ASSESSMENT OF THE PHILIPPINE AGENDA 21, THE PROSPECTS FOR A GREEN ECONOMY, AND THE INSTITUTIONAL FRAMEWORK FOR SUSTAINABLE DEVELOPMENT

INTRODUCTION

The 1987 *Philippine Strategy for Sustainable Development* (PSSD) represents the country's first roadmap towards achieving economic growth and environmental integrity—the twin pillars of sustainable development (SD) in the 1980s. It was not until ten years later, when the *Philippine Agenda 21* (PA21): *A National Agenda for Sustainable Development for the 21th Century* was written in response to the 1992 Earth Summit in Rio de Janeiro, that social development became the third pillar of sustainable development. Thus, apart from providing enabling economic and environmental policies and integrating the idea of sustainable development into the country's governance framework, the action agenda of PA21 specifically highlighted investments in human and social capital, health, population management, and human settlements, while recognizing the need to address the poverty of communities in forest-watershed, agricultural, coastal/marine, and urban ecosystems.

The significance of PA21, however, lies not only in the integration of human development into the operational concept of sustainable development but in its provenance. Launched on 26 September 1996 as a state-initiated agenda, PA21 is a historic document that envisioned a better life for all Filipinos, laying down fifteen principles as basis for crafting its action agenda—the primacy of developing the human potential; holistic science and appropriate technology; cultural, moral and spiritual sensitivity; self-determination; national sovereignty; gender sensitivity; peace, order and national unity; social justice and inter- and intra-generational and spatial equity; participatory democracy; institutional viability; viable, sound and broad-based economic development; sustainable population; ecological soundness; bio-geographical equity and community-based resource management; and global cooperation. These principles also reflect the human and social development goals of PA21.

The above principles and goals formed the basis of unity among various stakeholders—i.e. people's organization, NGOs, and representatives of business, labor, health, urban poor, youth and other sectors. A series of year-long discussions, consultations, review sessions and consensus building activities opened up spaces for the stakeholders to proactively input into the agenda. Hence, what otherwise would have been another top-down initiative by the executive branch generated support from both the development-oriented civil society organizations on the ground and the market-oriented private sector groups, giving the promise of a bottom-up process in the pursuit of sustainable development. Remarkably, the consultative process made it possible for the resulting agenda document to stand as a collective expression of the nation's agenda vis-à-vis sustainable development broadly conceived to include human development. This explains why those who finally penned PA 21 constituted it as

> "a people's covenant towards a transition to sustainable development … committing themselves to social justice and inter- and intra-generational equity... achieved through equal access to development opportunities and benefits across ages, social classes and geographical units… (because) sustainable development is a shared, collective and indivisible responsibility which calls for institutional structures that are built around the spirit of solidarity, convergence, and partnership between and among different stakeholders."

Incipient collaborative work on PA21 possibly began years before its September 1996 launching, immediately after, if not before, the 1992 Rio Conference. The goodwill and solidarity that the conference and post conference activities fostered among non-government organizations, people's organizations, labor federations, and the representatives of management and the business sector made it easier for the Ramos administration to direct the Philippine Council for Sustainable Development (PCSD)—which was created in 1992—to oversee and monitor the operationalization of PA21, as well as to mobilize the Regional Development Councils and local councils for sustainable development.

It was also easier to reinforce this directive with the 26 September 1996 Memorandum Order that mandated "all government agencies, departments and instrumentalities …to adopt and translate the principles and action agenda in their respective work plans, programs and projects" while the DILG was tasked to coordinate and monitor the localization of PA 21 with the LGUs. Thus, with PCSD at the helm of promoting convergence among government agencies, fostering partnership between civil society groups, local governments, and communities, PA21 served as a compass towards a path for a more sustainable future for Filipinos, if not a blueprint and action agenda for the much needed change.

The action agenda (AA) of PA21 identified the critical issues and concerns in each of the country's five ecosystems—forest/upland, agricultural/lowland, coastal/marine, freshwater, and urban ecosystem—as well as those cross-cutting concerns that transcend ecosystems. For each ecosystem or cross-cutting concern, the AA spelled out strategies for integrating the SD principles. It further specified the time-bound qualitative and process-related targets in the implementation of these strategies over a 30-year period—i.e. within the short-run from 1996 to 1998; the medium term from 1998 to 2005; and the long term from 2005 to 2025—as well as the institutions involved in the implementation.

In addition to the government's PA21 commitments, the Philippines also entered at different times into other multilateral environmental agreements (MEAs)—the United Nations Framework Convention on Biological Diversity (UNCBD) in 1993; the UN Convention to Combat Desertification (UNCCD) in 2000; the UN Framework Convention on Climate Change (UNFCCC) in 2003; and the Stockholm Convention on Persistent Organic Pollutants in 2006. Together with PA 21, these MEAs together with new social and environmental legislations, like the Indigenous Peoples Rights Act of 1997, the Clean Air Act of 1999, the Clean Water Act of 2004, comprise the country's agenda for sustainable development.

Now into the 7th year of the 20-year long-term period stipulated in PA21 and on the eve of the second Rio de Janeiro Earth Summit in June 2012, what has PA21 achieved? To answer this question, it is imperative for the nation to take stock of its past actions vis-à-vis its commitments and to chart future directions towards sustainable development. In this regard, the National Economic Development Authority has commissioned the drafting of a report with a three-fold agenda: 1) to provide a rapid assessment of the implementation of Philippine Agenda 21 and the country's fulfillment of its UN Conference on Environment and Development commitments; 2) to outline, given the country's present state of natural resource and ecosystem (un)sustainability, how to proceed towards the green economy (GE), and define its contours for the country; and 3) to elaborate on the requirements and institutional framework for sustainable development (IFSD).

The specific objectives of the commissioned draft report are as follows:

- To assess in broad strokes, the progress made over the last 15 years in the implementation of the AA—e.g. the government policies, programs and activities undertaken in connection with PA21;

- To identify the gaps in implementation that have to be filled and the existing and emerging challenges that continue to limit the pace of the country's movement towards sustainable development, as well as constrain its overall prospects for a GE;

- To specify the critical requirements, priority conditions and mechanisms for the establishment of a GE; and

- To define the necessary institutional framework for sustainable development (IFSD).

In order to address these objectives, this commissioned report is divided into two major parts: 1) the assessment of the implementation of the AA of PA21 and other UNCED commitments and the identification of implementation gaps; and 2) the institutional and organizational requirements of a GE and the strategic options for meeting these requirements.

At the outset, it is important to note three points that affect this assessment because of the implications they bear for the outcomes of the Action Agenda. ***First***, since the launching of PA21 in 1996, particular economic, environmental and social problems, such as population growth, social disparities, pollution and the deterioration of the environment and the country's natural capital have persisted and may have even worsened. ***Second***, new challenges and risks in the form of climate change, the increasing cases of natural and human-made disasters, the unsustainable use of freshwater, and the depletion of groundwater sources, especially in growing urban areas, now confront the country, further complicating an already highly complex situation. ***Third***, the regime change in 1998 altered government priorities somewhat. Economic interests unsupportive of sustainable development seem to have figured more significantly. As a consequence, as PCSD went into an apparent hiatus under the Arroyo administration, PA 21 lost its national prominence, leaving only blocs within civil society and particular segments of the bureaucracy—i.e. government agencies assigned to work on social and environmental issues—to pursue SD independently within their limited spheres of influence.

Part 1
AN ASSESSMENT REPORT OF THE PHILIPPINE AGENDA 21 AND UNCED COMMITMENTS

Methodology for an Objective Assessment

Methodologically, an objective assessment of an intervention (or set of intervention measures) requires the following information and processes:

- a description of baseline conditions and analysis of problems to be addressed by the interventions;
- a clear articulation of the desired goals and expected outcomes of the identified interventions;
- a discussion of the interventions, how they are informed by the baseline conditions and how they relate to the desired goals. A prior analysis of problems would expectedly ensure that the specified interventions are adequate to address the problems at hand or that there will be no intervention gaps and omissions. With an adequate analysis of the situation, the only requirement for attaining the desired goals is the proper implementation of the identified interventions, i.e. the provision of logistical requirements and effective monitoring and response mechanisms to oversee and direct the intervention process.

- Finally, the resulting conditions are evaluated against the desired scenario, taking into account the limited or full accomplishment of the implemented interventions and their assumed adequacy.

The Limitations

In applying the above assessment methodology to PA21, it is important to understand that its nature and provenance pose major constraints to the satisfaction of each of the methodological requirements and thus, to an overall assessment. Nevertheless, this report accepts the following limitations as given, and made the necessary adjustments to enable the assessment to proceed.

One, there is no explicit analytical discussion of the baseline conditions that require intervention. In the section "Where are we now?", PA21 merely provides a listing and brief discussion of trends in demography, culture, the economy, urbanization, human development, the environment and politics, which portray, in broad strokes, a picture of baseline conditions[1]. Additional inputs to the baseline scenario may also be inferred from the "issues and concerns" heading of the action agenda for each ecosystem and from the economic, environmental or social problems mentioned in the general observations or trends. While the document brought out many problems, it must be noted that some of them hardly received attention and thus had no corresponding interventions. These include uneven growth across regions, jobless growth and exclusion, rising public debt, and corruption, among others.

Two, in the absence of an analytical discussion of baseline conditions, proponents of PA21 may have proposed intervention measures, based either on their own implicit notion of baseline conditions or on their own interpretation or understanding of some parameters and strategies found in the section "How do we get there?" The lack of an explicit analysis of some problems, as illustrated in the discussion of policy gaps and omissions in a later section of the report, has made it necessary to evaluate some of the proposed interventions in terms of their adequacy and empirical grounding.

Three, while an implicit analysis may have guided some of the proposed interventions, the gaps and omissions of the intervention measures in the Action Agenda (AA) may also be due to the failure to systematically use the available parameters and strategies for sustainability (in the section "How do we get there?") for either directly formulating intervention measures or defining the purpose or expected output of such measures. For instance, the following statements on parameters and strategies for sustainability suggest the intervention measures or approaches that could have figured in the AA list of interventions.

- (A) precautionary approach is adopted in economic and environmental management with emphasis on preventive rather than mitigating measures;
- Economic enterprises must internalize social and ecological responsibility by carrying out business activities within the framework of sustainable development;
- The biological limits to natural resource productivity are scientifically researched and established and become the bases for strategic policy decisions on societal use of the country's natural resources;
- Deep social and ecological considerations are directly embedded in the long-term development framework, policies, and activities... in effect internalizing ecological and social costs,... and rejecting a "grow now, pay later" approach;

[1] The following trends and problems are listed: rapid population growth, spatial imbalances in population distribution, the pressures on the family, the growth of social inequity and environmental degradation, high level of public debt, market distortions, trade deficits, destructive mining, concentration of economic power, indiscriminate agricultural land and ecosystem conversion, threat to food security, pollution, inadequate waste disposal, water shortage, deterioration of sanitation, and the lack of health and other basic services.

- Unsustainable, as well as conspicuous luxury and excessive consumption are discouraged through economic, as well as social and regulatory instruments;
- Ecologically, economically and socially sound strategies and structures (must) replace energy- and material-intensive, environmentally degrading, and economically inefficient patterns of production, distribution and consumption;
- Communities' access to and control of common natural resources, such as water and biodiversity is assured;
- The conservation and sustainable use of ecosystems and natural resources by self-reliant communities in rural areas are given greater priority, and appropriate rural development is structurally linked and balanced with urban development;
- Multi-stakeholder and community-based sustainable development plans and programs are prioritized over national plans and programs that undermine sustainable development.

In turn, the omission of the culling of such strategies either suggests that the available proposed interventions were simply drawn from an unarticulated governance framework, or that the policy gaps and omissions reflect the limitations of the existing or assumed governance framework for PA21.

Four, the entries under the "issues and concerns" heading of PA 21 do not unequivocally state the desired goals for each ecosystem or across all ecosystems. Some entries call attention to relevant problems or they propound general solutions or intervention measures. Two cross-cutting concerns/issues—i.e. the improvement of governance and the establishment of an enabling economic environment—express both the problem and the general solution requiring specific interventions.

With regards to the "strategies/action agenda" and "targets" in PA 21, the entries do not consist solely of intervention activities whose outcomes are directly related to the desired goals. As written, the PA21 "strategies/action agenda" consist of a mixed bag: general directions or solutions within a given area of concern; the particular courses of action (reviews/ assessments, direct interventions, etc.) to address a problem; and the existing or proposed policies and programs as well as the responsible agency. On the other hand, the "targets" consist of the plans, policies (codes, proposed legislations and policy revisions), pilot or nation-wide projects, or programs to be formulated, improved upon or implemented, together with the research to be undertaken and agencies to be established, strengthened or capacitated. In other words, it is necessary to sift through the strategies and targets to cull the proposed interventions for a particular goal.

Five, most of the "strategies/action agenda" and "targets" in PA 21 do not have objectively verifiable indicators (OVIs)[2]. Although the AA strategies and targets were laid out in PA21 for the short, medium or long term, it is not possible to monitor the timely implementation of interventions and whether or not they achieved the desired effect—much less assess the commitment of the country to sustainable development and the efficiency of the implementing government agencies and civil society groups—without the requisite indicators. In other words, without measurable OVIs, the possible impacts of the agenda on the various spheres/areas of concern for each ecosystem would be unknown, and its accomplishments un-specifiable. Under such circumstances, this report can only provide an incomplete review of the implementation and progress of PA 21.

Interestingly, the task of specifying the indicators, risks, and responses to the contingencies and progress of implementations could have fallen on the Philippine Council for Sustainable Development. But the window of opportunity for the PCSD to have taken it on was open only for less than two years of the Ramos

[2]Note that in the initial review of PA 21, the suggested set of core indicators consisted of general conventional national income-related or sector statistics that are not directly pertinent to the intervention process, i.e. these are not relevant in monitoring the activities, outcomes, purposes and the attainment of the desired state in PA21.

administration from the launching of PA21 in September 1996, for another two years in the aborted term of the Estrada administration and for a year or so into the Arroyo administration, after which the Council seemed to have gone into a hiatus. In other words, elections, regime changes (including the impeachment of President Estrada) and the attendant shifts in the priorities of each administration undermined what could have been five years of uninterrupted implementation of PA21 under the auspices of the PCSD that could have set the terms of its implementation and developed the appropriate OVIs and monitoring system.

The Adjusted Assessment Methodology

Given the above limitations that reflect a significant deviation from common practice, what is the methodological basis for the assessment of PA21 in this Report? The following procedures document the adjusted assessment methodology:

1. Cull the interventions and adopt a log frame format;
2. Link the proposed interventions to a sustainability criterion and define the desirable criterion state;
3. Determine the level of implementation and the adequacy of intervention or the presence of intervention gaps and omissions;
4. Assess the impact of interventions with reference to a constructed set of indicators that show the movement from an undesired baseline criterion state to an improved state;
5. Determine the ecosystem criteria scores, and finally,
6. Validate the assessment with experts.

Cull the Interventions and Adopt a Log Frame Format

First, the entries under "strategies/action agenda" and "targets" in PA21, including some entries under "issues/concerns" are unpacked and sifted through, to extract the intervention activities that are necessary or instrumental to the attainment of the desired state. The AA of PA21 is subsequently re-cast into a log frame format where the extracted interventions specifically involving the implementation of policies, plans, projects and programs (PPPP) constitute the first critical entries in the log frame. These entries thereby serve as the means to either arrive at particular outputs or solutions or provide the necessary conditions that would combine with other project outcomes to achieve a "purpose" essential to the attainment of the "goal" or desired state.

Table 1 illustrates a sample recasting of a portion of the AA into a log frame structure. The Table differentiates the relevant intervention activities for the forest ecosystem from the strategies/action agenda items or targets that may aptly be classified as the preliminary or accompanying activities of government agencies. These preliminary activities constitute either the tasks prior to actual intervention (those already assumed in the implementation of a PPPP intervention), or those merely carried out as regular governmental functions without any consequence for a proposed intervention or the attainment of a desired state.

In the sample log frame, the "goal" of rehabilitation and sustainable management of forestlands would require at the onset preliminary "activities or projects", such as the establishment of a comprehensive management information system (MIS) for forestland delineation, valuation of biodiversity and other forest-watershed use values, the assessment and policy formulation of alternative tenure instruments, and the formulation of forest management plans. With these preliminary activities, the proposed PPPP can then be implemented simultaneously or chronologically in the order of importance or prior work flow. Given particular assumptions, these PPPP interventions once implemented are expected to lead to particular "project results", which in turn would contribute to conditions or "purposes" strategic to the attainment of the goal or desired state.

Table 1: Illustrative Recasting of a Portion of the PA21 AA into a Log Frame

Goal or Desired State	Rehabilitated forestlands and watersheds under sustainable management Poverty alleviation
Purpose	Forestlands under secure tenure; Improved policy environment and enforcement-implementation capacity;
PPPP Output or Results	Watershed management approach implemented on the ground; Attainment of forestry-watershed plan objectives; Expansion of community-based tenure; Establishment of payments for environmental services; Marketing of community-based agro-forestry products
Implemented Policies, Plans, Projects or Programs (PPPP)	Capacity building and organization of community based management; A joint LGU-DENR MOA on community management; Provision of a community-based management (tenure) agreement to identified communities; Implementation of a forestry-watershed plan.
Preliminary Activities	Establishment of MIS; Identify sources of funding; Valuation of forest use and non-use benefits; Delineation of forest boundary and production and protection forests and watershed management area; Formulation of a forestry-watershed plan

It may be noted that a log frame approach functions much like the Managing for Development Results (MfDR) framework of the 2010-2016 Philippine Development Program (PDP). Based on an analysis of the country's economic, social and environmental problems, the MfDR framework draws up a comprehensive program of development strategies which identifies the policies, plans, projects, and programs to implement. Like the log frame, the MfDR is a management tool that enables government to focus "on development performance as well as sustainable improvements in outcomes, and provides both the framework and practical tools for strategic planning, risk management, progress monitoring, and outcome evaluation".

Link the Proposed Interventions to a Sustainability Criterion and Define the Desirable Criterion State

Second, having identified the interventions that serve as means to attain the goals of sustainable development, these interventions must then be linked to a particular sustainability criterion. At least four criteria may be identified: 1) natural capital/ resource stock, environmental quality and carrying capacity; 2) efficiency of production or economic activity; 3) equity in access to natural and environmental resources and in the distribution of benefits; and 4) poverty alleviation. These four goals/ criteria represent at least 5 out of the 15 PA21 principles mentioned earlier, namely ecological soundness; viable, sound and broad-based economic development; inter- and intra-generational and spatial equity; and bio-geographical equity and community-based resource management; and sustainable population. If realized, the fourth criterion (poverty alleviation) may also help contribute to the partial realization of 3 other principles, specifically the development of the human potential, social justice, and participatory democracy. In order to be realized, however, these three principles must also have their own intervention measures. In other words, this assessment report would only be able to directly cover the above four criteria or 5 principles. Regrettably, it cannot include other goals or principles which do not have explicit intervention measures.

Table 2 lists the various PPPP interventions that may be gleaned from PA21 and the MEAs, and classifies them under a particular sustainability criterion, by ecosystem. The MEA interventions are dated on the year they were introduced to dovetail with the earlier PA21 measures.

Table 2. List of PPPP Interventions from PA 21 and MEA, under each Sustainability Criterion, by Ecosystem or Sector.

