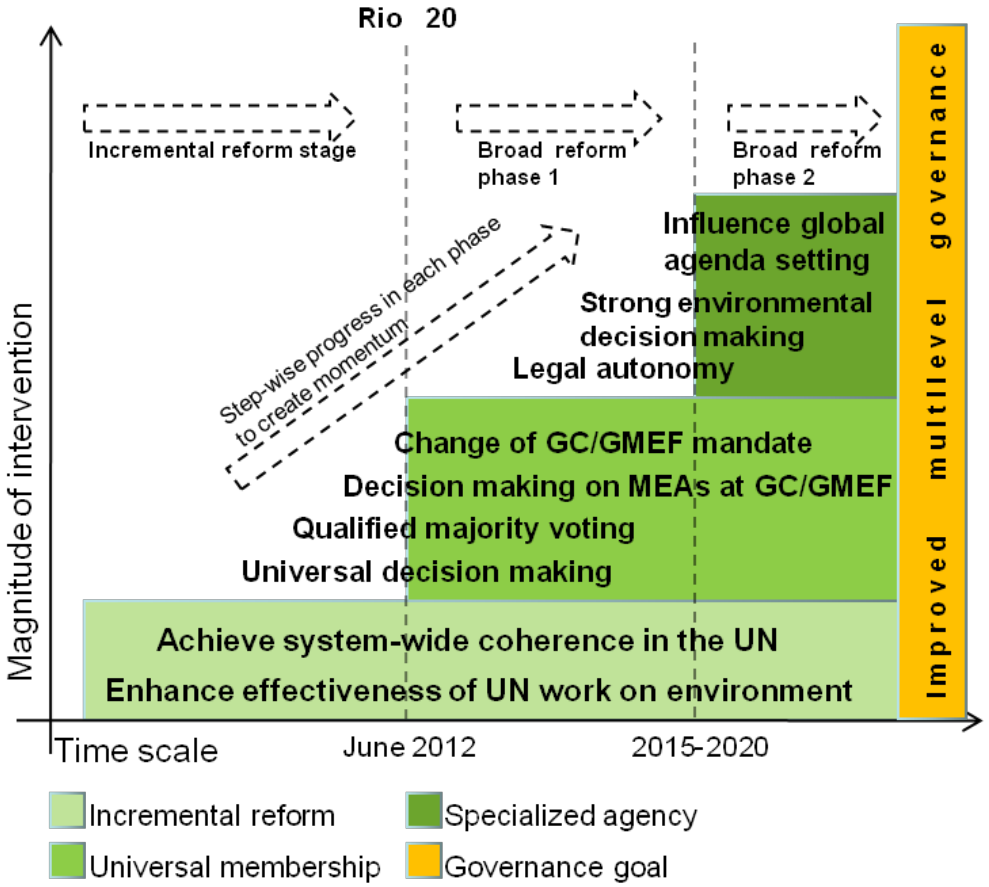

Figure 4-2 Thrust of IEG reform (Olsen, 2011)

The UN should lead by example and practice what it preaches. Recommendations such as those suggested in the UN Joint Inspection Unit (JIU 2008), which include clear division of labour among UN organisations, limitations on the creation of new MEA secretariats, and improving transparency of use and management of programme support costs are useful to be considered.

4.3.7. Regional initiatives (Asia-Pacific)

It is important also to consider how IFSD will translate to regional and sub-regional levels. In

particular for Asia-Pacific, this will be an important consideration: as the region increasingly becomes the world's economic and production centre, adverse impacts are taking a toll and many countries are facing serious environmental issues that include pollution and depletion of natural resources. IGES suggests that improvement in coordination and information sharing among countries in the region is a good first step that can enhance transparency and access to environmental information, as well as exchange of good practices in the region; these are the foundations for better environmental and SD governance. One possibility to improve coordination would be to create a relatively small regional organisation or focal point, which in the long run could be developed into an Asia Environmental Organisation. .

