

Philippines: Rural Agro-Enterprise Partnership and Inclusive Development Project (RAPID)

Climate Risk Analysis and Environmental & Social Management Plan

I. Introduction

1. At the OSC, ECD has flagged the Rural Agro-enterprise Partnerships for Inclusive Development Project (RAPID) as category B for environment, and highlighted the vulnerability of the Philippines to climate change. While the concept and design of RAPID is customized to the development context in which it operates, and therefore includes strengthening of resilience and capabilities to address climate challenges, this document undertakes a climate risk assessment to further discern the project specifications that relate to impacts of increasing climate variability.
2. The proposed project supports adaptation to changing climate, e.g. through its focus on (i) climate-friendly commodities, particularly tree crops (coffee, cacao, coconut); (ii) technical solutions favorable to soil and water retention and natural resource management (such as Sloping Agricultural Land Technology, or SALT); (iii) commodities that have growing long-term market demand, thereby improving incomes and resilience; and (iv) risk mitigation measures-including options for harnessing crop insurance and equity finance, which will be further detailed during the final design.
3. RAPID seeks to upgrade livelihoods, incomes and resilience of poor rural people in the Philippines. Because its strategy features support to natural-resource based value chain development and associated small and micro-enterprises (including development of agro-processing facilities, and operations through financial service providers for farm investment and agricultural inputs), this IFAD document also puts forward an environmental and social analysis, to inform RAPID's Environmental and Social Management Plan.

II. Project Description and Target Group

4. **Summary Project Description.** RAPID comprises three components, which are summarized in Figure 1 below:
 - *Component 1 - Value Chain Development* supports all the activities required to promote business partnerships between MSMEs and farmers in the target value chains;
 - *Component 2 – Productive Investments* complements partnership investments with interventions that: (i) facilitate the access of farming households and other players in the value chain to diversified financial services; and (ii) improve access to production areas through rehabilitation of roads and bridges;
 - *Component 3 – Project Management* supports DTI and project implementers in delivering project services.

Figure 1 – Project components

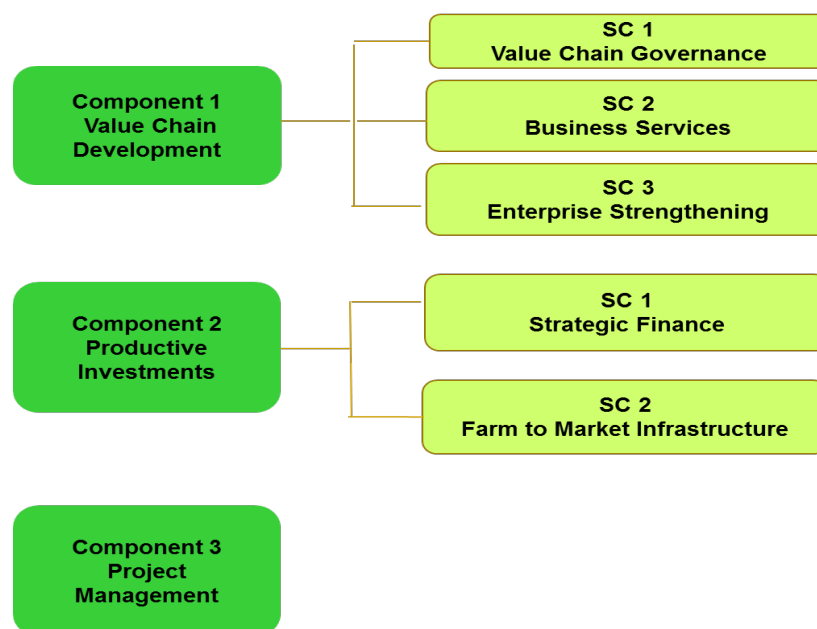


Table 1: Programme costs by component

	(Peso million)			(US\$ '000)			% For.	% Tot. Base
	Local	Foreign	Total	Local	Foreign	Total	Exch. Costs	Costs
A. Component 1 - Value Chain Development	921	82	1 003	19 180	1 706	20 886	8	25
B. Component 2 - Productive Investments								
1. Sub.comp. 2.1 - Strategic Finance	1 438	110	1 548	29 949	2 301	32 250	7	39
2. Sub.comp. 2.2 - Farm to market infrastructure	246	763	1 009	5 117	15 902	21 019	76	25
Subtotal	1 683	874	2 557	35 066	18 203	53 269	34	64
C. Component 3 - Program Management	358	58	416	7 462	1 212	8 674	14	10
Total BASELINE COSTS	2 962	1 014	3 976	61 708	21 120	82 828	25	100
Physical Contingencies	81	80	161	1 693	1 660	3 353	50	4
Price Contingencies	309	96	404	6 433	1 992	8 425	24	10
Total PROJECT COSTS	3 352	1 189	4 541	69 835	24 772	94 607	26	114

5. RAPID will be implemented in five or six regions and about twenty target provinces that combine two main criteria: (i) growth potential in three target value chains selected with DTI among the seven DTI priority agriculture chains, i.e. cocoa, coffee and processed fruits and nuts; and (ii) poverty incidence. Additional criteria were used to refine the selection: (i) potential for expanding the production area for the target crops; (ii) operational viability (mainly security considerations); (iii) cost effectiveness of project management (number of provinces per region and proximity).

6. Table 2 presents the project area and main features applied in the selection process.

Table 2 - RAPID Target Regions and Provinces

Region	Province	Population	Number of MSEs in the agri-sector	Production area ¹ (ha)	Number of poor people	Poverty incidence (%)
8	Leyte	1,724,679	11,272	96,121	652,690	31.0
	Southern Leyte	421,750	2,130	37,209	146,726	38.0
	Northern Samar	632,379	2,803	88,357	337,064	56.2
9	Zamboanga del Norte	1,011,393	5,990	214,134	588,451	51.6
	Zamboanga del Sur	1,010,674	13,759	129,430	476,765	24.8
	Zamboanga Sibugay	633,129	6,098	62,786	164,230	31.7
10	Bukidnon	1,415,226	7,395	20,382	732,027	53.6
	Lanao del Norte	676,395	3,819	83,666	415,967	44.3
	Misamis Oriental	888,509	12,779	108,950	338,972	19.3
11	Compostela Valley	736,107	1,109	56,136	178,922	28.1
	Davao Oriental	558,958	6,911	151,769	163,594	29.9
	Davao del Sur	632,588	20,787	129,430	450,012	15.6
	Davao del Norte	1,016,332	7,709	48,104	299,673	33.2
12 / ARMM	North Cotabato	1,379,747	26,137	56,382	615,923	41.4
	Saranggani	544,261	2,877	91,078	233,164	55.2
	Sultan Kudarat	812,095	7,257	48,433	393,833	48.0
	Maguindanao	1,173,933	6,836	122,599	551,681	57.2
13	Agusan del Norte	354,503	3,916	36,739	270,149	34.9
	Agusan del Sur	700,653	3,279	21,408	318,638	47.3
	Surigao del Sur	592,250	3340	81,129	248,345	40.1
TOTAL		16,915,561	156,203	1,684,242	7,576,826	
PHILIPPINES		100,981,437	944,987	3,847,385	21,927,009	21.6

Source: PSA, 2015

7. The proposed project area is displayed in map 1, below. Eighteen of the twenty target provinces have poverty incidence rates above the national average, and twelve are among the twenty provinces with highest poverty incidence in the country.

¹ For five crops – banana, cacao, calamansi, coffee, coconut.

Map 1: RAPID project area



8. **Target value chains.** A selection of three target value chains was determined based on a number of market, social and physical features: (i) strong marketing potential, both domestically and internationally; (ii) significant potential for increasing productivity as well as climate change resilience, through better agronomic practices and the development of agroforestry and Sloping Agricultural Land Technology (SALT); (iii) involvement of large

numbers of women and men smallholders, and joint participation of women and men (coffee and cocoa); (iv) potential for increasing the share of the final value added accruing to farmers, by raising quality standards and promoting primary processing; (v) engagement of a majority of micro-enterprises (including farmer groups or associations) in primary processing, with high participation of women. In addition, Arabica coffee is particularly interesting for benefiting indigenous people given that it is predominantly grown in highlands. Intercropping cocoa and coffee with coconut (a crop predominantly grown by poor households) or fruit trees will be encouraged to optimize coffee and cocoa production, enhance climate resilience and diversify farmers' sources of income.

9. **Target groups.** The project targets rural households engaged within selected commodity value chains and business owners of agricultural enterprises. In addition to smallholder households active in the selected value chains, RAPID targets unemployed or underemployed rural women and men that can be employed by participating enterprises.

10. Within these target groups, and in view of the high migration rates from rural areas, the project design shall assess the extent to which labor and financial assets of remittance-receiving households can be leveraged to improve development and entrepreneurship outcomes. Special target groups will include: (i) women, either farmers or women entrepreneurs; (ii) young underemployed men and women; (iii) indigenous people; (iv) poorer households; and (v) OFW households and their OFW member. The project will ensure that they have access to project services and that these are adapted to their needs. A *secondary target group* is composed of medium and large enterprise owners, who collaborate with smallholders, their cooperatives, and other micro-enterprises in the primary target group, by sourcing produce, extending services, or generating employment opportunities directly or through multiplier effects.