Forest Ecosystem

Purpose/Goal: Avert the expanding marginal, degraded, unproductive upland areas, and promote the sustainable management of the remaining production forest.		
	Activities (Policies, Plans, Projects, Program)	**Indicator**
Natural Capital Stock and Environmental Quality	• Delineate final forest boundaries • Establish national and local forest tree seed centers; Produce high quality seed and planting stocks; • Undertake biological fertilization, enrichment planting, ANR • Establish effective Multi-sectoral Forest Protection Committees; Involve CFMA and CADC recipients; Rehabilitate critical watersheds • Promote indigenous knowledge and technologies • Implement an integrated watershed management program	6 million ha of forest Establishment of a seed center in Los Banos; production of 5 species One MFPC per 'hotspot' area Rehabilitation at 10% a year 30 tribes 20 critical watersheds; Effective forest cover in all critical watersheds
Equity in Resource Access and Benefits	• Expand community forests and implement all people-oriented forestry programs; Shift expired TLA areas to community forest management • Improve/ reform policy on tenurial arrangements • Issue Certificate of Ancestral Domain Claims after preparing a development plan	Area of CBFM, ISF, CFP, FLMA (7.38M hectares)
Poverty Alleviation and Eradication	• Provide alternative sources of livelihood to uplift the socio-economic conditions of upland communities and establish upland livelihood enterprises that provide technology, credit and marketing assistance • Establish the Center for People Empowerment in the Uplands (CPEUs) • Manage a trust fund for upland development efforts	Training of upland farmers & extension workers in sustainable farming
Production Efficiency	• Establish industrial forest plantations • Sustainably manage delineated production forest areas; undertake TSI & enrichment planting (EP) • Establish the permanent production forest estates • Develop productive plantations in sub-marginal lands • Prevent pest and disease problems; • Promote agro-forestry technologies in upland areas • Develop and establish the wood-based and the local non-timber industries	800,000 hectares 2.48 million hectares; TSI in 75,000 ha annually & EP in 40,000 ha. Pilot test Inefficient mills phased out, number of non-timber industries

Biodiversity

Purpose/Goal: Prevent the loss of biodiversity or strengthen biodiversity protection		
	Activities (Policies, Plans, Projects, Program)	**Indicator**
Natural Capital Restoration	• Implement the 1997 National Biodiversity Strategy and Action Plan; 2002 Philippine Biodiversity Conservation Priorities of 2002; • Rehabilitate damaged marine, wetlands and terrestrial (IPAS) areas; • Enhance biodiversity conservation efforts; • Identify critical habitats and species-rich areas for inclusion in NIPAS • Identify & protect flora and fauna species in near-crisis conditions • Implement a community-based biodiversity conservation education and research program • Provide community training, capability building • Strictly implement EO 247 (Prescribing guidelines and establishing a regulatory framework for the prospecting of biological and genetic resources, their products and derivatives for scientific and commercial and other purposes). • Prospective large-scale projects to be established in NIPAS areas must be relocated.	Identified Key Biodiversity Areas (KBAs) Establish biodiversity center, in-situ conservation facility for wetland habitats and conservation areas for wildlife relatives of crops Establish a Wildlife Rescue and Refuge Center in each critical area Establish a gene/seed bank for animal genetic resources and underutilized species
Access Equity	• Resolve problems/ conflicts in the implementation of the NIPAS law, • Increase IP representation.in PAMB	
Poverty Eradication	• Promote alternative sustainable livelihood activities for bio-resources-dependent communities	
Efficiency	• Promote the development of value-added products; • Formulate and implement a National Ecotourism Development Plan; Unify DOE Energy Plan on geothermal production with the NIPAS biodiversity Program	

Coastal and Marine Ecosystem

Purpose/Goal: To ensure sustainable development of the country's coastal and marine environment and resources and alleviate poverty		
	Activities (Policies, Plans, Projects, Program)	**Indicator**
Natural Capital Stock and Environmental Quality	• Rehabilitate degraded coral reefs and sea grasses; reforest mangroves, and manage swamplands • Evaluate Fishery Leasehold Agreement (FLA), cancel unproductive or unsustainable ones and revert these to mangroves/ public domain • Develop anti-poaching illegal fishing plans at the municipal level • Apply programmatic EIA for coastal and marine development projects • Adopt monitoring, control and surveillance (MCS)	10% of degraded areas must be restored every year.

	system; enforce protection measures; penalize violators • Modernize the Bantay-Dagat program • Develop and implement guidelines on the management of adjacent watersheds • Implement the action plan for the protection of marine environment from land-based activities & the development plans of growth centers • Formulate an action plan for the protection of marine environment from oil spills, • Establish a multi-sectoral monitoring team to assess the status of the area and evaluate impacts of activities/ projects on the resource, environment • Recognize the primacy of fishing communities in the management of and access to marine resources. Enable communities to manage coastal and marine ecosystems. • Develop, improve mechanisms that would increase or facilitate access to basic social services. Also in PE • Comprehensive National Fishery Industry Development Plan 2006	Members of POs and NGOs deputized. One multi-sectoral team per province
Access Equity	• Prepare and implement a coastal zone management plan with the participation of communities. • Develop mechanisms that provide equity of access to coastal resources. EF • Provide access to basic social services	
Poverty Eradication	• Implement a Comprehensive Coastal Zone Management Plan with community participation • Delineate near shore areas for various purposes • Evaluate fishing methods and revise rules and regulations on fishing methods • Monitor and control culture technologies in relation to sustainability& environmental impact • Provide training for business enterprise management. PE • Research, identify and provide alternative livelihood • Promote the active participation of all sectors in planning for the management of coastal resources/ ecosystems • Provide technical and financial assistance to improve traditional knowledge of marine living resources and fishing techniques • Comprehensive National Fishery Industry Development Plan 2006	

Efficiency	• Delineate near shore areas for various purposes • Evaluate fishing methods and revise rules and regulations on fishing methods • Implement EIA system on existing and proposed development plans on economic growth centers • Promote the active participation of all sectors in planning for the management of coastal resources/ ecosystems	

Lowland/ Agricultural Ecosystem

Purpose/Goal: Address land degradation and promote a sustainable agriculture		
	Activities (Policies, Plans, Projects, Program)	**Indicator**
Natural Capital Restoration	• Identify agricultural lands non-negotiable for conversion; prohibit conversion of agricultural lands with existing or planned irrigation facilities. (Also in EQ) • Implement the National Action Plan (NAP) to combat desertification, land degradation, drought and poverty (2004 -10; 2010-20) • Promote and, provide incentives for effective soil and water conservation through various ways • Establish germplasm/ seed banks for indigenous species, & reintroduce disease-resistant traditional varieties • Implement alternative pest management activities and promote organic farming (Also in EF) • Ban use of inorganic fertilizer • Promote diversified intensive farming systems (Also in EF)	MOA among DA, LGU and communities Conduct training and establish IPM demo sites.
Equity in Access and Distribution	• Implement CARP • Provide security of tenure and efficient support services (irrigation, credit, roads, harvest facilities) • Promote community-based resource management and cooperatives (Also in PE)	
Poverty Eradication	• Implement projects to ensure the regeneration of marginal lands for agriculture (NK) • Implement a food subsidy program tied up to the participation in revised work program • Implement suitable agroforestry systems • Provide support services to ARCs • Increase the incomes and productivity of farmers through the cultivation of high value crops • Provide incentives in support of sustainable agriculture; • Provide accessible funding/ loan facilities to POs, cooperatives • Establish an endowment fund for sustainable agriculture (Also in EF, NK) • Increase nonfarm employment for small farmers, fisher folks	

Efficiency	• Circularize regulations on land use conversion • Tax idle agricultural lands; Develop idle lands into integrated production areas • Increase domestic food production (Gintong Ani) • Encourage integrated crop and livestock farming system • Support the development of community-based full cycle food processing technologies • Remove subsidies on output and input prices and eliminate policy-induced costs of production; • Allocate public expenditure in rural infrastructure and human resource development for sustainable agriculture • Develop integrated financing for all agricultural operations • Implement the Irrigation and Agricultural Productivity Enhancement Act; Establish SWIP, farm to market roads & provide extension service • Support the development of community-based full cycle food processing technologies and support services • Ban the marketing and use of persistent organic pollutants (POPs) • Reintroduce the use of traditional varieties (NK) • Promote chemical free agriculture, organic farming, and the use of environmentally-friendly biological control techniques	1.2M ha for palay, 750,000 ha for corn One demo farm per district Unspecified percentage of the budget Construction of new irrigation and rehabilitation of existing system (8,876 has)

Freshwater Ecosystem and Water Resources in the Urban Ecosystem

Purpose/Goal: Prevent the degradation of water quality and freshwater ecosystems		
	Activities (Policies, Plans, Projects, Program)	**Indicator**
Natural Capital Restoration & Environmental Protection	• Rationalize land use to prevent degradation, erosion, siltation of water bodies • Formulate and adopt a national policy framework for the sustainable use of freshwater ecosystem • Integrate the development of water resources with the conservation of the ecosystems (forests, wetlands, watersheds) that affect the water cycle (Also in EF) • Restore degraded freshwater ecosystems • Protect freshwater ecosystems from pollution and degradation • Regulate the extraction of freshwater resources • Formulate a master plan for the management, rehabilitation and protection of water bodies from domestic wastes and industrial effluents • Assist small and medium-scale industries in water treatment and recycling • Promote centralized waste water treatment facilities for industrial zones • Promote the construction of common treatment	

	facilities for domestic sewage • Provide adequate, efficient sewerage system and septage treatment facilities • Relocate industries from urban watersheds • Protect and rehabilitate watersheds and its buffer zones • Develop groundwater resources	
Access Equity	• Expand the water supply distribution network and upgrade existing facilities	
Poverty Eradication	• (After PA21, the Philippine Water Supply Sector Roadmap of 2008 was conceived. Only recently did the poor become the target of the President's Priority Program P3W of 2005.)	
Efficiency	• Review, adopt and implement the Action Plan for Overall Water Resources Management or the Philippine Water Supply Sector Roadmap • Regulate the extraction of freshwater resources • Establish the appropriate frameworks and strengthen the institutional capabilities to assess water resources and provide flood and drought forecasting services • Formulate Water Resources Master Plan • Expand the water supply distribution network and upgrade existing facilities • Reduce non-revenue water	

Metallic Mineral Sector

Purpose/Goal: Promote the growth of the industry and prevent the environmental disturbances due to mining operations.		
	Activities (Policies, Plans, Projects, Program)	**Indicator**
Natural Capital Restoration	• Enforce payment of the Mine Waste and Tailings fee (1974) • "Adopt a tree, adopt a mining forest" requirement on mining firms • Establish a mine rehabilitation fund • Restore abandoned mines • Declare a moratorium on mining operations and the granting of permits in environmentally-critical areas	
Access Equity	• Strengthen the criteria and guidelines for social acceptability; ensure that mining investors obtain FPIC from indigenous peoples in the planned mining area • Require a comprehensive plan developed with local stakeholders	
Poverty Eradication and Labor Protection	• (Prior to implementation of 1% royalty for host IPs and the Social Development and Management Program with funds amounting to 0.9% of direct mining and milling cost) • Involve the community in environmental monitoring	

	• Ensure mine safety and control potential hazards to mine workers • Provide safety net to mine workers • Minimize the risks from mine operations	
Efficiency	• Add risk assessment in EIAs issued (Also in NK) • Provide incentives for value-added manufacturing processes	

Urban Ecosystem (Green Industry/ Cities with Transportation, Waste, Energy)

Purpose/Goal: Protect the quality of air and water resources; reduce the risks of natural And man-made hazards; and address the poverty situation		
	Activities (Policies, Plans, Projects, Program)	**Indicator**
Natural Capital Restoration	**Green Industry/ City** • Strengthen/ improve EIS system to include risk assessment • Improve policy enforcement, monitoring systems and facilities • Assist small and medium-scale industries in water treatment and recycling • Promote centralized waste water treatment facilities for industrial zones • Relocate industries from urban watersheds • Improve the air quality monitoring network; develop technologies to improve air quality • Phase out lead and reduce SOx emissions • Develop non-motorized transport modes • Review, revise or amend existing policies on air pollution control • Formulate a geo-based physical framework plan for geologically sensitive areas; adopt appropriate measures in managing geo-hazards **Waste** • Inventory industrial sources of waste which pose risk to public health and environment • Strengthen the management of hazardous wastes • Develop regulatory measures for the collection and disposal of industrial waste that pose threat to public health • LGU development of a cost-effective garbage disposal system • Formulate a solid waste management master plan for municipalities/ cities • Develop sanitary landfill sites • Include waste management cost in LGU budget	
Access Equity	**Green City** • Upgrade, relocate slums, squatter settlements; implement Shelter Program • Urban poor access to financial institutions for low-cost housing	

Poverty Eradication and Labor Protection	**Green City** • Upgrade, relocate slums, squatter settlements; implement Shelter Program • Urban poor access to financial institutions for low-cost housing	
Efficiency	**Green Industry/ City** • Improve policy enforcement and monitoring system, facilities • Update the comprehensive land use plan; formulate and implement a zoning plan for industrialization • Provide incentives for the relocation of existing industries in urban areas **Transport** • Stop importation of second hand vehicles and engines • Promote sustainable transport systems in urban centers • Provide fiscal incentives for importation or manufacture of non-conventional energy systems • Improve urban transport system **Energy** • Provide accessible financing for renewable energy projects • Formulate national, local action plans to develop, promote and utilize renewable energy technologies (solar, wind, biomass)	

Having culled and classified the proposed AA interventions under a particular sustainability criterion, it is assumed that this set of interventions, properly implemented, will be sufficient to move an ecosystem/ sector towards the desired state. Table 3 depicts the desired states or conditions for each sustainability criterion per ecosystem or sector. Hence, over a unspecified period of time the implementation of these interventions will enable the attainment of the desired end goal or improved environmental, resource economic and social conditions.

Table 3: Desired State or Goals for each Sustainability Criterion per Ecosystem, Sector

Sustainability Criterion (Area of Concern)	**Forest, Biodiversity**	**Coastal/ Marine**	**Freshwater, water resource**	**Agriculture, Farm lands**	**Mining**	**Urban (city, industry, waste, energy**
Natural Resource Stock and Environmental Quality	Zero rate of deforestation; Reforestation/ afforestation of denuded forestlands; Regeneration of natural forest; Protection	Zero loss of mangroves, sea grass, coral reefs, fishery biomass; Restoration and regeneration of mangroves,	Control of point and non-point pollution; Water quality maintained; Waste water treatment; Adequate reserve for	Adequate area for food security needs; Soil nutrient maintained or restored; Improvement of once degraded lands	Rehabilitation of abandoned mines; Depletion of mineral deposits that covers the cost of environmental degradation and	The carrying capacity of the urban air shed and infrastructure is maintained and improved with the growing population.

Sustainability Criterion (Area of Concern)	Forest, Biodiversity	Coastal/ Marine	Freshwater, water resource	Agriculture, Farm lands	Mining	Urban (city, industry, waste, energy
	forest for biodiversity conservation, water supply, flood or erosion control, protection from geo-hazards, forest fires; Attainment of a desirable forest cover	coral reefs and sea grasses;	basic human needs and in-stream indirect/ ecological services (e.g. habitat maintenance, aquifer recharge,)		community livelihood losses	
Equitable resource access (as indicative of inclusive growth)	Tenure to forest-livelihood dependent households, community-based management; Sustainable forest resource management	Tenure to sustainable fishery or mangrove resource users or common property managers; Coastal community resource management	Water for all; Community access to local water sources;	Provision of land and secure tenure to landless cultivators; Access to domestic and irrigation water;	Tenure to compliant miners; Access to mineral reservation lands which provide ecological/ non-use benefits or non-mining uses (e.g. agro-forestry, geothermal, ecotourism)	Movement to universal water access, sanitation services; Waste water and septage treatment; Provision of health, education and other social services
Efficiency of Production/ economic activity	Harvesting at sustained yields in the production forests; Forest use for non-timber production; No biodiversity loss	Harvesting at sustained yields; Preference for municipal fisheries versus large commercial licensees; No biodiversity loss	Moratorium of water extraction in depleted aquifer areas to allow recharge; Groundwater abstraction at the recharge rate; Wastewater treatment	Attainment of high potential yield; Organic farming; Shift from chemical-based mono-cropping to mixed cropping, agro-forestry and livestock; Land use based on comparative advantage	Vertical integration (value added generation for mined ores) Full compensation, if not full mitigation of the negative economic, social and environmental externalities	Use of renewable energy; Reduction of high-carbon activities; Increase in low-carbon activities.
Poverty alleviation and eradication	Reduced poverty incidence among indigenous people and upland migrants	Alternative livelihoods in depleted areas; Reduced poverty incidence among small fisher folks	Water reserve for basic needs; Cross-subsidies for the poor households	Poverty alleviation of small farmers and landless farm workers	Reduced poverty incidence among indigenous peoples and upland migrants	Reduced number and proportion of the urban poor

Determine the Level of Implementation, the Adequacy of Intervention or the Presence of Intervention Gaps and Omissions

Third, the attainment of a given desired state or goal is constrained, however, by the level of implementation of relevant interventions, the adequacy of interventions (i.e. the presence of intervention gaps and omissions), and the impacts of developments in other criteria on the criterion in question. At the onset, implementation necessarily starts with the near completion of preliminary activities and the introduction of the necessary interventions, in some cases at the pilot level. It then proceeds at an appropriate time either to the replication or extension of the successful pilot project to a larger spatial coverage, if not nationwide, at least across the entire sector. At this stage, the adequacy of the intervention depends on the availability and efficacy of the measures deemed necessary to change and improve the given undesirable state. In other words, whatever intervention omissions and gaps that existed earlier would have been addressed.

Given the above identified interventions, the following observations on Table 4 may be inferred. One, many of the listed strategies and targets in the AA are preliminary activities, i.e. actions that are pursued before any direct, effective intervention can be undertaken. Only about a fifth to a quarter of the listed strategies and targets are direct interventions in the log frame sense. Hence, in the areas or criteria where preliminary activities persist or where there are effectively no interventions, one cannot expect any immediate improvement in the given baseline condition.

Two, the available interventions are unevenly distributed across the various ecosystems/ sectors and criteria. These interventions—31 in all—seem concentrated in lowland agriculture compared to the metallic mineral, biodiversity, industry, cities and other urban (waste, transport and energy) sectors which have only half—13 to 17—of the interventions in lowland agriculture. With regards to the different criteria across ecosystems, greater attention is given to two criteria, namely natural resource/environmental stock and quality and production efficiency, with the former generally enjoying more interventions than the latter, except in agriculture. Conversely, fewer interventions have been undertaken for equity and poverty eradication. In particular, the limited number of interventions to eradicate poverty was mainly directed to agriculture, while biodiversity had only one intervention, green industry and cities two, and forest, coastal/ marine and mineral, three. It was only with the 2005 P3W project that intervention for poverty alleviation was undertaken in the freshwater ecosystem. Similarly, with regards to equity, there was no related intervention in the urban ecosystem (waste, transport, energy) while the 'freshwater' ecosystem had one intervention measure and the other ecosystems two or three.

