Regional Report

Sustainable Mountain Development in South East Asia and Pacific

From Rio 1992 to Rio 2012 and beyond

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Sustainable Mountain Development 1992, 2012 and Beyond

Rio+20 Assessment Report for the Southeast Asia Pacific (SEAP) Region

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Acronyms and Abbreviations

ADB	Asian Development Bank
AFCC	ASEAN's Multi-sectoral Framework on Climate Change and Food Security
AFP	Armed Forces of the Philippines
APEC	Asia-Pacific Economic Cooperation Council
APSUD	Asia Pacific Sustainable Development Initiatives
ASEAN	Association of Southeast Asian Nations
ASFN	ASEAN Social Forestry Network
BIND	Broad Initiatives for Negros Development, Inc.
BNBNP	Bidoup Nui Ba National Park
CAA	Community Aid Abroad
CBFM	Community-Based Forest Management
CBFMA	Community-Based Forest Management Agreement
CF	Community Forestry
CFM	Community Forest Management
CFM	Collaborative Forest Management
CFP	Community Forestry Program
CFSA	Certificate of Forest Stewardship Agreement
CIFOR	Centre for International Forestry Research
CSO	Civil Society Organisations
DENR	Department of Environment and Natural Resources
DGTP	Democratic Governance Transition Phase
DOST	Department of Science and Technology
ELCs	Economic Land Concessions
EO	Earth Observation
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
FAO	Food and Agriculture Organisation
FIT	Forest Improvement Technology
FMG	Forest Management Groups
FPE	Foundation for the Philippine Environment
FPIC	Free and Prior Informed Consent
FSSI	Foundation for a Sustainable Society
GDP	Gross Domestic Product
GEF	Global Environment Facility
GI	Geographic Information
IAP	Individual Action Plan
ICIMOD	International Centre for Integrated Mountain Development
ICRAF	International Centre for Research in Agroforestry
ICT	Information and Communication Technologies
IP	Indigenous People
IPCC	Intergovernmental Panel on Climate Change
IPSP	Internal Peace and Security Plan
IUCN	International Union for Conservation of Nature
IYM	International Year of Mountains
JMHI	Forest Honey Network Indonesia
KEF	Kalahan Educational Foundation Inc.
MDG	Millennium Development Goal
MKNP	Mount Kanlaon Natural Park

MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NCFPCC	National Community Forestry Coordinating Committee
NFP	National Forestry Program
NGO	Non-Government Organisation
NIPAS	National Integrated Protected Area System
NRM	Natural Resource Management
NTFPs	Non-Timber Forest Products
PA21	Philippine Agenda 21
PAMB	Protected Area Management Board
PCSD	Philippine Council For Sustainable Development
PNG	Papua New Guinea
PPP	Purchasing Power Parity
PRC	People's Republic of China
PwM	Partners with Melanesians Inc.
RCFs	Revolving Credit Funds
REDD	Reducing Emissions from Deforestation and Degradation
RFN	Rainforest Foundation of Norway
RPP	Readiness Preparation Proposal
SALT	Sloping Agricultural Land Technology
SD	Sustainable Development
SEAP	South East Asia and Pacific
SIAD	Sustainable Integrated Area Development
SMD	Sustainable Mountain Development
SMEs	Small- and Medium-Scale Enterprises
SPSN	Strongim Pipol Strogim Neisen
TCDP	Targeted Community Development Program
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
WSSD	World Summit On Sustainable Development

Executive Summary

Mountains of Southeast Asia and the Pacific (SEAP) region spread across two geographic regions – mainland Asia and island/archipelagic states in the Pacific Ocean – and constitute one of the world's highest and also most severely threatened biodiversity pools. A number of indigenous peoples who are marginalised, poor, and underserved by their respective states live in the structurally weak and fragile mountains. They are made even more vulnerable by increased frequency and intensity of rainfall, extreme temperatures and severe tropical storms. Increasing population and economic pressures are driving migrant lowland settlers towards the SEAP Mountains while extractive companies harness timber, minerals and water resources without giving local communities their due share. In general, the mountains have not been mainstreamed in governance in most Southeast Asian countries. This highlights the immediate need for policy reforms to protect social and ecological systems in the mountains for strengthening sustainable development, preventing environmental damage, and improving national and regional food security.

Governments, civil society, international and local donors, and development agencies have played key roles in facilitating development and/or resolving conflicts arising from competing demands on SEAP Mountain resources. Lessons learned in addressing conflicts suggest that the process has been slow owing to the time taken in creating an environment conducive for dialogue. Toward this end, stakeholders need to be capacitated on collaborative negotiations and non-adversarial communication skills to enable them to engage in multi-stakeholder dialogues to seek win-win solutions and aim to do the good for the greatest number of people. Improving governance, meeting the economic needs of the people, and making them self-reliant through proper education can help avert conflicts that border on terrorism in remote regions of the SEAP Mountains.

People in the SEAP Mountains need to take charge of development of the welfare of their communities and the mountains in partnership with civil society, particularly for advocacy and building public support for mountain-specific policies and development approaches. Partnerships need to be forged with the private sector based on corporate social responsibility initiatives to provide innovative, simple, and technological and market solutions to livelihoods problems following low carbon or green growth pathways. Specifically, private sector support can be directed for empowering mountain stakeholders with community-based technologies, and for developing business skills. Product value chains through cooperative efforts among the primary producers and businesses can result in reasonable returns on investments for both mountain people and downstream commercial enterprises. Ecotourism can be promoted to help generate income in the mountains and among indigenous peoples as strategies to counter violent conflicts and finance mountain conservation and sustainable development.

Participatory action research that takes into account good local practices and indigenous knowledge is needed to determine carrying capacity of the mountains for implementing measures for adapting to and mitigating the impacts of climate change and unregulated human activities on mountain resources. There is growing awareness on the benefits provided by the SEAP Mountains in terms of ecosystem goods and services. Increasing frequency of disasters originating in the mountains both in the uplands and lowlands has raised policy level awareness on the need for integrated approaches. Combining the increased awareness, with traditional and scientific knowledge can help to improve sustainability in resource use by creating opportunities for multi-stakeholder participation to address pressing mountain issues and challenges. Effective participation of communities in mountain governance – supported by enabling policies – can pave the way for sustainable mountain resource management practices, and

help in ending pervasive poverty in the uplands through carefully-planned and community-controlled, human development initiatives. In summary, this report advocates:

- developing good governance mechanisms that account for the unique characteristics and wealth of mountains and meet needs and aspirations of mountain people in reducing poverty and conserving the region's once-rich biodiversity through sustainable development approaches,
- assisting mountain communities in negotiation and collaborative dialogues for resolving conflicts, and for enabling them to participate in sustainable mountain development activities in collaboration with government, civil society, donors and the private sector;
- strengthening research by combining traditional practices and scientific knowledge for developing actionable plans for implementing them through meaningful participation of stakeholders both in the mountains and downstream, and
- Consolidating international and national funding mechanisms and resources for financing sustainable development programmes for the wellbeing of mountain people.

PART I: Trends, Issues, Changes and Challenges (1992-2012)

Introduction

The report aims to provide an overview and assess the issues, trends, and challenges for promoting the sustainable mountain development (SMD) agenda in the mountainous areas of the Southeast Asia and Pacific (SEAP) region. It documents the progress made since 1992 and encapsulates the lessons learned in key areas. The report covers all the three pillars of sustainable development – economic, social and environmental – and attempts to identify opportunities in the two themes of Rio+20: Green Economy and Institutional Framework for sustainable development and poverty reduction.

Assessment objectives, methods and activities

The specific aims of the SEAP regional assessment are to: (a) review commitments, by taking stock of the progress in the mountain areas of the world over the past 20 years, by presenting and appraising strategies, policies, and instruments, and programmes by mountain communities, governments, civil society organisations, academia, and the private sector for promoting sustainable mountain development (SMD) in the Southeast Asia and Pacific (SEAP) mountain regions; (b) analyse emerging issues and challenges by identifying gaps relating to mountain development in different mountain regions recognising that there are regional specificities and variations, and (c) discuss ways forward for closing the gaps and for enhancing sustainable development in mountain regions.

The assessment followed an agreed framework for case study selection and methodology. The reports were required to ensure inclusion of the three-pronged objective of securing renewed political and financial commitment, assessing progress and the remaining gaps, and addressing new and emerging challenges as strategic entry points to the Rio+20 agenda. The assessment focused on the two major themes of the Rio+20 Conference: Green Economy and Institutional Framework for Sustainable Development and Good Environmental Governance. This report covers two geographic areas discussed as the SEAP Region, and was prepared through multi-stakeholder consultations. It was developed through a process of virtual consultations (Table 1), commissioned case studies (Table 2) and a regional stakeholder workshop (Table 3).

Table I: Summary information on e-Conferences (Stakeholder Consultation on Rio+20 Conference) organised by ICIMOD

Event	Duration	No. of Participants	Countries represented, major concentrations	Total contributions and 'eye catchers'
Southeast Asia and Pacific e-conference	1-30 June 2011	150	20 countries from Asia Pacific (mostly from South and Southeast Asia), Europe, North & Latin America	Over 100 Key topics: Natural resource conflicts, indigenous community rights over the resources

Table II: Distribution of case studies by countries and themes

Event	Countries covered	Total case studies/remarks	Thematic focus
South East Asia and Pacific case studies	Indonesia, Philippines, PNG and Vietnam	4 case studies examining what has worked and what has not and the policy weaknesses	Watershed management, forest conservation, beekeeping and bio-resources conservation

Table III: Regional capacity building and knowledge sharing workshops			
Event	**Participating countries**	**Key highlights**	**Major outputs**
Asia-Pacific Youth Forum on Climate Actions and Mountain Issues (convened as Asia Pacific Youth meeting on Rio+20), 8-12 August 2011	43 youth from 17 countries, SEAP countries included were: Cambodia, Indonesia, Japan, Kazakhstan, Korea, Philippines, Singapore, Thailand, Vietnam	-Capacity-building sessions - Motivational sessions - Sustainability exercises - Team work - Youth statements for Rio+20	- Asia Pacific Youth Declaration on Climate Change and Sustainable Development - Asia Pacific Youth Position paper on Rio+20
Regional Sharing Workshop on Assessment of Challenges and Opportunities in the Asia Pacific region for Rio+20, 23-25 August 2011	161 participants from 10 countries, with 37 contributors SEAP countries included: Indonesia, Philippines, Malaysia, Papua New Guinea and Vietnam	- Presentation and discussion of case studies - Presentation of key informants - Sub/regional group work to assess key issues, challenges and opportunities and develop recommendations	- Finalisation of structure of Assessment Report - Documentation of key issues, challenges and opportunities - Development of key recommendations

The SEAP region: Overview

The area lying between the continents of Asia and Australia, covering countries located to the south of China, east of India and north of Australia comprise the Southeast Asia and Pacific (SEAP) region. The region lies at the intersection of geological plates and has high seismic and volcanic activity. Although the mountains in the SEAP region are not as high as those in the Himalayas, they are richer in floral and faunal diversity.

The region is divided into two geographic areas: (1) Mainland Southeast Asia or Indochina comprising of Cambodia, Laos, Myanmar, Thailand, Vietnam and Peninsular Malaysia, and (2) Maritime Southeast Asia, also called the Malay Archipelago including Brunei, East Malaysia, East Timor, Indonesia, the Philippines, and Singapore (Figure 1). The mountains of Myanmar are actually part of the Himalayan range with peaks ranging between Hkakabo Razi (5,881m), the region's highest, to over 30 other peaks that are over 2,000 meters. The second highest peak in the region is Puncak Jaya (4,884m) in Indonesia, followed by Mount Kinabalu at 4,093 meters, which is the highest mountain of Malaysia.

Figure 1. Map of Southeast Asia
Source: http://lib.utexas.edu/maps/middle_east_and_asia/southeast_asia_ref_2009.pdf

The SEAP region is rich in history and cultures. The mountains, jungles, lakes, rivers, and seas of Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam form one of the largest biodiversity pools in the world. They are also home to numerous habitats where restricted-range birds, plant and insect species are concentrated. Southeast Asia also has one-third (or 284,000 sq. km.) of all coral reefs in the world, which are also among the most diverse.

Southeast Asia's weather is influenced by the Malaysian-Australian monsoon system, which is characterised by two distinct wind patterns that reverse themselves at different times of the year (Figure 2). Cold winds prevail from November to March, owing to the north-easterly winds that originate in Siberia. From late April to October, south-westerly winds bring heavy rain on the slopes facing west. Heavy rainfall associated with the monsoon is intensified by the La Niña phenomenon, when the western Pacific Ocean is warmer than average. The heavy downpour drenches and erodes the thin topsoil in the mountains, and causes devastating floods across the SEAP Region.[1]

Figure 2. Monsoon patterns in Southeast Asia
Source: http://www.slideshare.net/cjcalvert/southeast-asia-geography/download

[1] http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=45177

Mountains of the Asia Pacific

It is estimated that some 40 million sq. km. or 27 per cent of the land area of the Earth lies 1,000 meters above the sea level. This includes 24 million sq. km. at 1000-2000 meters, 10 million sq. km. at 2000-3000 meters, and six million sq. km. above 3000 meters.[2] Eurasia also has a large number of mountains that are between 300 meters and 900 metres (Table 1).

