Formulating IEM-Consistent Investment Programs in Watersheds and Highly Diverse Landscapes

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List of Abbreviations

ANR	assisted natural regeneration
ARMM	Autonomous Region of Muslim Mindanao
CDP	Comprehensive Development Plan
CENRO	community environment and natural resources office/officers
CLUP	Comprehensive Land Use Plan
DENR	Department of Environment and Natural Resources
DENR FASPO	DENR Foreign-Assisted and Special Projects Office
DPWH	Department of Public Works and Highways
DRR	disaster risk reduction
ENR	environment and natural resources
FLUP	Forest Land Use Plan
GEF	Global Environment Facility
IBA	Important Bird Area
IEM	integrated ecosystems management
LMWBR	Ligawasan Marsh as Wetlands Biodiversity Reserve
LGU	local government unit
M & E	monitoring and evaluation
MUZ	multiple use zone
MLGU	municipal local government units
MPDC	Municipal Planning and Development Coordinator
NEDA	National Economic Development Authority
NGA	national government agency
NGO	nongovernment organization
NIPAS	National Integrated Protected Areas System
NPS-ENRMP	National Program Support for Environment and Natural Resources Management Project
PAPs	programs, activities, and projects
PAMB	protected area management board
PASA	Protected Area Suitability Assessment
PASu	protected area superintendent
PENRO	provincial environment and natural resources office/officers
PNOC	Philippine National Oil Company
PDP	Provincial Development Plan
PMO	project management office
SPZ	strict protection zone
TWG	technical working group

Executive Summary

This paper distills lessons and observations on the formulation of investment strategies that are consistent with the objectives of integrated ecosystems management (IEM) in watershed-ecosystems and highly diverse landscapes. It combines lessons from the pilots that were supported by the World Bank and the Global Environmental Facility and implemented by the Department of Environment and Natural Resources (DENR) under the Environment and Natural Resources Management Project and from other projects. The paper outlines the unique features of public and private investments in watershed-ecosystems or highly diverse landscapes. It underlines the importance of reviewing and evaluating the potential on- and off-site environmental impacts of investments and interventions in a watershed-ecosystem or a highly diverse landscape. It emphasizes the need for investmentsthat complement those of other partners.It advocatesthe need to improve local governance that is tied up with managing and regulating non-negotiables, enhancing comparative advantages in support of value chain improvements of competitive goods and services, and implementing results-based monitoring and evaluation systems.

Investments on the non-negotiables and enhancing comparative advantages are generally public in nature. Investing on non-negotiablesmeans conserving biodiversity and critical habitats, protecting and rehabilitating forests and forestlands, reducing the impacts of natural disasters in highly hazardous areas, regulating the conversion of prime agricultural lands, and ensuring compliance to regulations that disallow certain land and resource uses.These investments are designed to climate-proof or increase resiliencies of watersheds and ecosystems, communities, properties, infrastructure, industries, livelihoods, and environment and natural resources-dependent facilities and enterprises.

However, the investments on non-negotiables and on enhancing comparative advantages are also expected to trigger private investments from land and resource managers, tenure holders, indigenous peoples (IPs), small farmers, fisherfolks, entrepreneurs, and private firms. The government may still need to invest in putting up social safety net measures(e.g., microfinance, access to capital, tenure rights, capacity building, livelihoods, community organizing) for the marginalized groups of farmers, landowners, IPs, and fisherfolks so that they could actively participate as investors in improving the value chains of competitive goods and services.

Recommended IEM investments are those that help mitigate the impacts of climate change, support marginalized groups to be investors in improving value chains, strengthen capacities to adapt, and reduce losses and risks from natural disasters.

1. Background

The adoption of a common integrated ecosystems management (IEM) framework for a watershed or highly diverse landscape prompts participating stakeholders like public sector agencies, local governments, land and resource managers, community members, private entities, and non-government organizations (NGOs) to collectively and individually formulate IEM-consistent investments in their respective jurisdictions or areas of operation. The approved IEM framework provides the road map for concerned national and local governments to work together and map out the most appropriate and suitable public investments that will promote climate resilience and conservation of watersheds, diverse ecosystems, agricultural production systems, and communities in ridge to reef watershed-ecosystem landscapes. With an IEM framework, concerned national agencies and local governments can properly plan their programs, activities and projects (PAPs) that can further improve the investment climate for the private sector, small and medium entrepreneurs, small producers and businesses and households. An IEM framework may also guide efforts in prioritizing investments in degraded areas, putting realism in the multiple use zones of most protected areas and national parks, assisting marginalized and highly vulnerable communities, setting up climate-resilient conservation programs, guiding adaptations in agricultural production systems and promoting higher value chain enterprises for competitive goods and services.

Moreover, the local government units (LGUs) in ridge to reef watershed-ecosystem landscapes may use the approved IEM framework to revisit, update, or modify their comprehensive land use plans (CLUP), physical framework plans for constructing infrastructure roads, ports, telecommunication, and bridges, as well as strategies for commercial and industrial enterprises. Doing this will surely minimize losses from climate change-related natural disasters such as landslides, flash floods, and prolonged subsidence.

The IEM framework paints the big picture of sustainable development in a watershed-ecosystem. This big picture isanchored on the analysis of the "givens" with respect to the ecosystem's topographic, climatic, legal, economic, and political features. In theory, the stakeholders have no choice but to "buy" the IEM framework for their own interests and for the good of the public that they serve or work with. With the framework, therefore, the investments are needed to put IEM into actions and into reality in a watershed-ecosystem or a highly diverse landscape.

This brief paper lays down the basic concepts involving investments that support the IEM framework. The IEM framework outlines what soft and hard investments are needed to help achieve the vision, mission, and objectives of IEM in a watershed-ecosystem (it should be noted, however, that the IEM framework preparation and its adoption already reflect the prior investments of individuals and collective efforts). The paper is conceptual in nature with a few examples and observations from the four pilot sites of the National Program Support for Environment and Natural Resources Management Project, which is funded by the World Bank through the Global Environment Facility (NPS ENRMP/GEF). IEM investments require and should lead to more innovative, creative, and focused investments as well as increased leveraging and co-financing arrangements. IEM investments cover those that enable investors—small, medium, and large ones—to improve the common ENR as well as theindividual land and resource assets. Investments may need both public and private resources to maximize their inclusive socioeconomic benefits in and out the watershed-ecosystems. Investments occur at various levels—national, local, land and resource management units, and household levels. Investments comprise of time, money, labor, and materials. They could be hard investments such as infrastructure or soft investments such as those that focus on improving policies and regulatory

measures, increasing knowledge, facilitating social negotiation, improving capacities, and setting up mechanisms to generate ENR-sourced revenues to be reinvested in protecting and conserving designated land and resource uses.