Table 4. Number of Interventions, by Criterion and Ecosystem, relative to the Number of Strategies and Targets in PA21, with Indicators

Ecosystem	Number of PA21 Strategies, Targets	Number of Interventions Across All Criteria	Natural Capital Stock & Environment-al Quality	Equity in Access & Distribution	Poverty Eradication	Production Efficiency	Number of Indicators
Forest	106	19	6	3	3	7	12/19
Biodiversity	76	15	10	2	1	3	4/15
Coastal/ Marine	84	24	10	3	3	7	3/24
Lowland	111	31	7	3	8	13	4/31

Agriculture							
Freshwater	34	21	14	1	-	6	-
Metallic Mineral	64	13	5	2	3	3	-
Industry, Cities	114	17	10	2	2	3	-
Waste, transport, energy		7 4 2	7 - -	- - -	- - -	- 4 2	-
TOTAL	589	153	69	15	20	49	

Three, only the forest, biodiversity, coastal/marine and agriculture ecosystems had indicators to monitor the progress of some of the interventions. With the forest-watershed ecosystem having the most number of indicators, the proper monitoring of implementation was more feasible compared to the other ecosystems and sectors. No mechanism seemed to have been available for determining the developments of the interventions in the freshwater, metallic mineral, waste, transport, energy, and other urban sectors.

While Table 4 indicates the relative presence of interventions implemented across the criteria in each ecosystem/sector, it is also necessary to determine the quality of the intervention, the level of implementation and the presence of intervention gaps and omissions. These features are expected to constrain, if not reduce, the efficacy of the interventions, and thereby account for the lack of improvement or limited progress in the ecosystem or sector. Unless the implementation problems and intervention gaps and omissions are resolved, the desired goals are close to unattainable.

The following observations and questions represent some of the implementation problems and intervention gaps and omissions in the following ecosystems/ sectors.

On the forest-watershed ecosystem and biodiversity

One, given the target set in the AA for natural capital and equity considerations through the promotion of people-oriented forestry or a community forest tenure program—where a total area of 7.38 million hectares was specifically targeted in 1996 for the establishment of Community-Based Forestry Management (CBFM), Integrated Social Forestry (ISF), Community Forestry Program (CFP), and the Forest Lease Management Agreement (FLMA)—does the existing reduced coverage of only 5.4 million hectares reflect the slow implementation of the program or a policy reversal that manifests a change in the DENR's priorities?

Two, the plan to establish effective multi-sectoral forest protection committees and rehabilitate, starting in 2002, the critical watersheds at the rate of 10% a year implies that these watersheds should have been fully rehabilitated by the end of this year. If they are not close to being fully rehabilitated, what has constrained forest protection and the rehabilitation of degraded critical watersheds? Have the direct and indirect beneficiaries of critical watershed services (Napocor, NIA, water districts) been tapped for these interventions?

Three, what has been the employment generation effect of the various interventions like forest rehabilitation, watershed management, industrial forest plantation, livelihood projects from the use of trust fund, and the wood-based and non-timber industries? Have these interventions significantly generated jobs for the rural labor force? If not, then it seems that the PA21 interventions in the forestry sector have had limited impact on rural unemployment.

Four, while PA21 did not explicitly mention the use of the integrated ecosystem-based management approach as a major strategy for sustainable natural resource (NR) management—possibly due to its focus on the particular functioning of an ecosystem—the approach might have been adopted more widely in time, especially with the converging actions of environment- and development-oriented government agencies and the role NR plays in the 2011-2016 Philippine Development Plan (PDP). Has an integrated ecosystem-based management approach figured in the development and implementation of PPPP for forest-watershed sustainability? The PDP, for instance, has used the approach to conceive of adaptation measures to different climate change scenarios, as well as to incorporate vulnerability and adaptability to disaster risk and climate change in the preparation of protected area management plans.

Five, although the AA discusses biodiversity separately from the forest ecosystem, they cannot be managed and conserved separately. In line with the country's commitment to the Convention on Biodiversity, the DENR drafted the Philippine Biodiversity Conservation Priorities in 2002. Through the efforts of academe, NGOs, donors, communities and government, the Key Biodiversity Areas (KBAs) for conservation priorities were identified in 2006. Comprising more than twice the areas covered by the NIPAS, most KBAs have not yet been proclaimed as priority protection areas. What is their status then? How will government and civil society address the actual and potential economic uses of un-proclaimed KBAs; how will the economic gains be reconciled/ balanced with the biodiversity losses? What must a national land use policy clearly articulate as the basis and justification for forest protection, as well as the conditions that will make the allocation of forest lands for conservation or development socially agreeable? If business/economic development is to coexist with biodiversity conservation, what forms of biodiversity interventions would be considered adequate or sufficient?. For instance, will biodiversity offsets, establishment of corridors, or forest habitat regeneration outside of the project site be acceptable?

There are only two options to maintain biodiversity: either establish a protection area of the same size and quality elsewhere or declare the targeted open pit area a "No-Go" site in the interest of biodiversity conservation. The declaration of a site as "No-Go" depends on the determination of "the critical level of biodiversity" and the valuation of biodiversity. An area rich in biodiversity may be declared a protection area in different ways: the affirmation by a body of experts, religious or moral leaders and the state of its aesthetic, educational, ethical or religious value; the secular liberal democratic practice of voting; contingent valuation or by legislation. Historically, expert judgment has been the main means for the establishment of protected areas. If the richness of a country's biodiversity benefits all of humanity, what is the international community's willingness to pay for its protection and conservation?

Coastal, marine ecosystem

In confronting the problem of fishery depletion and fishery habitat degradation, the AA includes a number of proposed interventions: 1) regulations to stop and penalize illegal fishing methods; 2) policies to implement a municipal and commercial fishery licensing system; 3) comprehensive management plans to rationalize/reduce fishing effort, develop environment-friendly fishing methods, establish community fishery resource management, and co-manage and protect coastal fishery areas by incorporating the watershed in

management plans; 4) projects for mangrove reforestation and the rehabilitation of other fishery ecosystem, and 5) the establishment and enhancement of locally managed marine protected areas.

Where implemented, these interventions have yielded tangible benefits, such as the conservation of coral cover, growth of biomass and fish stock, and improved livelihoods for small fisher folks. Their effective implementation may have been boosted by certain conditions—e.g. local awareness of the ecological relationship of forest-watersheds and the coastal, marine ecosystem; strong leadership at the local level; the cooperation of the BFAR-DA and FMB-DENR with the LGUs; and the community organizing efforts of civil society; and external assistance.

The absence of these conditions and the bias for particular interventions probably explain the unabated fishery depletion and habitat degradation that combined to spawn greater competition for fishery and coastal resource access and displace small municipal fisher folks. In particular, the failure to prevent commercial fishery encroachment on municipal fishery grounds and establish equity in the licensing of municipal fishery access, coupled with the conversion of mangroves, coastal zones and lakes to fishponds, aquaculture or mariculture have restricted the access to the resource (fish biomass, fishing area, or habitat) or the livelihood of small fisher folks. Apart from the inequity effect, the commercial production bias for aquaculture/mariculture and the inability to regulate stocking practices have resulted in overfeeding, pollution and the further degradation of lakes and municipal waters.

The failure to anticipate the adverse equity and natural capital stock effect of particular interventions and omissions arises from the lack of analysis of the sector and the poverty of municipal fishers. Against this backdrop, the Comprehensive National Fisheries Industry Development Plan (CNFIDP) of 2006—albeit a bit late in coming—is nevertheless a welcome development. It provides a holistic analysis on which this sector roadmap or sector plan is based. The analysis recognizes how the larger economy outside of fishery resources—e.g. credit, infrastructure investment, employment opportunities—impact on poverty in the sector. Beyond contextualizing the problem in a good analysis, the CNFIDPO advances specific solutions. For instance, to address the issue of inequitable access, CNFIDP proposes the provision of prior use rights through the municipal registration and licensing system. .

The lack of analysis in PA21 of 1) the competition for local (marine, coastal) resources; 2) the displacement of small fisher folks; and 3) habitat pollution partly accounts for the absence of intervention measures, such as setting the total allowable catch based on the sustainable yield of the fishery stock; the use of fishery charges to promote sustainable fishing; the imposition of charges on point- and nonpoint pollution sources; and compensations for damages to coastal waters, marine resources, and habitats.

Another problem that PA21 did not anticipate is the threat of cheap fish imports, given the country's decreasing catch from its depleted stock and degraded habitats. While this development highlights both the urgency of restocking and restoring the ecosystem and the need for aquaculture growers and commercial fishers to be more efficient and competitive, it also requires the provision of safety nets and alternative employment opportunities for the families whose livelihoods have been displaced.

Lowland/ agricultural ecosystem

The "issues and concerns" section of the AA refers to immediate priority tasks or problems in the agricultural sector such as the pace of CARP implementation, land conversions, idle lands, watershed deterioration, droughts and the increasing share of degraded lands. Even without any explicit analysis of the causes of these problems, PA21 advanced "strategies" like a nationwide assessment of land degradation; the monitoring of soil erosion rates and sedimentation; and the formulation of an overall land use policy. Interestingly, these strategies are more in the nature of "preliminary activities" than direct intervention

measures. Only with the country's ratification of the UNCCD on February 10, 2000 was a National Action Plan (NAP) to Combat DLDD (NAP-DLDD) for the period 2004- 2010 formulated. This Plan was later updated for FY2010-2020 as a land and water-centered action plan.

It is notable that the AA also proposed interventions for problems that are not explicitly stated. For instance, while it does not single out the loss of biodiversity or poverty among small farmers as an issue, interventions, like the "establishment of seed banks for indigenous species" and "increasing the incomes and productivity of farmers through the cultivation of high value crops", respectively, are proposed. It is not certain whether the proponents of these interventions were unaware of the grassroots organic farming movement that scientists, farm organizations and civil society groups initiated a decade earlier to gather traditional seeds; undertake field experimentation and development; and establish community seed banks to counter the 'green revolution's' HYV-chemical fertilizer technology, Or, if this local movement came to their awareness, whether they wanted to replicate its process (now with PCSD blessing) in other localities and advance the position that organic farming would alleviate the farmers' indebtedness/ poverty and improve the health of their families.

Organic farm products may not have been equated with high value crops in the discussions and consultations of PA21, given the dominant commercial sector and the small farms dependence on chemical fertilizers, inorganic pesticides and genetically-modified seeds (GMO). However, the AA proposals calling for the introduction of disease-resistant traditional species; alternative pest management; the use of biological control and organic fertilizers; the ban on inorganic fertilizers and POPs; and chemical-free agriculture suggest a nascent advocacy for alternative farming within the existing agricultural system. Whether sustainable agriculture through organic farming would prosper and expand beyond its small market and land use share is dependent on several factors that include the trajectory of existing policies (like the Organic Act of 2010, EO 514 on biosafety); the influence of strong interest groups; and the capacity of the organic farming movement to fend off the GMO threat, support the transition of small farmers to a new farming mode, and help them realize a larger market share. The play of all these factors is dependent on the health and environmental consciousness of the Philippine middle class.

Approved on March 17, 2006, Executive Order No. 514 "Establishing the National Biosafety Framework, Prescribing Guidelines for its Implementation, Strengthening the National Committee on Biosafety of the Philippines, and for other Purposes" seeks to control the risks posed by organisms modified by biotechnology. Whether this policy will effectively regulate the continued use, introduction and spread of new GMO seeds like BT corn and possibly Golden Rice is a challenge considering the continuing debates within circles of scientists and agriculturists on whether organic farming can be scaled up fast enough, if at all, to feed a rapidly growing population.

While the biotechnology industry knows its bottom line and where to move the agricultural sector, it is not clear whether government agencies (DA, DAR, DENR, DILG, DTI, DOST-PCARRD) have leveled off on the kind of agriculture they envision for the country. Would convergence maintain the existing dual asymmetrical structure? Or would their collaboration with LGUs, people's organizations, and civil society groups in local development projects help promote sustainable agriculture? The strategic R&D technology research agenda of PCARRD for agriculture—e.g. farming techniques under adverse conditions, the development of high-yielding, environment-friendly traditional crops and botanicals, and broad-spectrum bio-fertilizers, the refinement of water harvesting methods, and the improvement of integrated nutrient and water management systems—seems oriented towards organic farming. But the challenge PCARRD confronts is how to involve local farm communities in the field experimentation, adaptation, refinement and diffusion of these new technologies since "green technologies do not yield tangible benefits (economic) in the short term."

On the other hand, the potential role of the other agencies in sustainable agriculture is the provision of support for the successful adoption and effective linkage of production to market outlets. The NAP (2010-2020) in particular faces similar prospects. It must create livelihoods for the affected communities and introduce technologies that would not only reverse land degradation and mitigate the effects of drought in affected areas but also improve the community's resilience to natural disasters. In its pilot stage implementation in four barangays within the Puerto Princesa Subterranean River National Park, the UNDP-funded STREEM project for the NAP is still in a more or less experimental phase.

Freshwater ecosystem

The most striking gap in the AA for the freshwater ecosystem is its inadequate policy framework and resource management approach. While the AA mentions the need for an inventory of watershed areas and the management of the freshwater ecosystem using an ecosystem management approach (EMA), it does not explicitly link the conditions of forest watersheds to the freshwater ecosystem. Neither does it define what EMA entails. What, for instance, is the unit of management? Is it the body of surface water, the aquifer, the river basin, or the watershed? If each of these water bodies begs to be properly managed, what regulations and economic policy instruments ought to be employed? If PA 21 adopts an integrated water resource management (IWRM) framework as is supposed, would the IWRM policy measures be taken *en toto* or only in part?

The gap in the AA's water management approach is intended to be addressed in PA21 by "operational[izing the] management for freshwater ecosystems". But this task is hardly a 'strategy/action agenda' which can be implemented on a given body of water, such as a river. The statement merely expresses the need to identify and operationalize the best option for managing a freshwater ecosystem. As such, it is only a 'preliminary activity'. Similarly, the 'strategy' to "integrate the development of water resources with the conservation of the ecosystems" is not an 'activity/ PPPP' for implementation but a mere guide, if not an expression of intention to prevent water resource development from damaging the ecosystem. How this intention translates into existing water policies and regulations is not clear. Moreover, the agenda document does not discuss the policies and regulations that must be implemented.

The AA underscores the need for a national policy framework for the sustainable use of the fresh water ecosystem. However, it does not cite the limitations of the 1976 Water Code and the Clean Water Act to justify such need. In particular, it has no discussion of the following unresolved critical issues: 1) the equity issue in water access; 2) the distribution of rights to both surface and groundwater sources according to beneficial use; 3) the assumed zero-value of raw water; 4) the provision of formal water rights on a perpetual basis (even across generations) to water permit holders; 5) the absence of the formal rights of rural communities to domestic water supply; 6) the non-provision of a reserve for basic human needs and ecological functions; 7) the non-application of economic instruments to the critical phases of the water supply cycle, like a surface and groundwater abstraction charge, pollution charge, tariffs for wastewater treatment, and the sustainability of water infrastructure and watersheds; and 8) the diversion of all water-related fees and charges to the General Fund away from the water sector or local watershed. In other words, there is hardly any discussion of how the IWRM goals of equity in access, resource efficiency in use and sustainability can be attained through the 'activities/ PPPP' in PA21.

The neglect of the above water management and policy areas characterizes the current situation. Illustrative cases would show how to guide the process of policy and regulatory reforms in the water sector. For instance, cost-recovery irrigation fees may be applied to reduce wastages, cover depreciation of irrigation facilities, and sustain services. Similarly, the application of tariff setting based solely on cost recovery to cover water supply services can be broadened to enable the provisioning of sanitation, sewerage and septage services.

Thankfully, the principles of IWRM and the availability of the water road map make it possible to apply the principles of IWRM and formulate a strategic program for water resource management that would promote its equity, efficiency, and sustainability goals. In the absence of a comprehensive policy framework and appropriate management approach to reach the desired state, it will be difficult to ascertain whether the sector has moved to a less sustainable state. The question at hand then is "have policy discussions and resolutions been reached with regards to the IWRM policy issues and what have materialized in the PPPP?"

The metallic mineral sector

The AA for the metallic mineral sector has two general objectives: 1) to promote the growth of the mining industry, and 2) to address/prevent environmental disturbance due to mining operations and enhance the country's capacity to manage such disturbances. The two objectives are also present in the Philippine Development Plan, as reflected in the identified strategies: 1) to rationalize mining for national development, and 2) to strictly enforce, if not assure, the industry's compliance with the laws and policies on environmental conservation, protection and rehabilitation. With its expressed concern for the inadequate institutional capacity/capability to implement the 1995 Mining Act, PA 21 reiterates the regulations and requirements industry must comply with, such as the social acceptability of the project to the communities, the establishment by the industry of a mine rehabilitation fund, its payment of the mine waste and tailings fee, the formation of multipartite monitoring team, and the formulation of abandonment plans with adequate funds guarantees.

PA 21, however, does not go beyond existing policies and regulations which are assumed to adequately address environmental disturbances/ damages. There is no discussion, for instance, of compensation for damages, apart from the tailings fee and rehabilitation fund. In truth, PA21 has not questioned the limited coverage and declining real value of the mine waste and tailings fee. The fund only provides for the cost of repair of damaged privately-held property, and does not consider damages to public resources and the environment. Moreover, at the very least it has not adjusted the fixed nominal fee rate set in1974.

The PDP recognizes the industry's potential threat to environmental conservation and thus recommends measures to institute comprehensive resource valuation and "safeguard the ecological and environmental integrity of areas affected by mining operations". Operationally, this recommendation—when applied either during the Environmental Impact Study (EIS), the application for an Environmental Compliance Certificate (ECC) or while a mining firm is in operation—seems to translate into the establishment of an environmental insurance or a damage compensation fund to cover either the estimated expected damages or the actual damage costs. At the moment, this is not yet a policy issue.

It is worth noting that there are uncompensated costs due to mining, which have not been considered in either the PA 21 or the PDP. These include 1) the costs of community displacement from their traditional subsistence or livelihood sources; 2) the free use of water for mining operations and its diversion away from the communities' domestic and farm needs; 3) the pollution of surface water and aquifers from acid rock discharges, release of wastewater, toxic metals and effluents, and the risks of tailings leakages and overflows; 4) the full cost of pollution of community water sources, natural habitats, farm and fish yields, marine productivity, livelihood, health, mortality and biodiversity; and 5) the cost of tailings dam collapses on livelihood, health and the environment in downstream areas. The internalization of the full economic, social and environmental cost of mining implies drawing the fund from the miner's rent or excess profit which is likely to trigger industry resistance.

The concern to "safeguard the ecological and environmental integrity of areas affected by mining operations"—which implies measures to prevent biodiversity damages or losses—suggests either a policy to establish "No-Go" or protection areas—thereby extricating such areas from a mining concession area—or a

provision to compel licensees to undertake 'biodiversity offsets' within or outside the concession area. This too is not yet a policy issue.

Apart from biodiversity concerns, there are other mining related problems that have not been the subject of policy consideration. These include the need to contain acid mine drainage (AMD) and to prevent acid forming hazardous wastes from the open pits; runoffs from acidic ore stockpiles; and other toxic chemicals from contaminating surface water streams and leaching into the aquifer. "Should mining companies be made to treat surface water perpetually even after the life of the mine, or should they be required to prevent AMD from starting at the very onset" is a policy question?

Finally, another policy question regarding the allocation of a substantial amount of public forest lands for mineral reservations is whether it is an exclusionary policy that prevents other economic land uses such as agroforestry, non-timber production, geothermal production, eco-tourism, and simply ecological protection.