III. Poverty and Vulnerabilities in the Project Area

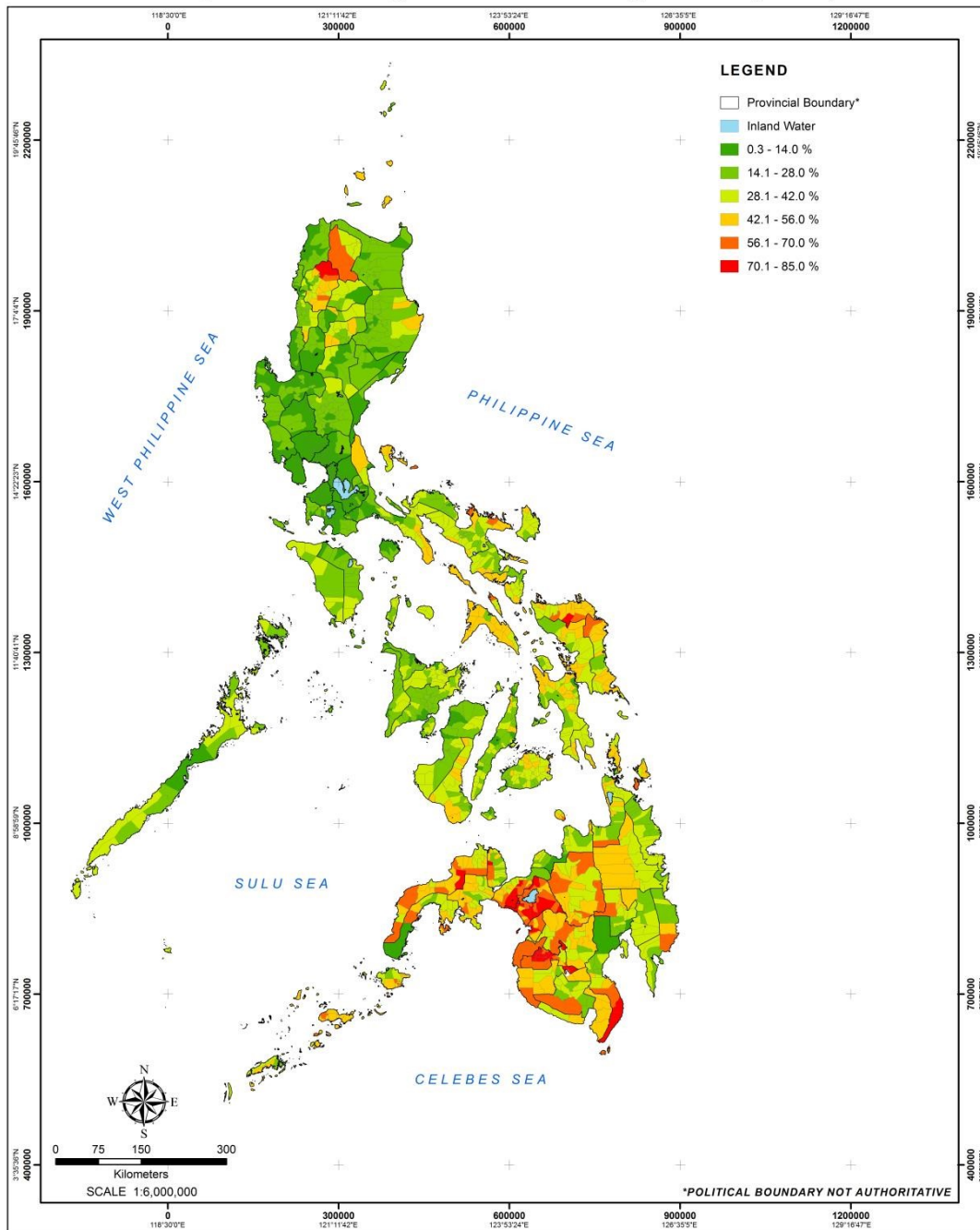
11. **Socio-economic trends and rural poverty.** The population of the Philippines was estimated at 101 million persons in 2015, half of which are living in rural areas. The Philippine economy is among the fastest growing in Southeast Asia- having grown 5.8% in 2015 and 6.1% in 2014. In 2014, GDP amounted to US\$285 billion with a GNI per capita of US\$3,500, classifying the Philippines as a lower middle-income country. Yet a quarter of the population is considered poor, of which about 9% (or 9 million persons) are estimated to suffer from *extreme* poverty. Poverty is higher in rural areas; at 34.9% it is almost three times higher than in urban areas (13.2%). About two thirds of the country's poor are rural and depend on agriculture for income and sustenance. For these poor households, low returns are accentuated by the vulnerability of agricultural production to climate variability and extreme events.

12. **Map 2** shows the poverty incidence by province in the Philippines (PSA, 2015). Provinces with high poverty incidence are mostly in Mindanao. Some areas in northern Luzon such as Abra and Kalinga-Apayao have high poverty incidence. The bottom 10 provinces in terms of poverty incidence are mostly in Mindanao with some areas in Luzon (Camarines Norte and Romblon). Poverty level is generally high in marginal areas due to limited access to resources as well as limited opportunities for livelihood activities.

Map 2:

POVERTY INCIDENCE MAP OF THE PHILIPPINES

Adaptation and Mitigation Initiative in Agriculture (AMIA)



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CHANGE OFFICE (DASWCCO)

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COORDINATE SYSTEM

PROJECTION Geographic
UTM Zone 51 N
DATUM WGS 1984

MAP SOURCE

National Mapping and Resource Information Authority (NAMRIA),
Satellite Imagery

DATA SOURCE Philippine Statistics Authority (PSA)

PROCESSING DASWCCO - AMIA Project 1
Integrated Climate Change Geographic Information System (ICCGIS)

13. Among the subsectors of agriculture, those engaged in forestry activities have the highest incidence of poverty at 68 percent. Poverty estimates in 2012 have shown that substantial number of the country's farmers were also poor, including more than 40% of farmers in Mindanao and the Visayas. Poverty incidence of Zamboanga, Northern Mindanao and the Autonomous Region of Muslim Mindanao (ARMM) farmers exceeded 50%. **Figure 2** presents the poverty incidence of farmers and fishermen.

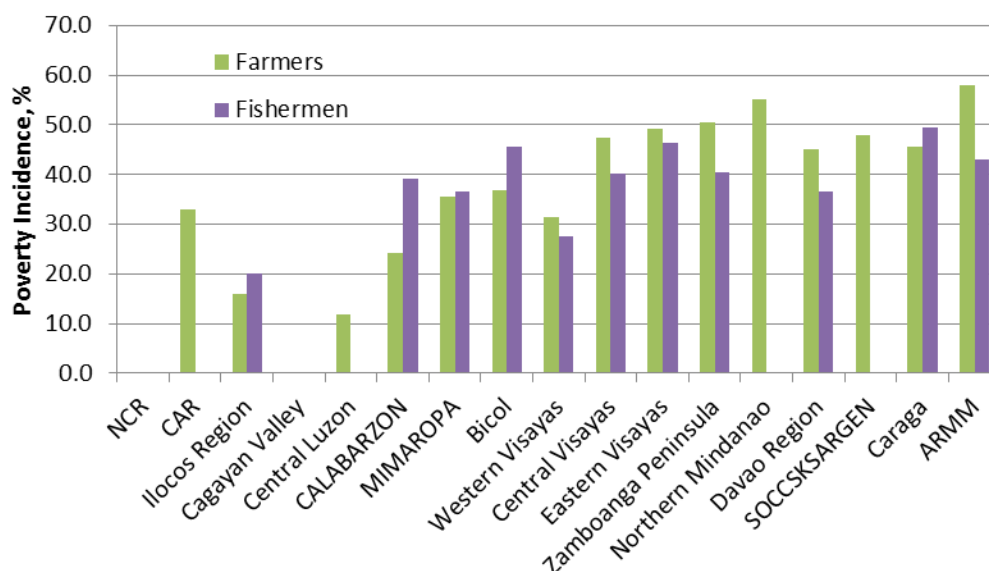


Figure 2. Poverty incidence of farmers and fishermen in 2012 (source: PSA)

14. Among the types of crops, subsectors with high poverty rates are corn growing (64%), coconut growing (56%), sugarcane growing (53%), and growing of coffee, cacao (54%). In terms of total number of poor, the share of palay growers is the largest at 30 percent. The second largest share is that of corn growing with 17 percent, fishing with 15 percent, and coconut growing (14%). Ironically, many of the farmers are also food poor, or popularly called the **subsistence poor**.²

15. **Poverty among rural women, children and youth.** In the 2012 poverty estimate, women, youth and children in Mindanao have the highest poverty incidence in the country. ARMM had the worst situation where poverty incidence of women, youth and children were the highest in the country. Sixty percent and more than 50% of children and women, respectively were poor. Almost 50% of the youth were also poor.

16. However, in the entire country, estimates have shown that children have the highest poverty incidence. According to UNDP 2005-2015 estimate, 11.1% of the children's population are into child labor. **Figure 3** shows a markedly high poverty incidence, which is poor also relative to the other ASEAN countries. Only Cambodia has a higher rate of child labor than Philippines.