2.0 Basic Concepts in IEM-Consistent Investments

An investment is an act of devoting time, effort, or energy to a particular undertaking with the expectation of worthwhile benefits [Oxford American Dictionary]. It is an act of handing over resources—money, effort or time—with the expectation of some kind of result at some point in the future (Elson 2012 and Luenberger 1998). Investments may also be described as current and planned commitments of resources (financial, human, physical, and organizational) with the expectations of benefit inflows at a later time.

2.1 Types of Investments

In watershed-ecosystems and highly diverse landscapes, investments come from both the public and private sectors.A combination of these investments is needed to realize the vision, mission, and objectives of IEM. A continuing process of identifying, reviewing, vetting, and aligning public and private investments will help shape and ensure the sustainable flow of ecosystems goods and services for the benefit of the public as well asindividuals in a watershed-ecosystem.

In the ENR sector, public investments are the commitments of national agencies, local governments, and bilateral or multi-lateral donors for conservation, rehabilitation, development, and improvement of management and regulatory systems. In the agriculture and land reform sector, these are mainly investments to improve productivity, strengthen capacities, expand to larger markets, reduce costs, and support efforts towards higher value chains. On the other hand, private investments are the individual commitments of the private sector, NGOs, landowners, entrepreneurs, farmers, fisherfolks, indigenous peoples (IPs), and tenure holders to enable them to economically benefit from their lands and ENRs in the watershed-ecosystems and highly diverse landscapes.

Although there are exemptions, governments in general only make enabling investments while private sector groups invest to improve their assets (Elson 2012 and Harford 2007). Various problems in governance, state and elite capture, externalities, and free riders emerge when these two types of investments are not clearly delineated and understood, especially in a watershed-ecosystem which is protected, conserved, managed, developed, and regulated to benefit the public but alsoallows the private sector to profit (Guiang et al., 2008). Elson (2012) further described enabling investments as follows:

> *"Enabling investments are made by governments, donors, NGOs, philanthropists, rights-holders, and the private sector in order to create the conditions for productive investments in assets. Enabling investments may be the basic nuts and bolts of institution building, but they couldalso be pioneering investments that create public goods such as SME[small and medium enterprises] forestry businessmodels, associations, market linkages and new technology..... there is no expectation of adirect financial return on capital deployed and no financial or physical assets are accrued."*

Asset investments by private sector groups—firms, rights holders, entrepreneurs, farmers, fisherfolk, IPs, tenure holders, etc.—are not expected to lose the nominal value of their initial capital or asset, even if the anticipated level of financial returns may vary over time. Most small landowners, IPs and tenure holders will invest their time and energy in improving the asset value of their cultivated areas, farms, or domains. However, they expect to make profit. They expect to have less transaction costs. They also need social, technical, and infrastructure support from the public sector. Entrepreneurs will invest their hard-earned capital in developing tree farms, agroforestry, orchards, or ecotourism facilities to generate returns in the long-term.They may enter into joint ventures with government agencies provided that the profit sharing arrangements are anchored on fairness and good governance practices.

Enabling investments are designed to improve the investment climate, which may lead to increased private sector investments. Investments may combine both hard and soft investments by either the government or the private sector. Hard investments could be access roads, bridges, and irrigation systems while soft investments may be improved policies and regulations, capacity building, tenure right strengthening, and efforts to set up good governance systems. Financing to support marginalized farmers,move towards higher value chains with the farmers, facilitate climate change adaptation and reduce net carbon emissions may be part of enabling investments (World Bank 2008, APO 2007, and FAO 2013). Investments in setting up appropriate payments for environmental services and operationalizing these mechanisms may include both enabling and asset investments.The government may do the initial work for the eventual takeover of the private sector to achieve both effectiveness and efficiency.

Table 1 compares enabling and asset investments (Elson 2012) and provides more details such as the main vehicle for investments, the goal, the means, and major category outputs. As earlier mentioned, enabling investments lead to public good while asset investments mostly accrue to the private sector investor. In public-private ventures, investments will come from both the government and the private sector with the expectations that both will benefit from the more efficient operations of the latter. The government may opt to completely privatize the venture and sell its stake by auction or it may take over when public welfare is at stake. The list in Table 1 may be adapted or modified to fit the needs in watershed-ecosystems and highly diverse landscapes.

Although Elson (2012) outlined the outputs and outcomes of investments for small and medium enterprises (as shown in Figure 1), the same may be expected from investments that are made based on the IEM framework especially those that pertain to aligning land uses in the upper, middle, and lower parts of the watershed-ecosystems or ridge to reef landscapes. It is, therefore, a necessity for all concerned LGUs to align their land uses based on the big picture of land and resource management zoning in the IEM framework. Public investments are designed to improve conditions for subsequent investments, leading to improved production, increased household incomes, and more climate change-resilient ecosystems and communities. The bottom line is that both public and private investments should result in increased government revenues, increased gross domestic product (GDP) and per capita income, and increased savings. In theory, all IEM-based investments—when properly planned, prioritized and carried out—will minimize overlaps, enhance complementation, reduce negative externalities, and reduce the overall cost of disaster mitigation and adaptation.

Table 1. Comparison of enabling and asset investments

Type	Enabling Investment			Asset Investment			
Investor	Government	Donors Philanthropists	Rights-holders Product investors Philanthropists	Private sector companies	Philanthropists SWFs Rights-holders	Banks	Private investors and equity funds
Vehicle	Projects	NGOs Research institutions	SMEs Intermediaries	Product purchase	Capital investment	Financial services	Capital investment
Goal	Private sector development		Fill the "pioneer gap"	Sustainable supply chain, quality product	Return on capital plus social/ environmental impact	Payment of interest and return of principal	Risk-adjusted return on capital
Means	Public expenditure, e.g., infrastructure, fiscal reform, regulatory reform, subsidies	Grants, e.g., organizational development, institutional reform	Enterprise philanthropy: grants and seed funding, e.g., demonstrating validity of business model	Product investment via purchase order, prepayments	Impact investment via equity, loans	Loans secured against company or personal assets (e.g. land)	Value investment via equity, loans
Output	Public goods			Private assets			

Source: Elson, D. 2012. Guide to investing in locally controlled forestry.Growing Forest Partnerships in association with FAO, IIED, IUCN, The Forests Dialogue and the World Bank.IIED, London, UK.