Urban ecosystem (energy, water, waste, industry and cities)

The action agenda of PA21 cited myriad urban environmental problems—poor living conditions in heavily populated and expanding slum communities; pollution of drainage systems and water bodies given the non-treatment of domestic wastewater, sewage and industrial effluents; the resulting biological death of rivers; the accumulation and inadequate collection and disposal of domestic and industrial waste, chemical and toxic substances and hazardous wastes; the polluted city air; and the threats to life and property in densely populated, disaster-prone or geologically hazardous areas. The persistence, and, in some instances, worsening of the problems, that become palpable when major disasters strike, create the impression of a potential implosion of the Philippine urban environment.

Culling from the discussion in the agenda document, two of the salient issues that underlie many of the above manifestations of a degraded urban environment and the challenge of turning the situation around are 1) the tremendous pressure of a rapidly growing population on the urban infrastructure and the carrying capacity of its ecosystem; and 2) the extremely limited governance and environmental management capacity of the DENR and the LGUs.

The rapid growth of the population in urban areas and the consequent expansion of slum communities have been a constant feature of the country's postwar development. Scholars have attributed this condition to internal migration due to the concentration of formal and informal income sources in the cities. Not even the period of authoritarian rule from 1972 to the early 1980s succeeded in regulating population growth and the flow of rural folks to the city to eke out a living. This is a far cry from the situation in authoritarian countries with entrenched local registration systems that have effectively limited the in-migration to cities. It also deviates considerably from the situation of liberal democratic states that have effectively controlled migration to cities by a more even economic development across the rural and urban geographies of their countries.

Addressing the urban environmental issues enumerated in PA21 through various interventions demands a relatively strong state—i.e. city and metropolitan governments as well as government agencies like the DENR with the capacity to formulate the necessary policies, but more importantly, to enforce and monitor consistent compliance to existing legislation (e.g. the Clean Air Act and the Clean Water Act). It also calls for a general awareness of environmental issues and the vigilance of civil society to protect the urban environment.

The proposed interventions for the urban eco-system that are listed in Table 3 require different levels of government involvement—from the least involvement to the necessary creation of some form of "central command"—whether it be at the level of the nation, a metropolitan government or local city governments. Consider the following observations:

- A few of the interventions simply entail government oversight or the extension of assistance to existing service providers in their provision of environmental services, like the assistance to industrial zone managers for the establishment of centralized waste water treatment facilities on a cost-recovery basis for enterprises within a zone. A related but more challenging form of assistance is the linking of dispersed small and medium scale industries in a given district as clients of the local water district that would invest in wastewater treatment and recycling facilities.

- Other interventions require more intensive government efforts such as relocating industries out of urban watersheds, phasing out lead and reducing SOx emissions, or establishing garbage disposal systems at the LGU level.

- There are (development) plans/ interventions begging for measures that are not fully identified in PA21 to help realize sustainable development goals. These include 1) the relocation of slum communities and the provision of public housing for the informal sector; 2) the development of a sustainable transportation system in urban centers such as non-motorized transport—although there is no infrastructure for it in most of the country's cities; and given the low cost of motorcycle, a high preference for motorcycles exists among the lower income groups that usually constitute the majority of the urban population; and 3) the development of sources of renewable energy at the local and national level, such as solar energy for the urban poor similar to that provided by development-oriented Indian social enterprises (e.g. SELCO, India)

  A review of the planned actions/measures for the urban ecosystem in the AA also reveals that a number of them are still at the preliminary activity level, some with proposed measures without a definite end intervention in mind—e.g. monitoring population and emission levels; a review of existing air pollution control policies; an inventory of industrial and hazardous waste sources to develop and strengthen regulatory measures to protect public health. Although preliminary, these actions are nevertheless important because of the usual dearth of information for policy making—e.g. the relationship of population density, emission levels to health and mortality risks; the inventory of empirically validated energy efficient technologies; which businesses generate industrial waste and hazardous waste; how these businesses dispose of these wastes and who are or will be affected by these wastes.

What remain unclear are the next steps after the necessary information is obtained. For instance, once population density or emission levels are known to exceed tolerable levels is it enough to simply relocate informal settlers and industries, enforce anti-belching regulations, or disallow the importation of second hand vehicles. Are these measures sufficient to reduce the number of vehicles on the road? Similarly, once information on informal settlers is obtained, wouldn't relocation simply transfer the problems of domestic waste, untreated sewage, industrial effluents, and other wastes?

On the technical or policy implications of procured data, once information on the cost of energy efficient technologies is available, would it be used as marginal pollution abatement cost measure for setting pollution charges? How will industrial and hazardous waste be treated? If bioremediation is not possible for particular wastes, will such industrial wastes and hazardous waste be banned? Under what conditions will industrial and hazardous waste be allowed, what disposal method is permissible? Will the "polluter pay" principle be applied to the generators of industrial and hazardous waste and under what terms, and will their victims be compensated?

A major challenge in Philippine urban areas is how to transition to an ecosystem that provides a better quality of life where there is socialized housing for the poor; waste water, sewage treatment and recycling of water; sanitary landfills; reduced consumption of fossil fuel energy; and the availability and increased use of

renewable energy, and a sustainable transport system. An equally important challenge is how to distribute the costs of the benefits of clean air, water, sanitation services, and the environment among the beneficiaries in a class divided society.

At the moment, the public expectation is that the responsibility for confronting these challenges or for providing solutions to environmental problems falls squarely on individual LGUs or national government agencies. As noted earlier, the complexity of the urban ecosystem in a country where courts can issue injunctions against the implementation of environmentally sustainable interventions for a common good suggests the need for central coordination that transcends political turfs and that harmonizes local and national efforts to generate much-needed synergy for mitigating urban environmental degradation and decay.

Assess the Impact of Interventions and Construct a Set of Indicators that Show the Movement from an Undesired Baseline Criterion State to an Improved State

Fourth, the impacts of the identified PA21 and MEA interventions must be assessed. Given the absence of baseline data, as noted earlier, and the above implementation problems and interventions gaps and omissions, it is methodologically impossible to conduct a strict quantitative assessment of the impact of the proposed interventions. A more feasible alternative is a qualitative assessment of the state of ecosystem/ sector sustainability or un-sustainability that considers the varying levels of implementation and the existing omissions and gaps of the identified intervention measures and the resulting state of each criterion. The varying levels of implementation and the accompanying or resulting state of each criterion are specified by their respective set of indicator outcomes that would both be measured along a scale from 0 to 4. With regards to the level of implementation, each level shall be associated with a particular score as follows:

- A value of 0 represents either the baseline scenario condition "without PA 21 or MEA" intervention measures for a particular criterion, where the undesirable conditions persist. Or it signifies the condition where existing proposed measures bear no positive impact because they have not been properly implemented, partly due to weak governance and environmental management capacity.

- A value of 1 means that implementation is either at a pilot stage with some potential success, or is happening on a larger scale with limited success due to some unresolved interventions gaps and implementation problems.

- A value of 2 is assigned when implementation at the pilot level has been successful, and now proceeds at an extended scale, with some positive outcomes.

- A value of 3 means that implementation at a nationwide scale yields significant accomplishments as reflected in the criterion outcomes.

- The highest value of 4 means that the desired outcomes or goals are fully realized.

Similarly, the relative effect of intervention may be represented by varying indicators for the four sustainability criteria. In general, a 0-value is assigned for the baseline unsustainability condition or when the problems of resource depletion, environmental degradation, worsening pollution, inefficient and unsustainable resource and energy use, inequitable resource access, lack of inclusive growth, and unalleviated or growing poverty persist, while a value of 4 means that the (most) desired outcome has been attained.

Table 5 specifies the indicators that would show the movement of a particular criterion from an undesired state to an improved or more desirable state of sustainability. Necessarily this movement involves

time, effort, leadership and collective action. The value obtained by a particular criterion thus reflects the relative success or failure of interventions to move the ecosystem or sector to a higher level of sustainability.

Table 5: Rank Values for each Criterion or Area of Concern:

Score Value	Resource and Env. Stock & Quality	Efficiency of Economic Activity	Equity in Access and Distribution	Poverty Eradication, Alleviation	Implementation Level
0	The degraded resource or polluted environment is unattended. Resource depletion or pollution is worsening.	Unsustainable extraction; Inefficient resource and energy use; Zero resource value; Growing negative externality or pollutive activity	Access to a resource or to its benefits is inequitable. The inequity is worsening. Reversal in equity policy.	Worsening poverty; High poverty incidence; Lack of inclusive growth	No intervention measure is proposed. Proposed measures are not implemented. Governance and environmental management capacity remains weak.
1	The depletion of the resource stock or the degradation of the environment is moderately reduced.	There is growth in production but externalities remain. Unsustainable and pollutive activities are reduced. Inefficiencies in resource and energy use are reduced.	Inequity is reduced but remains critical. There is only partial or insignificant compensation for damages.	Poverty growth is averted, but a significant proportion remains poor.	Implementation is either on a pilot scale with potential success, or on a larger scale with limited success, due to unresolved policy gaps and implementation problems.
2	Resource depletion or degradation is averted; Steady state consumption is attained; Zero loss of natural stock and biodiversity	Further growth in employment opportunities without reducing the resource stock and raising pollution levels. Initial shift to low carbon and use of renewable energy	An excluded significant sector or segment of the population gains partial access to economic resources. Partial rents revert back to the sector. The poor gain access to water.	A slight decrease in poverty incidence (e.g. less than half of those below the poverty threshold is raised above.)	Successful implementation at the pilot level; implementation proceeds to a more extensive scale, with some positive outcomes.
3	Increase in stock or carrying capacity; Initial improvements in resource quality and productivity	Greater value added generated; More significant promotion of sustainable production; Increased usage of low carbon technology and renewable energy	Inequitable access is more significantly reduced, and the benefits more widely shared (for at least half of the deprived population).	A significant decrease in poverty incidence (more than half of those below the threshold are raise). Inter-generational poverty is eradicated.	Implemented nationwide with significant accomplishments as reflected in the four criteria, with the elimination of most if not all of the intervention gaps.
4	Full enrichment of stock,	Sustainable production, green	Access is universal, and the benefits are	Greater proportion of the middle	Full accomplishment of

Score Value	Resource and Env. Stock & Quality	Efficiency of Economic Activity	Equity in Access and Distribution	Poverty Eradication, Alleviation	Implementation Level
	carrying capacity, sustainability	industries; Externalities fully internalized	more equitably shared for most of the deprived population.	class	the desired outcomes across the four criteria.

Determine the Ecosystem Criteria Scores and Validate the Initial Assessment

Fifth, with the above levels of implementation and the indicators for criterion outcome, it is possible to assess the impact of interventions in the various ecosystems and sectors through the index values of the four sustainability criteria. The index value of the various criteria can be more precisely assessed with the use of a more articulated set of indicators that specify the movement of each criterion in each ecosystem or sector. Grounded on the consultant's synthesis of various sector analyses and evaluation studies, this detailed basis for scoring each ecosystem criterion is presented in Table 7. It is placed in Part II because the resulting profile from this assessment provides the baseline conditions on which a new round of interventions may be applied, again in an effort to move the ecosystem/ sector to an improved level of sustainability.

Given the above scoring scheme for assessing each ecosystem criterion, the observed outcome may lie between two scores, and hence may be scored as a fractional value. Assuming that 1) each criterion (with a maximum score of 4) is equally weighed at 25 percent[3]; and 2) that the overall ecosystem sustainability condition can be captured by the sum of the four criterion scores, then the most desired state for each ecosystem in absolute terms is given as 16 when the scores are unweighted (or 4 when the scores are weighted).

The observed ecosystem score bears the following implications: First, it suggests whether the interventions and their level of implementation have been adequate (or not) in improving criterion conditions and moving towards the desired sustainability state. Second, it also implies, given the interaction of the various criteria, that if a criterion score is low (or relatively high), then there will be insignificant (or significant) secondary benefits. Third, the deviation of the score from the maximum would signal how many more interventions or how much implementation efforts have to be expended to improve sustainability conditions. Lastly, the overall ecosystem/sector scores provide a measure of the relative status of an ecosystem vis-à-vis the others, thus identifying the ecosystems in need of greater attention.

Having ranked each ecosystem/sector along the four sustainability criteria, the NEDA consultant's preliminary assessment (using absolute values) was initially validated in the NEDA organized National Validation Forum by the participants/ experts from relevant agencies and civil society groups. Their separate assessments were presented to a small panel of experts and again validated to settle some of the minor differences. Table 6 presents the final panel assessment.

The following observations regarding the assessments in Table 6 are worth noting. One, the lack of effective interventions in the natural capital, environmental quality criterion for forestry-biodiversity and mining and the efficiency criterion for the freshwater/ water resource sector have kept the ecosystem/ sector in their existing unsustainability state. Two, on majority of all the criteria (17 out of 24), the ecosystems obtained a score of 0-1 or 1, indicating either that they have not completely surpassed the unsustainability state or have reached at least the initial stage of implementation, where intervention at the pilot level or over a larger area continue to be constrained by policy gaps and omissions. Three, only four criteria scores (efficiency in coastal/ marine, poverty alleviation in both forestry and lowland agriculture, and equity in lowland agriculture) have at

[3] The respective weighs for each criterion may be changed, for sensitivity analysis, to reflect its relative importance but they must all sum to 100 percent.

least moved beyond a score of 1 but have not quite reached 2. Four, out of the maximum ecosystem score of 16, mining; the freshwater; and forestry-biodiversity ecosystems have the lowest score, thus rendering them the least sustainable. With scores respectively ranging from 3.5-4.5 and 4.3-5.3, the relatively high scores of coastal/ marine and lowland agriculture ecosystems merely indicate that they are the least unsustainable. In particular, both have not completely moved out of the state of unsustainability, specifically in the following criterion – poverty in the case of coastal and marine, and natural capital for lowland agriculture. It was only in the equity and poverty alleviation criteria that agriculture was able to marginally move out of the unsustainability state.

Table 6: Expert Panel Ranking of Ecosystem Sustainability, based on Absolute Scores

Ecosystem	Natural Capital Stock, Environ. Quality	Equity in Access	Efficiency in Production Activity	Poverty Alleviation	Ecosystem Score
Forest, Bio-diversity	0	1	0.5	1.2	2.7
Coastal, marine	1	1	1.5	0 - 1	3.5 – 4.5
Freshwater, resource	1	0.5	0	1	2.5
Lowland Agriculture	0 – 1	1.8	1	1.5	4.3 -5.3
Metallic Mineral	0	0 – 1	0 – 0.5	0 – 1	0 – 2.5
Urban	1	0 – 1	1	1	3 – 4

The overall outcome—no criterion score reached 2 out of a maximum of 4 and no ecosystem scored 8 out of 16—suggests that the available interventions in PA21 and MEA have not enabled the country and environment to reach even the half-way mark of the path towards sustainable development.

Based on the study's assessment framework, the role and nature of the interventions partly accounts for the low criterion and ecosystem scores. If the available interventions, despite their strategic importance, have had little capacity to change or improve the conditions along the criterion in question, the low scores may be attributed to the low level of PPPP implementation and the intervention gaps and omissions. Given the inter-relationship among the various criteria, the low scores may have also resulted from the very little improvement in the condition along the other criteria related to the criterion in question.

Another explanation for the limited sustainability outcomes, however, may be inferred from the earlier discussion of the omissions and gaps of particular interventions. Specifically, the presence of intervention gaps and omissions reflects the failure to resolve governance issues and put in place the required governance mechanisms. As outlined in Appendix 1, the list of gaps and omissions implicitly identify some of the requirements for good governance that, if met, could have addressed such issues.

In general, successful intervention in any criterion or ecosystem requires institutional arrangements, management frameworks/approaches and capacities, and appropriate rules, regulations and policy tools. For instance, in order to address the given state of unsustainability, governance would require the proper implementation of integrated ecosystem (watershed, forest, lowland, coastal) and resource management approaches, community-based resource management, and the reconciliation of economic and natural resource

development with environmental (resource and biodiversity) conservation. Moreover, the success of such resource/ environmental management programs depends on the establishment of effective institutions and the application of appropriate policy tools and regulations. As cited earlier, the success of community-based resource management (as in the case of coastal fishery resource management programs) depends on local leadership, community organization participation, inter-agency collaboration/ cooperation, a moratorium policy, alternative livelihood and marine protected area management. Furthermore, given the identified policy gaps and omissions across various ecosystems and sectors, governance would require specific regulations to address specific problems such as idle lands, resource depletion, toxic waste generation, extractive or environmentally damaging practices, environment and health damages, if not economic instruments for urban congestion, waste management, pollution control, and renewable energy production and use.

Although governance is a determinant of the quality and adequacy of interventions—and hence the resolution of policy gaps and omissions—it does not merely apply to how a particular intervention is carried out to meet a particular criterion. At another level, governance underlies the quality of all interventions across the four criteria. It is substantively a criterion in itself, like natural capital protection, equity, poverty eradication, and efficiency in resource use. Figure 1 shows not only the relationship of the PA21 and MEA interventions to the sustainability criteria but also the critical role of governance both as determinant of the quality and adequacy of interventions and as a criterion requiring its own set of interventions. If effectively implemented, these interventions can have profound effects on other criterion outcomes.

What does governance mean? As a process at the local-national, micro-macro level, governance basically involves decision making and the use of power by the state, civil society and private sector to determine the access, use and management of economic and social resources, and the distribution of their benefits. Necessarily this scope of decision making would entail a definition of and some consensus on the strategic vision for society. As such, the following mechanisms for good governance must be in place to attain the societal goals or the common good: 1) effective partnership of state agencies, civil society groups, and the various stakeholders in the private sector; 2) participatory decision making, opportunities for poor and disadvantaged communities and sectors to articulate and promote their interests through a bottom-up process; 3) the accountability of decision makers, resource users, implementers to prevent corruption, waste and diversion of resources; and 4) the mediation of differences in policy positions and interests or the resolution of conflicts.

In the formulation of PA21, various societal goals were articulated. In addition, the PCSD was established to be the vehicle for the partnership of the government, civil society and the private sector in the attainment of environmental integrity, inclusive and sustainable development, and poverty eradication. Although it is mentioned tangentially in PA21 as an 'issue/ concern' and partially reflected in at least two of its 15 principles (participatory democracy and institutional viability), governance did not figure in this assessment study when it should rightly have been treated as the fifth sustainability criterion. One reason is that while PA21 aimed to improve governance and even identified at least eight interventions to establish and set in motion a governance framework, this goal did not prosper. The following interventions were merely noted: 1) to establish an environment unit in all agencies; 2) build constituencies for sustainable development within government; 3) incorporate guidelines for sustainable development in planning and budgeting; 4) strengthen the planning units to represent various sectors and disciplines; 5) establish local centers for sustainable development; 6) establish mechanisms for public participation; 7) form strategic alliances and action network; and 8) build the constituency for sustainable development in business.