² PIDS

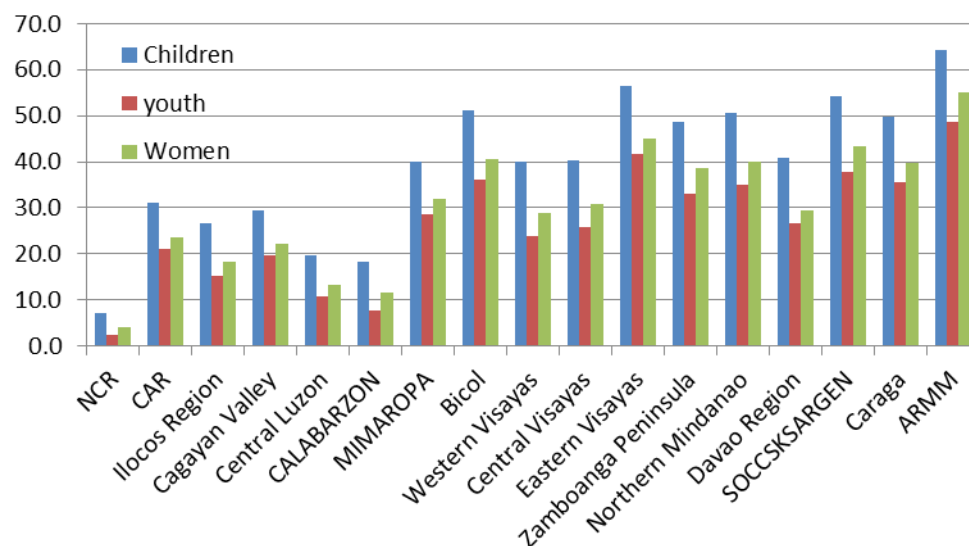
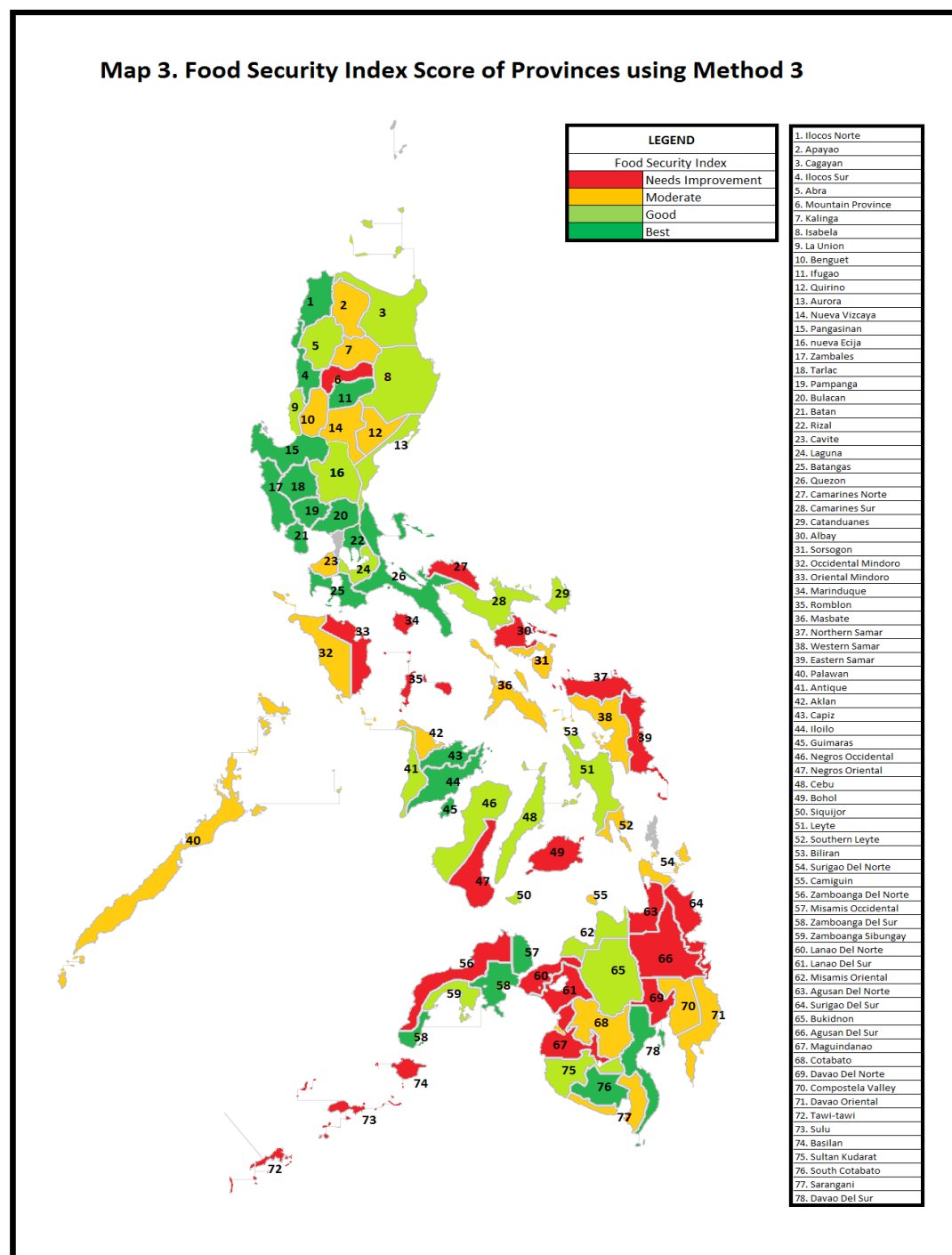


Figure 3. Poverty incidence of children, youth and women in 2012 (source: PSA)

17. **Hunger.** A recent IFPRI report ranks the Philippines 68th (of 118 countries) in the world according to its hunger index³, evaluated at 19.9 (von Grebner et al 2016). This is a significant leap from its score in 1992 (at 30.8). However this improvement is slow compared to some of the country's neighbors. The GHI of Vietnam, for example, was even worse than the Philippines in 1992 (at 41.5) but at 14.5 in 2016 reduced by significant notches lower than the Philippines. Senegal and Ghana's 1992 hunger index stood at 37.1 and 42.7, respectively. Today, both Senegal and Ghana rank ahead of Philippines.

3 GHI considers four indicators: proportion of undernourished in the population, prevalence of wasting in children under five, prevalence of stunting in children under five and under-five mortality.



(Source: Bueno & Lansigan, 2016)

18. To achieve zero hunger by 2030, the report highlighted the following relevant recommendation worth looking into:

- Prioritization of agricultural production for food and nutrition security

- Sustainably increase agricultural productivity of smallholder farmers through securing access to land, markets, knowledge and financial services
- Minimize food loss through improvement in infrastructure, technology, transportation and distribution system
- Promote people-centered, economically viable and sustainable innovative approaches for agriculture production

19. **Migrant Workers.** Overseas Filipino Workers (OFWs) have reached roughly 10.2 million as of 2014, equivalent to 10% of the country's total population in 2015. Forty eight (48) percent of the total OFWs are considered permanent or Filipinos who acquired permanent residence (legally) in their host country. Most of this group are in the Americas with large fraction living in the US and Canada. A combined 16% of permanent OFWs made a home in Europe (i.e. UK and Italy) and Oceania (e.g. Australia and New Zealand).

20. OFWs are considered "temporary" when they are expected to return at the end of their work contracts. This type comprises 41% of the total OFWs or 4% of the country's total population in 2015. Majority of OFWs are deployed in the Middle East (West Asia) which is 55% of the total temporary OF. Saudi Arabia (0.95 million), UAE (0.78 million), Kuwait and Qatar are the biggest employers of OFWs among middle east countries. Most of those deployed in this region are skilled workers. On the other hand, twenty percent (20%) of the temporary OF went to East Asia (e.g. Japan, Hong Kong, Taiwan) and South Asia (e.g. Singapore, Malaysia).

21. The other group called "Irregular" comprise 11%. A very "small" fraction (roughly 1.2 million) but of significant interest considering that these are those who are illegally staying in their host country (e.g. overstaying, without valid residence or work permits, not properly documented). Around 46% of this group are staying in East and South Asia in which 83% of them or 0.45 million are in Malaysia. This population could be those illegally living/residing in Sabah. In the US, there are also 271,000 irregular OFW.

22. Despite the reduction of poverty incidence among families in 2015, working abroad has continued to rise. From 2014, OFW increased by as much as 5.5% in 2015, an additional 128,000 Filipinos who decided to leave their families in the hope that through working abroad, their family's future will be brighter. In Mindanao, the province of SOCCSKARGEN had the highest female OFW participation (6.9%) but this is still low compared to other regions outside of Mindanao.

23. There seems to be an inverse relationship between the number of OFWs and poverty incidence among families (Figure x). Regions with low poverty incidence have larger numbers of the country's total OFWs. CALABARZON and Central Luzon have the highest number of OFWs in 2014. Outside Metro Manila, CALABARZON and Central Luzon also have the lowest poverty incidence in 2015 at 8.9 and 9.6 per cent respectively.

24. Regions with low poverty incidence also have significantly more female OFWs. Ilocos Region, Cagayan Valley, Central Luzon and CALABARZON have poverty incidence below 15% in 2015. These regions also have more than 9% of the total female OFWs in 2014. Among the

Visayas regions, Western Visayas has the lowest poverty incidence. It also has the highest female OFWs in the Visayas. In Mindanao, where four of 6 provinces have poverty incidence of at least 30% in 2015, female OFWs are low at 2.1 – 6.9% of the country's total in 2014. With only 4.4 % female OFW in 2014, Eastern Visayas' poverty incidence amounted to 31% in 2012.

25. Low poverty incidence seems associated with the proportion of the country's total OFWs originating from any region, and the amount of remittance sent by OFWs. A combined total of Php 126.8 billion was sent by male and female OFWs during 6 months in 2014 (PSA, 2016). Male and female OFWs contribution is 62.8% and 32.7%, respectively. During the 6 month period, female OFWs sent a total of Php 49,000 while male OFWs sent Php 81,000. A male OFW also brought home Php 105,000 aside from the cash sent during the 6 months period while female OFW brought home Php 66,000. This trend seems to suggest that working abroad could indeed be among the effective anti-poverty strategies of poor families especially those in the rural provinces.