Table 1: Distribution of Mountains[3]

Mountain Type (Elevation range)	Africa	Australia	Eurasia	North America	South America	World
High Mountains (900m+)	4	1	23	16	11	13
Low Mountains (300-900m)	13	12	21	10	11	14
Hill (0-300m)	11	12	10	18	5	8
Total	28	25	54	44	27	35

Asia is a mountain-hearted continent.[4] Geographically, the mountains in the Asia Pacific region can be categorised as follows (Table 2).

Table 2: Major mountains in Asia Pacific grouped in terms of region of occurrence[5]

South Asia	West Asia	Central Asia	North-East Asia	South-East Asia	Australasia
Karakoram	Iran Plateau	Tibetan Plateau	Eastern Russia	Continental Interior	New Guinea
Himalaya	Trans-Caucasia	Hengduan	North and East China	Peninsular	Australia
North-East	Anatolia	Kun Lun	Korean Peninsula	Insular	New Zealand
Peninsula	Arabia	Pamir	Japanese Archipelago		
North-West		Tien Shan Altai Urals			

Myanmar is the westernmost and second largest country in Southeast Asia, with almost 50 per cent the land area lying in the Himalayan Range. Myanmar it shares borders with Bangladesh, India, China, Thailand and Laos, and has the highest mountain in the region.

Northern Thailand is covered with high mountains that are cut by steep river valleys. Doi Inthanon (2576m), a limestone peak, is the country's highest mountain. Other mountain chains include the northern Tanen and Doi Luang ranges, which are extensions of the Himalayan foothills. The limestone peaks of the Dawna and Bilauktaung ranges are located in the west and the Dangrek and Chanthaburi ranges in the east, along the Cambodian border. The Thiu Khao Phetchabun range runs north south down the middle of the country (http://www.nationsencyclopedia.com/geography/Thailand.html).

[2] Louis, H. 1975. 'Neugefasstes Hohendiagramm der Erde'. In Bayer. Akad. Wiss. pp.205-226. Munchen: Math-Naturwisee Klasse.

[3] Trewartha, G. T., Robinson, A. H., and E.H. Hammond. 1968. Fundamentals of Geography, pp 231. New York: McGraw Hill.

[4] Ginsburg, N. (ed.) 1958. The pattern of Asia: A Geography of East Asia, Southeast Asia, South Asia, Southwest Asia and the USSR. London: Constable.

[5] ICIMOD. 1999. Mountains of Asia: A Regional Inventory. International Centre for Integrated Mountain Development, Kathmandu, Nepal.

Laos is landlocked and mountains cover about two-thirds of the land area. A number of rivers crisscross Laos including the Mekong, which originates in China and drains through Thailand, Laos, Cambodia and Vietnam. The Mekong borders Myanmar and Laos, and passes through the western slopes of the Annamese Cordillera in Laos.

Annamese Cordillera (also known as the Annamite Range) is the principal mountain range of Indochina and forms the boundary between Laos and Vietnam (Figure 2). In 2000, according to the Lao Department of Environment in its 1st National Communication on Climate Change, the mountainous terrain of Laos and its river network make up a large hydroelectric power source that has been barely tapped.[6] Laos was heavily bombed during the Indochina War and about one-third of the bombs that did not explode remain major obstacles to development in forest and mountain areas.[7]

The largest part of Cambodia consists of the Tonle Sap Basin and the Mekong Lowlands. To the southeast of Tonle Sap is the Mekong Delta that extends through Vietnam to the South China Sea. The Cardamom Mountains and the Elephant Range rim this basin to the southwest as the Dangrek Mountains do in the north. The Cardamom Mountains, oriented generally in a northwest-southeast direction rise to more than 1,500 meters, and is home to Phnom Aural (1771m) the highest mountain in Cambodia (Figure 3). The Elephant Range is an extension running toward the south and southeast from the Cardamom Mountains and rises from 500 to 1000 meters. There is a narrow coastal plain facing the Gulf of Thailand that borders the two mountain ranges. The Dangrek Mountains consisting of a steep escarpment with an average elevation of about 500 meters are located at the northern rim of the Tonle Sap Basin. The escarpment comprises the southern edge of the Korat Plateau in Thailand.

Three-fourths of Vietnam comprises of hills and mountains with elevations ranging from 100 to 1,000 meters. The Mekong River Delta spreads over 40,000 sq. km. in the south while the Red River Delta comprises 15,000 sq. km. in north. Both deltas are used extensively for agriculture. The Hoang Lien Son range in the north includes the country's highest peak, Fansipan (3,142m).

Malaysia, with an estimated area of 330,000 sq. km. comprises of territories separated by the South China Sea – Peninsular Malaysia and Sabah-Sarawak in Northern Borneo, and both are encompassed by mountain ranges. Titiwangsa Mountains run down the centre of Peninsula Malaysia from the Thai border until they peter out just south of Kuala Lumpur. Majority of the peninsula's highest mountains are found on this spine. Malay Peninsula's highest peak, Gunung Tahan, is located in the Taman Negara area, which is the world's oldest tropical rainforest. In Sabah-Sarawak, a range of mountains run roughly south-west to north-east and separate the Malaysian states from the Indonesian province of Kalimantan. Sabah is home to Mt. Kinabalu, Malaysia's highest peak (4101m). Mount Mulu in Sarawak has the largest natural limestone cave system in the world.

In the Philippines, there are three large mountain ranges in the largest island, Luzon, of which Sierra Madre is the longest. The famous almost perfectly cone-shaped Mayon Volcano in Albay province, and Mount Bulusan in the Sorsogon Province form part of the Caraballo de Baler mountain range. The highest peak in the Philippines is Mount Apo (2954m), located in Davao del Sur, Mindanao Island. Other notable Philippine mountains are Mt. Pulag, Mt. Banahaw and adjoining San Cristobal in Laguna and Quezon provinces (Luzon), Mt. Arayat in Pampanga province (Luzon), Mt. Baco in Mindoro island, Mt. Matalingajan Palawan island, and Mt. Makaturing in Lanao del Sur province (Mindanao).

Indonesia with 1,919,000 sq. km of land area spreads across five main islands (Sumatra, Java, Kalimantan, Sulawesi, and Irian Jaya), two major archipelagos (Nusa Tenggara and the Maluku

[6] Department of Environment, Laos. 2000. First National Communication on Climate Change submitted to the United Nations Framework Convention on Climate Change.

[7] UNDP. 2007. Assessment of Development Results: Lao PDR.

Islands), and 60 smaller archipelagos. There are numerous mountains and some 400 volcanoes in the country, and about 100 of these volcanoes are active. The islands of Sumatra, Java, Bali, Lombok, Sulawesi, and Seram have mountains ranging between 3000 and 3800 meters. Sudirman Mountains in Irian Jaya has the highest peak, Puncak Jaya (5,039 m).

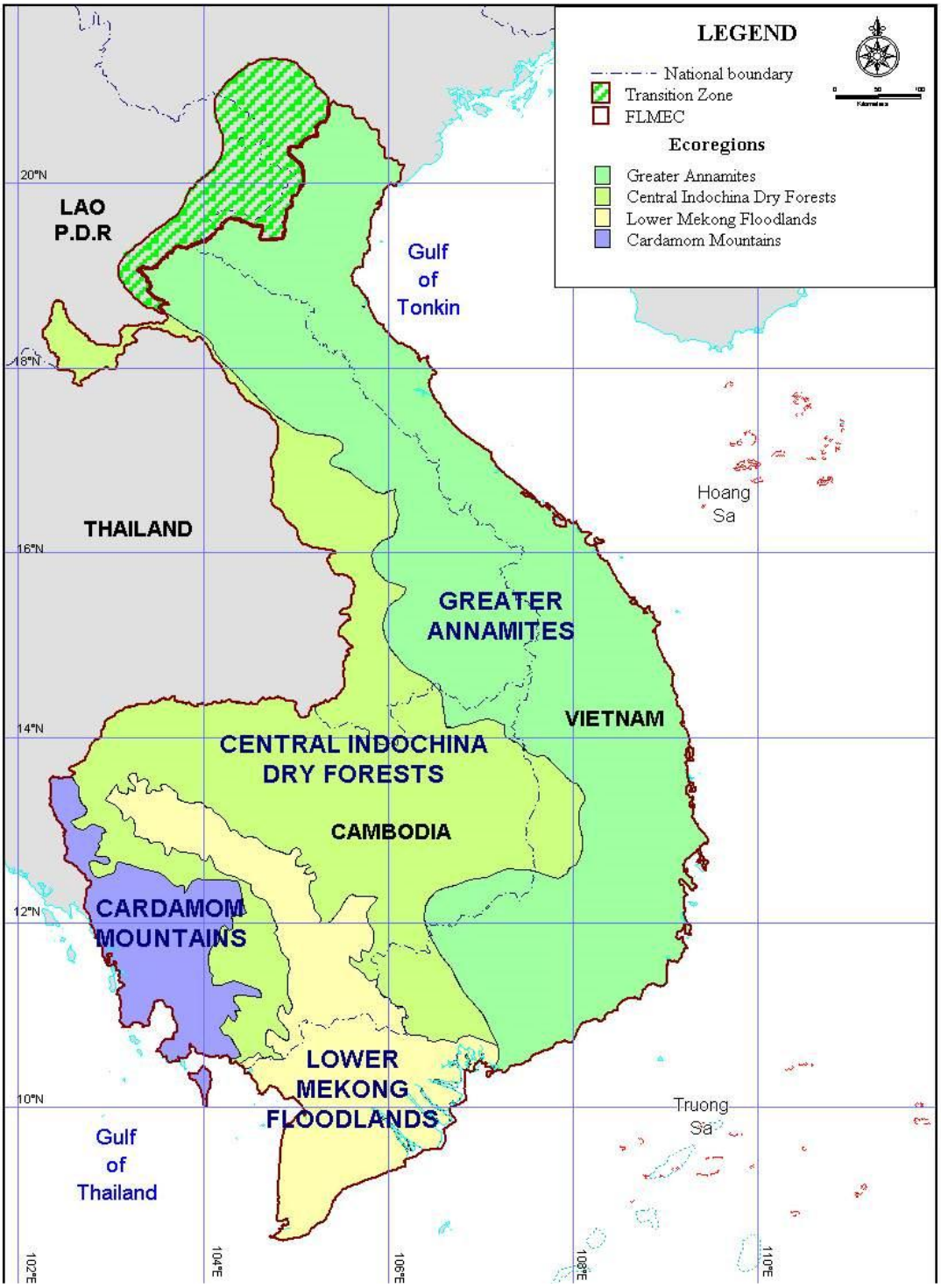


Figure 3. Ecoregions in the Mekong Area, Indochina, showing the Cardamom Mountains and the Annamite Mountains.
Source: http://wwf.panda.org/what_we_do/where_we_work /project/projects_in_depth/greater_annamites_ecoregion/news/maps/http://wwf.panda.org/

Papua New Guinea (PNG) has a distinct mountain geography, biodiversity and culture. It is classified as one of earth's most diverse regions, resulting from varied and distinct topography. It has isolated mountain ranges that are home to unique fauna and flora found nowhere else. Each mountain range has different species whose composition changes with altitude. The forest biodiversity found in the lowlands are similar to that in Southeast Asia. At about 1500 meters in the mountains the faunal biodiversity is very different with much higher species diversity including marsupials. Shrub and grasslands dominate the tropical montane forest vegetation at 3000 meters. After the timberline, cryosphere and alpine grassland, and herbaceous plants dominate the vegetation. The region also has rich bird and butterfly habitats.

The mountain systems in the Southeast Asia serve as vital source of ecosystem goods and services for the residents as well those living downstream. Such goods and services include natural system regulation, water and energy, forest and biodiversity, fertile topsoil, tourism, minerals, protected areas and carbon storage and several other secondary and tertiary products. Unlike many goods and services produced downstream, mountain services are strongly integrated with the topography and coexist with other mutually supportive resources. For example, a well-managed watershed ensures better biodiversity, prevents occurrence of potential hazards, provides balanced flow of nutrients to cultivated land, and contributes to forest and plant conservation. The also mountains have a vast diversity of economic opportunities, cultures and languages. Among the ecosystem services, water seems to be the single most important service that the mountains in the region provide.

Twenty year trends in the SEAP Region

To our knowledge, no comprehensive report has been prepared to exclusively account for the SEAP mountain people. The information used is taken from largely generalised sources and therefore hardly portrays the real situation of the SEAP Mountains.

Democraphic and socioeconomic changes

In 2005 the population of Southeast Asia was estimated at 558.2 million (ASEAN, 2005) or about 8.6 per cent of the world's population that year. In 2009, the regional population increased to 591.7 million (Table 3). Indonesia has the largest land area in the region, followed by Myanmar and Thailand. In terms of population, Indonesia is the largest with over 240 million people, followed by the Philippines with almost 92 million, and Vietnam with over 88 million. Consequently, this makes the Philippines and Vietnam the most densely populated countries with the exception of the island state of Singapore. Dense populations are located within the river deltas (Figure 4), which are the centres of agricultural activity that are also most prone to flooding. Other population centres are the islands of Java in Indonesia, the island of Luzon in the Philippines, and the coastal zones of Malaysia and Vietnam. All SEAP countries are experiencing different levels of socioeconomic development and are undergoing through different demographic transitions.