Thus it was that when the PCSD went into a hiatus, most of the above required measures for improving governance were hardly implemented. In practice, governance was simply relegated to the mere implementation of environmental and social development policies and programs by the respective mandated government

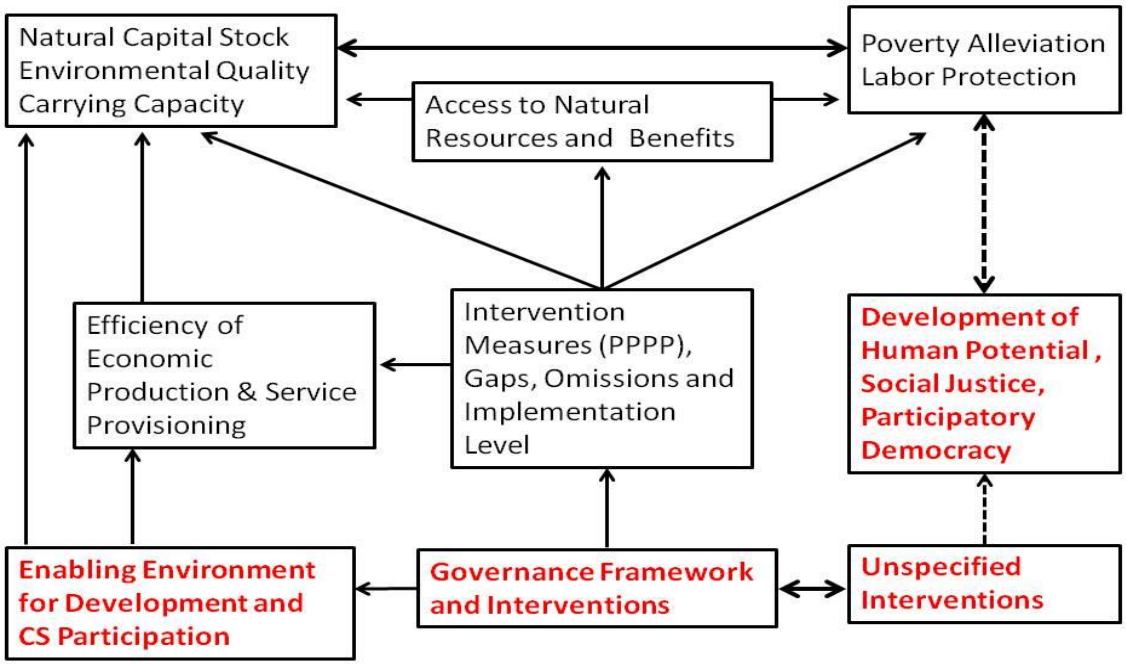
agencies. It no longer seemed imperative to establish mechanisms for public participation and partnership among government, civil society and the private sector groups through the formation of strategic alliances and action network. Nor did it seem essential to direct efforts to building constituencies for sustainable development within the entire government bureaucracy and civil society. No formal institution operated to demand accountability, nor to expose and stop corruption in the environmental sector. There was also hardly any institutional mechanism to resolve conflicts emanating, for instance from 1) the impact of extractive production and commercial development on resource environmental conservation; 2) the inequities arising from the extension of formal property rights to current resource users; or 3) the local livelihood displacement effect of land conversions, trade liberalization, and other external developments.

Without a governance framework in place and an agency to vitiate the necessary institutional and organizational networks and governance mechanisms, the constraining intervention gaps and omissions were not fully resolved. Without a collective leadership from state, civil society and the private sector to monitor, evaluate, augment and devise additional interventions, and an administrative authority to set up and ensure the operation of governance mechanisms, the attainment of existing and new criteria goals could not progress. Figure 1 illustrates the critical role of governance.

To conclude, this study utilized an assessment methodology for goal setting and defining environmental integrity and sustainable economic and social development in operational terms but also for determining the state of the environment and society vis-à-vis a strategic vision. The methodology also helped identify various intervention measures that would bring the current condition closer to the desired state. While this methodology can further be improved and instituted in national and local planning, a major challenge is how to determine the completeness, adequacy and efficacy of interventions, the conditions for successful implementation and requirements for effective interventions, and how to deal with the constraints, resistance, non-cooperation, and differing/conflicting interests—in order words, the problems tackled through governance mechanisms.

Thus, the foremost lesson from an assessment of PA21 is that in pursuit of the strategic vision of sustainable development, governance is a necessary and sufficient requirement, and this bears implication for the establishment of a Green Economy and the institutional framework for sustainable development. Knowing the intervention gaps, the omissions and constraints to implementation, as well as the weakness of the governance process that has plagued PA21 makes it possible to develop an improved set of interventions that will move the country back on-track toward sustainable development and poverty eradication—to put it, in the language of Rio+20, towards a Green Economy and Inclusive Growth.

Figure 1. The Relationship of Interventions to the Various Criteria and the Potential Role of Governance as Determinant of Intervention Quality and as a Criterion



Part 2

RIO+20 COUNTRY STRATEGY AND POSITIONS ON THE GREEN ECONOMY (GE) AND THE INSTITUTIONAL FRAMEWORK FOR SUSTAINABLE DEVELOPMENT

The above preliminary assessment of the implementation of PA21 provides an initial snapshot of the current developments impinging on the country's environment. Articulating some of the issues and strategies in PA21, the discussion in Part 1 identified major challenges—e.g. policy and implementation gaps—that have constrained the country's movement towards sustainable development. With these constraints as point of departure in preparing for Rio +20, it is imperative for the Philippines to formulate and flesh out an integrated approach (strategy and program) to sustainable development (SD) and poverty eradication (PE) that fall under Rio+20's theme of the "Green Economy".

How the government and civil society will address the challenges and gaps and the policies and priority activities needed to make the prospects of a Green Economy promising is the focus of this section of the report. Part of the policy recommendations herein incorporates the roundtable discussions NEDA conducted with five working groups, namely: agriculture and fisheries; environment and natural resources; infrastructure; green cities; and green industries. Outputs from the regional consultations on the Green Economy and submitted reports of various government agencies pertaining to the country's initiatives on sustainable development, as well as the inputs from the National Validation Forum also figure in the policy recommendations.

Green Economy (GE) Prospects in the context of SD and Poverty Eradication

This section explores the following questions. What constitutes a Green Economy? How does it compare with the current non-green economy? How can a transition from a given baseline condition towards a GE be effected? Put differently, what general directions/overall strategies must be pursued to move the baseline non-green/brown economy towards one that is increasingly green? What indicators can government and stakeholders use to measure performance vis-à-vis sustainable development and the possible green jobs to generate?

To implement a general strategy and move towards the direction of a Green Economy, it is important to satisfy a number of requirements and undertake specific activities. However, a major premise of this report is that there is no need to reinvent the wheel. A revised version of PA21—that is substantiated to fill in the gaps and omissions discussed in Part 1—is still the strategic framework. As such, it can continue to serve as compass while the specified requirements constitute a road map. Both the overall strategy and the specific requirements function as means to achieve the paradigm and reality shift from a brown to a Green Economy for each ecosystem and across them. In this journey, the state, the national and local governments, civil society groups and private sector stakeholders of a Green Economy play a critical role in identifying the requirements for GE, implementing the necessary activities, and realizing their desired outcomes. As drivers and navigators, they are expected to confidently take the wheel; be focused; anticipate the trouble spots, blind corners, and constraints; take the necessary risks; address the seeming dead-ends; remain steadfast and seek assistance when in a bind.

Definition of the GE and the Reality of a Non-Green Philippine Economy

The Green Economy marks the intersection of the environment and the economy. It is formally defined as a macro-economy "whose growth in income and employment is driven by public and private investments that prevent the loss of biodiversity and ecosystem services, reduce carbon emissions and pollution, and enhance

energy and resource efficiency."[4] Apart from this goal, however, a GE equally aims to enhance well-being and improve intra- and inter-generational equity through socially inclusive growth.

In other words, a Green Economy is envisioned to be an environmentally-sensitive economic system with an orientation towards human development. Growth in production/ income; improvements in technology; and the use of surplus/savings are geared not only to 1) prevent natural capital depletion or biodiversity loss, waste accumulation and the buildup of carbon emissions and pollutants and 2) help finance pollution cleanup and the restoration of natural capital, but 3) also reduce poverty and increase investments in human capital. Moreover, a Green Economy is expected to render more equitable access to the use and benefits of natural capital.

Achieving the goals of a Green Economy—reducing environmental risks and ecological scarcities (low carbon consumption and resource efficiency) as well as inclusive growth—entails more than the flow of significant private and public investments. Among others, it simultaneously demands lifestyles that produce low per capita ecological footprints; population policies that ensure the carrying capacity of ecosystems to support a growing population; agriculture that aims for higher factor productivity using environmentally friendly production technologies; biodiversity conservation and its sustainable use to ensure food security amidst climate change; the greening of industry through the recycling of wastes and the efficient use and conservation of energy; the integrated use of renewable and non-renewable energy with increasing reliance on the latter; and the greening of agriculture and transportation. As the new rallying point for the better integration of the three pillars of sustainable development, the aspiration for a green economy is derived from and rooted in the objectives, spirit, principles and operationalization of the United Nations Conference on Environment and Development (UNCED) in 1992, the Rio Principles and Agenda 21, supplemented by the Rio + 10 process, and the Johannesburg Plan of Implementation.

The state of contemporary Philippine economy, environment, and society, however, contrasts sharply with the idea of a Green Economy in at least three ways.

First, economic growth has historically degraded, if not depleted the country's natural capital, as seen in its denuded or deforested mountains, eroded, vulnerable and unproductive slopes, degraded watersheds, dead or polluted rivers, converted and threatened mangroves, damaged and dying coral reefs, depleted marine fishery stocks, and its densely populated cities with depleted aquifers.

Second, national domestic material input (DMI) or the consumption of raw materials and natural resources has grown as fast as the rate of GDP, if not exceeding it at times, such that DMI per GDP even rose from 2007 to 2009 (Chiu, 2011). This production-material resource linkage implies that the increasing pressure of economic production on the domestic resource base has not lightened up. Nor has there been any improvement in the efficiency of resource and raw material consumption to cushion the ongoing depreciation of natural capital.

Third, across the decades, economic growth has enriched only small segments of Philippine society largely because access to the use and benefits from natural capital has been historically inequitable. With the degradation and depletion of natural capital, the livelihood and security of communities (of indigenous peoples, upland landless households, small fisher folks, and other poor rural families) dependent on this critical

[4] United Nations Environmental Programme (2011). Keeping Track of Our Changing Environment: From Rio to Rio+20.

economic asset have also deteriorated. Thus, amidst economic growth and a contracted natural resource base, inter-generational poverty has emerged as an intractable problem.

Fourth, the Philippines is still far from satisfying some of the previously enumerated conditions that provide a stable infrastructure for a Green Economy. Although there is growing environmental awareness among Filipinos, lifestyles that consciously keep ecological footprints low are still far from sustainable. With one of the highest population growth rates, the country also remains among the very few nations in the world without a population policy.

While organic farming, integrated pest and nutrient management has begun to take root, agriculture is still far from green. So is the level of biodiversity conservation and planned utilization for food security. Finally, gains in industrial waste recycling, energy conservation, the use and development of nonrenewable energy, and the greening of transportation have still a long way to go in making enough impact to begin transforming a brown into a green economy.

Presenting the qualitative assessment of the resource stock, equity condition, and production efficiency level in each of the major ecosystems and sectors, the assessment of PA21 in Table 6 represents the current baseline non-green state of the Philippine economy. By describing the characteristics of an ecosystem/ sector along the above sustainability criteria for each score from 0 to 4, Table 7 suggests the directions and strategies, a road map guide that charts the movement and implementation over time towards higher levels of sustainability or a Green Economy. As such, it provides both a monitoring and assessment tool. Except for the entries for the urban sector on energy, sustainable cities and industries, most of the strategies listed in Table 7 are either implicitly or explicitly stated in PA21, or drawn from policy or program recommendations in the literature.

Table 7. Interpretation of Assessment Scores by Sustainability Criterion and Sector

Natural Capital & Environment Stock and Quality (NK) Criterion Outcome Description, by Score Value, Forestry and Biodiversity

NK 0	The rate of deforestation is positive. There is biodiversity loss. Watersheds continue to be degraded.
NK 1	The rate of deforestation, biodiversity loss or watershed degradation is reduced in some areas. Tree farms, plantations are established in denuded areas. A user charge system is implemented at the pilot level.
NK 2	Overall deforestation rate is decreasing (towards a zero rate). Forest-watershed degradation or biodiversity loss is averted. Consumption of forest resources is at a steady state. Reforestation or watershed rehabilitation has started. The forest protection area has increased. The user charge system is extended to more areas, and it is applied for forest ecosystem management, rehabilitation and protection.
NK 3	Overall forest cover is increasing. A higher user fee is charged for forest ecosystem management, rehabilitation and protection. There are improvements in resource quality, productivity, biodiversity, and watershed services (steady stream flows; control of floods, erosion, and forest fires);
NK 4	The desirable forest cover is attained and sustained. Enrichment of biodiversity, watershed service provisions, and water supply,

Equitable Access and Distribution (EQ) Criterion Scores, Forest and Biodiversity

EQ 0	Formal tenure rights granted to commercial loggers and miners; Displacement of indigenous and migrant forest-based communities
EQ 1	Recognition of ancestral rights of indigenous people; Provision of access rights to upland forest communities; Continued dominance of commercial loggers and miners
EQ 2	Greater access is given to excluded sector (at least 25% of available area); provision of more public forestlands for social forestry or community forest management.
EQ 3	Inequitable access is more significantly reduced, and the benefits are more widely shared (for at least half of the deprived upland population).
EQ 4	Access and benefits are fully democratized.

Efficiency in Production (EF), Forest and Biodiversity

EF 0	Unsustainable harvesting; Destructive, resource-intensive/ wasteful activities; Biodiversity losses;
EF 1	Illegal logging is stopped in at least 25% of affected areas. Harvesting at sustainable yield is initially adopted (in a pilot area, or at least 25% of the area). Logging wastes and damages are reduced. A damage fee is imposed.
EF 2	Sustainable harvesting is adopted over a larger area, at least 50% of the area. Logging wastes and damages are eliminated, and illegal logging is curbed. A user charge is levied for use in forest ecosystem management, rehabilitation and protection in at least 5t0% of the area. Multiple use forestry is practiced. Biodiversity losses are significantly reduced.
EF 3	Sustainable harvesting prevails in the sector. User charges are raised/ adjusted to productivity gains. Greater value added is generated, and induces productivity gains in forest products processing.
EF 4	The growth potential of the sector is realized while further enriching biodiversity.

Poverty Eradication (PE), Forest and Biodiversity

PE 0	High poverty incidence in forest and upland areas; the worsening poverty condition of indigenous people and upland migrants
PE 1	The tenure rights of a segment (at least 25%) of indigenous peoples are recognized. Access rights are given to (at least 25%) upland migrant communities. Both begin to involve in livelihood projects.
PE 2	Tenure rights are given to (at least 50%) indigenous and upland migrant communities The livelihood projects contribute additional income to the families.
PE 3	Tenure rights are given to (at least 75%) indigenous and upland migrant communities Reduced poverty incidence among indigenous people and upland migrants. Improved health conditions and access to education services. Inter-generational poverty begins to be arrested.
PE 4	Majority if not all are raised above the poverty threshold level.

Natural Capital & Environment Stock and Quality (NK) Criterion Description, by Score Value, Coastal, Marine and Fishery Ecosystem

NK 0	Overfishing; Fishery depletion; Fishery habitat degradation; Conversion and loss of mangroves, sea grasses, coral reef cover; Weak or nonexistent local community leadership (social capital)
NK 1	Depletion, habitat degradation, and biodiversity loss is reduced in at least 25% of affected areas. Moratorium in at 25-50% of depleted areas; Establishment of pilot marine protected areas, rehabilitation of fishery habitats in 25% of depleted areas; Emergent community leadership (social capital) in 25% of coastal areas;
NK 2	Pilot marine protected areas established, and rehabilitation of fishery habitats in another 25% of depleted areas. Significant recovery of biomass stock in 25-50% of the depleted area; Increase in mangrove area and coral reef cover in the 25% of the established area; Sustainable fishery resource and habitat management in 50% of coastal areas; Pollution charges are levied in pilot area (25% of affected areas).
NK 3	Significant increase in fish stock in 50% of rehabilitated area; Improvements in resource (fish and water) quality, habitat productivity, and biodiversity; Point and nonpoint pollution sources are addressed in 50-75% of coastal areas.
NK 4	The desirable sustainable stock, mangrove and coral reef cover, biodiversity and water quality are attained.

Equitable in Access and Distribution (EQ) Criterion Scores, Coastal, Marine and Fishery Ecosystem

EQ 0	Open access; dominance of commercial fishery and large municipal fishers;
EQ 1	Municipal fishing grounds (25%) are delineated. Commercial fishery encroachment on municipal fishing grounds is reduced in 25% of affected area. Conversion of mangroves into fishponds is prevented. Municipal licensing is based on prior use rights in at least 25% of coastal areas. Initial establishment of common property or community resource management (pilot area);
EQ 2	Municipal fishing grounds are further delineated and encroachment reduced to 50%. Common property or community resource management extended to fishery habitats and coastal (bay) area to other pilot provinces; Municipal licensing is based on prior use rights in at least 50% of coastal areas. Abandoned fishponds are reverted to mangroves.
EQ 3	Municipal fishing grounds are further delineated and encroachment reduced to 75%. Common property or community resource management is established nationwide (at least 75%). Municipal licensing is based on prior use rights further extended to at least 75% of coastal areas. The community resource management organization begins to capture some of the benefits in fish trade and processing.
EQ 4	Equitable access spatially extends across communities. And the primary producers (both the fisher folk and environment) share in the benefits of the industry.

Efficiency in Production (EF), Coastal, Marine and Fishery Ecosystem

EF 0	Overfishing or unsustainable fishing; destructive practices; episodes of fish kill
EF 1	Pilot areas: Overfishing and other unsustainable fishing activities are reduced. Destructive practices are stopped. Wild stock of fingerlings is sustained. Community fishery resource management is established. Aquaculture/ mariculture development is regulated. Pollution sources are identified.
EF 2	Over an extended area (25-50%): Regulation of total allowable catch, setting fishery

	charge; local waste and pollution control; Establishment of local hatchery; sustainable aquaculture/ mariculture development; Fishery rent is partly captured for fishery resource management, protection and development.
EF 3	Nationwide implementation (at least 75%) of the above actions. Local wastes in fish production, marketing and processing are reduced. Value added is generated.
EF 4	The various production units in the sector are involved in sustainable harvesting; they contribute to resource conservation, efficient resource use, and value-added generation.

Poverty Alleviation/ Eradication (PE), Coastal, Marine and Fishery Ecosystem

PE 0	High poverty incidence among small fisher folks; worsening life chances
PE 1	Pilot (at most 25% of area): Access rights are given to small fisher folks; Provision of safety net to vulnerable groups; Involvement of local fishery community households in habitat restoration, and supplementary or alternative livelihood projects.
PE 2	Pilot area: The livelihood projects contribute additional income to the families. The children receive primary education and health services.
PE 3	Extended area (at least 50-75%): Reduced poverty incidence among small fisher folk households; Improved health conditions and access to education services. Inter-generational poverty begins to be arrested in the earlier/ pilot areas.
PE 4	Nationwide coverage of the above; Majority if not all are raised above the poverty threshold level.

Natural Capital & Environment Stock and Quality (NK) Criterion Description, by Score Value, Freshwater Ecosystem and Water Resources

NK 0	Open access to surface and ground water; Groundwater depletion and surface water pollution; dead rivers or of degraded water quality; limited availability of sanitation facilities; no wastewater treatment; Non-implementation of Integrated Water Resource Management framework;
NK 1	Some of the unregulated users (at least 25%) are now covered by the license system. Pilot area: Unsustainable uses are regulated. Groundwater extraction is monitored and compared to the recharge rate. Payment of water use charge; Regulation of point and non-point pollution sources;
NK 2	Extended area (at least 25-50%): Most uses are sustainable. Groundwater extraction is based on the recharge rate. Pilot area (at least 25%): A water reserve is allocated for ecological functions. At least half of polluters are levied a charges.
NK 3	Extended area (50-75%): Fees and charges revert back to the sector (to pay for watershed management, water supply development, water quality improvement). Sustainable use of water is attained.
NK 4	Future water supply needs are addressed. Successful implementation nationwide of all the economic instruments for water supply sustainability.