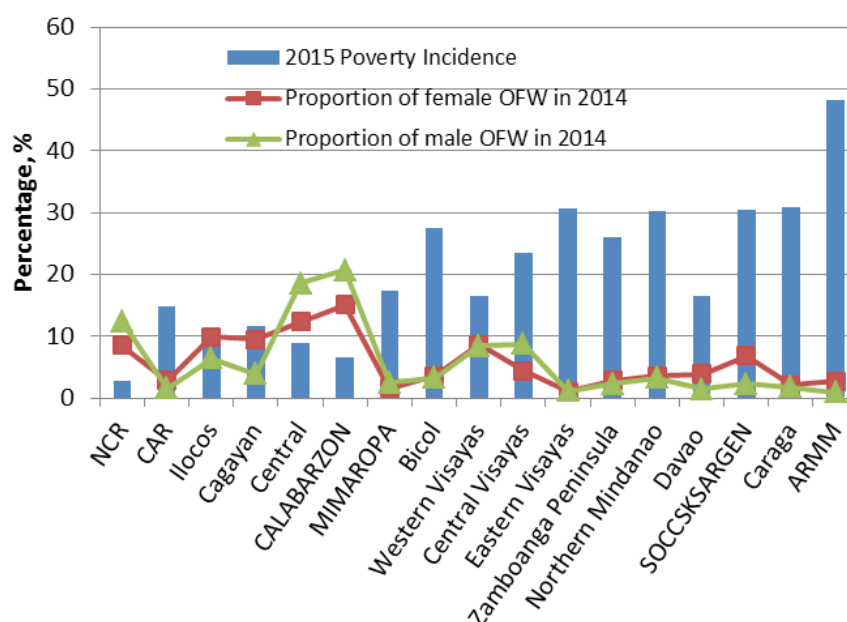


Figure 4. Poverty Incidence in families in 2015 and proportion of male and female OFWs in 2014 (source: PSA)

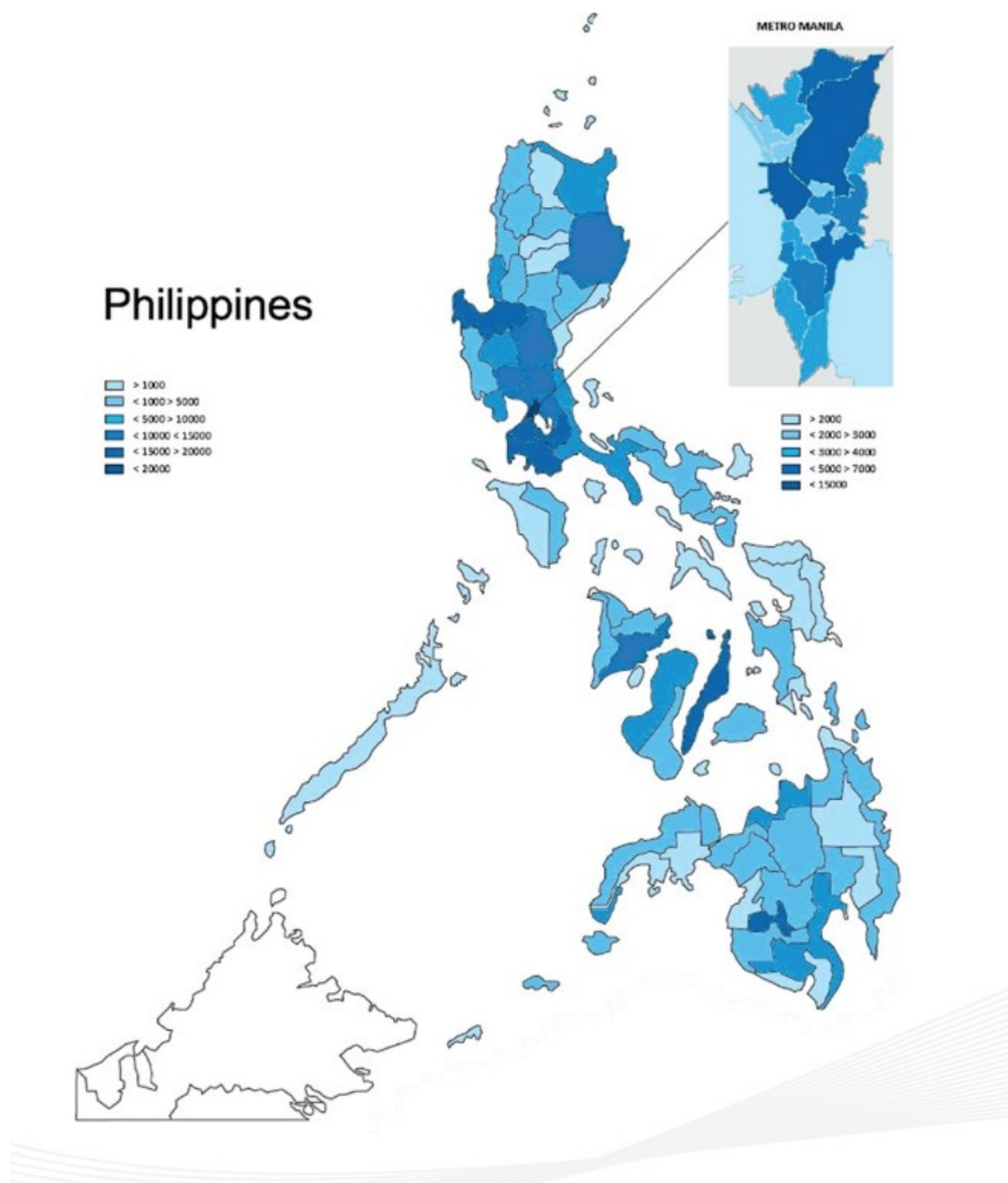
26. Official estimates of DFA, POEA and CFO as of Dec. 2013 indicate that the number of overseas Filipinos has reached 10.2 million. Recent studies⁴ find that migration offers development potential such as providing livelihood and remittances that may be used for local investments. In time of disasters, these remittances also increase. But the policy context is critical as resources can also go the wrong way. As to the Philippine context, the following trends may be observed.

- As the Philippines goes through the process of urbanization, socio-economic inequality between rural and urban areas is becoming more prominent (Perez);

⁴ Studies include Interrelations Between Public Policies, Migration And Development (IPPM) of OECD Development Centre and "Remittances and Disaster: a Review" published by the International Journal of Disaster Risk Reduction.

- Studies indicate that families also use internal migration as a strategy to escape poverty (Quisumbing and McNiven 2006);
- Given rural poverty, outmigration from rural areas is increasing;
- Migrants tend to be in their prime ages: 52% are among the working age of 20-39 (Perez).

Map 4: Origin of OFWs by province, 2012.



Source: 2012, OFW new hires registered by the Philippine Overseas Employment Administration (POEA)

27. **Climate Change.** The Global Climate Risk Index⁵ ranks the Philippines as the 5th country most affected by climatic variability between 1996 and 2015. Climate change is now a reality, and adversely affecting agricultural and rural development in the Philippines. There are observational evidences of changing climate at the global, regional, national, and local levels (PAGASA, 2011; Comiso et al., 2015; Rosegrant et al., 2016). Climate change is exhibited in the following related processes, namely: (1) global warming or increasing temperature that reduces adversely productivity of crops and livestock; (2) erratic rainfall distribution that disrupted the cropping calendar and rainfed crop production systems; (3) more intense extreme events such as strong typhoons with more intense rainfall, floods and droughts; and (4) sea level rise (SLR) that affected the low-lying coastal areas as well as the fishing grounds and fish production areas.

28. Historically, climate change in the Philippines is characterized by increasing number of hot days, and decreasing number of cold nights (PAGASA, 2011). There are also increasing trends in extreme daily rainfall intensity as well as extreme daily rainfall frequency (PAGASA, 2011). These phenomena have significant adverse effects and impacts on crop growth and development (Comiso et al., 2015).

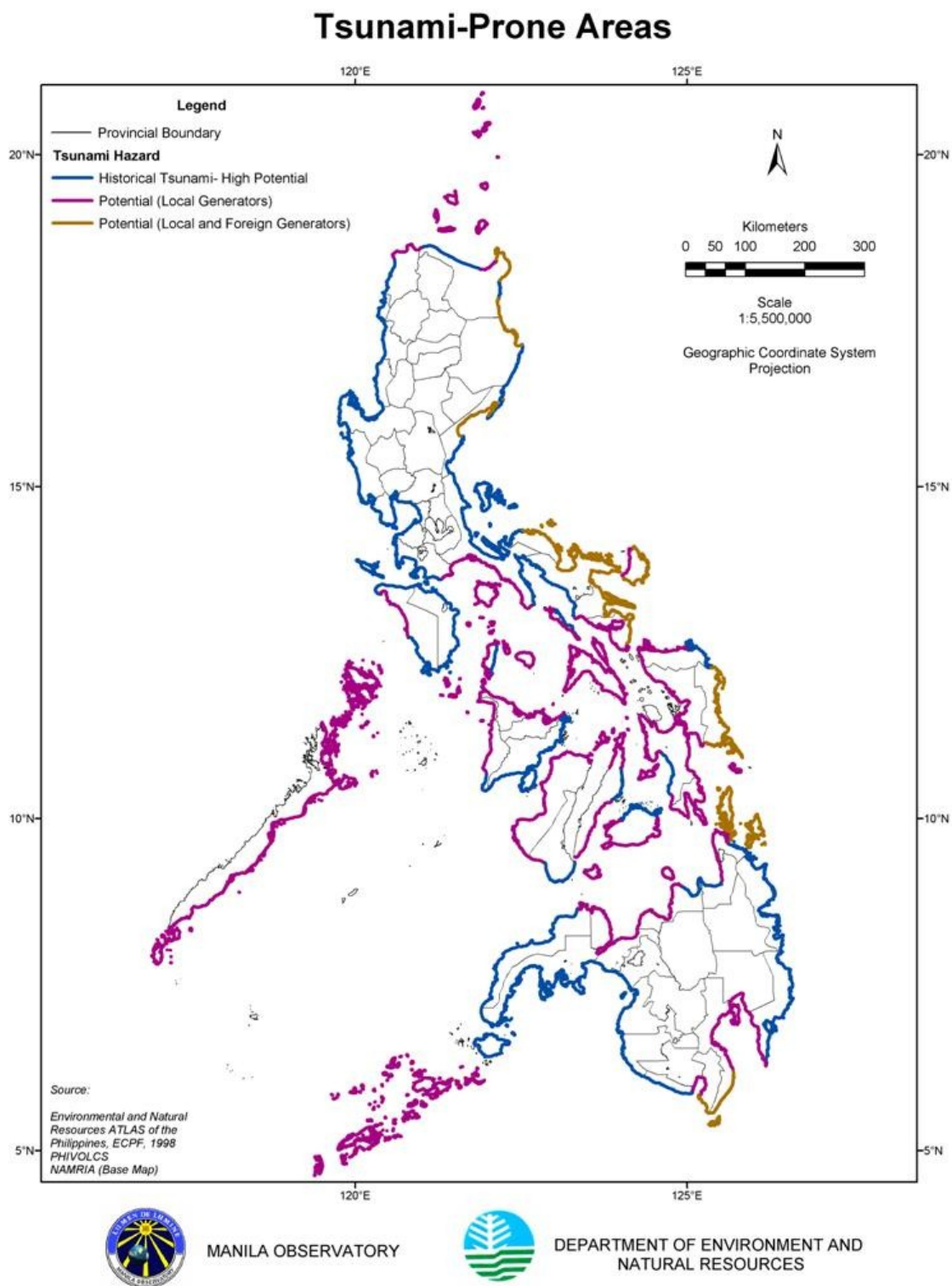
29. Climate change results to an average annual damages of Php12.43 billions to agriculture with about 93% of the total damages attributed to extreme weather events such as typhoons, floods, and droughts (DA AMIA-1, 2016). It is projected that climate change losses and damages in agriculture and livelihood activities will continue to persist in the near future. Thus, it is imperative that threats of climate change have to be addressed by promoting activities that enhance climate resilience of local poor communities and fragile ecosystems.