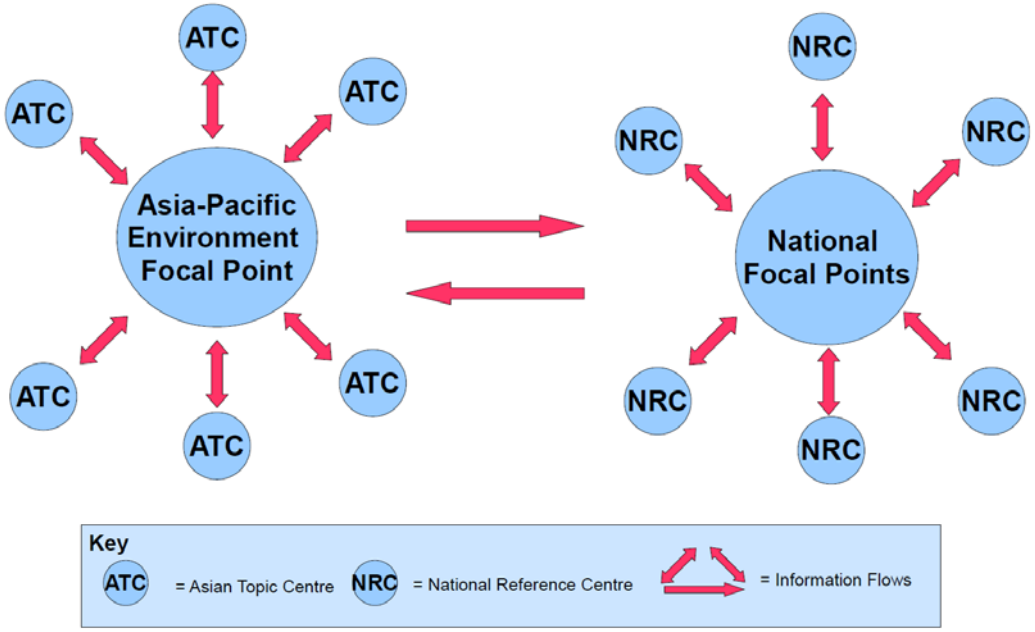

Figure 4-3 Proposed structure for enhancing information exchange and harmonization in Asia-Pacific

Source: Adapted from EEA/EIONET model (EEA, 2011).

The flowchart above depicts how such a focal point could act as an information hub—both collecting and disseminating information on the state of the environment. The institution would use identified Asian Topic Centres (ATCs) of expertise in a given area. The National Focal Points then could be appointed from ministries or agencies as key partners of the focal point and should preferably include a mixed range of ministries. In addition to encompassing the link from regional to national level, they would also coordinate with National Reference Centres (NRCs), who would be appointed by the NFPs to collect information as required by the central institution.

The Asia-Pacific region already has a wide-range of existing institutions at the sub-regional level, including the North-East Asian Sub-regional Programme for Environmental Cooperation (NEASPEC), Secretariat of the Pacific Regional Environment Programme (SPREP), South Asia Co-operative Environment Programme (SACEP), and the Regional Environmental Center for Central Asia (CAREC). The focus and potential of each of these institutions would have to be subject to additional research to identify the extent to which extent they could

become involved as "Asian Topic Centres" and information collection hubs. It would also have to be determined which organisation would become the central hub collecting and disseminating the information. Similar approaches may also be needed in other regions.

4.3.8. National initiatives (environmental policy integration)

On national levels, IGES believes that greater efforts should be made to improve synergies between environmental and developmental policies and practices. One way to do this is to enhance environmental policy integration (EPI), which is defined as a "deliberate attempt to prioritize the protection of the environment before any trade-offs are made between environmental, economic and/or social objectives" (Lenschow, 2009:8). Sustainable development, therefore, should be designated as an overarching principle of policy decisions in any sector or level. This is important because significant impact can only be achieved if environmental concerns are integrated into those ministries that are the main contributors to environmental damage (Mueller in Lenschow, 2002:58). Full integration is complex and presupposes political continuity and support. IGES suggests that improving vertical integration will benefit the persistent implementation gap at the local level. For that to happen it will be necessary to strengthen the national decision making processes and involve local governments to ensure that both funding and capacity is made available.

4.3.9. Local initiatives

Local governments in many areas have already made strong efforts to effectively address SD issues in an integrated way, including efforts related to Local Agenda 21. Good examples of local action in the Asia-Pacific include the development of low carbon cities, smart cities, and other partnerships between local governments. City level networks help to share best practices and assist with capacity building. These initiatives should be further developed and strengthened. At the same time, multi-stakeholder involvement and cooperation with the private sector, educational institutions and other stakeholders should be promoted. Finally, IGES believes that solid reporting mechanisms should be established and maintained to ensure vertical coherence and consistency between planning and implementation.

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