Equitable in Access and Distribution (EQ) Criterion Scores, Freshwater Ecosystem and Water Resources

EQ 0	Perpetual water rights (permits) are granted to particular beneficial users. Water uses are not assessed in terms of their waste and productive uses. Water supply is inadequate to the greater or growing demand in urban centers and particular production areas.
EQ 1	Pilot: Reform of the licensing system; cancellation of permits that are not productively and unsustainably used (at least 25%).
EQ 2	Cancel permits that are not productively and unsustainably used (50%). Pilot (25-50%): Water reserve allocation established for basic human need; Provision of formal water rights to communities; Collect access payment and user fee based on marginal revenue product of water;
EQ 3	Cancel permits that are not productively and unsustainably used (at least 75%). Extended area (50-75%): Water reserve allocation established for basic human need; Provision of formal water rights to communities; Equitable access extended nationwide and across sectors.
EQ 4	Universal access for basic human needs and sanitation services

Efficiency in Production (EF), Freshwater Ecosystem and Water Resources

EF 0	Raw water value is assumed to be zero. Water pollution in not controlled.
EF1	Pilot area (at least 25%): Regulation of point and non-point pollution sources; provision of permits to efficient, productive users; water charge payment system that encourages efficiency – based on the raw water value; tariffs based on cost-recovery rates; .
EF 2	Extended area (at most 50%): Tariff system based on cost recovery; user fee based on the marginal revenue product of water; Polluter charge based either on damages or the cost of pollution abatement technology;
EF 3	Extended area (at least 75%): Tariff system based on cost recovery; user fee based on the marginal revenue product of water; Polluter charge based either on damages or the cost of pollution abatement technology; Tariff system that covers the provisioning cost of water, sanitation services, wastewater and sewage treatment, and recycling
EF 4	Water is efficiently and sustainably used so that it will be available for the next generation.

Poverty Eradication (PE), Freshwater Ecosystem and Water Resources

PE 0	Poor have no formal access rights; Dependent on natural sources (uncertain supply and quality); water is costly (time, actual payments, health effects)
PE 1	On a pilot level: Water reserve allocation established for basic human need; Provision of formal water rights to communities; Provision of cross subsidy;
PE 2	Above program implemented over a larger area (from community to provinces).
PE 3	Nationwide implementation
PE 4	Universal access to water

Natural Capital & Environment Stock and Quality (NK) Criterion Description, by Score Value, Lowland Agriculture Ecosystem

NK 0	Increasing land degradation and decreasing soil productivity; occurrence of drought due to vegetation loss and climate change; deterioration of watershed deterioration and irrigation facilities; Dependence of the dominant commercial sector and the small farms on chemical fertilizers, inorganic pesticides; Entry of GMO
NK 1	Pilot-level: watershed rehabilitation and restoration of soil productivity; Collection and establishment of traditional seed bank; Development and propagation of traditional seeds for small farmers, together with the organic fertilizers, and local water storage facilities;
NK 2	Extended coverage: Watershed rehabilitation, land quality improvement programs; organic farming implemented over a larger area.
NK 3	Land quality improvement programs implemented nationwide. Sustainable agriculture/ organic farming implemented over a larger area.
NK 4	Land-water quality and productivity is improved and sustained.

Equitable in Access and Distribution (EQ) Criterion Scores, Lowland Agriculture Ecosystem

EQ 0	Unfinished completion of CARP; Unequal distribution of land ownership; Problem of land conversions,
EQ 1	Completion of CARP, provision of support services; access to credit, crop insurance and markets at existing levels; Pilot: Identify other land sharing arrangements, like voluntary land distribution/ donation.
EQ 2	Pilot voluntary land distribution. Larger coverage of support services, credit and market access through cooperatives; Greater benefits obtained by farm workers in plantation agriculture
EQ 3	Implement voluntary land distribution nationwide. Expand credit-cooperative marketing network;
EQ 4	Completion of agrarian reform (land to the landless)

Efficiency in Production (EF), Lowland Agriculture Ecosystem

EF 0	Presence of idle lands; Farmers' dependence of chemical fertilizers, inorganic pesticides; Introduction of genetically-modified seeds (GMO); Limited composition of crops with comparative advantage; Increasing share of imported agricultural products; Low and uncertain yields in small farms;
EF1	Pilot: Taxation of (at least 25%) of idle lands; Promotion of organic farming; Increase production of agricultural exports; Piloting the development of other crops with comparative advantage
EF 2	Taxation of (at least 50%) of idle lands; Increasing and greater portion of lands under organic farming; PCARRD's and government extension service workers' direct involvement with local farm communities in the field experimentation, adaptation, refinement and diffusion of these new technologies
EF 3	Full taxation of idle lands; Growth of organic farming over a more extensive area; Growth of agricultural export products.
EF 4	Balance between organic farming and inorganic farming with increasingly sustainable technologies in export crop production

Poverty Eradication (PE), Lowland Agriculture Ecosystem

PE 0	High poverty incidence among small farmers and rural landless households. The low uncertain yields of small farms lead to greater indebtedness. No access to education opportunities and other social services
PE 1	Complete agrarian reform. Pilot: tapping other (cropland) sources for land distribution or voluntary land distribution. Pilot: promote growth of organic farming among small farmers; support transition from chemical-based, monoculture farming to organic, diversified farming; Pilot cooperative arrangements to obtain access to credit and markets; Greater benefits obtained by farm workers in plantation agriculture
PE 2	Extended support to enable transition of small farmers to sustainable agriculture/ organic farming; Increase in the proportion of small farmers practicing organic farming; Organic products capture a larger market share. Establishment of farm labor union/ federation
PE 3	Nationwide implementation of voluntary land distribution, organic farming, cooperative marketing, farm workers unionism.
PE 4	Poverty is eradicated among small farmers and landless farm workers.

Natural Capital & Environment Stock and Quality (NK) Criterion Description, by Score Value, Metallic Mineral Sector

NK 0	No plans and adequate funds for the restoration of abandoned mines; No rehabilitation of deforested, polluted mined areas; No resource valuation and compensation for biodiversity losses, polluted water bodies, damages to natural habitats, farm and fish yields; Unregulated small scale mining; The monitoring and treatment of pollution sources (e.g. AMD) does not extend beyond the life of the mine. There is no environmental insurance policy. The institutional capacity/capability to implement mining and environmental laws/ policies remains inadequate and weak.
NK 1	Pilot implementation: Rehabilitation/ restoration of abandoned mines; compliance to existing mitigation measures; regulation of small scale mining; Assess inadequacy of existing mitigation and compensation programs (e.g. the coverage of the mine waste and tailings fee, the mine rehabilitation fund, environmental trust fund) and the environmental management capacity of the DENR and LGUs.
NK 2	Extended area: Rehabilitation/ restoration of abandoned mines; compliance to existing mitigation measures; regulation of small scale mining; Review the valuation of damages and losses in the EIS and ECC. Strengthen the environmental management capacity of the DENR and LGUs.
NK 3	Further extended area: Rehabilitation of abandoned mines; full compliance to existing mitigation measures, and full regulation of small scale mining; Implementation of the necessary valuation and compensation programs. Compliance to the required payment of environmental insurance. Compensation for biodiversity losses, damaged habitats; Other externalities are addressed by improvements of the above measures and new policies.
NK 4	Natural capital and environmental quality is protected, restored, sustained and further improved.

Equitable in Access and Distribution (EQ) Criterion Scores, Metallic Mineral Sector

EQ 0	No social acceptability of the project in some communities and LGUs. No compensation for the tribal people and other former residents in the mining project area who are displaced from their subsistence, livelihood sources. Exclusive access and use of mineral-rich lands to industry, prospectors, prospective investors; the benefits from the use of mineral lands and the rents drawn from mining go mainly/ solely to the investor; No compensation to affected communities for the pollution of community water sources, livelihood losses, health damages, because of mining activities and the collapse of tailings dam.
EQ 1	Provision of livelihood opportunities, social services to indigenous host communities. Genuine granting of FPIC in some areas; Pilot deliberation/ evaluation of mineral lands that may be open for agroforestry and other multiple uses; and the extent compensation of damages would be covered.
EQ 2	Genuine granting of FPIC in all applied areas; Provision of employment opportunities and social services to communities within and proximate the mining area. Pilot opening of mineral lands for agroforestry and other multiple uses. The extent by which mining companies will cover the compensation costs for the above damages is resolved.
EQ 3	Provision of employment opportunities and social services to communities. Other employment opportunities are provided as the life-of-the-mine comes to a close. Externalities are fully internalized. Anticipated damages are incorporated in the ECC. Compensation is guaranteed for those who will be displaced.
EQ 4	Mining benefits are equitably shared. FPIC is genuinely granted. Full social acceptability is reached.

Efficiency in Production (EF), Metallic Mineral Sector

EF 0	Local mineral deposits are depleted solely for ore exportation. No additional value added and employment opportunities are generated from ore production for exports. Water for mining use is obtained for free, and the full cost of its use (diversion from community use and loss of quality/ pollution) is not paid. The environmental and social costs or negative externalities of mining are not internalized, i.e. the impact of pollutants on water, fishery, and livelihood. The risks of tailings leakages, overflows, and collapse of dams are not determined. No environmental insurance has been required. The decreasing real value of the mine waste and tailings fee payments has not been adjusted.
EF 1	The nominal mine waste and tailings fee is adjusted to its real level to consider past inflation. Pilot two or more: a volumetric water charge; value added generation; compensation for environmental, livelihood and health damages; pollution charges and control measures; payments for environmental insurance.
EF 2	The mine waste and tailings fee is further adjusted to account for the real cost of damages. Extend the piloted policies over a wider area and pilot the rest: a volumetric water charge; compensation for environmental, livelihood and health damages; pollution charges and control measures; payments for environmental insurance. Require greater value added (vertical integration) generation.
EF 3	The above policies are all implemented nationwide. Compensation should cover all damages.

EF 4	Mining generates greater value added and more employment opportunities. Also, externalities are internalized.

Poverty Eradication (PE), Metallic Mineral Sector

PE 0	High poverty incidence in former/abandoned and existing mining areas; Displacement of indigenous people and other former residents in the mining area; Communities subjected to livelihood losses and health damages because of mining operations, and leakages, if not the collapse of mine tailings dam. Mining operations absorb only a small segment of local labor force.
PE 1	Pilot poverty alleviation programs and social services delivery projects in abandoned mining areas. Pilot employment/ livelihood programs in existing mining areas
PE 2	Extend the poverty alleviation programs and social services projects in other abandoned mining areas, as well as the employment/ livelihood programs in other mining areas. Poverty is alleviated in these areas.
PE 3	Improvements are made in these poverty alleviation programs for abandoned and existing mining areas, and they translate into significant poverty reductions. More livelihood and employment opportunities are sustained as life of the mine comes to a close.
PE 4	Poverty in abandoned and existing mining areas is eradicated.

Natural Capital & Environment Stock and Quality (NK) Criterion Description, by Score Value, Urban Ecosystem

NK 0	Heavily populated and expanding slum communities; Pollution of drainage systems and water bodies; Non-treatment of domestic wastewater, sewage and industrial effluents; biological death of rivers; the accumulation and inadequate collection and improper disposal of domestic, industrial and hazardous waste, chemical and toxic substances and hazardous wastes; the polluted city air; and the threats to life and property in densely populated, disaster-prone or geologically hazardous areas;. inadequate infrastructure, no wastewater, sewage treatment, degraded, use and disposal of industrial wastes; no governance and environmental management capacity
NK 1	Pilot implementation of the following in some cities: management of population growth, squatter relocation, cleanup of drainage systems, sanitation facilities, wastewater and effluent treatment, waste disposal facilities, sanitary landfills, pollution emission controls, ban and proper disposal of hazardous waste, infrastructure for non-motorized transportation. Tax idle lands and rising real estate values for urban renewal and provision of public goods. Strengthening governance and environmental management capacity.
NK 2	The above measures are improved and implemented in other cities. Promotion of other green cities measures. Strengthen the governance and environmental management capacity of cities and towns.
NK 3	Implement the above in other cities and municipalities.
NK 4	The carrying capacity of the urban air and watershed and the complementary infrastructure are sustainably managed and improved with the appropriate growth of the population.

Equitable in Access and Distribution (EQ) Criterion Scores, Urban Ecosystem

EQ 0	Growing homeless population without access to water, basic services, health and education. Limited employment opportunities, access to credit facilities.
EQ 1	Pilot provisioning of housing, water supply, sanitation facilities, health, other basic social services, and education (formal, informal and skills training); Job creation and expansion of microcredit programs;
EQ 2	Improvement of the above programs for implementation in other cities.
EQ 3	The above improved programs are implemented in other cities and municipalities.
EQ 4	Productive employment opportunities for all; Universal water access and sanitation services; equitable distribution of the cost in the provision of clean air, water, sanitation services, and other urban infrastructure.

Efficiency in Production (EF), Urban Ecosystem

EF 0	Pollution of drainage systems and water bodies; Non-treatment of domestic wastewater, sewage and industrial effluents; biological death of rivers; the accumulation and inadequate collection and improper disposal of domestic, industrial and hazardous waste, chemical and toxic substances and hazardous wastes; the polluted city air; and the threats to life and property. Dependence on nonrenewable/ fossil fuel energy.
EF 1	Piloting of appropriate land zoning, development of new water supply, regulation on groundwater use, levying groundwater use and pollution charges, the provision of wastewater treatment, waste disposal services at cost recovery rates, energy audit of industries, the reduction of high-carbon consumption and production activities; the development and use renewable energy (solar), the provision of incentives for the 3Rs (reduce, reuse and recycle)
EF 2	Improvements in the above measures and implementation in other urban areas and sectors. Further reduction in fossil fuel energy consumption; Collaboration with the business sector in the promotion of other green industry measures.
EF 3	Implementation of the above improved measures in other urban areas and sectors.
EF 4	Development of green industries and cities.

Poverty Eradication (PE), Urban Ecosystem

PE 0	Growth of population in slum areas, unemployment, poor children without education opportunities, and no access to clean water; Limited employment opportunities, access to credit facilities.
PE 1	Pilot implementation in cities: squatter relocation, socialized housing, provision of water, sanitation, health, education and other social services. Job creation and expansion of micro-credit programs; Reduction in poverty incidence.
PE 2	Improvements in the above programs and their implementation in other pilot cities.
PE 3	Implementation of the improved programs in other cities and municipalities.
PE 4	Universal access to all of the above basic social services, and productive employment of the urban labor force.

Table 7 suggests the first requisite step towards a Green Economy. Given the condition under the 0-value of natural capital and environmental quality (NK) in the forestry-watershed, biodiversity, coastal/ marine, freshwater/ water resource, and agriculture ecosystems, the first requisite task must simply be to restock, rebuild and restore the depleted natural capital. While this step is primarily restorative, it must also address the production-material resource linkage and equity concerns. In other words, the second accompanying step, where natural capital stocks are severely depleted, requires a moratorium where production and consumption is decoupled from the depleted resource base. Without decoupling, any production activity under this environmental condition would only exacerbate the depletion problem; hence, a moratorium would be the logical way to go. These two requisite tasks are essential because the environment and natural resources sector (ENR) is the fundamental and critical base of the Green Economy. Critical to the planning process, it would ensure the nurturance and sustainability of ecosystem goods and services, and in turn improve economic security.

Moreover, if the poor forest, upland, coastal and riverine communities are mobilized to invest their time and labor in the restorative work, their provisioning and relations with the public as well as the local or external fund sources must be clarified. More importantly, because the restorative work is not merely contracted for immediate employment benefits but more importantly to nurture and transform the degraded natural capital into a more productive, desirable state, the third task requires the establishment of a common property arrangement for the workforce in the course of the restoration. This provision of tenure rights to future benefits would also address an inequity condition in a non-green economy.

The object of restoration in these preliminary steps out of an insustainable brown economy has a profound implication. It suggests that during the restoration period, only the poverty of those involved in the restoration work would be alleviated while those who would not be employed would remain poor. Hence, there is a need to simultaneously initiate employment opportunities, preferably in environmentally-friendly industries while restoration of depleted resources is taking place. This must be reflected in measures that must be undertaken for the efficiency (EF) and poverty eradication (PE) of particular ecosystems.

The above movement in Table 7 outlines the transition to a Green Economy or the progressive advancement from a low score of unsustainability towards sustainability in each sector. In operational terms, sustainable development the the agriculture and fisheries sector entails the establishment of farming systems that are economically viable, ecologically sound, culturally appropriate, equitable, and grounded on holistic science. In the context of poverty alleviation, it would also require the provision of food and nutrition security and the empowerment of smallholder farmers who are the backbone of the food system.

The greening of cities and industries is the more challenging in the attainment of sustainable development, partly because very little work has been done in these sectors, and they entail many requirements, such as the integrated development of the infrastructure sector (water, waste, energy, and transportation), the movement towards a low carbon development pathway, the implementation of sustainable land use, zoning and settlement pattern, and the reduction of poverty. Specifically, the greening of the water sector would require the improvement of the water holding capacity of urban waterways, the protection of remaining pristine water sources for potable water use, the use of economic instruments and the application of the polluter-pay principle to protect water as a basic life source and critical resource for economic activities. Moreover, the greening of the infrastructure sector would entail the provision of public housing, sanitation, wastewater treatment and disposal facilities, drainage and flood control, waste reduction, support to the Ecological Solid Waste Management Act through the closure and rehabilitation of all open/controlled

dumpsites, and the shift from dumping to full recycling. In turn, the movement towards a low carbon development pathway must achieve efficiency improvements in energy use, the removal of fossil fuel subsidies, reduced dependency on fossil fuel, greater availability of renewable energy sources, and democratization of the centralized energy grid structure. The success in the establishment and integration of all these facilities in the green cities and the attainment of these goals would be apparent when human settlements (ekistic clusters) living in a habitat with the smallest scale of ecosystem are sustainably managed.

Indicators for the transition to a GE

In light of the production-material resource condition and the need to maintain a desired stock of natural capital, transitioning towards a GE would entail the following conditions:

- production or technology innovations to improve efficiency in resource-energy use,
- the promotion of material reuse or recycling, or
- the reduction of wastes, carbon emissions, effluents, and other pollutants.

These strategic interventions are necessary because a significant proportion of the economic activities that result in the current GDP composition of final goods involve production that use resources and energy inefficiently; depend heavily on fossil fuel and coal; generate waste and pollution; and are thus unsustainable. [Note that it is possible to estimate the brown/non-green proportion of GDP.]

An indicator of the success of the above intervention is a decreasing trend in the domestic material input (DMI) per capita or the DMI per GDP. Within the medium or long term, however, this may be difficult to achieve without the concerted efforts of government, private business, civil society groups and households.

The work associated with these initial interventions to restore depleted natural capital, reduce brown activities and increase the subset of green products and technologies—including the productive recycling of wastes—may aptly be labeled as "green jobs". In particular, the restocking, rebuilding and restoring of the depleted natural capital of forestlands, biodiversity, headwaters, rivers, streams, lakes, soil quality, irrigation facilities, aquifers, conjunctive areas, esteros, bays, mangroves, coral reefs, fish stocks, and other ecosystem resources are the primary green jobs demanded.