30. Climate change hazards also include the occurrence of tsunami and storm surge that affect the low-lying coastal areas. They threaten the safety and human security of local communities as well as their livelihoods. **Map 5** shows the potential tsunami map while **Map 6** presents the storm surge map of the Philippines. Previous vulnerability assessment studies on climate change in the Philippines indicate that many areas in the country are vulnerable to climate hazards. **Map 7** shows the entire Philippines is vulnerable to climate change hazards, e.g. increased temperature, more intense extreme rainfall, etc. (Manila Observatory, 2010; Yusuf and Francisco, 2012). However, the vulnerability is location-specific as well as climate hazard-dependent. Moreover, since vulnerability is a function of the climate hazard, extent of exposure to the hazard, sensitivity of the area to the hazards, and the adaptive capacity, the appropriate and suitable climate change adaptation strategy calls for identifying and formulating the specific measures that address these elements.

5 The index is composed of four indicators: number of deaths; number of deaths per 100 000 inhabitants; sum of losses in US\$ in purchasing power parity (PPP); and losses per unit of GDP. Not all countries have sufficient data over 20 years to be included in the rankings.

Map 5:

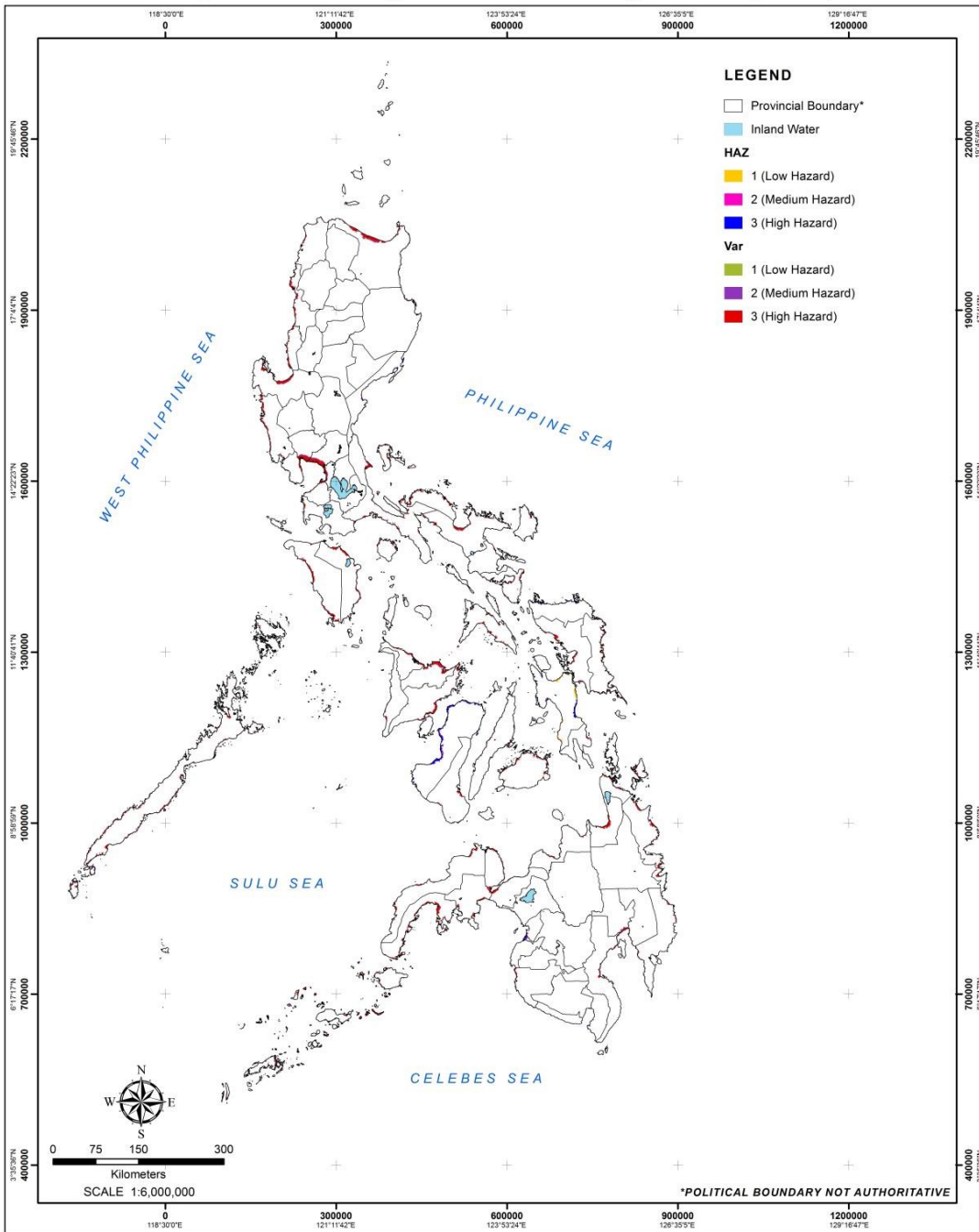
Mapping Philippine Vulnerability to Environmental Disasters



Map 6:

STORM SURGE MAP OF THE PHILIPPINES

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COORDINATE SYSTEM
PROJECTION Geographic UTM Zone 51 N
DATUM WGS 1984

MAP SOURCE National Mapping and Resource Information Authority (NAMRIA), Satellite Imagery
DATA SOURCE National Institute of Geological Sciences (NIGS)
PROCESSING DASWCCO - AMIA Project 1 Integrated Climate Change Geographic Information System (ICGIS)

Map 7: [Hazards map to be added]

31. Coastal areas and lowlands are particularly vulnerable in this island archipelago; however there is substantial heterogeneity in the rural landscape, ranging from coasts to lowlands to forests and mountainous highlands. Nationally, extreme climatic events are exacerbated by the rapidly growing population of the Philippines, and the accelerated rate of urbanization in many areas, which, altogether, exert increasing pressure on the use of land and water. These processes trigger a number of associated ENRM issues and challenges at the national and sub-national levels, including (1) soil erosion and soil loss in agricultural production areas; (2) land use and land cover change; (3) environmental degradation resulting in change in hydrology, and deterioration of water quality; (4) waste disposal and management; and (5) unsustainable production systems in geo-hazard prone or marginal agricultural areas. The risks of climate change are real, and those in the agricultural and rural areas are among the most vulnerable.

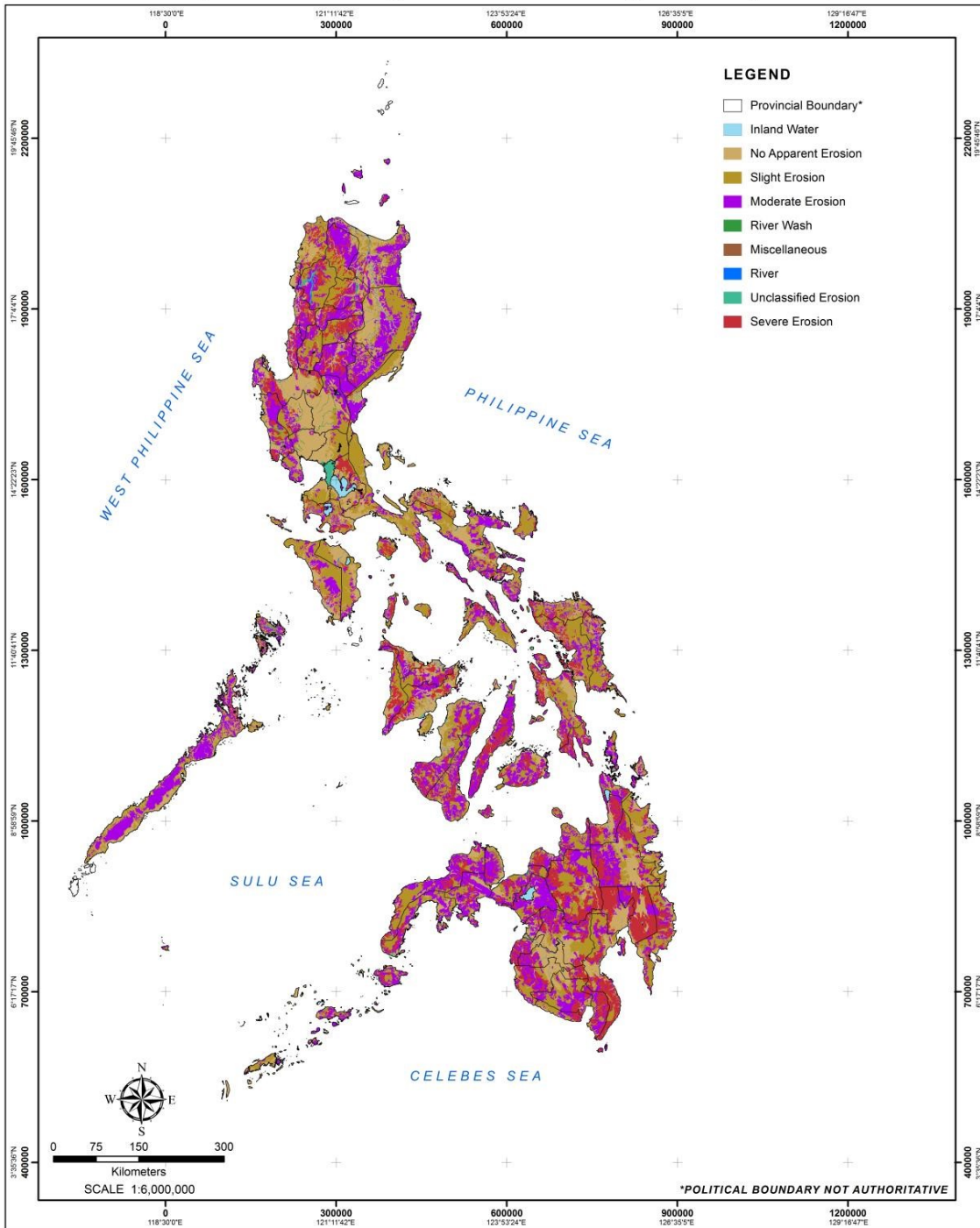
32. **Accelerated soil erosion and soil loss in agricultural production areas.** The occurrence of more intense extreme weather events such as typhoons with strong winds and intense rainfall resulting to floods, and the episodes of more severe droughts during El Niño years are contributing to faster soil erosion and soil loss. Increased rainfall intensity is expected to accelerate soil erosion especially in hilly areas affecting significantly the yield potential of the production areas. Continuous cultivation practices, especially in marginal and fragile lands, and the use of unsustainable agricultural practices have resulted to accelerated soil erosion and soil loss which deplete soil fertility and reduce crop yields, and consequently, decreased income for the farmers through time.