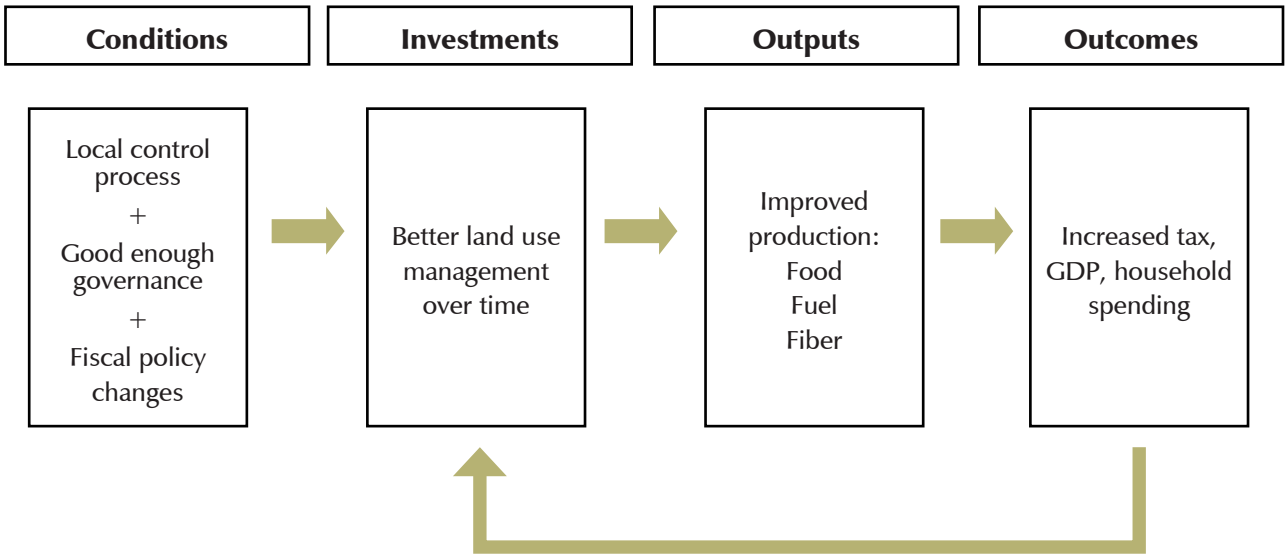

Figure 1. Outputs and Outcomes from Investments

Source: Elson, D. 2012. Guide to investing in locally controlled forestry, Growing Forest Partnerships in association with FAO, IIED, IUCN, The Forests Dialogue and the World Bank. IIED, London, UK.

2.2 Streams of Investment Benefits

In watershed-ecosystems and highly diverse landscapes, benefits may be direct or indirect. Investments to protect the remaining natural forest cover and highly diverse habitats may generally result in indirect public benefits such as improved air quality, better water quality, improved ecological stability and more resilient ecosystems. Investments that are related to climate proofing may incentivize the private sector and small landowners to use their own resources to improve productivity in their farms or tenured areas. However, most of these benefits may only be felt several years away from the period when the investments were made. Soft investments such as improving institutional capacities or strengthening local governance may have direct and indirect as well as short, medium, and long-term benefits. Hard investments in irrigation, energy generation, domestic water supply, and water filtration, however, may have immediate impacts among target beneficiaries but may also add pressure on the use of ecosystems goods and services. The same is true with soft and hard investments in conserving biodiversity or rehabilitation of degraded areas in upper watersheds. Benefits may only be felt in the next generation and a few by the present generation.

Investments may also have both on-site and off-site benefits. That is, some benefits may have impacts at the site where the investments were actually made (on-site) while others may occur in downstream areas (off-site) but still within the same watershed landscapes. In the process, some "free riders" emerge—those who want to benefit from somebody else's investments. Mechanisms to regulate this kind of behavior will have to be put in place.

In some cases, some benefits may simply be experienced outside the watershed-ecosystem landscape such as those investments that are designed for improving capacities of people who will eventually move out from the watershed-ecosystem landscapes. These are termed as "spillover benefits" outside the watershed-ecosystem landscapes. Improved management of marine protected areas that benefit from the nutrients in a watershed may nurture fish that will eventually "spill over" to other areas.

"Service areas" of watershed-ecosystems—irrigated rice lands, residential areas, coastal and fishery areas, and various ENR-dependent facilities and enterprises—that have enjoyed IEM-consistent investments are buffered from the impacts of climate change and become more resilient because of complementary investments in the upper part of the watersheds and in highly diverse areas.

In summary, the streams of investment benefits at the watershed-ecosystem level may be categorized into the following:

- Environmental: investments that may result inimproved resiliency; reduced damages from natural disasters because of increased resiliency; less disruption and downtime from supply of ecosystems services especially of water for irrigation, energy, domestic use, recreation;
- Organizational: improved capacity to provide technical services and policy guidance, increased efficiency, improved business environment, reduced corruption, better governance, complementary investments, improved outcome- and output-based monitoring and evaluation (M&E) systems;
- Economic: increased local economic activities, more employment opportunities, improved household incomes, more resilient production systems, IEM-consistent CLUP zoning regimes, increased local revenues, and stable supply of food and fiber; and
- Social: reduced crimes and social conflicts, better social and infrastructure services, increased environmental awareness, improved skills and collaborative environment for negotiating ENR-related conflicts, framework for complementary actions.

At the household and enterprise level, streamsof investment benefits may take the form of physical, social, environmental, economic, and financial, such as:

- Economic and financial benefits from the overall reduced cost per unit of production; increased household income from production, processing, and more efficient transport of goods and services; increased opportunities for other household economic activities and employ; and reduced losses in crops, livelihoods, properties;
- Social benefits from more time with families that may result from better social infrastructure and access, improved literacy and family health because of improved governance, more climate change-resilient livelihoods and zoning regimes; and
- Environmental benefits from less water pollution, less damages from floods and landslides, and better sanitation.

Investments in a watershed-ecosystem or a highly diverse area are unique in the sense that they have a way of directly or indirectly impacting the ecosystems and communities. Some may have benefits for all, not just the target constituents and the private investor. Some, however, may simply favor a few or over time reduce the overall asset value of an ecosystem if the market is left on its own without regulation. Since the rich,poor, fisherfolks, upland farmers, IPs, landowners, residents, and SMEs alike are all in the watershed-ecosystems, investments will find their way of affecting their lives.