In Vietnam poverty is concentrated in mountains and in isolated areas where ethnic populations live, and especially among women who comprise a majority of small farmers.[8] While Vietnam has achieved some success in its efforts to alleviate poverty among vulnerable groups such as women and ethnic minorities, there has been more success in plains than in the mountains. However, a detailed analysis is needed to establish what contributed to the poverty reduction.

Table 3. Population density in the countries of Southeast Asia[9].

Country	Total Area (km^2.)	Total Population (2009)	Total Population Density (people/km^2.)
Brunei	5,765	408,000	71
Cambodia	181,035	14,805,000	82
East Timor	14,874	1,134,000	76
Indonesia	1,904,569	240,271,522	126
Laos	236,800	6,320,000	27
Malaysia	329,847	28,318,000	86
Myanmar	676,578	50,020,000	74
Philippines	300,000	91,983,000	307
Singapore	724	5,290,730	7,308
Thailand	613,120	64,964,000	106
Vietnam	331,210	88,069,000	266
Papua New Guinea	462,840	6,732,000	15

Population growth is high in all SEAP countries. In 2009 Populations in Malaysia, Philippines and Papua New Guinea grew by more than two per cent. The total population of the developing SEAP countries grew by 1.7 per cent in 1990 and had slowed down to 1.1 per cent by 2009. Quality of life

[8] UNDP. 2003. Country Evaluation: Assessment of Development Results – Vietnam. Volume 1. Main Report.
[9] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2147rank.html

(for both men and women) improved in all countries between 1990 and 2008 and literacy has also grown. Most of the SEAP countries fall in the medium Human Development range.

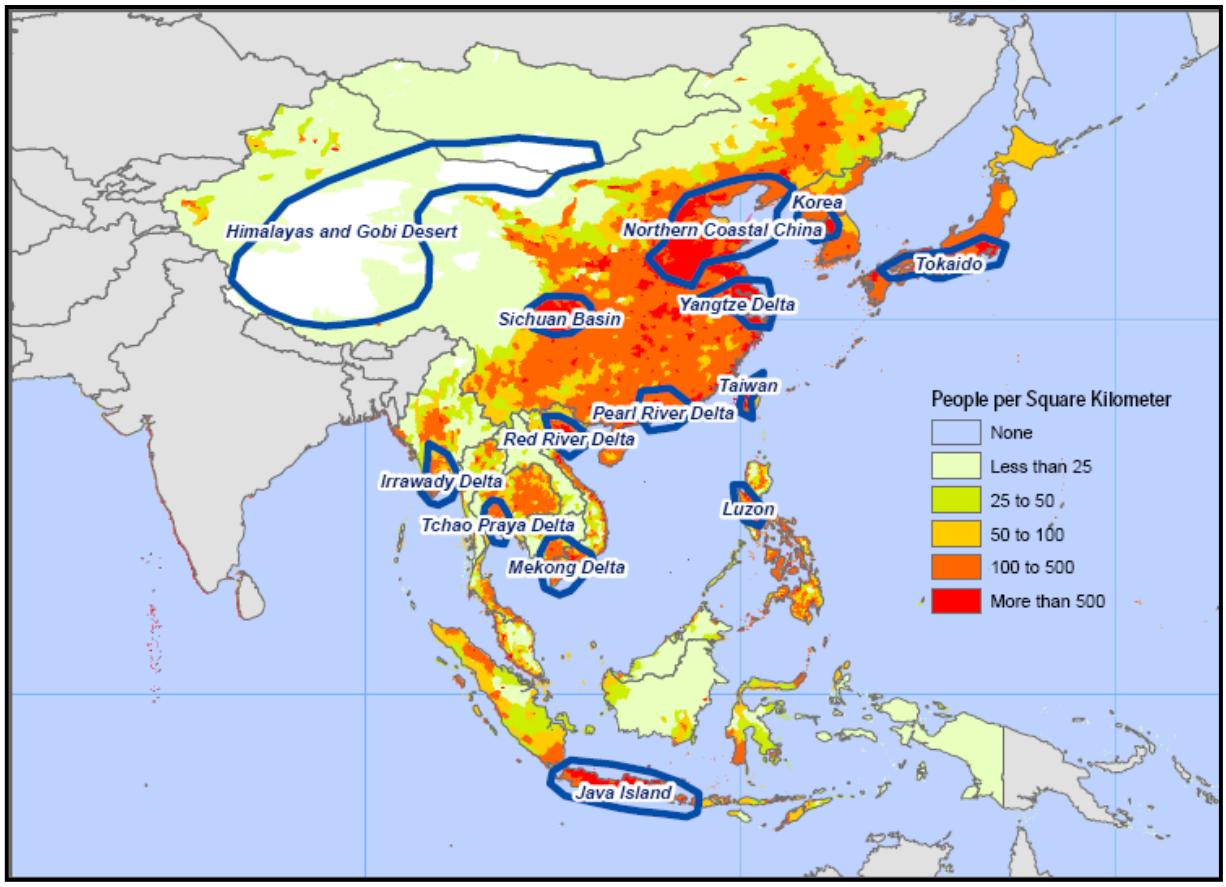


Figure 4. Population density in Southeast Asia. Source: Dr. Jean-Paul Rodrigue. Dept. of Economics and Geography, Hosftra University. http://people.hofstra.edu/Jean-paul_Rodrigue/GESA/maps/Map_Pacific%20Asia%20Population%20Density.pdf

Between 1970 and 2000, the population of young adult (15 to 24 years) grew from around 18 per cent to about 21 per cent of the population in the SEAP region. This age group has been and will continue to contribute to migration, especially in the rural to urban movement. As a consequence, urban areas have become increasingly "young".[10]

One driver of rural to urban migration in the SEAP region is slower development in rural areas and the increasing urban-rural gap. Table 4 shows that poverty incidence is higher in rural areas, which include mountains, than in urban areas in almost all SEAP countries.[11] Consequently, rural poverty is almost twice the level of urban poverty. The last column (Table 4) shows that overall, poverty in the rural areas bears heavily on poverty in all SEAP countries.

[10] Guest, P. 2003. Bridging the Gap: Internal Migration in Asia. Paper prepared for Conference on African Migration in Comparative Perspective, Johannesburg, South Africa, June 4-7, 2003. Population Council, Thailand.

[11] Balisacan *et al*. 2009. Rural Poverty in Southeast Asia: Issues, Policies, and Challenges. Paper presented at the Expert Group Meeting on Rural Development and Poverty Reduction held in Bangkok, Thailand on 19-20 May 2005. Sponsored by ESCAP.

Table 4. Poverty in Southeast Asia (indices for various years).					
Country	Year	Poverty incidence (%) using national poverty line			Contribution of rural poverty to total poverty
		Total	Urban	Rural	
Cambodia	1999	35.9	18.2	40.1	93.8
Indonesia	2002	18.2	14.5	21.1	70.3
Lao PDR	1997	38.6	26.9	41.0	80.7
Malaysia	1999	7.5	3.4	12.4	69.3
Myanmar	1997	22.9	23.9	22.4	70.4
Philippines	2000	34.0	20.4	47.4	72.4
Thailand	2002	9.8	4.0	12.6	91.3
Vietnam	2002	28.9	6.6	35.6	92.3

High female migration rural to urban is unique to the Southeast and East Asian countries, with the exception of migration in Latin America. Female migration has increased and most of the migrants are young and unmarried. The urban populations therefore include large numbers of young unmarried females, who usually live away from their families. The concentration of young adult females in urban areas is particularly pronounced in the "mega cities" of East and Southeast Asia.[12]

Since the 1980s, labour migration in the SEAP region has been increasingly feminised. More than two million women were estimated to be working in the region in the beginning of the 21st century, accounting for one third of its migrant population. Most female migrants are involved in domestic work and sex services, in private households, and the informal commercial sectors. Despite the need to protect the welfare and human rights of migrants, governments of destination countries generally view them as mere workers, neglecting their obligations to undertake measures and gender-sensitive policies for their protection. Under pressure to increase foreign revenues, labour-source countries encourage women to migrate and remit their earnings. In the face of global competition, even governments of the source countries have also shown little interest in the welfare of migrant women. Given the poor human rights record in the region, many non-state actors have assumed increasing importance in advocating rights of migrants through local and transnational networks.[13]

Globalisation and economic liberalisation

Many civil society organisations see the forces of globalisation as threats to sustainable mountain development, and that these forces are greatly skewed in favour of external interests. Mining and expansion of plantations for agro-fuels are considered the biggest threats to forests and forest communities, as these encroach on ancestral domains, displace indigenous tribes and endanger forest ecosystems. Among the Southeast Asian countries where mining has increased over the last decade are

[12] Ibid.
[13] Yamanaka, K. and N. Piper. 2005. Feminized Migration in East and Southeast Asia: Policies, Actions and Empowerment. Summary. Occasional Paper. United Nations Research Institute for Social Development. Geneva, Switzerland. December 2005.

the mineral-rich states of Cambodia, Indonesia, and the Philippines.[14] The island province of Palawan in the Philippines, for example, has 354 mining applications while the island of Mindoro has 92, some of which are already operating without proper permits. In contrast, land titling has remained a long and difficult process for indigenous communities. The issuance of permits for gathering non-timber forest products (NTFPs) has also remained slow and tedious. Community development plans that are supposed to serve as permits take a long time to approve and in the meantime, the livelihood of mountain communities is affected because they would not able to harvest rattans and other NTFPs.[15]

Globalisation and economic liberalisation impinge on mountain people in multiple ways. Economic opportunities have diversified, opening up markets for high value-low volume mountain products. Likewise, several new technologies have been introduced and these have helped in establishing small- and medium-scale enterprises (SMEs) in mountain areas. Overall, there has been a net positive effect on the livelihood of mountain people.

However, bonafidé mountain residents do not benefit much from businesses owned and operated by non-mountain people. Their involvement in such enterprises is restricted to low-profit making supply of cheap raw materials or the provision of menial labour as porters or helpers. Meanwhile, competition for the limited products in the mountains has increased, and the introduction of goods from outside threatens the security of markets for local products. Many traditional systems and processes, like "barter trade," are now becoming things of the past with increased dependency of mountain people on imported products. This has also intensified out-migration, thereby affecting negatively the preservation of cultures, traditions, customs and languages in mountain regions. The integration of subsistence mountain economies with the urban market has made it necessary for mountain people to earn cash incomes and those jobs are mainly available in lowland urban centres.

Political changes and democratisation

Democracy is still largely young in the SEAP region, and democratisation processes and institutions still being put in place in many states (Figure 5). Myanmar, which had remained under a military junta until March 2011, is now under a nominally civilian government that has begun steps to further democratise by releasing political prisoners, signing ceasefire deals with ethnic rebels, and easing censorship laws. Democratisation efforts in many SEAP countries are also being challenged by counter-democracy forces - mainly existing power holders - who fear that democracy will weaken their positions, or by conservative segments of society who are wary of possible reckless responses by the people to new-found freedoms. Indonesia, Thailand, and the Philippines are bent on preserving their gains towards democratisation as a cushion against possible future financial shocks.

The democratisation movements, however, are not felt in most mountain areas owing to their remoteness, ruggedness and relative inaccessibility, which are also reasons for the poverty and isolation of mountain communities. Mountain regions receive little government support for development and social services and have virtually become "ungoverned" spaces where many states face significant challenges in establishing control. These areas have poorly controlled or delineated

[14] Kobayashi, J. 2009. Making the Connections: Water, Forests, and Minerals Exploitation in South and Southeast Asia. Pp. 49-96. In "Exploiting Natural Resources – Growth, Instability and Conflict in the Middle East and Asia. " (Eds. Cronin, R. & A. Pandya). Stimson. http://www.stimson.org/images/uploads/research-pdfs/Exploiting_Natural_Resources-Chapter_4_Kobayashi.pdf. Retrieved Feb. 6, 2012.

[15] Annual Report 2009 to HIVOS. Strengthening community and NGO capacity in sustainable NTFP management through advocacy, livelihood and research and learning programs. NTFP-EP for South and Southeast Asia.

land borders, where the central government authority is not felt or is virtually non-existent. It follows that in these regions, the state is unable or unwilling to perform its functions. This is not to say that these territories are devoid of governance; rather, the structures of authority that exist are not related to the formal institutions of the state. [16]

Figure 5. Government systems in Southeast Asia
Source: http://people.hofstra.edu/Jean-paul_Rodrigue/GESA/maps/Map_Pacific%20Asia%20Political%20Systems.pdf

The factors that determine governability include: (1) the level of state penetration in society, (2) the extent to which the state has a monopoly on the use of force, (3) the extent to which the state controls

[16] Rabasa, A., S. Boraz *et al*. Ungoverned Territories: Understanding and Reducing Terrorism Risks. RAND Project Air Force. San Monica California. 2007.

its borders, and (4) whether the state is subject to external intervention by other states. State penetration of society can be measured in terms of the presence or absence of state institutions, state of physical infrastructure, prevalence of the informal or grey economy, and social and cultural resistance to state penetration.[17]

As ungoverned territories, mountains can become the arenas for internal or inter-border armed conflicts while promoting competent practices can help governments to regain control over these areas. But lack of coordination among agencies remains a major obstacle in improving governance. Therefore, providing expert advice to officials on how to coordinate actions across departments and to minimise bureaucratic competition can be an important step in strengthening public sector capabilities. The improvement of transportation infrastructure could have profound effects in many ungoverned territories through enhanced overall mobility.