33. **Map 8** shows the soil erosion map of the Philippines. Regions vulnerable to soil erosion are also the productive agricultural production areas. Thus, interventions are badly needed to address this pressing environmental problem.

Map 8:

EROSION MAP OF THE PHILIPPINES

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COORDINATE SYSTEM
PROJECTION: Geographic UTM Zone 51 N
DATUM: WGS 1984

MAP SOURCE: National Mapping and Resource Information Authority (NAMRIA), Satellite Imagery
DATA SOURCE: Bureau of Soils and Water Management (BSWM)
PROCESSING: DASWCCO - AMIA Project 1 Integrated Climate Change Geographic Information System (ICCGIS)

34. **Land Use and Land Cover Change (LUCC).** Land use in the Philippines has significantly changed over the last few decades. While the Government is keen on implementing the National Greening Program (NGP), official statistics and data at the local level as well as activities in different parts of the country indicate an apparent unregulated conversion of agricultural and forest lands into human settlements, recreational facilities, industrial parks, memorial parks, and other non-food producing land uses. Unregulated land use change threatens environmental sustainability as well as food security and nutritional security of the country.

35. **Environmental degradation resulting to change in hydrology and deterioration of water quality.** Agricultural activities and agroforestry practices in the watersheds have greatly affected the hydrologic regimes of river basins affecting water quantity and water quality. These resulted to changes in the stream flow hydrographs over time often characterized by more intense peak (flood) flow and shorter time-to-peak. Flash floods result to significant damages and losses of properties and even lives. These processes occur not only in urbanized and populated human settlement areas but also in many agricultural production areas where poor families lived. These activities not only depleted the water resources for human consumption and ecological services but also resulted to deterioration of water quality in the watershed, water table, rivers, and creeks. This pressing issue calls for the implementation of sound watershed management following the integrated water resources management (IWRM) scheme employing river basin management, landscape and ridge-to-reef approaches. Development project interventions should consider the catchment as the planning and implementation unit.

36. **Waste disposal and management.** Increased population in urban areas as well as in agricultural and rural areas has generated significant amount of solid and liquid wastes, and also poses a challenge on their disposal and management. While local communities and local government units in some areas have initiated the establishment of materials recovery facilities (MRFs) in their respective jurisdictions, proper disposal of wastes still presents a problem. This is partly due to limitation of a suitable area for disposal, and also due to low priority given to the problem. Disposal of wastes has also become a health issue threatening the health and sanitation in poor human settlement areas. This issue has to be addressed to ensure environmental stability. Opportunities for recycling, reduction, and re-use of waste materials should be promoted.

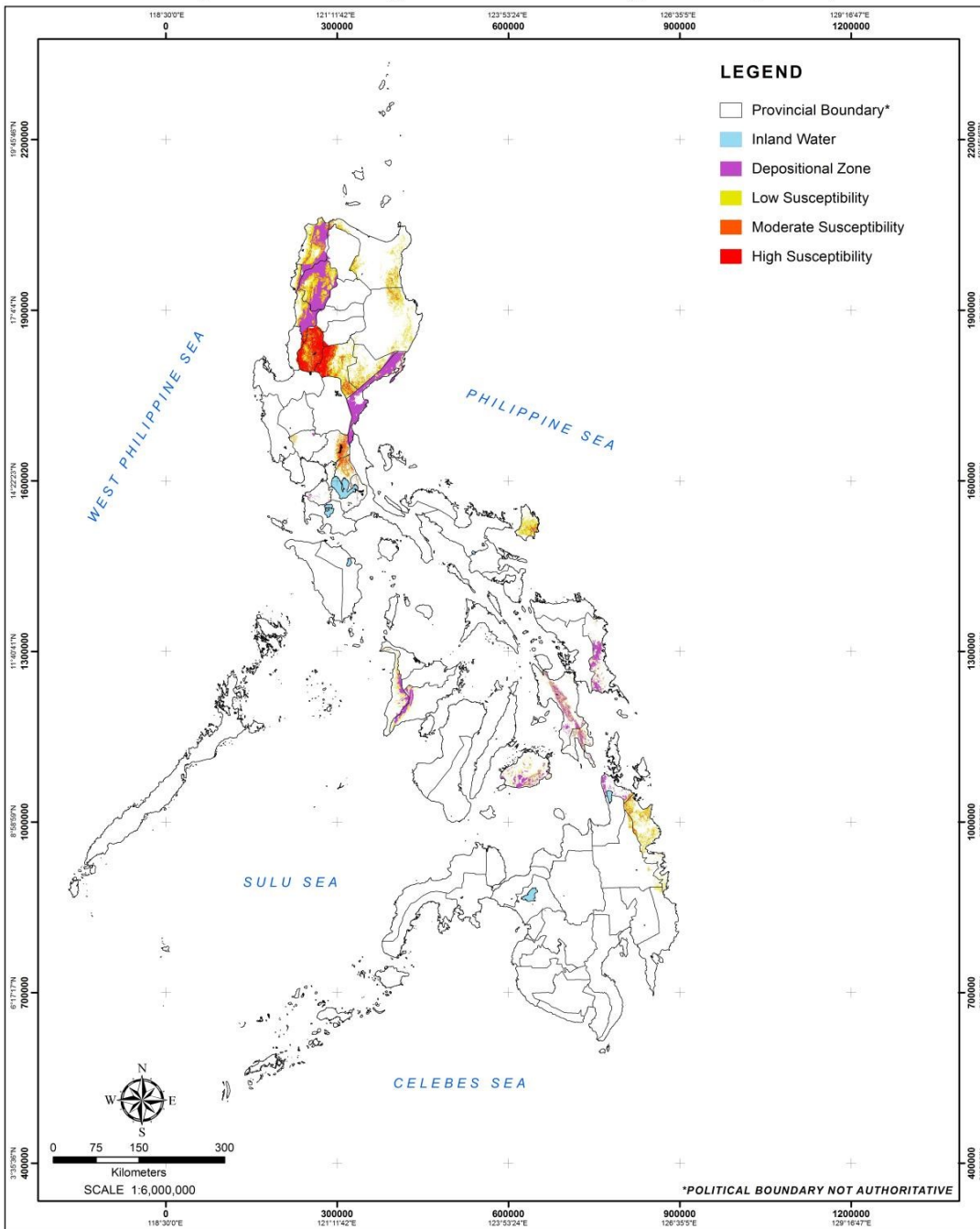
37. **Unsustainable production systems in geo-hazard prone marginal agricultural areas.** Many of the agricultural production areas are prone to geo-hazards. **Map 7** showed the geo-hazard map of the Philippines. Some areas are vulnerable to earthquake-induced landslide (**Map 9**). Agroforestry production systems being practiced in many marginal and populated upland areas are not sustainable resulting to accelerated soil degradation, depletion of soil fertility, and significant soil loss. There is urgent need to promote sustainable agricultural practices such as sloping land agricultural technologies (SALT). Production technologies should also protect the watershed, its flora and fauna, and overall integrity and resilience of fragile ecosystems that supports biodiversity.

38. Land and water resources in marginal areas are often very limited for human settlements due to rapidly increasing population exerting pressure on these resources. Thus, optimal multiple use of resources should be promoted through efficient production technologies that protect the environment, and also provide sustainable yield levels.

Map 9:

EARTHQUAKE-INDUCED LANDSLIDE MAP OF THE PHILIPPINES

Adaptation and Mitigation Initiative in Agriculture (AMIA)



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MAP SOURCE National Mapping and Resource Information Authority (NAMRIA),
Satellite Imagery
DATA SOURCE Philippine Institute of Volcanology and Seismology (PHIVOLCS)
PROCESSING DASWCCO - AMIA Project 1
Integrated Climate Change Geographic Information System (ICCGIS)

IV. Institutional and Legislation Analysis.

39. **Disaster Risk Management.** Republic Act No. 10121, the Philippine National Disaster Risk Reduction and Management Act (NDRRM Act) of 2010 aims to ‘mainstream disaster risk reduction and climate change in development processes such as policy formulation, socio-economic development planning, budgeting, and governance’ (s.2(g)). It creates both national and local level institutional structures which are cross-sectoral in nature, with structures at all levels but with the aim of integration with the work of Local Government Units (LGUs).