IEM-consistent investments will generally improve the climate for the entry of private sector, small and medium enterprises, landowners, tenure holders, fisher folks, entrepreneurs, and households. Unfortunately, some investments in a watershed-ecosystem could only BENEFIT A FEW—those who influence the use ofpublic resources as investments in order to intentionally increase the asset values of their properties, lands, and enterprises (an example is when elected officials and public servantsuse public funds to build key infrastructure and facilities in a watershed-ecosystem to serve their business interests). This is a form of state and elite capture that could easily take place in a politicized environmentwhere weak governance exists.

2.3 Complementary Investments

In a watershed-ecosystem or highly diverse area, all investments (public and private, local and national, now and then, on- and off-site) converge and interact within the:

- biophysical boundaries of the WATERSHED-ECOSYSTEM or HIGLY DIVERSE LANDSCAPE and
- physical boundaries of a POLITICAL UNIT.

The convergences and interactions at the watershed-ecosystem level create or lead to interdependent patterns of behaviors, highlight inter-connectedness of sub-ecosystems, and show inter-generational impacts and influences. In many ways, the sources, the direction and flow, and discharge areas of water provide a vivid picture of the different convergences and interactions among water, land, living organisms, and humans in a watershed-ecosystem or a highly diverse area. The resulting watershed-ecosystem landscape projects complexity in the midst of complementation, stability, and functional processes.

External influences to a watershed-ecosystem or a highly diverse area (such as those from human interventions and unpredictable and erratic weather patterns) disturb the established systems of interconnectedness, interdependence, and inter-generational adjustments. For instance, the productivity of irrigated agriculture, coastal and freshwater fisheries, and high value crops depends on availability of both surface and underground water. Residential communities depend on terrestrial and vegetation (natural and planted) for most of their fuelwood and energy needs.

Many livelihoods, SMEs, and even large industries are closely linked through established processes within a watershed-ecosystem or highly diverse area. Localities which are largely dependent on hydro-electricity, nature-based tourism, quarrying gravel and sand, and agriculture are biophysically, economically, socially, and ecologically linked with the functioning of a watershed-ecosystem or a highly diverse area. In Ligawasan Marsh, Mindanao, for example, the livelihoods of most indigenous Maguindanaoans depend on the ecological stability of the different natural swamps and marshes—herbaceous, shrubs, freshwater and still water. Fishponds in the mangrove areas in Infanta, Quezon are highly dependent on the mangroves as a habitat and on the movements of nutrients from the upstream down to the coastal areas. A group of women makes brooms from tiger grass that naturally exist (and now being planted with ENRMP's support) in the watershed. In Bago River Watershed, the communities are developing agroforestry and fuelwood lots with project support because products from these investments are consistent with the IEM objectives.

Land conversion, agricultural expansion or encroachments into the upper watersheds,forested areas and wetland habitats will tilt the balance of stability and threshold levels of resiliencies of different species, communities, and natural ecological processes. In fact, as Zepeda (2001) expounded, once a habitat is lost (the source of most nutrients that get into the soil), tilling and irrigation of the land depletes soil nutrients and erodes topsoil. Any excess use of supplemental nutrients will leach through the aquifer and erode the quality the surface water and contaminate the ground water. The author even advocated that activities that negatively impact the local environment—such as those that lead to depletion of the natural resource stocks, deterioration of environmental quality and encroachment into sensitive ecosystem habitats—should not be allowed.

Given the possibility of disturbing existing and functional natural processes, investments in watershed-ecosystems and highly diverse landscapes must be anchored on proper knowledge and understanding of how the uplands, lowlands, coastal, and near shore areas are interconnected and interdependent at the biophysical, social, and economic levels especially of the related sub-ecosystems and units.

Understanding these links—interdependencies, interconnectedness, and intergenerational impacts—will inform how investments can be properly directed to seize internal opportunities for collaboration and complementation.

Collaborative and complementary investments within political jurisdictions must have a common rallying point—a picture,or icon that captures what and where the key stakeholders can devote their energy and passion over the years. Under the World Bank and DENR ENRMP/GEF Project, this picture or icon is collectively termed as the NON-NEGOTIABLES. These are simply designated land and resourcemanagement units and uses that are determined (after assessments of biophysical, social, and economic links; negotiation; joint adoption and agreement among stakeholders) to be "NON-NEGOTIABLES"[1] and also termed as"NO COMPROMISE ZONES" (NCZ).These are land and resource areas and units whose management objectives can NO LONGER BE COMPROMISED, changed or modified because they provide and ensure the following:

- climate proofing of the watershed-ecosystem, habitats, physical and economic assets, industries, livelihoods, SMEs, and community residents;
- conservation of biodiversity and highly diverse habitats;
- ecological stability of the environment and natural resources;
- sustainable supply of watershed-ecosystems goods and services that support ENR-dependent facilities, industries, livelihoods, and enterprises; and
- insurance for investments in enhancing the watershed-ecosystem's comparative advantage and in improving the value chains of competitive goods and services.

Investments for the improved governance of a watershed-ecosystem or a highly diverse landscape and for its improved management, regulation, and enforcement of laws with respect to the non-negotiables are among the top priorities of concerned national agencies such as DENR, Department of Agriculture (DA), Department of Agrarian Reform (DAR), Department of Tourism (DOT), Department of Energy (DOE), and LGUs (Figure 2). Investments on non-negotiables are generally public in nature although there have been cases where communities, the private sector groups through their corporate social responsibility (CSR) arms, and other sectors especially the NGOs have contributed their share in critical watershed-ecosystems in the Philippines.

Concerned political units within the biophysical boundaries of the watershed-ecosystem or a highly diverse landscape must over time modify and align their existing land uses (through their CLUP processes) in support of the non-negotiables. Each will have to contribute its share in conserving and protecting highly diverse habitats and protection areas, in regulating human activities in highly hazardous areas, in disallowing conversion of prime agricultural lands to other land uses, and in enforcing disallowed land and resource uses that threatens the stable state of the watershed-ecosystem or highly diverse landscape. With the assistance and support from the national government agencies and their provincial governments, cities and municipalities are better positioned to ensure that landowners, tenure holders, industries, enterprises, and residents engage in productive and economic activities that will improve the conditions and health of the watershed-ecosystem or highly diverse landscape.