The administration of Philippine President Benigno Aquino III has embraced a paradigm shift in the Armed Forces of the Philippines' (AFP) Internal Peace and Security Plan (IPSP). The IPSP seeks to draw support from the broadest spectrum of stakeholders. It highlights the importance of increased stakeholder involvement - the national and local government agencies, nongovernment entities and the entire citizenry in addressing peace and security concerns. It gives equal emphasis to combat and non-combat military operations and explores non-combat parameters of success in addressing the country's peace and security problem.

Climate change as a major driver of change

A large body of scientific and historical evidence indicates that recent changes in climate in many mountain regions of the world are often greater than those observed in the lowlands. Mountains represent unique areas for detecting climatic change and assessing climate-related impacts. Climate along with vegetation and hydrology changes rapidly with the height of mountains, over relatively short horizontal distances. As a result, mountains exhibit high biodiversity, often with sharp transitions (ecotones) in vegetation sequences. In addition, mountain ecosystems are often endemic because many species remain isolated at high elevations. This is unlike lowland vegetation communities that occupy climatic niches spread over wider latitudinal belts.

[17] Ibid.

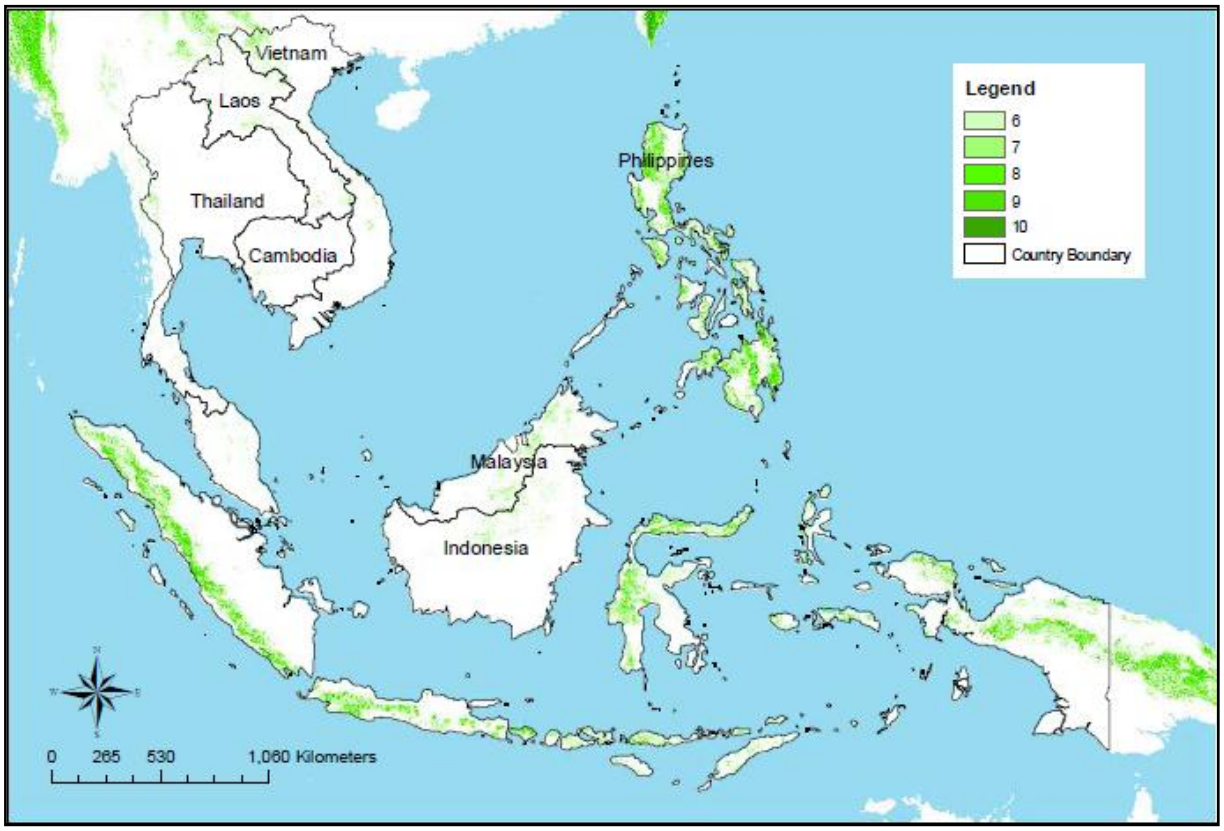


Figure 6. Landslide exposure in Southeast Asia (*Source*: Yusuf and Francisco. 2009.)

Climate change in the SEAP Mountains can bring about changes in water resources and hydropower generation, on slope and top soil stability and vegetation composition, and also disrupt cropping patterns and bring about other hazards that affect the well-being and livelihoods of mountain people. Landslides are the most common climate-related hazard in mountainous terrains. For Southeast Asia (except Myanmar), the vulnerability of the different countries to landslides is shown in Figure 6. Most prone to landslides are the mountains in Northern Luzon and Mindanao in the Philippines, those along the Southern coast of Sumatra, as well as mountain areas in Java, Sulawesi and Irian Jaya in Indonesia, and the mountains in the north of Vietnam. The landslide hazard mapping was based on data sets from the Norwegian Geotechnical Institute and incorporated data on slope, soil, soil moisture conditions, precipitation, seismicity, and temperature.[18]

Likewise, Yusuf and Francisco (2009) derived a map (Figure 7) to show the overall climate hazards, which include tropical cyclones, floods, landslides, droughts and sea level rise as well as the hot spots in terms of climate risk. The mapping considered the entire Philippine archipelago, the Mekong River Delta in Vietnam, almost all regions of Cambodia, the northern and eastern parts of Laos, the Bangkok region of Thailand, west and south Sumatra, as well as west and east Java in Indonesia as the most climate change vulnerable areas in Southeast Asia.[19]

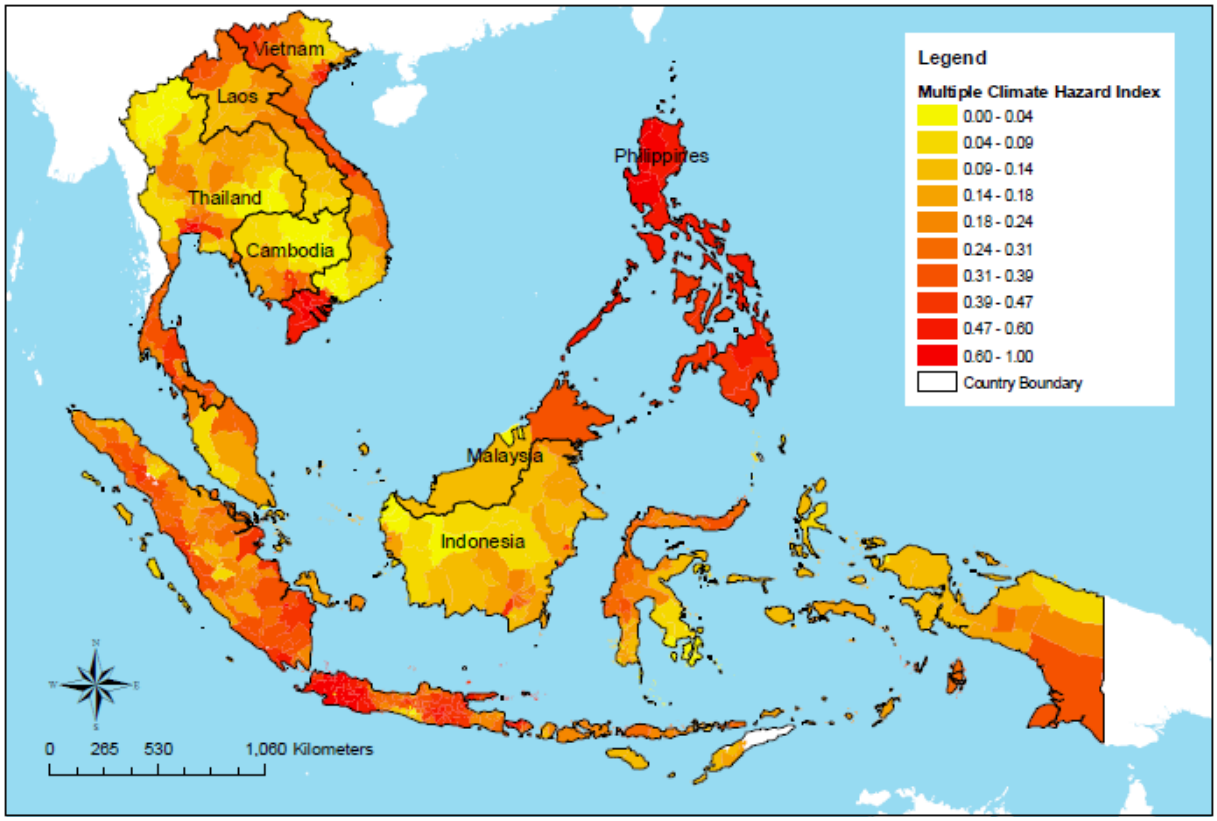


Figure 7. Multiple climate hazard map of Southeast Asia (*Source:* Yusuf and Francisco. 2009.)

In mountain areas in Indonesia, the number of dry months was reported to be 1-2 months, with a maximum of four months over the period 2000-2010, and is expected to worsen with climate change. The onset of the monsoon has been delayed in many parts of Indonesia, and the length of the wet

[18] Yusuf, A.A. and H.A. Francisco. 2009. Climate change vulnerability mapping for Southeast Asia. Economy and Environment Program for Southeast Asia.
[19] Ibid.

season has shortened.[20] In Malaysia climate change has adversely affected biodiversity in the mountains and coastal areas, making 16 mammal species, 43 bird species, 14 reptile species, 28 amphibian species, and 17 fish species vulnerable.[21] Likewise, human populations in the central regions of the mountain ranges are considered vulnerable to malaria because of difficulty of carrying out effective vector control programmes.[22]

The impacts of climate change in Vietnam will be highest on distribution of crops, with growing of tropical crops projected to shift to higher elevations. The Vietnam Ministry of Natural Resources and Environment said, "By 2100, tropical crop may be found at elevations of 100 to 550 (meters) and move 100 to 200 km northward."[23] This will be accompanied by decline in the area for cultivation of subtropical crops, along with forest areas covered with *Churkasia tabularis* and *Pinus merkusii*.[24]

Both the frequency and intensity of flooding are expected to increase with changing climate conditions in Cambodia, causing serious damage to rice, particularly wet season rice.[25] Also, the productivity and biodiversity of forests are expected to change with decrease in wet forest area and an increase in moist forest, while dry forest will remain the same.

In Papua New Guinea, the rise in surface temperature, by about half a degree Celsius since the 1970's and the reduction in rainfall by as much as 15 per cent in some areas, have been attributed to climate change.[26] Plant biodiversity is also endangered – most threatened are those endemic to the country. Intense droughts and cyclones are also likely to disrupt water supplies and sanitation systems, which could increase incidence of vector-borne diseases such as malaria. PNG has identified vulnerable areas, which includes Star Mountains.

In Thailand, the anticipated impacts of climate change include reduction in the yield of maize by five to 44 per cent, while rice yields could drop by more than 50 per cent or increase by 25 per cent depending on the model used to simulate climate change scenarios.[27] The impacts on forests include pole-ward shift in vegetation, decline in, or even complete disappearance of subtropical life zones and their replacement with tropical life zones, and increase in the latter, especially toward the southern region of Thailand, due to the intensification of precipitation. Thailand has also projected a decline in the amount of carbon stored in its forests because of disproportionate decline in natural and secondary forest areas compared with expansion of non-forest areas.[28]

Environmental degradation and land-use changes

[20] Ministry of Environment, Republic of Indonesia. 2010. Indonesia Second National Communication under the United Nations Framework Convention on Climate Change.
[21] Ministry of Natural Resources and Environment Malaysia. (nd). Malaysia Second National Communication under the United Nations Framework Convention on Climate Change.
[22] Ibid.
[23] Ministry of Natural Resources and Environment Vietnam. 2010. Vietnam Second National Communication under the United Nations Framework Convention on Climate Change.
[24] Ibid.
[25] Ministry of Environment of the Kingdom of Cambodia. 2000. Cambodia's Initial National Communication under the Framework Convention on Climate Change.
[26] Ministry of Environment Papua New Guinea.
[27] Ministry of Science, Technology and Environment Thailand. 2000. Thailand's Initial National Communication under the United Nations Framework Convention on Climate Change.
[28] Ibid.

Rapid population growth in the SEAP region came alongside industrial development and environmental degradation. The latter is evident in the rate at which the humid tropical rainforests in the region have been lost, and the concomitant destruction of wildlife and other biodiversity. Table 5 shows how forest cover in SEAP countries has been reduced from 1992 to 2009, except in the Philippines, Singapore, Vietnam and PNG.