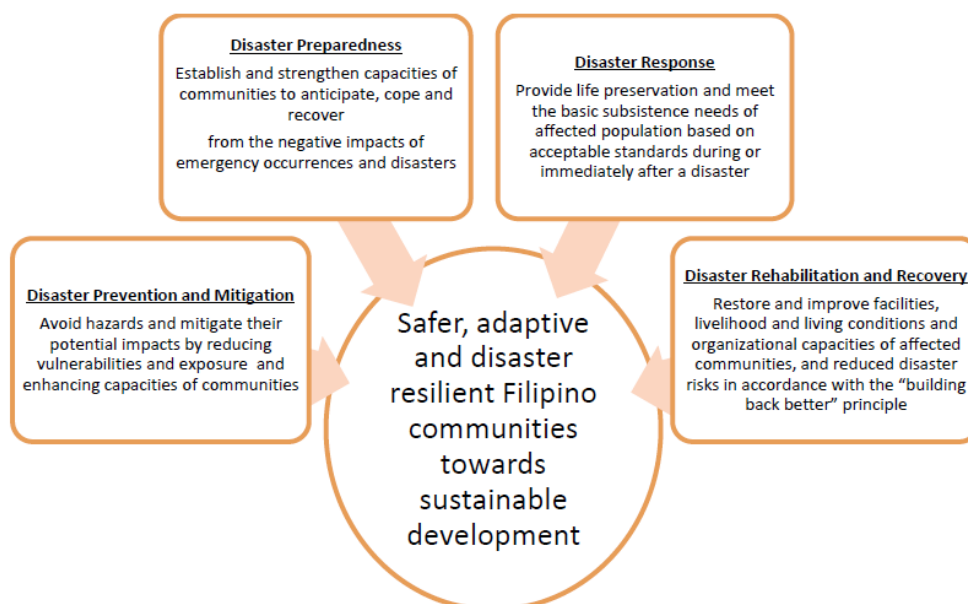


Figure 5: The Objectives of the Philippine disaster risk reduction and management system.

Source: 'National Disaster Risk Reduction and Management Plan (NDRRMP) 2011-2028'.

40. The highest-level structure in the DRRM system is the National Disaster Risk Reduction and Management Council (NDRRM Council), chaired by the Secretary of the Department of National Defense (DND), with the Secretary of the Department of the Interior and Local Government (DILG) as Vice Chairperson for Disaster Preparedness. With almost 40 members, it includes the national ministries central to national planning, including the National Economic Development Authority (NEDA) and the ministries responsible for budget, finance, public works and highways, environment and natural resources, energy, transport and communications, as well as the Department of Trade and Industry (DTI) and a private sector representative (S.5).

41. Similarly composed cross-sectoral councils are established under the NDRRM Act at provincial and local levels, including the Barangay or Local DRRM Councils, although not all are yet functional at the local level. MSMEs are presumed to be represented at national level by the private sector representative on the NDRRM Council, and although the national position is

occupied, there is no prescribed process for filling the private sector positions on this or the Local DRRM Councils (by contrast, there is a Memorandum Circular regulating how civil society representatives are to be chosen.)⁶ Nevertheless, it is notable that 28% of the MSME respondents in the SME survey said they were involved in a Local DRRM Council in some way,, so there may not be an issue with MSME engagement in the DRRM system at local level.

42. The DRRM Councils are advisory and policy bodies, and the Office of Civil Defense (OCD), through national and subnational offices, is the secretariat that is required to implement many of the outcomes, as well as to coordinate with other agencies. OCD's role under the Act is more narrowly defined as 'administering a comprehensive national civil defense and disaster risk reduction and management program' (S.8), including the development of the National DRRM Plan (S.9(b)).

43. The NDRRM Act also establishes two funds, the National Disaster Risk Reduction and Management Fund (NDRRMF), and the Local Disaster Risk Reduction and Management Fund (LDRRMF). These are intended to be used for the entire range of DRM activities by government agencies, and are not part of any system of private risk financing or loans.

44. There are two other pertinent aspects of the DRRM system for MSME disaster resilience, both of which are brought out by looking at the priority actions and responsible agencies in the National Disaster Risk Reduction and Management Plan (NDRRMP) 2011-2028.⁷

- The NDRRM Plan envisages a high level of integration between DRRM and CCA policies and activities, including risk assessments, risk mapping and other technical data, from national to local level, all of which helps to underpin risk reduction for MSMEs shared community risks. The data, in particular, is potentially important for cross-referencing with national statistics to improve our understanding of MSME exposure.
- MSMEs or 'economic activities' appear not to be part of the NDRRM Plan except concerning recovery, and DTI is not named as a participating agency in any aspect of the plan. A focus on MSME needs and participation in the thematic areas on disaster prevention and mitigation, disaster preparedness and disaster response could be an important underpinning for better integration of MSMEs into the DRRM system.

Climate Change Legislation and Institutions

45. The Climate Change Act of 2009 (as amended by the People's Survival Fund Act of 2012) (the CC Act) has the essential policy objective of systematically integrating the concept of climate change into national policy formulation and development planning by all government agencies and instrumentalities.⁸ It establishes the Climate Change Commission (CCC) (s.4) the

6 NDRRMC. Memorandum Circular No. 3 Series of 2012 'Guidelines for the Selection of Representatives from the Civil Society Organizations (CSOs) to the National and Local DRRM Councils.'
http://www.ndrrmc.gov.ph/attachments/article/1868/NDRRMC_Memorandum_Circular_No_03_Series_of_2012.pdf

7 NDRRMC. 2010. 'National Disaster Risk Reduction and Management Plan (NDRRMP) 2011- 2028'.
http://www.ndrrmc.gov.ph/attachments/article/41/NDRRM_Plan_2011-2028.pdf

8 S.2, Republic Act No. 9729, the 'Climate Change Act of 2009.' (As amended by Republic Act No. 10174, People's Survival Fund Act of 2012). http://www.lawphil.net/statutes/repacts/ra2009/ra_9729_2009.html

Climate Change Office (CCO) (s.8) as its secretariat, and a Panel of Technical Experts (s.10). The Act recognizes in s.2 on policy that:

...climate change and disaster risk reduction are closely interrelated and effective disaster risk reduction will enhance climate change adaptive capacity, the State shall integrate disaster risk reduction into climate change programs and initiatives.

46. The CCC is a high level body chaired by the President of the Republic, and is made up of 27 members from a very broad range of sectors - essentially government – 15 Departmental Secretaries and four League Presidents (of provinces, cities, municipalities, Barangays), with one representative from the National Commission on Women, three Presidential appointees and one from each of academe, the business sector and NGOs (s.5). There is some deliberate overlap with the DRRM system, in that the Secretary of Defence serves on the Commission in the capacity of Chair of the NDRRM Council, and one of the sectoral representatives must be 'from the disaster risk reduction community' (s.5). But it is in the powers and functions of the Commission that both its overall mainstreaming and coordination role is more apparent (s.9).

47. The CCC functions that refer particularly to DRRM include the need for: 'synergy with disaster risk reduction' (s.9(a)); a concern with the development of 'risk-sharing and risk-transfer instruments' (s.9(g)); an important requirement to 'coordinate and establish a close partnership' with the NDRRM Council to 'increase efficiency and effectiveness in reducing the people's vulnerability to climate-related disasters' (s.9(j)); to coordinate with LGUs *and private entities* to address vulnerability to climate change impacts at all levels of administration (s.9(m)); and also to facilitate capacity building for CCA, and oversee dissemination of information on 'local vulnerabilities and risks, relevant laws and protocols and adaptation and mitigation measures' (s.9(n) and s.9(p)). These provide a good basis for cooperation with the DRRM system institutions, although consultations during the country mission for this report indicated that interactions at the implementation level were rather limited.

48. The CC Act also requires the CCC to develop a Framework Strategy and Program on Climate Change (s.12), a National Climate Change Action Plan (s.13) – both of which were completed by 2011⁹ - and to support LGUs to develop Local Climate Change Action Plans (s.14) – in coordination with government but also civil society and *the private and corporate sectors* (s.16). This is the aspect where there is an opening for both greater cooperation with the DRRM system and new linkages with MSMEs, especially at the local levels.

49. The National Climate Change Action Plan (NCCAP) was completed in 2010. Although its chapter on 'climate-smart industries and services' has a major focus on green industry (mitigation, emission reductions), it is also about adaptation, including through the types of businesses that can be sustainable.¹⁰ The actions in the plan do not have an obvious focus on risk reduction for business per se, and there appears considerable room for greater engagement with DTI and the business sector on the question of adaptation.

9 The Climate Change Commission. 'Policy Milestones'. <http://climate.gov.ph/index.php/the-ccc#policy-milestones> accessed 20 November 2015.

10 Climate Change Commission. 2010. 'The National Climate Change Action Plan, pp 19-22 (NCCAP)'. Manila: CCC. http://adaptationmarketplace.org/data/library-documents/NCCAP_TechDoc.pdf

50. The technical research and data-gathering that the CCC/CCO are undertaking under NCCAP could be an invaluable contribution to risk assessments and risk mapping under the DRRM system. If it is possible to share and cross-reference this technical mapping data on climate risk with DRRM mapping and research and the national statistical data, it would greatly strengthen the overall understanding about MSME exposure to risk, and how MSMEs can reduce their vulnerability through DRR, mitigation and preparedness.

V. The Environmental and Social Management Plan

5.1. Summary of Impacts and Proposed Mitigation Measures

51. While the Philippines faces significant vulnerability to climatic variability, the project itself counters these as will be explained herewith. RAPID's technical focus is on (i) climate-friendly commodities, particularly tree crops (coffee, cacao, coconut); (ii) technical solutions favourable to soil and water retention and natural resource management (such as Sloping Agricultural Land Technology, or SALT, pioneered by ICRAF with IFAD support); and (iii) commodities that have growing long-term market demand, thereby improving incomes and resilience. Options for harnessing crop insurance and equity finance will be reviewed during design, together with other risk mitigation measures.