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1 A more extensive discussion on the topic of "non-negotiables" as part of the IEM strategy is available in the DENR/FASPO publication A Framework on Governance-Oriented Integrated Ecosystems Management (IEM): Getting Each Stakeholder to Contribute Towards Common Goals (December 2012)

Investments to enhance the comparative advantage of a watershed-ecosystem or a highly diverse landscape are simply those that are based on the area's advantage in terms of natural assets—geography, location, natural features, unique historical landmarks—and based on its advantage with respect to sound local governance, capacities, and what the institutions, people, and communities do best. A certain watershed-ecosystem has a comparative advantage in producing irrigated rice and other high value crops if the area has huge irrigable lands, suitable agro-climatic conditions, adequate technical support and infrastructure systems, access to markets, and good peace and order situation. In this case, examples of investments that will enhance the area's comparative advantage are improvements inthe irrigation system to cover all potential irrigable areas, construction of post-harvest facilities,establishment of nurseries, andresearch on affordable high value planting materials (presented more in detail in Figure 2). It should be noted that most investments to enhance a watershed-ecosystem's comparative advantage is mostly carried out by the government, donors, and to a certain extent some private companies with CSR programs.

Investments to improve the value chains[2] of competitive goods and services from a watershed-ecosystem or highly diverse landscape are mostly carried out by the private sector groups which are interested to make money because of the area's relatively lower cost of production per unit, abundant and predictable supply, accessible production areas, stable peace and order condition, good governance, among others. In this case, the private sector groups—enterprising farmers, firms, entrepreneurs, and businessmen—see the opportunity of investing their own funds to generate profit, additional income, employment, expansion and growth. Through the value chain analysis, these groups see the opportunity to produce, process, or see differentiated commodities that are scarce and highly valued as source of profits (Harford 2007). Investments from the public sector, in this case, will focus on support services (e.g., microfinance, capacity building, initial working capital, tax breaks) for the marginalized target groups (e.g., fisherfolks, recipients of land reform program, tenure holders in forest lands, occupants, IPs, small farms) in order for them to survive the marketplace.

In a value chain, the government must step in to support the small farmers so that they will have a direct link from one chain to the other and, therefore, participate effectively and profitably through the process. The farmers, as much as possible, should be engaged in transforming or enhancing their products and benefit from the sequential process of value-adding activities. This way, the farmers benefit from the "farm to fork" set of processes and flows—from the inputs to production to processing, marketing and the consumer (WB 2008). Public investment for supporting farmers where they are weak in the chain is crucial. It should be noted that a chain is only as strong as its weakest link. Support from the government may help the weak link grow stronger. This will allow the farmers to be more secure in participating in the flow of products and services within the chain.

All investments on non-negotiables (their management, regulation, and enforcement), enhancement of comparative advantage, and improving the value chains of competitive goods and services will have to be reviewed and evaluated as to their environmental and socioeconomic impacts in and outside the watershed-ecosystem and or highly diverse landscape. Figure 2 provides a visual summary of the possible investments in a watershed-ecosystem or highly diverse landscape. If not properly reviewed or screened, some investments may simply reduce the overall asset value of a watershed-ecosystem especially when investments neglect issues with respect to property rights or claims of communities, improving local governance, non-adoption of non-negotiables in the LGU CLUPs, and enhancing

2 A value chain is a sequence of production, processing and marketing activities: products pass through all activities of the chain in a certain order and, with each activity, the product gains value. In a well-man aged value chain, the value of the end-product is often greater than the sum of valued-added (Porter, M. 1985)

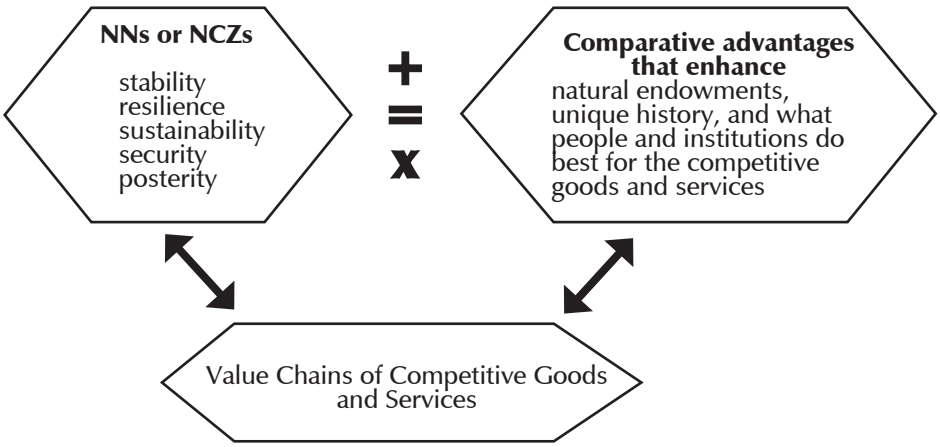

Figure 2. Relationships between investments in non-negotiables (NNs) or no compromise zones (NCZs), comparative advantage and competitive goods and services

economic potentials of the area's natural endowments, features, or unique historical landmarks. In theory, investments on non-negotiables and enhancing comparative advantages will eventually improve the value chains of competitive goods and services from the watershed-ecosystem by leading to benefits like reduced cost per unit, farms and communities that are less vulnerable to the impacts of natural disasters, better zoning, improved infrastructure, and more capacitated producers.

3.0 Some Guides in Formulating IEM-Consistent Investments

Table 2 provides different scenarios on the possible on- and off-site impacts of investments that may affect ENR use, governance, conservation and rehabilitation, and policies in watershed-ecosystems and highly diverse landscapes. Proposed investments in the said areas may have positive, negative or no environmental impact at all. The main rationale of Table 2 is simply the issue of externalities of investments in watershed-ecosystems or highly diverse landscapes. There are unintended impacts or results of any investment, which have to be properly captured with proper mitigations before actual investments.

In an IEM context, the externalities of investments are expected to be reduced because the framework itself provides the mechanism where the local governance body—watershed management council, expanded protected area management board (PAMB), or DENR-LGU Steering Committee—is able to facilitate social negotiation, agreements, and direct investments in such a way that the negative externalities are minimized, if not totally mitigated. Thus, if all proposed investments—public andprivate—in a watershed-ecosystem or highly diverse landscape are presented, discussed, and reviewed based on the approved IEM framework, then there is a prior evaluation of the potential negative externalities.