Table 5. Forest area in Southeast Asia and Pacific countries, 1992 and 2009.[29]

Country	Forest area, in 1000 Ha.		Per cent (%) change
	2009	1992	
Brunei Darussalam	381.8	409.8	-6.8
Cambodia	10,221.4	12,664.4	-19.3
Indonesia	95,117	114,717.8	-17.1
Lao PDR	15,829.2	17,157.6	-7.7
Malaysia	20,542.8	22,219	-7.5
Myanmar	32,082.6	38,348	-16.3
Philippines	7,610.2	6,679.4	13.9
Singapore	2.3	2.3	0.0
Thailand	18,957.2	19,440	-2.5
Timor-Leste	753.2	943.6	-20.2
Viet Nam	13,653	9,835.4	38.8
Papua New Guinea	31,245	28,868	8.2

While extensive forests are still found in Indonesia, Myanmar and PNG. But there are widespread land use conversions of montane rainforests into rubber and palm oil plantations in Sabah and Sarawak in Malaysia and in Indonesia. Logging operations and road development threaten tiger habitats, and the conversion of forests to agriculture or commercial plantations has resulted in more frequent encounters between tigers and livestock (WWF).

The expansion of the palm oil monocultures in Indonesia and Malaysia has been identified as a key driver in deforestation. This economic activity has been associated with widespread forest conversion and conflicts with indigenous peoples. In addition, palm oil production has also resulted in the destruction of key habitats of endangered primates. As a result of deforestation, Indonesia has become the world's third-largest emitter of carbon dioxide (CO_2). The logging that precedes these industries in most cases opens up the forest and provides added financial incentive to deforestation for agriculture. Sawit Watch states that the Indonesian government has already expanded oil palm concessions to cover 9.4 million hectares and has granted permits for over 26 million hectares.[30]

The balance may tilt, however, in favour of the Green Economy and forest conservation with the billion-dollar agreement signed by the government of Norway and the Indonesian government to implement Reducing Emissions from Deforestation and Degradation (REDD). The signing came at the heels of the pledge by Indonesia of a two-year deforestation moratorium. However, the moratorium was announced on 1 January 2011 but there was a lack of clarity on its implementation several months

[29] FAO (2011). http://faostat.fao.org/site/377/DesktopDefault.aspx?PageID=377#ancor
[30] Annual Report 2010 to HIVOS.

after the announcement. There was strong lobbying by businesses to exclude existing plantations from the moratorium and there also were many competing proposals as to the kinds of forests to be included, and the time frame of the ban.

Community involvement in natural resources management

Southeast Asia's forests were nationalised in the 20th century. Thereafter the timber industry expanded across the region resulting in degradation of forest areas and displacement of indigenous natural resource management systems. The erosion of customary systems led to the deterioration of natural resources. More effective institutions and resource management regimes have not replaced the traditional local institutional arrangements. The rise of state agencies and private companies as forest managers resulted in accelerated loss of natural forests throughout Asia during the post World War II era. Tropical rainforests in Southeast Asia receded from 250 million hectares in 1900 to below 60 million in 1989.[31]

By the 1980s, the deforestation of Asian lowlands and the deteriorating condition of many upland watersheds began to generate serious concern among national planners and the development community. Floods and brownouts affecting Bangkok, Jakarta, Manila and other urban centres brought deforestation issues to public attention, thereby initiating a new generation of environmental protection policies including logging bans. In the 1990s there was growing recognition in many Asian nations that rural people have an important role to play in managing and protecting forestlands.

Over the past two decades, there has been a groundswell of support to assist communities to re-establish management and control over local resources. Planners have crafted national Community Forest Management (CFM) policies, while legislatures have passed laws in empowering communities and local governments with stewardship rights and responsibility over resources. The objectives of CFM are to establish mechanisms for enhanced community participation in planning, development and benefit sharing in selected watershed protection forests and production forests, and to create possibilities for collaborative planning and management. These objectives are based on the premise that collaborative management is a practical solution to achieve sustainable multiple-use forest management that can be achieved by empowering communities to participate in planning and managing natural resources.

The experiences with CFM in the past two decades have shown the possibility of mainstreaming benefits for mountain peoples. SEA governments have embarked on policy-making with bottom-up good practices in collaboration with regional civil society organisations. For the next phase of support of Swiss government to the ASEAN Multi-sectoral Framework on Climate Change and Food Security (AFCC), the Swiss Development Cooperation has asked the NTFP-Exchange Programme (NTFP-EP) for South and Southeast Asia to focus on enhancing engagement of the ASEAN Social Forestry Network (ASFN) with vulnerable groups such as indigenous and other mountain communities. NTFP-EP seeks to assist in facilitating mechanisms and initiatives between government and civil society to enhance social forestry policy and practice under the food security and climate change theme.[32]

[31] Poffenberger, M. 2006. People in the forest: community forestry experiences from Southeast Asia. Int. J. Environment and Sustainable Development, Vol. 5 (1).

[32] Annual Report 2010 to HIVOS. Strengthening community and NGO capacity in sustainable NTFP management through advocacy, livelihood and research and learning programs. NTFP-EP for South and Southeast Asia.

Information and communication technologies (ICTs)

ICTs have provided new tools for addressing development problems. The sector has contributed to the creation of rapidly growing industries, such as electronics, business process outsourcing, and telecommunication and Internet services. As infrastructure, ICT is seen as an enabler of economic growth and competitiveness based on the uptake and its use in business and society.[33] SEAP nations spent three to nine per cent of their total gross domestic product (GDP) in 2008 in ICT-related expenditures. Cellular subscriptions have grown exponentially and Internet users have also increased.

However, current uses of ICTs are not necessarily focused toward human development. Policies are lacking in integrating ICTs with economic goals, and in combining them with other development tools and those for engendering people's participation. The digital divide is still large: a few countries have more than 40 personal computers per 100 people, but most have less than 10.

Awareness and importance of indigenous and traditional knowledge

People have used the rich diversity of plants in the Asia Pacific region for many generations, for food and medicine, among many other applications. There is an abundance of, and a constantly evolving, local expertise in plant genetic resources. Annual global sales of products derived from the manipulation of genetic resources lie between US$ 500 and US$ 800 billion. Sale of herbal medicine alone is estimated to have exceeded US$ 12.5 billion in 1994 and US$ 30 billion in 2000, with annual growth rates averaging between five per cent and 15 per cent, depending on the region.[34]

Indigenous peoples, many of whom are mountain dwellers, represent a significant proportion of the world's poor. Reducing poverty among native tribes would contribute greatly to attaining the MDGs. As stewards of biodiversity in many environmental hot spots, indigenous peoples deserve to be assisted and protected as doing so redounds to safeguarding the global environment.[35]

Expansion of tourism and ecotourism

Tourism is a major contributor to the socioeconomic development of Southeast Asian countries. For example, prior to the 2011 floods, Thailand attracted more than 12 million tourists every year. Tourism has contributed about 6 per cent of GDP to Thailand, more than any other Asian nation.

Most countries are intensifying visitor campaigns to attract a market that can lend itself to sustainable tourism. Efforts in many Southeast Asian countries to develop ecotourism, dating back to 1998, faced problems associated with the lack of infrastructure, adequacy of personnel training, absence of, or delays in plan implementation, and political instability.[36] The focus shifted to community-based ecotourism because of the industry's heavy reliance on national parks and other protected areas.

[33] Asian Development Bank (ADB). 2010. Information and communication technology for development: ADB experiences. Mandaluyong City, Philippines: Asian Development Bank.
[34] GRAIN. 2002. Traditional knowledge of biodiversity in Asia-Pacific: Problems of piracy and protection.
[35] IFAD. 2003. Indigenous Peoples and Sustainable Development. Roundtable Discussion Paper for the Twenty-Fifth Anniversary Session of IFAD's Governing Council.
[36] Dowlings, R. K.2000. Ecotourism in Southeast Asia: A Golden Opportunity for Local Communities, Tourism in Southeast Asia-A New Direction. Chon, K.S. (Editor). The Hayworth Hospitality Press. New York. 2000. p. 2

Mountains should be at the centre of sustainable tourism efforts because they attract as much as 15-20 per cent of the tourism revenues.[37]

Lao has been successful in attracting visitors, with Luang Prabang in northern Laos voted by the London-based travel magazine, Wanderlust, as the "best city in the world to visit." Luang Prabang beat 1,000 other World Heritage Sites to emerge as the magazine's top tourist destination. Tourist arrivals reached 274,000 in the northern Lao province in 2010-2011, an increase by 20,000 over the previous year. It has received a steady flow of tourists since it was declared a World Heritage Site in 1995. The map in Figure 8 shows other World Heritage Sites in the SEAP that have the potential to follow the success of Luang Prabang in sustainable tourism.

According to Leksakundilok (2004)[38] tourist numbers in Cambodia received increased annually at an average rate of 12.56 per cent from 1962-68. It has grown very quickly thereafter, particularly after the 1993 election. Tourist numbers rose by 21.3 per cent per annum on average up to 1997; in 1994 there was an increase of 49.44 per cent.[39] The Cardamom Mountains are an emerging tourist destination, with the opening of Wildlife Alliance's Chi-Phat eco-tourism area in the southern Cardamoms in 2007. Tourist activities there include mountain biking, trekking, boat cruises, and bird watching.[40]

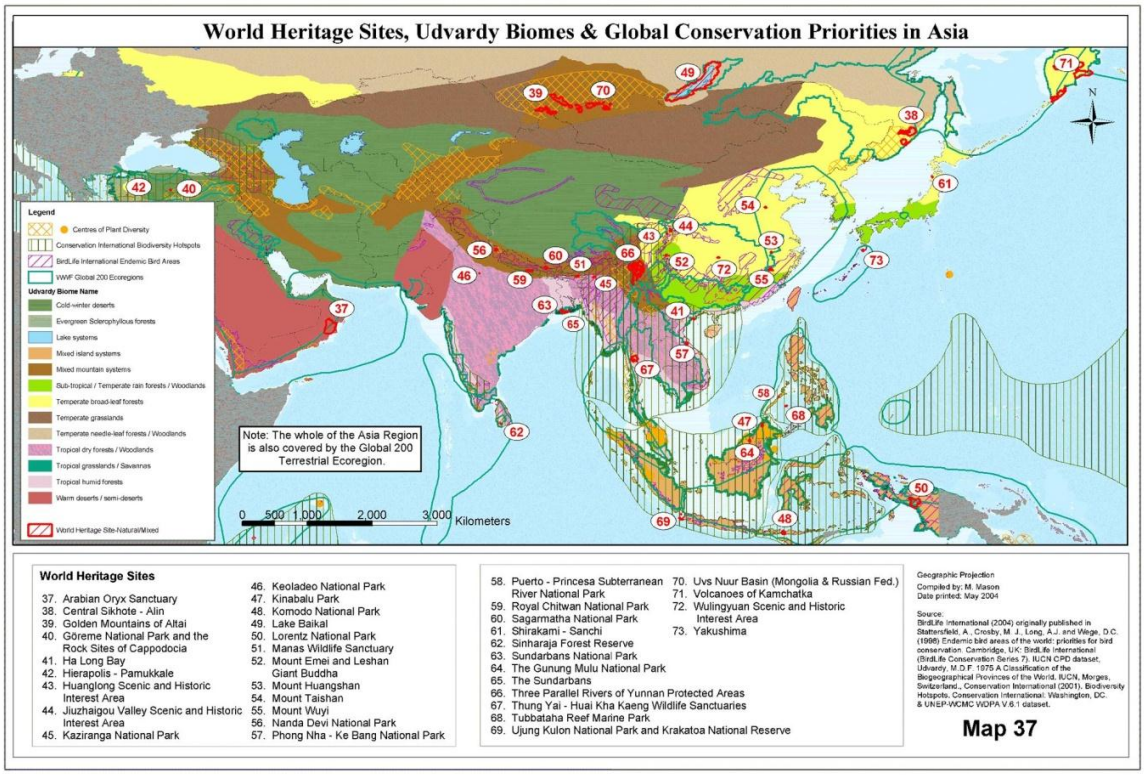


Figure 8. World heritage sites in Asia and the Pacific that can be developed for sustainable tourism

[37] Population Reference Bureau. 2002. Mountains, Sources of Water, Sites of Poverty and War. http://www.prb.org/Articles/2002/MountainsSourcesofWaterSitesofPovertyandWar.aspx - retrieved January 19, 2012

[38] Leksandiluk. 2004. Ecotourism and Community-Based Tourism in the Mekong Region. Working Paper No. 10, Working Paper Series, Australia Mekong Resource Center, University of Sydney, February 2004.

[39] Khanal, B. R. and J.T. Babar. 2007. Community Based Ecotourism for Sustainable Tourism Development in the Mekong Region. CUTS Hanoi Resource Center.