The creation of such green jobs may be included in the monitoring mechanism of interventions, together with other indicators. Some useful measures of the outcomes of activities related to these green jobs include the growth of forest, mangrove stand and stock; the increase in afforestation or reforestation, fish biomass stock, aquifer volume and recharge rate; improved surface water quality, soil fertility, air quality, population-vehicle density, and urban carrying capacity; and a much slower depletion of mineral deposits and other exhaustible resources. Moreover, these indicators may be developed into a composite macro measure of net natural capital formation that is similar to the net capital formation in the national income accounts. In turn, improvements in the access to natural capital and the equitable distribution of benefits from its use may be monitored and measured by equity indices.

Requirements for the GE transition and the role of the government and stakeholders for SD

For the greening of the economy, the GE drivers in government and civil society must be cognizant of several imperatives. As discussed in the assessment section of this report, existing policies and laws must first be evaluated in terms of their implementation or enforcement level. More importantly, the policy gaps,

omissions or limitations to meet sustainable development goals must be resolved. The necessary governance framework and mechanisms must be institutionalized, and the following preliminary activities undertaken.

First, there must be an inventory of existing laws, policies, and national and sector plans that are consistent with the goals of sustainable development and poverty eradication, as well as a review of their state of enforcement and implementation. For instance, are the existing policies and plans on sustainable forestry, fishery/agriculture; biodiversity conservation; tenure rights for indigenous, forest and coastal communities; forest resource and silvicultural damage charges; clean air and clean water protection; water tariff; irrigation fee; solid waste management; emission testing; building standards etc., fully enforced or implemented? If not, then the government's enforcement and implementation capacity must be strengthened or improved. This would require an adequate and responsive management information system, the establishment of effective monitoring mechanisms, the improved delineation of enforcement/ implementation functions among national agencies and LGUs and their accountability, and the vigilance and active participation of civil society groups.

Second, if the existing legal/policy tools and plans are already fully implemented but fail to meet their avowed economic and environmental objectives, then the limitations of these policies and plans must be identified and addressed. If policy provisions are incomplete or their scope and coverage are limited or the plans are ineffective in generating the expected benefits, then necessary changes must be made, together with the appropriate governance mechanisms to improve implementation. In other words, the intervention gaps and omissions at the policy or institutional level, decision-making and participation processes, and mechanisms for conflict resolution must be identified and remedied to ensure effective implementation.

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Third, a review of existing policies and plans must also specifically uncover those that are biased for the prevailing brown economy in any of the following ways:

- those that are heavily skewed towards economic growth to the detriment of environmental integrity and equity concerns;
- those that tacitly, if not explicitly, sanction unsustainable and inefficient resource extraction, maintain dependence on fossil fuel energy, high carbon production and consumption;
- those that simply reject the internalization of social and environmental costs.

These contradictions must be addressed since they deviate from the sustainable and inclusive growth thrusts of a Green Economy. Because such policies that undermine a nascent institutional orientation towards sustainable development would prevent the transition to a green economy, they must be harmonized with sustainable development, if not purged from the existing legal policy framework. If this is not done, the thrusts and mandates of particular government agencies and their working relations with specific interest groups or industry associations would be at cross purposes with one another. Put differently, unless contradictory policies are resolved and policy reforms converge around sustainable and inclusive growth, inter-agency conflicts and antagonisms would ensue between government civil society stakeholders for SD, on the one hand, and government and private sector groups that inordinately privilege economic growth over environmental concerns, on the other.

Given the above review of the possible lack of enforcement or implementation of relevant policies and plans or the limitations and contradiction of particular policies and plans with the goals of sustainable development, there is an urgent need for an institutional infrastructure that would ensure the implementation and enforcement of relevant measures. Equally important, particular laws and policies that contradict the goals of sustainable development (SD) must be reconciled and made consistent with SD. If these laws or policies are

irreconcilable, then new SD-oriented policies ought to be enacted. The next section details the appropriate policies that are already in existence as well as the proposed policies consistent with the goals of SD.

The imperative of setting up an institutional infrastructure entail the following actions, among others—the reorganization of the bureaucracy, changes in the staffing and budgetary process, coordination mechanisms, inter-agency arrangements, localization, the commanding heights of the national leadership, the effective partnership of the state, civil society and other private stakeholders, etc. Moreover, the required changes in the legal policy and institutional framework for SD would require not only new skills formation and capacity building but also national and local-private and public partnerships, the flow of new investments and financing, and technology development and localization for SD. (The other governance requirements will be further discussed in the next section on the Institutional Framework for Sustainable Development).

Policy Covers, Plans, Programs and Projects for a Green Economy

Transitioning to a Green Economy demands an arsenal of policies, plans, programs and projects (PPPP interventions) that are applicable to particular ecosystems or economic sector, and directed to achieve any of the GE features—i.e. sustainable resource stock, equity in access/benefits and poverty alleviation, efficiency in resource use, renewable energy production and consumption, and other relevant GE criteria. Table 8 provides an initial arsenal of PPPPs that complete the un-started and unfinished tasks under PA21, which, in turn, would facilitate the movement from lower level to higher level scores in Table 7.

Some of the tools in the PPPP arsenal may already exist in the state's legal policy framework or in the country's development program, thereby constituting the initial building blocks for the transition. These are denoted as **Ex** in Table 8. However, some of the existing tools may not yet be wholly or properly enforced or are partially implemented (denoted as **PI**) because they are recent, consisting of new laws or programs or may still be in the pilot stage. Others may be relatively dated but are not fully implemented because of uncertainty, the lack of financial support for a nationwide implementation and the country's overall track record of poor implementation of laws, regulations and reform programs in most areas of political, economic and social life. On the other hand, some or most of the arsenal tools do not yet exist and are indicated as proposed **Pr** measures. For instance, policy covers for the management of energy, water, and mineral resources; waste, the creation of sustainable cities; and the development of SD-oriented industries are not yet in existence as full measures or are implemented only partially because they are frontier areas of concern, requiring either infrastructural investments (e.g. public transport facilities, material recovery facilities, retrofit vulnerable infrastructures) or the formulation and implementation of new policies that shifts the resource management approach from 'command and control' to the use of economic instruments (e.g. resource, effluent/ pollution charges, feed-in tariff, carbon tax, property tax rebates, present and future cost-recovery tariff, etc.).

Note that the more challenging policies are the contentious ones involving either equity zero-sum measures that shift resource access away from one group to a less privileged, or poor group; or are those that contradict existing policy thrusts and dominant vested interests. In particular, there is no existing **Ex** equity measure for equity in the mineral, marine/ fishery sector, water, energy, waste, and sustainable cities. Moreover, the policies for waste, green industries and green cities are still at a preliminary stage of development partly because the market has not yet firmly established the demand for green products and technologies. On the other hand, as noted in Part 1, the potential policy tools for water, marine and mineral resources stand in contradiction to the status quo. In other words, the main challenges to a transition to a Green Economy lie either at the frontiers or in the areas of intersection of SD-oriented policy recommendations and existing policies that are

geared primarily towards economic growth but are not concerned with environmental costs and equity considerations. This situation underscores the need for greater political resolve and more extensive stakeholder cooperation.

It is important to consider, however, that the absence of an important policy/action may not necessarily bring the process of transition to a standstill. Even without a national land use policy/law, an executive order may creatively delineate the zoning of urban areas, rural or forestlands either for environmental considerations or for alternative socially desirable and economically beneficial land uses.

Table 8. Arsenal of PPPP for the Establishment of a Green Economy

Resource/ Sector or Ecosystem	Stock Restoration, Sustainability	Equity and Poverty Alleviation	Production Efficiency
Forest Environment, Biodiversity	Delineation of forest protection (no-go) areas (headwater, rich biodiversity, others) **(Pi**); Institution of sustainable yield harvesting (Annual Allowable Cut); (**Ex)** Implement National Biodiversity Strategic Action Plan **(Ex);** the National Action Plan for the Sustainable Use and Protection of Peat lands **(PI)** Implement the National Wetlands Action Plan **(Pr)** Wildlife collection quota **(Ex)** Imposition of damage charge; %age of excess profit (rent) for forest maintenance and rehabilitation; **(PI)** Setting of moratorium on resource use to rehabilitate and restore degraded ecosystem, and recover threatened species; **(PI)**	Full recognition and provision of ancestral domain rights **(PI)** Institution of community-based or common property management system; **(Ex, PI)** Establishment of community-managed ecosystem; **(PI)** Promotion of cooperative marketing of processed forest, wood, non-timber products; **(PI)** Setting of environment and resource use & damage charges to revert back to the sector, the local forest area, and community (not to the General Fund) for environmental maintenance and livelihood; **(PI)** Forest and biodiversity protection and conservation supported by the international community and multilateral agencies. **(PI)**	Valuation of forest land use based on alternative economic products and ecosystem/ watershed services; **(PI)** Institution of forest resource and damage charges; **(PI)** Collection of fees for environmental services; **(PI)** Promotion of ecotourism; **(Ex, PI)** Payments for carbon sequestration (application of REDD+); **(PI)** Institute sustainable wildlife resource schemes for the wild life industry **(Ex)**

Resource/ Sector or Ecosystem	Stock Restoration, Sustainability	Equity and Poverty Alleviation	Production Efficiency
	Effective management of PAs, restricting access and particular extractive land-use practices **(Ex)** Prevention of the entry of/ eradication of alien species that could threaten the ecosystem; **(Ex)** Payments for forest services conservation. **(PI)** Specify the particular targets for production and ecological services **(Pr)**		
Minerals	Imposition of damage charges %age of excess profit (rent) for environmental and social fund; **(Pr)** Set up of environmental insurance system; **(Pr)** Rehabilitation of abandoned mines; **(PI)** Prevention of mining in bio-diverse, disaster-prone, or geo-hazardous areas. **(Pr)**	Implementation of Environmental and Social Impact Assessment; **(Pr)** Opening of mineral reservations for agro-forestry & other non-mining uses; **(Pr)** Compensation for community displacement, livelihood losses and health damages.**(Pr, PI)**	Set up mineral reservations for multiple use (geothermal production, ecotourism, or agro-forestry, etc.); **(Pr)** Promotion of vertical integration (ore processing and metal manufacture). **(Pr)**
Agriculture, Land	Prevention, mitigation, rehabilitation/ restoration of desertified/ degraded lands; **(PI)** Passage of "Soil and Water Conservation Act of 2012; **(Pr)** Implementation of the National Action Plan to combat DLDD (sustainable agriculture and NR-based livelihood development); **(Ex)**	Completion/Review of agrarian reform; **(Ex)** Establishment of tenure over degraded/ desertified lands; **(Pr)** Provision of land access for landless workers; **(Pr)** New areas for upland agriculture and restoration of small-scale irrigation systems **(PI)**	Promotion (provision of information or incentives) of environmentally sound and appropriate technology; **(Ex)** Taxation of idle lands; **(PI)** Irrigation tariffs based on present and future cost recovery; **(Pr)** Tapping of energy in agricultural residue; **(PI)**

Resource/ Sector or Ecosystem	Stock Restoration, Sustainability	Equity and Poverty Alleviation	Production Efficiency
	Promotion (provision of information and incentives for) organic/ agroecological farming; **(Ex)** Reduction of total pollution loading of croplands (through farm wastes and residues recycling, re-use; **(PI)**	Improvement of livelihood opportunities in community-managed watersheds; **(PI)** Promotion of cooperative marketing; **(PI)** Facilitation of the marketing of organic products in the domestic and export markets; **(PI)**	Facilitation of export, certification of organic products; **(PI)** Promotion of biomass compost for energy; **(PI)** Promote SWC technologies in the uplands **(PI)**; Water- saving technologies in irrigated rice lands **(PI);** Agricultural and biotechnologies with CC adaptation and mitigation potential **(PI)**
Fishing, Coastal/ Marine Ecosystem	Establishment of community-based or cooperative hatcheries; **(PI)** Institution of sustainable yield harvesting (Annual Allowable Catch); **(Pr)** Imposition of damage charge %age of excess profit (rent) for coastal ecosystem maintenance and rehabilitation; **(Pr)** Moratorium in damaged areas; **(PI)** Restock, rehabilitate mangroves **(PI)** Protect coral reef for sustainable management **(PI)** Establishment of fish sanctuaries, Marine Protection Areas **(Ex)**	Planting of mangroves and promotion of mangrove-friendly aquaculture system for marginal fisher folk; **(PI)** Community-based or common property management system; **(PI)** Equitable distribution of municipal-commercial fishing rights. **(Pr)** Establish mangrove-friendly aquaculture system for marginal fisherfolk **(PI)** Increase fish density for livelihood of fisher folks **(PI)**	Curbing of illegal fishing activities and resource exploitation; **(PI)** Imposition of marine resource charge; **(Pr)** Imposition of pollution charge on point and non-point pollution sources; **(Pr)** Institution of tradeable fishing quotas/ permits; **(Pr)** Promotion of ecotourism **(PI)**
Infrastructure Water	Establishment of safe yield abstraction of groundwater; **(Pr)**	No granting of perpetual permits; **(Pr)** Setting up of permit	Imposition of raw water charge; **(Pr)** Establish abstraction

Resource/ Sector or Ecosystem	Stock Restoration, Sustainability	Equity and Poverty Alleviation	Production Efficiency
	Moratorium of existing consumption and permit issuance in depleted aquifer areas and promote its recharge for CC adaptation; **(Pr, PI)** Protection of the headwater forest source; **(Pr);** Protection of non-polluted water sources **(Pr)** Establish river basin organizations in major river basins **(Pr)** Restoration of degraded, polluted water bodies and development of new water supply sources for CC adaptation; **(PI)** Imposition of payments for upstream environmental services; **(PI)** Creation of environmental water reserve for in-stream ecological services; **(Pr)** Imposition of a catchment management charge for CC; **(Pr)** Establishment of nationwide rainwater harvesting systems or water storage and conservation facilities for CC adaptation; **(PI)** Imposition of surface and groundwater charge; **(Pr)** Establishment of cost-recovery tariffs; **(PI)**	system based not solely on beneficial use, but priority needs; **(Pr)** Establish water reserves for basic needs (community rights over water); **(Pr)** Provision of cross-subsidy; **(Pr)** Imposition of Resource, catchment, and pollution charges to revert back to the sector or local watershed/ source (not to the General Fund) **(Pr)** Formulation of flood risk assessment and mitigation plans for selected poor areas; **(Pr)** Relocation of communities from flood prone areas and coastal areas subject to SLR; **(Pr)**	charge and volumetric pricing; **(Pr)** Inventory, monitor existing water uses, and improve efficiency of water use (irrigation, industry, services, domestic, etc.); **(PI)** Determination of marginal cost/ progressive pricing; **(Pr)** Imposition of cost-recovery tariffs for water, sanitation, sewerage and waste water treatment; **(Pr)** Imposition of effluent charge; **(Pr)** Establishment of tradeable water permits; **(Pr)** Implementation of a National Sewerage and Septage Management program (connect septic tanks to sewerage system and waste treatment plants); **(PI)** Required establishment of anaerobic baffled reactor wastewater facility in subdivisions or districts; **(Pr)**

Resource/ Sector or Ecosystem	Stock Restoration, Sustainability	Equity and Poverty Alleviation	Production Efficiency
	Set up of environmental insurance from oil-spills and major point sources of pollution; **(Pr)** Establishment of marshlands against sea level rise due to CC; **(Pr)**		
Energy	Amend the Oil Industry Deregulation Act (**Pr**)Provide incentives for clean energy, alternative fuels (biodiesel, bioethanol) or increase in renewable energy capacity; Fund the construction, rehabilitation, and up-grading of mini-hydropower plants; Delineate,/ allocate public forestlands for geothermal or renewable energy production; Impose carbon tax, pollutant charge (**Pr**) Levy pollution charge (**Pr)** Reconciliation of energy laws with IPRA and NIPAS/PD 907 (**Pr**) Streamline community benefits/fees for energy projects: (**Pr**) Passage of the LPG Bill (**Pr**)	Amend the Oil Industry Deregulation Act (**Pr**) Provide guidelines on involuntary resettlement Provide access to clean energy for households in off-grid or missionary areas (through photovoltaic and micro-hydro systems); (i) Improve LGU capacity to undertake renewable energy project; (ii) Support the improvement and expansion of electric cooperatives; Provide space for non-motorized means (**Pr**) Enhance DOE laws (DOE Act/EPIRA/RE) with poverty related guidelines for the benefit of host communities (**Ex**)	Amend the Oil Industry Deregulation Act (**Pr**) Provide incentives for RE producers and improvements in EE&C (**PI**) Promote biomass compost for energy (**Ex**) Establish a renewable energy market; (**Pr**) Eliminate subsidies to obtain the true cost of power; Tax the use of coal and fossil fuel; (**Pr**

Resource/ Sector or Ecosystem	Stock Restoration, Sustainability	Equity and Poverty Alleviation	Production Efficiency
	Passage of the Natural Gas Industry Development Bill (**Pr**) Promotion of Smart Grid Technology (**Pr)** Promotion of electric vehicles (**Ex**)		
Waste	Imposition of environmental user fee on all wastes; **(Pr)** Provision of incentives for low waste generation, sanitary landfill, recycling; **(PI)** Enforce nationwide waste segregation; **(PI)** Closure of open dumpsites and establishment of LGU or PPP sanitary landfills; **(PI)** Fund mobilization for procurement of equipment for waste collection, construction and operation of sanitary landfill; **(PI)** Establishment of LGU or PPP-Material Recovery Facility (MRF) **(Pr)** Establish guidelines on disaster preparedness and response in SWM facilities **(Pr)**	Employment of the poor in waste segregation and recycling; **(PI)** Promotion of livelihood opportunities from sanitary landfill and MRF operations **(PI);** also employment from the use, processing of recyclable materials **(Pr)** Welfare program for vulnerable groups in informal waste sector (IWS) **(PI)** Integrate IWS in the plans of LGU and NG **(PI)**; Give livelihood assurance to IWS, and recognize right to just compensation **(PI);** Protect health from exposure to toxic hazardous waste **(PI)**	Conduct of energy and waste audit of all industries; **(Pr)** Provision of incentives for the reduction, reuse, and recycling of waste; **(PI)** Establishment of methane capture facilities in sanitary landfills; **(PI)** Implementation of policy to curtail, properly dispose, manage and recycle e-waste; **(PI)** Implementation of policy to reduce and properly dispose of hazardous waste **(PI)** Enforce waste segregation at source **(PI)** Segregate toxic, hazardous waste from municipal waste **(Pr)** Promote composting of biodegradable waste, biogas production, anaerobic digestion, and other methane capture techniques **(PI)**
Sustainable Cities	Formulate national policy for the greening of cites;	Slum Eradication Program (PPP)/	Imposition of consumer tax on fuel, oil, gas; **(Pr)**