Given the key role of the IEM governance bodies at the watershed-ecosystem and LGU levels—for oversight, guidance, direction, coordination, advocacy, overall monitoring and evaluation, financial leveraging, social negotiation and conflict resolution—it is important that investments to improve the local governance of watershed-ecosystems and highly diverse landscapes should be given top priority and be part of the package of investments on non-negotiables.These investments should also include the different land and resource management units (LRMUs) whose time, energy, money, and networks

Table 2. Possible mix of net impacts of interventions in a watershed-ecosystem

Intervention	Some Examples	On-site	Off-site	Net Impact
Any investments on the following will have ON- and OFF-SITE impacts: • zoning, managing, and enforcing the non-negotiables • enhancing the comparative advantages for scarce and highly-valuable competitive goods and services • improving governance at the ecosystem and local government levels • use of environment and natural resources assets or services	Trekking and climbing	0	0	0
	Perennial-based agroforestry	+	+	+
	Low-impact harvesting	0	+	+
	Spring-based resorts	0	–	–
	Fighting cock farms	–	0	–
	Reforestation	+	0	+
	Mining without ECC enforcement, road construction	–	–	–
	Restricting use rights for communities in poverty-stricken areas	–	+	+ or –
	Sub-watershed-based CLUP zoning	+	–	+ or –

are used to produce, process, package, transport, and market commodities (goods and services) that will have both negative and positive impact on the local economy, their households, and the watershed-ecosystems (Figure 3). In the end, the enabling investments of the government, NGOs, and the private sector must ensure that the LRMUs are able to generate viable incomes, support their families, and collectively create or produce an abundance or adequate supply of commodities that might incentivize the other private sector groups to set up ventures to capture gains from higher value chains.

In an IEM context, the governance body may decide to impose an externality charge for the expected negative impacts of an investment, but this charge should not "discourage everyone from doing anything that might inconvenience anyone else; it is to get them to take into account the inconvenience they cause to others" (Harford 2007). Under a participatory scheme of local governance, access and availability of information regarding the net impacts of investments will be helpful for making decisions, holding accountability, and enforcing certain rules and regulations. As much as possible, public investments should be evaluated and discouraged if they will facilitate the emergence of "free riders" among the landowners, tenure holders, IPs, and the residents.

4.0 IEM-Consistent Investment Programs

As discussed in the previous section, the IEM approach requires investment programs that are complementary of each other. These investments may be from the local or national, community groups, landowners, NGOs and the private sector. Public investments are needed for the IEM framework preparation, advocacy, mobilization, and implementation phases (as shown in Figures 3 and 4). The entry for additional private sector investments or in promoting private sector investment

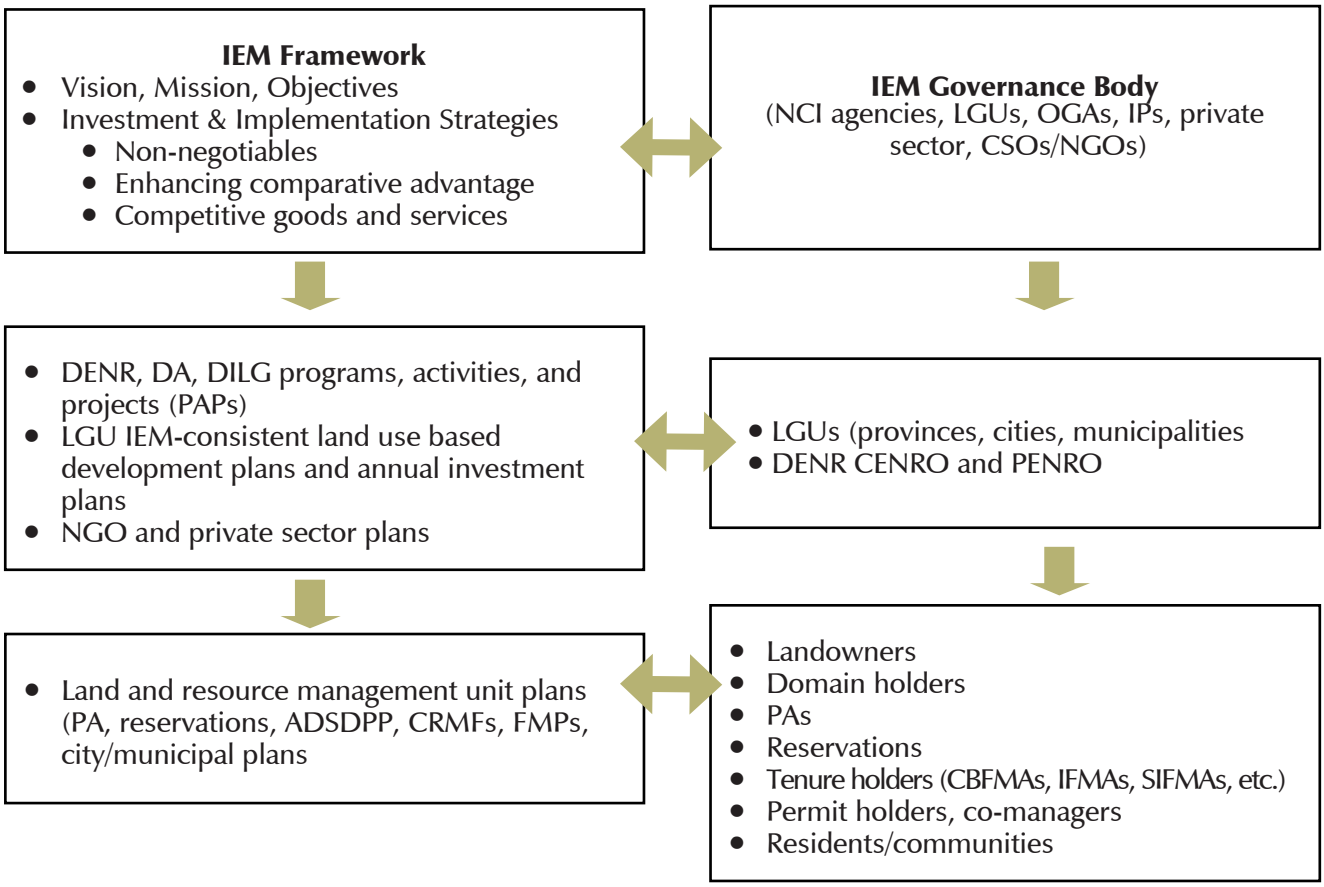

Figure 3. Flow of investments from IEM Framework Preparation to Implementation

will only become clear after the adoption of the IEM framework and multi-sectoral and multi-level investment planning by LGUs, national government agencies and concerned CSR groups and NGOs.