[40] http://en.wikipedia.org/wiki/Cardamom_Mountains

Major policy and legal reforms in NRM sectors

The policy link of national and local governments in natural resource management (NRM) is a crucial factor that explains the state of a country's natural resources. In the 1990's, a number of SEAP countries started to decentralise or devolve power and authority to local political units in response to criticisms of excessive centralisation. Devolution involved the transfer of responsibility in the delivery of basic services from the national to the local governments, including personnel, assets, equipment, programmes and projects.[41]

All countries in the SEAP are at different stages of implementing decentralisation policies and have been dealing with pressures stemming from competing uses for common natural resources, confusion over conflicting policies and/or laws, and socio-cultural diversity. Different case studies in the SEAP countries demonstrate that although recognition of decentralisation as a viable option for NRM is growing, reforms have not yet reached their desired levels. There have been sporadic and intermittent attempts to develop ideal decentralisation structures in compliance with the principles of subsidiarity, accountability, and capacity. Upward and downward accountability within and across sectors, jurisdictions, and organisations, both public and private, also remain to be fully established. Human, financial, and political resources are insufficient at the local level to match the increased responsibility that local governments have been granted under decentralisation. In summary, decentralisation is still in a nascent stage in the SEAP region and remains more or less "learning-by-doing." Thus, it is still too early to conclude whether the on-going reforms will ultimately be successful.[42]

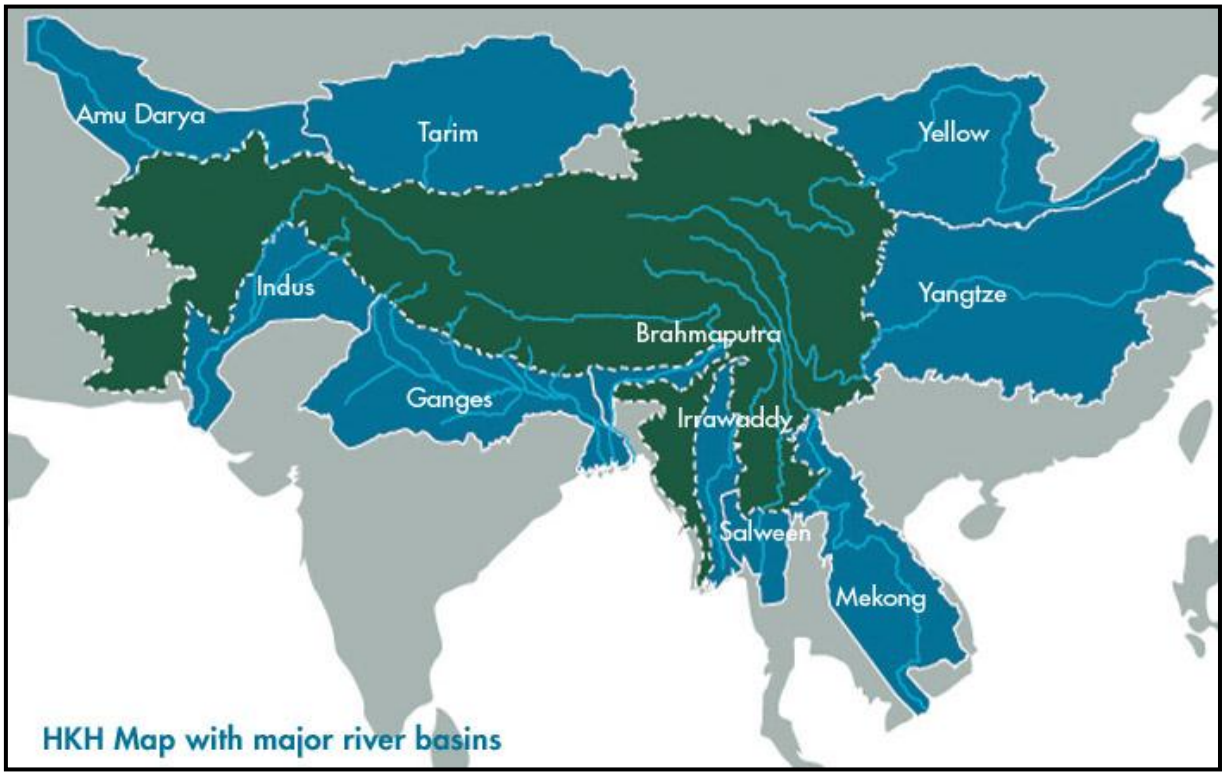
The devolution process within the decentralisation framework has begun favouring forest-dependent communities. In May 2009, indigenous communities in Malaysia celebrated a hallmark court judgment on land rights in the case of Madeli Salleh versus the Superintendent of Land and Surveys. The judgment defined native customary rights not only as forest-felled, cultivated and settled, but also communally protected forest. This was strengthened by judgments in two recent cases in January 2010 that confirmed the rights of communities to land, particularly the protected forests. It also provides leverage for community-based conservation and traditional land use and management for food security and increased income through NTFP development.[43]

Harnessing the potential of water resources (Mekong Commission)

Water sources in Southeast Asia are strained by the increasing demand and the situation is likely to worsen. Shared water resources in Southeast Asia are also a concern.[44] Energy demand is mostly met through fossil fuel-generated electricity, while hydroelectric energy production is growing.

[41] Elazegui *et al.* 2001. Policy Imperatives for Natural Resource Management under a Decentralized Regime: The Philippines Case. Paper presented at the SANREM Research Synthesis Conference, November 28-30, 2001, in Athens, Georgia, USA.
[42] Kurauchi *et al.* (n.d.), Decentralization of Natural Resources Management: Lessons from Southeast Asia. Resources Policy Support Initiative (REPSI).
[43] Annual Report 2009 to HIVOS.
[44] Yian, N. B. 2005. The ISEAS Forum on Water Issues in Southeast Asia. Trends in Southeast Asia Series: 11.

The Asia and Pacific region produces less than 32 per cent of the world's energy, with the People's Republic of China producing almost half of the total energy in the region. Most Asian economies rely on imports to meet their energy needs. Measured by GDP per unit of energy use, most Asian economies are becoming more efficient. Vietnam's electricity production increased eight times between 1990 and 2007. Other economies in Southeast Asia recorded large increases, including



Cambodia, Indonesia, Lao PDR, Malaysia, and Thailand.

Figure 9. Map of Asia, showing three river systems (Irrawaddy, Salween, and Mekong) that drain into mainland Southeast Asia. *Source*: Calvert (2009).

The Mekong River is one of the least developed international river basins, covering parts of China, Myanmar, Laos, Thailand, Cambodia and Vietnam (Figure 9). It is marked by under-utilisation of its water resources potential. It also causes frequent flooding that result in widespread damages. In 1995 the governments of four riparian countries – Lao PDR, Thailand, Cambodia and Vietnam – signed the Agreement on Cooperation for the Sustainable Development of the Mekong River Basin, which established the Mekong River Commission. Its objectives include the promotion and coordination of sustainable management and development of water and related resources for mutual benefit and wellbeing by implementing strategic programmes and activities, sharing scientific information, and providing policy advice.[45] The water resources development potential in the basin is evident in an estimate on the fresh water resources per capita (2002) that was 38,136 m^3/ in Cambodia, 60,307 m^3 in Lao PDR, 6,653 m^3 in Thailand, and 11,081 m^3 in Vietnam.

Laos has plans to build 10 hydroelectric dams, with five already under or nearing construction, over the next five years as part of its goals to become the "battery of Southeast Asia.[46] However, the

[45] WMO and MRC. 2006. Establishment of a Hydrological Information System in the Mekong River Basin Project Document, the Mekong Hydrological Cycle Observing System, a Hydrological Information System in the Mekong River Basin, Fifth Draft, July 2006.

[46] The Straits Times. Hydropower dams in Southeast Asia. September 14, 2010. http://www.eco-business.com/news/hydropower-dams-southeast-asia/ Retrieved August 27, 2011

Xayaburi hydroelectric plant, planned on the Mekong River, met regional opposition. Cambodia, Thailand and Vietnam have called for delay in construction on the grounds that it could impact on downstream fisheries and sediment flows. To date, only China has built dams on the Mekong River, the longest waterway in Southeast Asia.

The Philippines has a model for resolving incipient water-resource conflicts. In building the Ambuclao-Binga hydroelectric dam in Benguet Province in Northern Philippines, multiple stakeholders with competing claims entered into collaborative negotiations and non-adversarial communication prior to actual negotiations, and created a mechanism for dialogues that the stakeholders could access at any time. Needs-based negotiations serve as the starting point for coming up with win-win solutions.[47] The practice of seeking free and prior informed consent (FPIC) of key stakeholders before arriving at decisions by all parties is an alternative approach to averting stakeholder conflicts.

The Mekong River Commission and the World Meteorological Organisation signed a Memorandum of Understanding (MOU) in July 2003 and held the first consultation in Phnom Penh on October 2003 on establishing a real-time flood information system in the Mekong basin with Cambodia, Lao, Thailand and Vietnam as participating countries.

Pollution and weak institutions are obstacles to effective water management in most of Southeast Asia. Heavy river pollution has affected Indonesia, Malaysia, the Philippines and Vietnam. Weak institutions in Malaysia, for example, mean that the available technical expertise lacks legislative or enforcement powers. Privatisation is an increasingly popular option for water management and delivery but it is also not without controversy as it raises public fears of "unbridled capitalism." Furthermore, government failure does not automatically justify private sector involvement in the water sector as transforming a state monopoly into a private monopoly could worsen the situation, especially if the monopolist would take advantage of its privileged position.[48]

Social and political reforms

The Asian financial crisis in 1997-1998 changed Indonesia's economic and political landscape. It was one of the worst casualties of the *krismon* (monetary crisis), and the resultant fallout severely damaged the legitimacy of the New Order regime and eventually triggered President Suharto's political demise. This in turn catalysed a swift transition in Indonesia characterised by deep political and economic decentralisation. Since this "big-bang" reform, Indonesia has displayed modest yet positive economic growth, dealt with major separatist movements, and established arguably the most democratic state in the region. The Indonesian economy is driven significantly by domestic consumption, which arguably sheltered Indonesia from external shocks during the recent global financial crisis.[49]

In 2010 Indonesia's Forestry Administration said there were 427 community forestry site applications covering over 400,000 hectares in 20 provinces, but only 126 sites (145,036 hectares) had been approved. The Community Forestry Program (CFP) is a sub-program in the recently launched National Forestry Program (NFP). In theory, Community Forestry (CF) holds promise for sustainable forest management and promotion of community-based forest livelihoods. Non-government

[47] Abaya, A. 2011. e-Conference on Sustainable Mountain Development in the Southeast Asia, June 1-30, 2011. http://dgroups.org/Community.aspx?c=1e8d0925-6418-4258-a6ae-73d720453099. Retrieved September 1, 2011

[48] Yian, 2005. Op. cit.

[49] Tao Kong, S. 2010. Economic and political transition in China and Indonesia. *East Asia Forum*. August 4, 2010. http://www.eastasiaforum.org/2010/08/04/economic-and-political-transition-in-china-and-indonesia/. retrieved September 29, 2011.

organisations (NGOs) and other stakeholders including the reconstituted National Community Forestry Coordinating Committee (NCFPCC) continue to raise concerns about boundary overlaps between economic land concessions (ELCs) and community forestry areas. ELCs continue to be allocated with limited community consultation and information disclosure, and pose considerable impediments to meeting the community forest target. Community protected areas (a parallel social forestry and community based natural resources management mechanism under the Protected Areas Law) face the same challenges.

One of Cambodia's Millennium Development Goals (MDGs) targets is to designate two million hectares of forestland for Community Forestry by 2030.[50] But disputes over land and natural resources in Cambodia remain an utmost concern especially in developing the Green Economy and the institutionalisation of community forestry as an expression of devolution and decentralisation. There have been increasing cases of land grabbing, as well as evictions and loss of livelihoods in both rural and urban areas. Correspondingly, active non-violent mobilisation of civil society and community networks is also increasing. The disputes centre on ELCs and international land deals for commercial projects in real estate, mining and plantations. While a sub-decree on procedures for registering communal lands of indigenous peoples was passed in April 2009, only three pilot titles in the Northeast were underway. Interim protection measures for indigenous land claimants are weak against ELCs, which are generally favoured over possession rights of indigenous peoples despite the Land Law and the new sub-decree.[51]

Vietnam has undergone impressive socio-economic transformation. Its economic advancement stems from its 20-year reform programme, known as the Doi Moi (renovation process). This was introduced in 1986 after Vietnam experienced a huge economic crisis during which over 70 per cent of the population lived in poverty with average per capita income of less than US$100. Since then, the economy has opened up and both export and investment have surged. The average economic growth rate has consistently been above seven per cent per year in the last two decades. In 2010 its GDP per capita was US $1,240 (The Economist, 2010) while the household poverty rate stood at 12.3 per cent of the population in 2009. Like its neighbour China, Vietnam and its economy are increasingly outward investment-oriented and export driven. Exports made up over 65 per cent of the country's GDP in 2008 and the country is changing from an aid-recipient to a middle-income country.