Resource/ Sector or Ecosystem	Stock Restoration, Sustainability	Equity and Poverty Alleviation	Production Efficiency
	revisit NGP **(Pr)** Zoning; **(PI)** Establishment of eco-towns; **(PI** at pilot level**)** Imposition of environmental user charge for roads **(PI)**); for public facilities **(Pr)** Imposition of air and water pollution charge; **(Pr)** Establishment of an integrated public transport system; **(PI** in some provinces**)** Walkable accesses to and from transport facilities **(PI);** Delineation of management zones based on risk and vulnerability **(Pr)** Strengthening of DRR capacity of LGUs **(PI)** Mainstreaming of disaster risk reduction (DRR) and climate change adaptation (CCA) at the LGU level; **(PI)** Establishment of an LGU-DRR fund; **(PI)** Rehabilitation and retrofitting of vulnerable infrastructures; **(Pr)**	Housing fund for slum dwellers; **(PI)** Prioritize housing for settlers in flood prone riverbank, coastal areas **(PI)** Complementation of housing program with livelihood opportunities **(PI)** Promote urban farming for the poor **(Pr)** Establish innovative security measures to promote 'safe from violence' cities **(Pr)**	Establishment of energy efficiency standards for buildings; **(PI** in some LGUs**)** Monitor compliance and enforce the National Building Code **(PI)** Tax incentives for green buildings **(Pr)** Promote community-based use of solar energy: Provision of incentives to LGUs and real estate developers for the use of solar energy; **(Pr)** Promotion of transportation systems of low carbon intensity; **(PI)** Replacement or retrofitting of tricycles/establishment of a revolving fund; **(Pr)** Promotion of non-motorized transportation **(Pr)** Establish rainwater harvesting measures for urban areas **(Pr)**
Sustainable Industries	Promotion of sustainable use of local materials (water lily, bamboo, coconut, etc); **(PI)** Adoption of	Collaboration of GFIs, DTI, DOT and LGUs to support medium and small scale micro-enterprises **(PI)**	Reduction of pollution levels and increase resource efficiency in pilot enterprises; **(PI)** . Prioritization of greening

Resource/ Sector or Ecosystem	Stock Restoration, Sustainability	Equity and Poverty Alleviation	Production Efficiency
	Environmental and Social Impact Assessment **(Pr)** Promotion of Sustainability Reporting Initiative **(PI)** Establish and improve waste management systems **(PI)**	Establish and improve social protection system **(Ex)** Institute decent work programs and plans at the enterprise level **(PI)** Development of human capital, skills training and education **(PI)** Improve working conditions, occupational health and safety **(PI)** Promote the practice of corporate social responsibility at the enterprise level **(PI)**	of particular industries along some criteria; promote green jobs, skills **(Pr)** Adoption of industry protocol for measurement, monitoring and reporting of emissions; **(PI)** Conduct of energy audit of industries; **(PI)** Levying of carbon tax; **(Pr)** Provision of incentives for the adoption (acquisition of imported) green technologies or the localization of more affordable green technologies; **(PI)** Improvement of the commercial viability of green products; **(PI)** Increase value-added of local products; **(PI)** Strengthening of inter-enterprise linkages among MSMEs and large enterprises; **(PI)** Enhance productivity incentives and measures for MSMEs **(PI)** Promotion of renewable energy use and energy efficient processes; **(PI)** LGU promotion of community-based ecotourism; **(PI)**

Legend: PR=proposed; PI=partially implemented; EX=existing

Table 9 presents the status of current and proposed policies. Out of 188 policies under the Green Economy, only 14 of the policies are being fully implemented, i.e. **Ex**. The rest are either partly implemented (100) **PI** or merely proposed (74) **Pr**. With hardly any **Ex** GE-oriented policies in mining, water, energy, waste, and city, and only one **Ex** in fishery and industry, the apparent challenge in the transition is whether the greater number of **Pr** and **PI** policies will respectively become formal intervention measures and extend greater influence. The rate at which this will transpire would determine the pace and duration of the transition. As noted, most of the proposed **(Pr)** interventions that have yet to be formalized and implemented, are in the areas of metallic mining, water, 'sustainable cities', and energy. Put differently, these are the effectively 'green field' sectors that would require tremendous work on the road towards a Green Economy. Might it also be noted that the daunting challenge in these 'green field' areas would require intervention in all the sustainability criteria (natural stock/ environmental quality, equity/ poverty eradication, and efficiency). In addition, only a fourth of the current and proposed GE policies are directed towards the equity and poverty alleviation criterion while there are twice more of the natural capital/ carrying capacity policies than policies relevant to equity/ poverty alleviation in forestry, water and cities. If the poor are prevalent in these ecosystems and sectors, then the number and proportion of policies for equity/ poverty alleviation in our arsenal may be quite inadequate.

Table 9. Policy Arsenal for the Green Economy, Number and Status of Implementation

Ecosystem/ Sector	CRITERION	NUMBER OF POLICIES	IMPLEMENTED	PARTIALLY IMPLEMENTED	PROPOSED
Forest and Biodiversity	**Natural Capital**	12	5	5	2
	PE*/Equity	6	1	5	-
	Efficiency	6	2	4	-
Metallic Mineral	**Natural Capital**	4	-	1	3
	PE*/Equity	3	-	1	2
	Efficiency	2	-	-	2
Agriculture	**Natural Capital**	5	2	2	1
	PE*/Equity	7	1	4	2
	Efficiency	9	1	7	2
Marine/ Coastal, Fishery	**Natural Capital**	7	1	4	2
	PE*/Equity	5	-	4	1
	Efficiency	5	-	2	3
Water	**Natural Capital**	14	-	5	9
	PE*/Equity	7	-	-	7
	Efficiency	9	-	2	7
Energy	**Natural Capital**	4	-	2	2
	PE*/Equity	4	-	3	1
	Efficiency	7	-	1	6
Waste	**Natural Capital**	7	-	4	3
	PE*/Equity	7	-	6	1
	Efficiency	8	-	6	2

Ecosystem/ Sector	CRITERION	NUMBER OF POLICIES	IMPLEMENTED	PARTIALLY IMPLEMENTED	PROPOSED
Sustainable Cities	**Natural Capital**	13	-	8	5
	PE*/Equity	6	-	3	3
	Efficiency	9	-	3	6
Sustainable Industries	**Natural Capital**	4	-	3	1
	PE*/Equity	6	1	5	-
	Efficiency	12	-	10	2
TOTAL		**188**	**14**	**100**	**74**

*PE = Poverty Eradication

Simultaneously, an enabling environment at the international level must be in place to fully realize the Green Economy at the national level. Thus, in the transition to the GE the following major concerns must be addressed at the global level:

1. **Green and cleaner production technology**. In order to fill up the gaps on green and cleaner production technology, developing countries must have access, technology transfer, knowledge sharing and cooperation. The early movers with resources among developed countries must help develop the appropriate technologies and facilitate its transfer to developing countries as they transition towards greener and cleaner production. There must also be binding global institutional arrangements to foster collaboration and cooperation in the field of green and cleaner production technology.

2. **Long-term financial and green investment**. A green finance window development fund should be established to assist in the sustainability of the country's natural capital which is necessary for the promotion of economic growth in the countryside. Apart from government provision of market and tax incentives, investments are necessary to enable the shift from the use of conventional to green and cleaner production technologies. Within developing countries there are unviable areas (off-grid areas) that would necessarily require technological and financial aid from developed countries. Hence, there is need for developed countries assistance in scaling up renewable energy in developing countries. However, external assistance must be sustainable and aligned with the developing countries' national priorities and strategies. While the greening of business processes is a basic goal of a GE, a regulatory and incentive framework must be in place to ensure the protection of the natural capital when investments are made in developing countries.

3. **Capacity building**. Developed countries may provide technical assistance to developing countries in the development of green and cleaner production technology for energy and industries, the institutionalization of environmental accounting, the developing of green cities, and the implementation of environmentally sustainable transport systems. This assistance to enable

developing countries attain a green economy must also help achieve sustainable development and poverty eradication. .

4. **Trade**. There must be agreement to avoid trade protectionism and the tying of conditionalities to official development assistance. To a developing country, like the Philippines, it is consistent in a green economy to uphold trade policies against unfair competition that either protect developed country products through subsidies or take unfair advantage over the natural resources of poorer countries. Also, there must be a critical review of the green procurement policies of developed countries or their use of "green" environmental standards to possibly block competing products from developing countries. These standards must not be used as non-tariff barriers. In order to avoid green trade protectionism, an agreed-upon accreditation, certification and eco-labelling of products must be established.

5. **Social dimension of green economy**. We need to reiterate that strategies towards the GE, as well as efforts to "green" technology, policies and institutions must consider the social dimension, like bio-cultural diversity and heritage. In particular, indigenous peoples should be considered in policy and decision-making processes to protect their bio-cultural rights. As a people-centered development paradigm, GE envisions the indigenous people's role as steward of natural resources and ownership of the country's domain, as crucial to their sustainability.

6. **Green jobs and livelihood**. A green economy must necessarily promote green, sustainable and decent jobs that improve living standards. Also, an equitable transition to green jobs must be inclusive of all stakeholders, i.e. protecting workers' rights and ensuring that employment and the social cost of the transition are shared by all. Moreover, the transition through international support must provide trainings and courses on green skills and competencies of workers, particularly those in the brown industries. Most importantly, a GE must facilitate the development of green livelihood and entrepreneurship by engaging the informal sector of industries so as to truly contribute to poverty reduction, social development and a better environment for all.

7. **Peace and security**. A green economy will only thrive if it is founded on peace and human security. Hence, a GE should facilitate a culture of peace, the promotion of human rights, the acceptance of social diversity, and the primacy of the peace process at all times.

Recommendations for the Institutional Framework for Sustainable Development

The arsenal of program and policy tools (Tables 8 and 9) provides an initial strategic program to transition to a Green Economy and attain a level of sustainable development. Even if consensus is forged around a strategic direction, a GE program is not sufficient to move the country towards the vision. What else is needed?

PA21 provides an invaluable insight into a necessary ingredient: apart from the political will to launch the country's transition to a Green Economy, an intervention agenda cannot advance without the consultation, consensus, initiative, inter-agency collaboration and the active participation of various stakeholders. Following the PA21 model, leadership with an oversight responsibility for the transition to GE ought to promote stakeholder participation, effective state agency partnership with civil society groups and the private sector, and participatory decision making in its institutional and governance framework. With interventions proceeding at both the national (macro) and local (micro) levels, top down initiatives without stakeholder participation may fail to mobilize civil society groups, people's organization, and the business sector to rally behind a GE agenda and its presumed priorities. Similarly, without local stakeholder participation and the engagement of multi-sectoral stakeholders and local government leaders, no bottom-up development process can materialize. In particular, local sustainable development councils would not be able to address local livelihood and environmental problems.

In order to foster effective partnership, participatory decision making, and a bottom-up process, an institutional framework for sustainable development (IFSD) must be in place. At the formal organizational level, it must provide at least two capacities: 1) concerted policy making for sustainable development by each department/ sector of the executive and legislative branches of government; and 2) the coordinated implementation and enforcement of laws or national policies. Because most Philippine laws are sector based, the tendency of government agencies is to operate autonomously along their mandated functions. This entrenched practice discourages inter-agency coordination, thereby constraining the synchronization and synergy of government agency actions. Worse, because of different, if not divergent, objectives, some agency relationships may not only be non-cooperative, but also conflictive.

Thus, in order to promote concerted policy making for sustainable development, an IFSD must provide mechanisms at the national and local level to reconcile conflicting sector/agency policies/programs and industry interests, as well as to resolve contradictory policies and laws in the service of higher national interest. An IFSD must also enable agencies to go beyond narrow sector-based thinking and action, and align their sector-based policies and programs for the common good/ purpose. Without an IFSD, the economy would continue in the path of unsustainable and contradictory policies, and would be pulled apart by the lack of coordination, entrenched vested interests, and conflicts within its ranks.

The IFSD provides a command structure for inter-agency, inter-sectoral collaboration and complementation of programs—convergence in short—that makes possible the integration of the three pillars of SD. However, convergence and its benefits must not only be limited to some national agencies. It must be also be forged at the level of LGUs, people's organizations and civil society groups. In other words, the convergence of the DA, DAR, DENR, BFAR, NCIP, PCARRD as an evolving inter-sectoral structure at the national level must also take at the local level to more effectively achieve rural development in the context of watersheds or river basins.

Given its beneficial outcomes, the convergence model may also be applied to other problematic areas in PA21 or in the transition to GE, like sustainable industry, waste management and clean energy development.

However, in dealing with the urban problems of water and air pollution, waste, health and population growth, will the convergence of national agencies, like DILG, DOH, NWRB, DTI, DOST, and DOE with LGUs, local business, and community organizations and civil society groups suffice? If not, would an alternative structure, i.e. a supra body like a Metro Urban Development Authority that will have effective control over the political units under it, be worth a try? Similarly, can the issues in the black hole of the GE—e.g. unemployment—be partially, if not significantly, addressed by the convergence of agencies such as the DOLE, DepEd, DOH, DSWD, DTI, NCIP, Tesda with local businesses, civil society groups, et al? If so, will all these convergence effort be orchestrated and directed by the PCSD? If PCSD is the overall governance structure for moving the country closer to a Green Economy, how can it be given more teeth?

There are no immediate answers to these questions because the journey to the GE is an uncharted one. As an experimental voyage, the country can only learn all the answers iteratively by embarking on it. As a learning- by-doing enterprise, the success of subsequent experimental runs will come from the travel journal documentation. Specifically, the data inputted into the log frame monitoring and evaluation system will determine the success of each transition phase. Thus in the transition to the GE, the use of the log frame or the Managing for Development Results by both the PCSD and LCSD is imperative. It will track the outcome or impact of interventions, and provide a "framework and practical tools for strategic planning, risk management, progress monitoring, and outcome evaluation".

Nevertheless, with the log frame as a ready tool for recording the progress attained through specific interventions, the immediate and more strategic task is to set up the effective governance mechanism that will fill the big gaps identified in Part I of this report and implement the key **PI** and **Pr** measures that will move the country's SD agenda forward.

At least three components of an IFSD agenda must be realized in order to move the Philippines towards SD, namely localization, effective international governance and monitoring-feedback mechanisms.

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A. **Localization.** Based on the country's experience, the integration of the three pillars of sustainable development cannot be achieved solely at the national government level. Instead of establishing new institutions at the national level for SD, integration would be more effective and efficient if initiatives for SD were mainstreamed in existing structures and mechanisms, facilitated with the assistance of civil society and through appropriate public-private partnerships with the business sector. More importantly, sustainable development is genuinely realized when collective action starts at the local level and translates to improved well-being of local communities. This would require that governance mechanisms, systems and structures should promote and support local actions for sustainable development. It is only with the formation, strengthening and consolidation of sustainable local communities that a sustainable nation emerges.

B. **Effective international governance**. International governance for sustainable development must be strong and effective to support the SD localization efforts of national structures, and it should be efficient enough to lower the transaction costs of developing countries. The planning and reporting processes of all UN Conventions and Programmes should hence be synchronized in order to facilitate effective coordination of commitments and actions. It is recommended that an implementation framework and coordination mechanism must be established in order to clearly delineate the roles and responsibilities of each organization under the UN system. And there must also be an

incentive scheme to country-parties implementing SD initiatives and accomplishing the Convention commitments.

C. **Monitoring, evaluation and feedback mechanism.** It is imperative to strengthen the monitoring and evaluation of nation's activities and outputs through appropriate methodologies in order to track commitments made at the global level. Clear targets with a timeframe must be posted to ensure that countries, given their inherent and differing capacities, are made accountable and are objectively moving towards the common goal of sustainable development.

Appendix 1. List of Implementation Problems, Intervention Gaps and Omissions, by Criterion

Ecosystem Sector	Natural Capital Environment Quality	Equity in Access and Benefits	Efficiency in Economic Activities	Poverty Eradication
Forest Ecosystem and Biodiversity	Non-completion of the planned rehabilitation of critical water-sheds. Implementation of an integrated ecosystem-based management approach. Integration of forest resource and ecosystem management and biodiversity conservation Most KBAs remain as un-proclaimed PAs, and have threatened status. No policy on biodiversity offsets and bio-diversity valuation, and procedure for 'no-go' areas. No explicit international community valuation of biodiversity	Coverage of social, community forestry management has been reduced. The earlier targeted coverage of CBFM, ISF, CFP and FLMA has not been reached.		Uncertain or limited employment opportunities generated by forest rehabilitation, watershed management, forest plantation, wood-based and non-timber industries, and the use of trust fund.
Coastal/ Marine Fisheries	Absence of particular local conditions for successful intervention (local leadership, community organization, interagency cooperation, etc); Conversion and pollution of mangroves with the unregulated development of aquaculture. No damage compensation and pollution charges have been imposed.	Limited enforcement on commercial fishing encroachment of municipal waters. Commercial and municipal licensing does not ensure equity in access.	No policy on total allowable catch and fishery charges. No regulation on aquaculture stocking and water quality impact. No pollution charges on point- and nonpoint sources	No provision of prior use rights; Limited or no safety nets or provision of supplementary/ alternative employment to small fisher folks. Displacement effect of smuggling, dumping of cheap imports on small fisher folks.

Freshwater	Limited implementation of IWRM or the policies on sustainable water resource use; No earlier integration of water resource management with ecosystem conservation; No in-stream water reserve for ecological functions; No depletion and pollution charges; No economic instruments to finance wastewater treatment	Perpetual water rights given to identified 'beneficial user' applicants; No formal permit for community domestic consumption; No access to sanitation and sewerage services;	Zero raw water value; Non application of economic instruments to the different phases of the water supply cycle; Limited cost-recovery for water utilities; Diversion of charges and fees to the General Fund and away from resource and watershed management;	No water reserve for basic human need; No connection and tariff cross subsidies for poor households.
Lowland Agriculture	Failure to prevent land degradation, watershed deterioration, and the loss of irrigated lands; No earlier policy to establish local community banks for indigenous seed;	Non-completion of agrarian reform; limited coverage of land transfer; No earlier government policy support to promote sustainable agriculture through organic farming and linkage to market outlets;	No regulation to limit growth of idle lands and speculation; No effective measure to prevent land conversion; Uncertain regulation on the introduction of GMO seeds;	Recent pilot efforts to mitigate land degradation, desertification and the effects of drought; Limited success in the diffusion of new farm technologies; Limited tenure measure for the growing rural landless population
Mining	No provision for biodiversity losses; Uncertainty of the rehabilitation fund to cover the cost of environmental damages; Absence of an environmental insurance policy;	No explicit requirement to cover the cost of community displacement from subsistence livelihood and water sources, health damages, and the	Decreasing real value of MWT; Free use of water; No internalization of the negative externalities, and compensation for the depleted deposits. No mitigation	Absence of a compensation fund for livelihood losses, health damages and downstream displacement costs; Violations of the FPIC

	No measures to institute comprehensive resource valuation; Limitations of the EIA and ECC to identify and ensure the mitigation of environmental damages	disturbance from tailings dam leakages and collapse; The designation of public forest lands for mineral reservations to the exclusion of other economic land uses	policy for the perpetual acid mine drainage beyond the life of the mine;	requirement
Urban (industries, cities, transport, energy, waste)	The limited governance and environmental management capacity of the DENR and the LGUs; Failure to manage population growth within the limited urban infrastructure and ecosystem carrying capacity; The limited environmental awareness and vigilance of civil society to protect the urban environment; No cost sharing in the establishment of environmental infrastructures.	Limited provision of public or socialized housing; Limited public support for the development of renewable energy sources; No explicit framework to distribute the costs of the benefits of clean air, water, sanitation services, and the environment among the beneficiaries	Non-application of economic instruments to deal with congestion, land zoning, nonrenewable energy use, pollution, waste management; Failure to determine the economies of scale for service provisioning (water sanitation, treatment, waste management) and the distribution of the provisioning function; Collaboration with private business sector for jobs, technologies; No infrastructure for a sustainable transportation system (eg. non-motorized transport	Limited employment opportunities, access to credit and skills training for majority of the urban poor

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