Activities in Figure 4 will need public investments comlemented by NGO and community investments. The IEM framework implementation through the national agencies, concerned LGUs, and resource and land management units will collectively attract the entry of private sector groups or firms that may add value to competitive goods and services by improving weak value chains. Public investments towards the preparation and adoption of the IEM framework and setting up or strengthening the needed local governance framework have been extensively discussed in previous reports.[3]

Most community tenure holders, IPs, agrarian reform communities, and fisherfolks need help on how to or incorporate the non-negotiables in the land and resource management plans or sub-zoning regimes in their areas of responsibilities. DENR, DA, DAR and the LGUs are on the front line for what the resource management units will need in terms of assistance. There are current programs that could be configured to meet the needs of these resource management units, such as DENR's National

3 NPS-ENRMP reports/publications Governance-Oriented Integrated Ecosystems Management: Getting Each Stakeholder to Contribute Towards Common Goals and A Proposed DENR Road Map for Replicating and Scaling Up of Governance-Oriented Integrated Ecosystems Management. These could be made available upon request to DENR/ FASPO, DENR, Visayas Avenue, Quezon City.

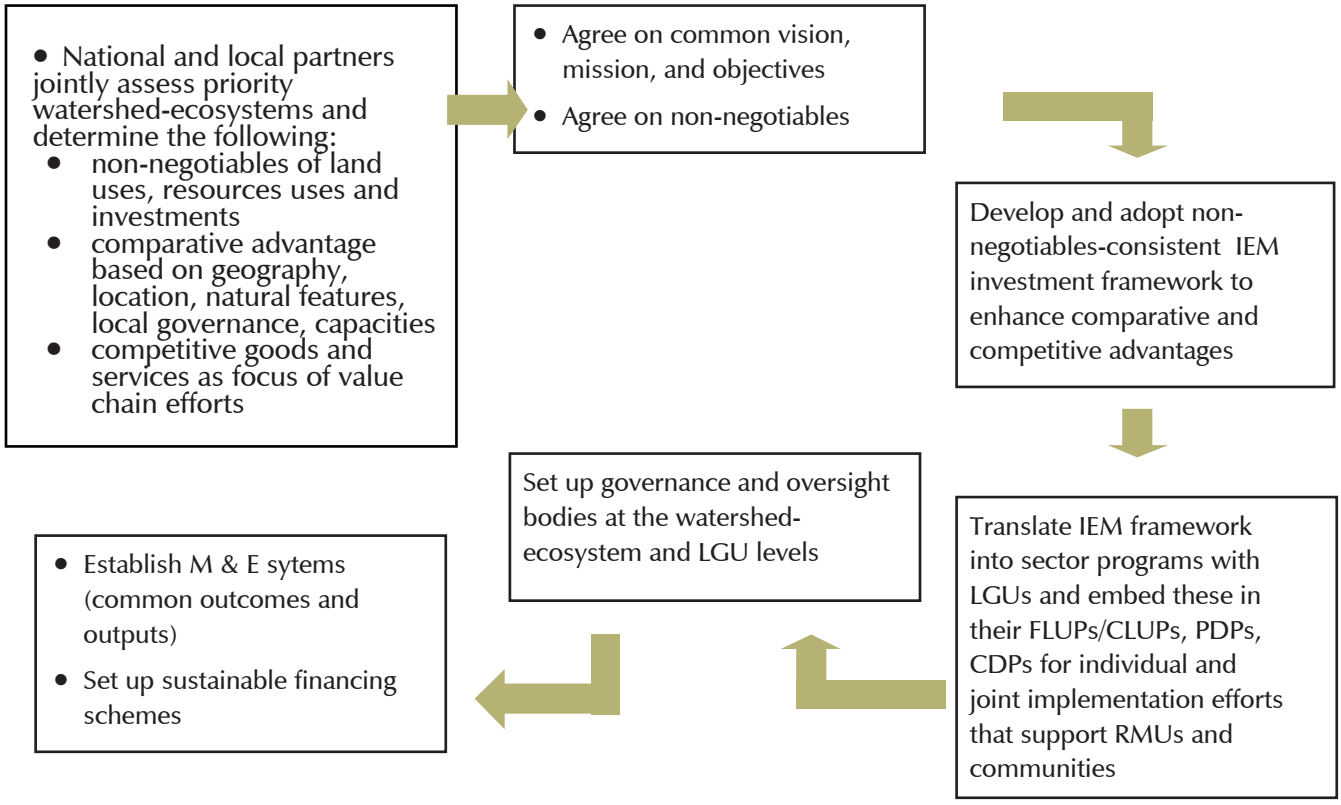

Figure 4. Key Processes in Formulating the IEM Common Framework and Implementation

Greening Program and the National Convergence Initiative (NCI) with DA, DENR, DAR and the Department of the Interior and Local Government (DILG). With established DENR-LGU partnerships through the approved forest land use plans, some donors and NGOs could easily pitch in with support especially if needs are tied up with REDD+ (reducing emissions from deforestation and forest

At the minimum, investments for the IEM preparation, review, adoption, and initial mobilization will require resources for assessments(of biophysical resources, governance, institutions, policies, socio-economic conditions, issues, threats, and opportunities) and analyses to determine the initial recommendations for non-negotiables, comparative advantages, and competitive goods and services. During the IEM preparation phase, investments are needed for mapping, studies, consultations with stakeholders, capacity building, organizing and mobilization, and levelling off among local and national stakeholders. For replicating and scaling up the IEM strategy in priority watershed-ecosystems and highly diverse landscapes,public resources must be planned by DENR, DA, DAR, DILG and the LGUs at least a year ahead of the actual IEM preparation activities. Mapping and subsequent analyses will require huge amounts of investments and most of these may be sourced out from the private sector.

As shown in Figure 4, the IEM preparation phase, resources are needed to:

- further vet the initial recommendations with local and national stakeholders;
- facilitate agreements on common direction (mainly for common envisioned future, goals, objectives, and targets);

- determine strategies to improve local governance (who will have tasks, responsibilities, accountabilities and authorities in the watershed-ecosystem or highly diverse area);
- formulate investment strategies to effectively manage, regulate and enforce rules in the non-negotiables;
- formulate investments to enhance the site's comparative advantage; and
- analyze and identify opportunities for improving the value chains of competitive goods and services.

Upon adoption of the IEM framework, the challenge is for the national and local government units to create and organize local governance bodies, which may be a watershed-ecosystem management council or LGU steering committee. The governance body at the watershed-ecosystem level is more likely to be "coalition of the willing" that results from joint resolution among the members of the council which is composed of formally designated representatives from LGU, DENR, DA, DAR, DILG, and other concerned sectors. This governance or oversight body will require annual recurring costs for coordination, regular meetings, staffing, M&E activities, advocacy, and social negotiation activities. These costs may be budgeted from the province and DENR with contributions from each of the concerned LGUs. A watershed-ecosystem coordination office maybe created for the council to manage the day to day coordination activities.