In the natural resource management front, Vietnam is experimenting with co-management and benefit sharing for forest communities living in national parks. Its new biodiversity law recognises reasonable use of biodiversity to harmonise conservation with hunger and poverty alleviation. The concept of people's participation in forest management is still new in the country's national parks, and various sectors are still struggling to reach compromises. The government has begun permitting communities to harvest within national parks. The Raglay community in Nui Chua was relocated at first and had been kept away from their forest and forest resources when the Nui Chua National Park was established. They were made to plant trees and crops but most of them still had their farms inside the park. Now they are starting to have access to NTFPs and also help the park management in patrolling the area. Further, a trial Benefit Sharing Mechanism has been initiated based on the Vietnam Conservation Fund that aims to develop five protected areas.

Major activities in promoting the Mountain Agenda

[50] Annual Report 2010 to HIVOS.
[51] Ibid.

Most Southeast Asian countries took part in the United Nations Conference on Environment and Development (UNCED) in Rio in 1992, and almost all have acceded to or ratified the relevant international conventions and treaties for sustainable development. They have taken different approaches for realising the national development objectives. These include economic incentives, new legislation, and a social reform agenda.[52]

A decade later, the Asian Development Bank (ADB), United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), United Nations Development Program (UNDP), and United Nations Environment Program (UNEP) established a partnership (Task Force) to undertake the preparatory process for the World Summit on Sustainable Development (WSSD). Forty-nine (49) government representatives from Brunei Darussalam, Cambodia, East Timor, Indonesia, Lao People's Democratic Republic (Lao PDR), Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam attended the meeting held in Manila in October 2001. About 40 representatives of major stakeholder groups from seven countries also attended the meeting. The preparatory process crafted a sub-regional action plan that peripherally tackled sectoral issues such as sustainable land management and biodiversity conservation, and sustainable water resource management.[53]

The Philippines formulated Philippine Agenda 21 (PA21) that has since been considered as the main policy framework for civil society participation in environmental governance. In 1996, the leaders of more than 5000 organisations under the informal banner of the Asia Pacific Sustainable Development Initiatives (APSUD) rallied around PA21 as their framework for negotiations with government on the Asia-Pacific Economic Cooperation Council (APEC). Even those who questioned APSUD's stance in APEC did not oppose PA2. But they did question the sincerity of government in carrying out the promises they made to put the Individual Action Plan (IAP) under PA21.[54]

The region also has some funding mechanisms. An example is the Samdhana Foundation based in Bali, Indonesia which functions as an adviser for Global Greengrants Fund grants to groups in Laos, Cambodia, Thailand, Malaysia, East Timor, Indonesia, and the Philippines. Its vision is for a region that values natural, cultural, and spiritual diversity and environmental conflicts are resolved peacefully, with justice and equity for all parties. Achieving this requires communities that directly manage local natural resources have clear rights, ready recourse to justice, strong and skilled leadership, stable financial resources, and access to appropriate technical support. A number of Southeast Asian NGOs and community-based organisations have received Samdhana funds including 112 grants in Indonesia, 54 in the Philippines, and 14 in Lao PDR, Malaysia, Myanmar, Cambodia and Thailand.

Role of NGOs and civil society (CSO) organisations

The forces of globalisation and the emergence of civil society have led governments to accept the role of NGOs in governance. An important contributor to the growth of civil society in the Asia Pacific is the emergence of a favourable political and social environment. The restoration of democratic

[52] The Southeast Asia Preparatory Meeting for the World Summit on Sustainable Development. Executive Summary. 2002. http://www.adb.org/Documents/Reports/SEA_WSSD/exec_summary.pdf Retrieved September 2, 2011
[53] Ibid.
[54] Philippine Agenda 21, Center for Alternative Development Initiatives, http://www.cadi.ph/philippine_agenda_21.htm Retrieved September 2, 2011

governments has helped in galvanising public support for CSOs, which have played major roles in different movements.[55]

NGOs have become legitimate participants and are involved directly in many social and economic policy-making processes. They have become part of policy networks that link the state bureaucracy and the market. Many factors have influenced the growth of NGOs in the region, particularly democratisation and the space it created for associations.

The growth of CSOs and their growing recognition in policy-making and service delivery have warranted the redefinition of the relationship between the NGO sector and the state. The re-emergence of civil society has often created uneasiness in governments in terms of state-NGO relationship. Unlike some developed nations that have experienced more "evolutionary" changes in the state-NGO relationship, many Asia Pacific nations, especially those that have witnessed democratisation, have undergone "revolutionary" changes. Government officials in many of Asian countries had adopted the developmental state model where strong and centralised governments and top-down decision-making were the norm. The change from an exclusive bureaucratic network to a more inclusive one in terms of policy-making and implementation occurred within a short period of time, and was forced upon the bureaucracies. The swift changes in democratic governance have necessitated shifts in positions and roles of the major players in society. Generally, the quicker the state bureaucracy moves to accept diversity and democratic governance, the easier the transition can become.

There are numerous cases where civil society initiated good practices have eventually led to the crafting of state policies. In Papua New Guinea, the 1998 Steering Committee meeting developed a set of principles for effective development on the Managalas Plateau. The "Sustainable Development Guidelines" covered forest use, gardening, water and other issues in resource management and community development. These guidelines were intended to inform the plans and decisions of each village. These bottom-up guidelines have now been recognised and adopted by the government. A MOU has been signed between the CSO partners and the Oro Provincial Government providing a foundation for government recognition of the Managalas sustainable development guidelines. This is the first local level recognition of community development management rules in PNG is a significant achievement. Sustainable harvest guidelines have been completed for the Okari and there is some recognition of harvest regimes that take these into account.

NGOs have been taking the lead in promoting organic farming. In the Philippines, Alter Trade promoted fair trade among agrarian reform beneficiaries in the upland and lowland farms of Negros Occidental. Alter Trade sees "the necessary role of government, academic institutions, church, private sector, NGOs, organised producers and consumers and civil society in propagating sustainable agriculture and development." It has entered into multi-stakeholder partnerships to harness the potentials and facilitate complementation among the different social sectors.[56]

The idea of an alternative trading system – or what its Japanese support groups call people-to-people trade – was first broached in 1986 during a conference in Japan attended by consumer cooperatives, environmental activists and organic agriculture movements. Three major groups were present – the

[55] Kim, J. 2004. Accountability, Governance, and Non-governmental Organisations: A Comparative Study of Twelve Asia-Pacific Nations. Presented in the conference on "Governance, Organisational Effectiveness, and the Nonprofit Sector in Asia Pacific," organized by the Asia Pacific Philanthropy Consortium (APPC), held in September, 2003.

[56] Mugar, N. 2007. Alter Trade's Reply to NDF-Negros, February 7, 2007. (Retrieved November 26, 2010). http://www.europe-solidaire.org/spip.php?page=article_impr&id_article=5137

Kyoseisha Coop, a large consumers cooperative in Kyushu, the Tokushima Association for the Betterment of Life, a consumers group in Tokushima Prefecture in Shikoku Island, and the Chubu Recycling Citizens' Group, an influential citizens' organisation in Nagoya concerned with the environment and direct producer-consumer linkages who committed to buy Mascabado sugar, which was largely seen as a "poor man's sugar." Alter Trade views Mascabado sugar as an apt statement of its vision: to help the poor people of Negros Island. It adopted the brand name Mascabado, "mas" meaning the masses – the ordinary people. The product was first shipped to cooperatives in Japan in 1987. A year later, trading firms that espoused the principles of fair trade from Switzerland and Germany, and Italy also began buying the sugar.

Another NGO in Negros Occidental, central Philippines, the Broad Initiatives for Negros Development, Inc. (BIND), has been helping farmers to use vermi-compost as fertiliser, and herbal plants to ward off pests in organic rice and vegetables. They also produce organic livestock among many other products. [57,58]

Poverty reduction measures

One important lesson that has emerged in tackling poverty and food insecurity concerns the use of investment policy and institutional reforms to enable the rural poor to partake in domestic markets and improve access to technology, infrastructure and education. The main push to these efficiency-enhancing reforms has come, neither from globalisation nor agricultural policy, but from internal realisation that the country and its citizens are the major beneficiaries of state-initiated reforms. Governments must therefore develop capacity to find the appropriate mix of policies and institutions that would maximise the benefits from globalisation while protecting its people against the risks.

Although poverty remains one of the most pressing issues facing the Asia and the Pacific, the SEAP region should be credited for continuously making progress in reducing income poverty and enhancing people-oriented achievements toward the MDGs. However, the region still remains home to two thirds of the global poor.

Economic growth

Economic growth in the SEAP region has averaged at five per cent per year during the last 25 years and has been accompanied by a decline in the relative importance of agriculture in national output and employment. The response of poverty to this growth has been equally remarkable, with the headcount ratio in 2002 registering a more than 50 per cent drop from the 1990 figure. Although impressive, the region's overall record in growth and poverty reduction has not been uniform, across the countries where liberalising agricultural trade, combined with public investment in productivity-enhancing support services would advance the interests of the poor.[59]

The rapid economic expansion in both China and India is a boon for the more advanced economies in Southeast Asia, notably Singapore, Malaysia, Brunei, and Thailand. But growth in China and India

[57] Faylon, P. and E.C. Cardona. 2007. Philippine Agriculture: Retrospect and Prospects in Good Agricultural Practices Amid Globalisation, May 16, 2007. Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD), Los Baños, Laguna, Philippines, http://www.agnet.org/library/bc/54006/. - retrieved September 3, 2011.

[58] Samonte, A.S. 2005. NGO lends helping hand. Manila Bulletin. February 19, 2005. http://www.docstoc.com/docs/2908129/Manila-Bulletin Retrieved September 3, 2011.

[59] Balisacan *et al*. 2009. Op. cit.

will negatively affect the less-advanced neighbours, notably the transition countries, as well as the Philippines and Indonesia, as industries in these countries still have to contend with unskilled labour.

The Asia and Pacific region accounts for almost one-third of global GDP measured in purchasing power parity (PPP) terms. Many economies in the region have made substantial increases in their per capita GDP. Although the 2009 GDPs were lower in constant prices, most economies still managed to post modest or even healthy growth, despite weakening exports and lower shares of export in GDP in almost all economies as compared with the pre-crisis levels.

Urbanisation and labour migration

Southeast Asia is one of the world's least urbanised regions. Its level of urbanisation is roughly the same as that of Asia as a whole and slightly above that of sub-Saharan Africa. According to UN projections, it will be at least another 50 years before the level of urbanisation approaches that achieved in Europe, North America or Latin America, where less than 25 per cent of the population live in non-urban areas. Even among the 25 per cent who remain in rural settings, most no longer lead traditionally rural lives.[60]

Rapid economic growth has fundamentally changed the composition and distribution of the labour force in Southeast Asia. Over the past 25 years, a labour force that was predominantly agrarian and rural has become increasingly urban and industrial. As Southeast Asia's regional economy shifts from agriculture toward industrial and technological pursuits, employers increasingly require highly skilled professionals, which the local educational institutions cannot readily supply. Consequently, the developing nations of Southeast Asia are faced with a variety of human resource dilemmas.

The changing structure of urban population suggests a shift of growth dynamics from large to second order cities, and the stagnation of small towns. The pace of urbanisation has been modest to high in select countries in Asia, not because of their level of economic growth but because of rapidly growing informal sectors.[61]

There has been a growing concentration of out-migrants from Asia in a few countries in the developed world. Asia accounts for 53 million or 28 per cent of migrants basically due to its high demographic weight. In terms of the share in total international migrants, exactly half among the top 20 source countries were from Asia, both in 1990 as well as in 2005.

Migration within Asia has grown since the 1990s, particularly from less-developed countries with massive labour surpluses to fast growing newly industrialising countries. Since the mid-1980s, rapid economic growth and declining fertility have led to strong demand for labour in the new industrial economies of East and Southeast Asia. Labour migration within Asia grew exponentially in the first half of the 1990s. Some migrants returned home during the Asian financial crisis of 1997-1999, but migration resumed quickly. Early migrant flows mainly comprised of low-skilled workers. In recent years, flows of highly skilled workers have increased, and the demand for health-care workers is increasing.

Often cited as the main reasons for the movement of workers both within and outside the region, are wage differentials, the availability of jobs and work opportunities (in some cases for long periods), and opportunities for workers to grow.[62] On the downside, opportunities in nearby urban areas have spawned slums. About two-thirds of the urban population in most SEAP cities live in slums.

The number of urban dwellers swelled between 1990 and 2009, with increases of 12 percentage points or more in Indonesia, Lao PDR, Malaysia, Philippines, and Thailand. Likewise, highly urbanised

[60] Jones, G. W. 2002. Southeast Asian urbanization and the growth of mega-urban regions. Journal of Population Research, Vol. 19 (2), 119-136, Springer Netherlands.
[61] Kundu, A. 2009. Urbanisation and Migration: An Analysis of Trend, Pattern and Policies in Asia. Human Development Research Paper 2009/16, UNDP.
[62] Acharya, S. 2003. Labour migration in the transitional economies of South-east Asia. Working Paper on Migration and Urbanization, UNESCAP.

mountain cities such as Baguio City in the Philippines grapple with population growth due to the influx of immigrants from the plains and outlying mountain communities.

Human resources development

The SEAP is a vast region with economies at different stages of growth. Worldwide competition has increased, the pace of economic change has accelerated, and the process of development has become less predictable. Globalisation has fostered not only technological change and continually falling communication and transport costs but also decisions of developing countries to embrace market-oriented development strategies that have increasingly opened up markets.