52. Interventions supported by RAPID will all advance sustainable strategies according to best international practises that will benefit all stakeholders, while protecting, sustaining and enhancing the human and natural resources, having a positive or natural impact on the natural environment, community, society and the economy. The strategic principles which will be the foundation of the project will include:

- (i) Strengthening business capacity of MSMEs;
- (ii) Capacity building of suppliers of raw material (farmers) which will include introduction of environmental sound practises like Sloping Agriculture Technologies, appropriate use of inputs etc.;
- (iii) employee development at all level of the value chain;
- (iv) recycling of waste and packaging material;
- (v) maximizing use of degradable/recycled packaging material;
- (vi) food safety standards and traceability along the value chain; and
- (vii) employees health and safety standards.

53. The incremental income generated along the value chain for existing workers and workers taking incremental jobs created, farmers and MSME owners will improve food security, nutrition, health status and education levels for the stakeholders in the value chains by increasing purchasing power.

54. Nonetheless, some potential negative risks do exist. The reasons of forest/watershed degradation vary from place to place, and the processes are usually complex. In suitable climates in the highlands of the Cordillera mountains, for example, cultivation of

vegetables is contributing the expansion of agricultural frontiers at the expense of forest areas. Slash and burn farming is no longer a common practice; but where applied the interval between activities has been shortened due to the population growth; and the constant interventions at the same plots have reduced regeneration of secondary forests in the abandoned slash and burn plots. Forest fire caused by slash and burn practices and/or careless fires are also a major threat for watershed conservation. Whatever the reason, by improving returns to tree crops and thereby expanding vegetative cover, RAPID will help slow down, and may eventually reverse, deforestation and degradation. In addition, malpractices in road constructions- like cutting through fragile rugged terrains- have sometime triggered small-scale landslides. Some other risks are listed below with the applicable RAPID mitigation measures.

Table 3 - Potential Project Impacts and Mitigation Measures

Potential impacts		Mitigation measures
Land degradation	Accelerated soil erosion and soil loss in agricultural production areas, aggravated by more extreme weather events, including intense rainfall resulting to floods and severe droughts	<p>Technical advisory services built into DIPs, based on value chain analysis focusing on opportunities and constraints, carried out as part of the preparation of provincial SIPs</p> <p>Promotion of Sloping Agricultural Land Technology (SALT) through conditional grants and technical advice</p> <p>Allocation for Research & Development funds that can focus on other innovative approaches as needed</p>
Unsustainable production systems in agricultural areas	. Unsustainable production systems in agricultural areas resulting in depletion of soil fertility	Promotion of sustainable agroforestry production systems, including SALT.
Climate change	<p>. Increasing temperature reducing crop productivity</p> <p>. Erratic rainfall distribution</p> <p>. More intense extreme events</p>	<p>Assessment of vulnerability to climate change included in value chain analysis carried out as part of the preparation of provincial SIPs</p> <p>Climate risk management through introduction of crop insurance and faster disbursement systems, including weather index-based</p> <p>Promotion of SALT to mitigate drought and retain humidity</p> <p>Promotion of high-yield and climate adapted plant varieties.</p>

55. RAPID's interventions are participatory and aim at environmentally sound sustainable development, therefore the project is expected to have some positive environmental impacts. To ensure the mitigation of the localized negative environmental impacts caused by rural infrastructure development, an Environmental Compliance Certificate (ECC) is secured prior to commencement of the project activities. The implementation of activities outlined for the minimizing the negative impacts as a result of construction works is monitored by the PSO and the communities. In addition, the following measures are envisaged in the design document:

- *Solar and other renewable energy.* Access to power is an essential requisite for successful rural processing enterprises. The project shall support the installation of solar energy or other renewable energy facilities for eligible enterprises, as well as solar drip irrigation for farmers linked to enterprises.
- *Starter package for agro forestry.* Support to farmers supplying enterprises from degraded lands requires improved resource management. Towards this end, a starter

package may be provided, to include planting material for introduction of appropriate SALT systems.

- *Waste management.* Support to agribusiness, particularly processing enterprises, requires adequate attention to waste management. RAPID may support enterprises in introducing sustainable waste management as may be needed.

5.2. Enhancement Measures

56. Vulnerability to climate change is recognised by DTI as a long-term threat to agricultural and rural enterprises, as well as to environmental stability. The poor and marginalized who are the targets of development programme interventions should be shielded from the impairing threats of climate change by building up their adaptive capacity as described in the previous section. Enhancing the climate resilience of vulnerable agricultural and rural communities as well as the fragile agro-ecosystems through effective CCA strategies should also be promoted in these development activities.

57. The following measures, based on best practices, indicate options for enhancing the potential positive impacts on a sustained basis. The strategy and action plan are to be pursued by DTI and IFAD in partnership with ADB and other actors supporting disaster and climate change risk management in general, and SME resilience in particular.

1. ***Sustainable agroforestry production systems*** to provide livelihood activities and to promote environmental stability of watersheds in the vulnerable and fragile ecosystems. This may involve support to other suitable crops (fruit trees) that provide better income, and also alternative sources of livelihood. Improved working arrangements such as cooperatives may also be explored to promote cooperation and entrepreneurial networking in the area.
2. ***Promotion of climate smart agriculture.*** This strategy involves the applications of advances in science and technology in responding to or coping with climate variability and climate change. For instance, adaptation measure using adaptive planting calendar based on seasonal climate forecasts (SCF) may be used to determine the best planting date for rice and corn.
3. ***Climate risk management*** through agro-insurance using weather index-based insurance (WIBI). This is an objective insurance scheme based on the use of a reference index of crop development stage and weather variables, e.g. cumulative rainfall for a 30 days; temperature; typhoon path, etc. These offer a more attractive agro-insurance products than the traditional crop insurance provided by the local insurance providers.
4. ***Calamity support fund*** for the most vulnerable and poor areas. This involves the provision of support fund for those who incur heavy damages and losses to their properties and crops. Vulnerable areas have to be determined. Adaptive capacity of local communities and stakeholders has to be assessed. Ecosystems-based adaptation strategies and measures that promote ecological stability have to be implemented. This may be considered as part of broader local government DRRM planning, and in collaboration with other national and international partners.
5. ***Linking or coupling comprehensive land use plan (CLUP)*** with climate change adaptation (CCA) and disaster risk reduction and management (DRRM) to complement the LGU local

climate change adaptation plan (LCCAP). This provides opportunities for building in-house capacity of LGU personnel for planning, scenario analysis, and implementation.

6. **Climate-proofing of management plan of protected areas** in marginal lands and fragile ecosystems. Unless there is strong economic justification that is thoroughly vetted by Government safeguards, RAPID will not engage in commercial crop production in or around protected areas. Where vetted and considered necessary for improved and more sustainable resource management and poverty reduction, RAPID activities around protected areas will require the conduct of a vulnerability assessment to climate change, and the incorporation of CCA strategies and measures in the updating of the management plan of protected area. PA management plan has also to be synchronized with the LGU CLUP, LCCAP, and LDP to optimize the full benefits on the utilization and conservation of available natural resources. Currently, these plans are developed independently without regards to inconsistency and complementation. Often, PA management plan has bias on biodiversity consideration. While CLUP is focused on land units not covered by the PA.

7. **MSME inclusion in DRRM and CCA policy, planning and local institutions.** The DRRM system is intended to work cross-sectorally and at all levels of administration, with different agencies taking the lead on specific issues. At present, its policy planning does not identify DTI as a participating agency in any of the 4 key areas, and the needs of enterprises are addressed only in relation to the recovery phase. The roadmap process could be used to discuss ways in which MSMEs can be better integrated into the DRRM system, both in terms of meeting their needs and ensuring they have a voice in the institutional structures, especially at local level.

The Climate Change Commission's (CCC) primary focus is integration of climate change awareness into all areas of government, and it also has a mandate to work with the private sector. Its public planning framework does not so far substantively address private sector vulnerability and reduction of climate risk through adaptation, such as climate-risk-aware Business Continuity Management. A question to consider is how relevant work and technical data from the CCC can be better integrated into both the DRRM system and the MSME development system with a focus on MSME disaster resilience. This will be an area of continued dialogue between IFAD's ICO and ADB, DTI and the CCC; but it is not foreseen that specific activities need to be included in the RAPID loan.

VI. Public Consultation Activities

58. Detailed consultation have been held with a sample of beneficiaries during the inception and detailed design phases of the project, which showed that local communities are very much conscious about environmental issues and the challenges for finding a balance between resource exploitation and sustainability. Community mobilization will be undertaken from the start of project implementation in order to enhance active participation of the communities. It is planned that the target communities will identify the enterprise activities and production technologies to be supported at their selected locations from a menu of options. The process of identification and preparation of project activities at the stage of Strategic Investment Planning is based on multi-stakeholder consultations, and includes decision making by participating communities. Therefore, consultations with stakeholders including council of elders/leaders is

built in the processes. “Free and Prior Informed Consent (FPIC)” at ancestral domains and/or a similar mechanism at non-ancestral domain will be obtained.

VII. Next steps

59. Based on the actions detailed above, the final design mission will consider further requirements on monitoring, responsibilities, budgets. This may include specifying:

- monitoring protocols, parameters, and expected frequencies;
- institutional arrangements for implementation -taking into account the local conditions;
- responsibilities for mitigation and monitoring along with arrangements for information flow, and for coordination between agencies responsible for mitigation;
- institutional arrangements including the establishment of appropriate organizational arrangements, appointment of key staff and consultants; and arrangements for counterpart funding when necessary;
- institutional strengthening to help DTI supervise the implementation of the ESMP including supervision and evaluation of the work to be undertaken with respect to the mitigation measures and monitoring requirements;
- preliminary cost estimates;
- responsibilities for reporting, work plan, procurement plan, cost estimates and mechanisms for corrective action.
- IFAD responsibilities and roles for preparing, submitting, receiving, reviewing, and approving compliance reports if these go beyond regular annual supervision.

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