The IEM approval also lays down the foundation for investing in setting up a results-based monitoring and evaluation system. The outcomes and outputs will emerge from the investments that are planned for managing and regulating the non-negotiables, enhancing the comparative advantages, and improving the value chains of the competitive goods and services. The outcomes and output indicators will be developed with the LGUs, RMUs, concerned national agencies, and the governance bodies at the ecosystem and LGU levels. With the initial baselines, the periodic measurements or determination of the output indicators for each outcome will provide a system for tracking improvements of key biophysical, governance, social, and economic measures. Results, findings and recommendations may be discussed by the local governance bodies for necessary actions and decisions. Again, public investments are needed to set up the M&E system, develop capacities, operationalize the system, and sustain the system over time.

With the IEM approval, the next step is the incorporation or translation of the non-negotiablesinto each of the LGU CLUPs. This process will help align land and resource management uses within the watershed-ecosystem—from the uplands, lowlands, and coastal areas on a ridge to reef landscape. This process will require collaborative and partnership arrangements between the concerned province, cities, municipalities, DENR, DA, DAR, and DILG including the Housing and Land Use Regulatory Board (HLURB). The projected land use scenario within an LGU will then reflect the non-negotiables—conservation areas, protection forests and forest lands, high hazard zones, and prime agricultural lands—in the overall context of the IEM framework. Support for ordinance formulation and capacity building for enforcement and advocacy will be needed at the local level.

Tables 3, 4, and 5 provide a menu of possible investments on non-negotiables, enhancement of comparative advantages, and improvements on the value chains of competitive goods and services. These tables list possible starting pointsforLGUs, DENR, NGOs, governance bodies, RMUs, and the private sector to formulate and jointly package an IEM-consistent investment program depending on their mandate, location, and available funds. Initially, the DENR, with the province and other concerned national agencies such as those in the NCI (DA, DENR, DAR, DILG) may take the first step with the IEM local governance body to draft an investment program starting with their government budgets, internal revenue allotments (IRAs), non-IRA funds, alternative sources of funds, grant or donor funds.

Table 3. Menu of Investments in Non-Negotiables

Non-Negotiables Category	Investment Opportunities	Cross-Cutting
Conservation area or protected forests-not degraded	• protection and investment • assessment and research • delineation (multiple use zone or MUZ, strict protection zone or SPZ) • ecotourism in multiple use zone	• staffing and management • operational planning • zoning • enacting ordinance • enforcement • IEM advocacy • strengthening capacity • MIS and M&E systems • DRR and CC-proofing in CLUPs and CDPs
Conservation area and protection forestlands-degraded	• rehabilitation, restoration • assessment and research • delineation (MUZ and SPZ) • ecotourism and indigenous agroforestry in MUZ, not in hazardous zones	
Highly hazardous zones	• zoning enforcement • stabilization through rehabilitation • resettlement, relocation efforts	
Non-convertible prime agricultural lands	• zoning enforcement • system of monitoring productivity	
Disallowed investments, land and resource uses	• enforcement • assessment and analysis	

Table 4. Menu of Investments on Comparative Advantages

CA Category	Investment Opportunities	Cross-Cutting
Infrastructure support	• access roads-provincial and barangay roads and bridges • ports and markets • testing and quality control centers • post-harvest and storage facilities with CSOs and PPP set up • genetic and planting materials supply centers	• staffing and management • operational planning • zoning • enacting ordinance • enforcement • IEM advocacy • strengthening capacity • MIS and M&E systems • microfinance • research and development
Extension support system	• materials development, technology transfers, and dissemination • training of extension workers • support for coordinated, consolidated production, marketing, transport, and negotiation with buyers • support mapping and securing tenure rights • support for access to financing farm development	
Market linkages	• investment promotions • support for private-public partnership arrangements and financing	

Table 5. Menu of Investments on Competitive Goods and Services

CA Category	Investment Opportunities	Cross-Cutting
Production	• assessment and analysis of sources of inputs • support for production volume and expansion of competitive goods and services to achieve economies of scale • research and development for climate change-proofing monocultures, adopting new technologies • subsidized support for small and marginalized farmers	• staffing and management • value chain analyses and assessments • operational planning • enacting ordinance • enforcement • IEM advocacy • strengthening capacity • MIS and M&E systems • access to finance • research and development
Processing	• assistance to target entrepreneurs and household producers • assistance on private-public partnerships with interested investors based on screening and evaluation	
Transport, distribution, and marketing	• linking targeted small producers with buyers • assistance and guidance in market price negotiation • establishing incentives while regulating brokers and middlemen	

The journey of a thousand miles starts with the first step. Such is the case in formulating IEM-consistent investment strategies in a watershed-ecosystem or a highly diverse landscape. The starting points in formulating investment programs are the programmed funds from the General Appropriations Act for the different ENR sub-sectors, other sectors, and LGU IRAs. Programming these funds through the projects, activities, and projects (PAPs) exercises will ensure that each sector has funds in support of the IEM framework. Each LGU through their CDP and eventually through their annual investment plansshould also be able to provide IEM-consistent support to their constituents and resource management units.

With improvements in local governance and with functional coordinating and implementing units, the "climate for private sector investment" is expected to attract investments that will eventually lead to local socioeconomic development. Good governance, improved social services and infrastructure, stable peace and order conditions, defined incentives for landowners and tenure holders, microfinance and access to financial services, and enforced zoning within the watershed-ecosystem landscape will normally attract more private sector groups including tenure holders and small holders. After all, investments in rehabilitating degraded ecosystems especially through reforestation, agroforestry, and mixed perennial crops will at least 50% of public benefits (with the rest as private benefits for as long as the remaining natural forests and habitats in watershed-ecosystems are protected, conserved, and managed (Francisco 2004).

5.0 Summary

Integrated and complementary investments with the net impact of improving the biophysical, social, economic, and governance conditions in a watershed-ecosystem or highly diverse landscape remain to be the challenge in IEM. Under the World Bank-DENR ENRMP/GEF project, the IEM framework for a watershed-ecosystem or a highly diverse landscape can serve as the rallying point in promoting, organizing, coordinating, and formulating complementary investments from national and local governments with priority land and resource management units. The IEM framework directs investments for the effective management and regulation of the non-negotiables, which helps secure investments for enhancing the watershed-ecosystem's comparative advantages and value chains of competitive goods and services. To make the IEM framework become the rallying point of various investments, good governance and IEM-consistent results-based M&E systems must be in place. LGUs, DENR field units, and RMUs must be incentivized as they make on-site choices, decisions, and actions. Investments must be associated with the expected outcomes and outputs in a watershed-ecosystem or highly diverse landscape.

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