A key contributor in this regard is the knowledge and skills of the workforce. Technological changes, especially information technology and telecommunications, and competition in the fast moving competitive global marketplace have changed work organisations and working patterns. Virtual offices are emerging as companies are leveraging cyberspace and electronic technology to cut costs and to boost productivity. These firms need reliable and educated workers, who are able to understand the new forms of information, are adaptable, and can work in a team environment. Employees need both technical skills and capacity to cope with continuous changes taking place in virtual businesses.

Finding adequate human resources in Southeast Asia presents a problem, as there is a shortage of skilled labour in many of the developing countries. However, doing business in the region also offers opportunity for employing a relatively inexpensive workforce.

Major and support organisations in SMD

Hydro-meteorological observation facilities

Hydro-meteorological data and information are essential to support water resources development and management, and for flood forecasting and disaster warning. The existing hydrological and hydro-meteorological networks in the region are insufficient, especially in the mountainous areas. Technologies involved in the data collection, transmission and processing need to be improved to achieve state-of-the-art process sophistication and operational efficiency.

Earth observation facilities

Earth observation satellites have a central role to play in understanding the Earth system as a whole. They help to overcome the difficulty of obtaining accurate, continuous, simultaneous measurements of the Earth's atmosphere, oceans, ice sheets, land surface and interior. They are often the only way to highlight change on a global scale.

Policy makers are increasingly realising the relevance of geographic information and earth observations applications in decision-making. There is a growing need for generating spatial and temporal data for aid planning, management and policy formulation in the mountain context. But data generation is difficult because of the vast biophysical and socio-cultural diversity of mountain ecosystems. Consequently, the proper delineation of areas where appropriate management and policy reforms can be initiated is hardly done. In addition, available records and data sets are often not comparable because of differences in standards, scale, accuracy, and collection procedures.

The last decade has witnessed an unprecedented growth and development in earth observation data and applications. Earth observation techniques through remote sensing are proving to be more cost-effective for large areas than ground-based approaches. There has been an emergence of high-resolution satellite data in recent years, with greater degree of spatial and temporal variations. The

sharper resolutions can yield useful, site-specific information needed for making recommendations for dealing with location-specific problems in the mountains.

PART II
Case studies: Local solutions for sustainable development

Managalas Plateau Conservation Area Project, PNG

Key messages:

- Equal community participation and self-reliance are keys to development of sustainable alternative livelihoods through conservation
- Equitable benefit sharing has not been possible due to poor policy implementation

The Partners with Melanesians Inc. (PwM) is a NGO that has been implementing the Managalas Plateau conservation project in Oro province in PNG. It sought to establish, coordinate and promote the work of all community members and partner organisations through equal participation and self-reliance, and practices of sustainable development. PwM has been working with the local communities since 1984. The core belief of the Managalas project is that full participation by the people is needed in development for everyone to benefit. Although working with the people was initially difficult, PwM insisted on the community's active participation in the processes and programmes that were intended to improve their lives, and transform their context and conditions. This involved making the local people were made aware that they cannot remain recipients and mere spectators of development, but rather, needed to be the cause and drivers of development.

Vietnam: Collaborative Forest Management

Key messages:

- Multi-stakeholder consultation is critical to ensure project sustainability and effective replication and scaling up
- Convincing all parties about benefits can lead to a win-win situation.

Collaborative Forest Management (CFM) was introduced in 2007 and has been implemented at Bidoup Nui Ba National Park under a project called "Piloting an Approach to Multiple-Use Forest Management in Lam Dong Province." The objectives of CFM were to establish mechanisms for enhanced community participation in planning, development and benefit sharing at selected watershed protection forests and production forests, and to explore possibilities for collaborative planning, management and benefit sharing.

It then established multi-stakeholder Forest Management Groups (FMG) at village level involving communities, forest officials, and local government representatives.

The FMGs have enhanced cohesion in forest protection, with local people working as self-managed groups in coordination with the national park and forest guards. The project also established Revolving Credit Funds (RCFs) in pilot villages that have allowed the provision of village-managed credit to those who had no access to loans. While the loans did not technically "pay" people to protect forests, they have helped in increasing their motivation for conservation.

Another project, "Piloting of Payments Environmental Services (PES)," in the forest sector in Lam Dong province, has contributed significantly toward poverty reduction and in enhancing forest protection. As a result, there has been a significant increase in both household incomes and the area of forest contracted for protection by communities for the period 2008-2011.

The key factors to the success of CFM in BNBNP were: (i) FMGs were established through a process of negotiation and consultation with stakeholders; (ii) Implementation of CFM ensured fair and real benefits for all parties, and (iii) The piloting of PES contributed significantly toward poverty reduction and enhanced the effectiveness of FMGs in protecting forests.

The application and replication of CFM in Vietnam would need regulations and guidelines at the national level, which was overlooked during project design, and therefore it does not have provisions for involving decision makers at that level. The FMGs appear to have enhanced coordination for forest protection between local people and the authorities but they have yet to facilitate broader participation of villagers in other conservation activities. In this context, there is an effort to elaborate the lessons learned from collaborative forest management, which when done, can provide a common basis for understanding concepts and for formulating and implementing necessary laws and regulations.

Forest Honey Network Indonesia (JMHI)

Key messages:

- Establishing an effective network is key for sustainable NTFP management and support from government agencies is crucial
- Indigenous honey production has empowered community organisations, improved economic gains and enhanced conservation and sustainable development

Forest-based carbon sequestration is considered to be the most efficient and effective long-term greenhouse gas mitigation policy. Carbon is stored within forest products and soil and that keeps the gas out of circulation. Studies indicate that the amounts of carbon stored in forests are increasing by about 40 million tons per year. Forests are estimated to store more than three billion tons of carbon globally. Forests are an important renewable natural resource and also contribute substantially to the economy by providing goods and services. They also play an important role in enhancing environmental quality by influencing the life support systems.

Many products are harvested from the forests that are not timber-based, but originate from plant materials. These are called non-timber forest products (NTFPs). Forest communities have derived sustenance from NTFPs in periods of stress, and have also used them for producing items of daily use in normal times. NTFPs include bark, roots, tubers, leaves, flowers, seeds, fruits, sap, resins, honey, fungi (mushroom), moss, lichen, herbs, vines, shrubs, or trees and animal products, such as, meat, skins, bones, and teeth. They are used for food and medicine and as a source of income. NTFPs are consumed in rural and urban homes, and are traded in local, regional, and international markets.

The Food and Agriculture Organisation (FAO) claims that at least 150 non-wood products are found in international markets (FAO, 1997). NTFPs provide small but significant sources of income, particularly for women and families that do not have access to agricultural markets. However, the lack of adequate information on the scope and value of these markets is a major obstacle faced in the sustainable development of these resources.

The case study documents indigenous collectors of honey from the forests, who sell it (and wax) at low prices. It also describes how, since 2005, an expanding community-based Forest Honey Network Indonesia (JMHI) in Indonesia has been operating and what has made it successful. The success has stemmed mainly from full support – in some locations – of local governments/agencies. This was possible because of the exemplary support of Sumbawa Besar and Luwu regencies and the Danau Sentarum National Park management. The case study also explains how the network and its members, partners and supporters, succeeded, firstly, to improve the quality standards, and secondly, how the affiliated honey collectors began sustainable harvesting and active forest conservation.

The network has expanded and includes members in Kalimantan (Danau Sentarum National Park, Mount Meratus and Serengkah in Ketapang regency), Sulawesi (North Luwu in South Sulawesi, Ueesi in Southeast Sulawesi), Sumbawa Besar (Batulanteh watershed), Java (Ujung Kulon National Park, Banten) and Sumatra (Tesso Nilo National Park, Riau).

Though not all harvesting sites are in the mountains, the bees routinely migrate between higher and lower elevations, benefiting from variations in flowering seasons at different altitudes. Therefore, intact mountainous forest ecosystems are crucial for the honeybee (*Apis dorsata*) colonies. This is an example of how good upland forests also benefit communities outside of the mountains that (mainly) work with honey and wax. Still, all of this could go terribly wrong – with forest degradation and conversion still rampant in many locations – if urgent measures are not taken to bolster the commitments of the organised honey collectors.

The activity has also demonstrated how the venture has contributed to significantly improve the local incomes. The study also shares some lessons learned and the plans for the future. Some future activities include increased support for women who want to work with wax as the primary raw material.

The JMHI has been leading the effort of the members to establish a top quality Indonesian product and to promote sustainable harvesting practices, and the conservation of the forests upon which the bees depend. A number of the activities operate in and around national parks or otherwise protected forest areas and with full support of (local) government, park management and other agencies. However, continued deterioration of forests could reverse the successes. This case study brings together the experience of successful sharing of knowledge about forest conservation through community involvement, and forest honey harvesting, production and marketing.

Living in watersheds: The experiences of the Ikalahan in forest management

Key messages:

- Effective implementation of PES can help people to escape from poverty, protect and expand forests, restore wildlife, provide health services
- The revenues can be used for social benefits

Long before the Kyoto Protocol and terms like carbon sequestration were popularised in the Philippines, the Ikalahans (literally, 'people of the broadleaf forest') had practiced conservation and sustainable livelihoods in their own ways. Forest–based carbon sequestration is believed to be the most efficient and effective, long-term, GHC mitigation policy.

The Ikalahans are an indigenous peoples community in Nueva Vizcaya province in northeast Philippines. They belong to the Kalanguya-Ikalahan tribe, which inhabits the Ikalahan ancestral domain, which includes the Kalahan Forest Reserve, and covers 38,000 hectares in Nueva Vizcaya and another 10,000 hectares in Nueva Ecija. The Ikalahans are known for their indigenous knowledge systems that have been transferred, protected and maintained for generations. Among these practices are the *day-og* and *gengen* – ancient composting techniques that take only three months to complete, on both level and sloping land. The compost is used for restoring soil fertility of upland farms. The *pang-omis,* is another method of expediting the fallow, while *balkah* is a contour line of deep-rooted plants that traps eroded topsoil at the belt line (Rice 2000).

Ikalahan elders organised the Kalahan Educational Foundation Inc. (KEF) to protect communities from possible eviction by land grabbers in 1973. They pioneered the Social Forestry Programme of the Philippine Government in 1974 when they entered into a contract to manage 15,000 hectares of their ancestral domain.

First the Ikalahan leaders controlled the occasional wildfires and improved their food supplies. Next they turned to developing various forest-based natural resources to generate income for residents. They trained the

population on ecological balance and focused on enabling the Ikalahan to be self-sufficient, and minimising their dependence upon external raw materials and markets. They are now developing jams and jellies from wild fruit, hand-made paper, brooms and baskets, mushrooms, organic vegetables and fruit, and furniture. In 1994, the community set up the carbon stock measurement system and has adopted the Forest Improvement Technology (FIT) to expedite growth of indigenous trees to improve carbon sequestration.

According to Espaldon (2005)[63], the economic activities in the mountain reserve indicates that forest management there is about 10 years ahead in terms of measuring ecological benefits of protecting forest ecosystems. The Ikalahans hope to receive payments for the environmental services for carbon sequestration, irrigation water for downstream areas, and eco-tourism. To the Ikalahans, the primary role of government is to protect their rights to their lands and resources: It should allow forest dwellers freedom to manage the resources and benefit from them.

The accomplishments of the Ikalahan people demonstrate what initiative and role modelling can do. While many ethnic communities are known to live harmoniously with nature, being content with their traditional knowledge system, the Ikalahans have gone a step further by learning about, and practicing more ecologically friendly and sustainable agro forestry skills. Their efforts have resulted in expanded forest cover that contributes to ecological, economic and food security. They are confident that they can protect their remaining primary forests while making a living from niches in the secondary forests.

[63] Espaldon, M.V, 2005. Looking through the eyes of the future: The RUPES Bakun, Benguet, Philippines. (Unpublished report). School of Environmental Science and Management, University of the Philippines Los Baños, College, Laguna, Philippines.

PART III: Challenges and opportunities for sustainable mountain development

Lessons from the case studies

The SEAP Mountains are spread out across a large land area and are therefore diverse and unique owing also to the climate that is varied. Even though the mountains are not as high as other ranges in Asia, they are also fragile, inaccessible, and vulnerable, and less developed compared to the non-mountainous regions. The SEAP region lies at the intersection of geological plates and has high seismic and volcanic activity. The case studies carried out in the region suggest that mountain regions are unique and diverse and therefore developmental efforts need to be planned and executed in ways that match the local specificities. The key messages from the case studies carried out as part of this assessment are summarised in Table 3.1.

Table 3.1. Summary of the case studies in the select SEAP Mountains

Case study theme	Major highlights of case study findings
Conservation area project (PNG)	The aim was to have equal community participation and self-reliance, and development of sustainable alternative livelihoods through conservation; equitable benefit sharing has not been possible owing to poor policy implementation
Collaborative forest management (CFM)	Multi-stakeholder (at all levels) consultation is critical to ensure project sustainability and effective replication and scaling up; convincing all parties about benefits can lead to a win-win situation
Community-based Forest Honey Network	Establishing an effective network is key for sustainable NTFP management; support from government agencies is crucial; Indigenous honey production has empowered community organisations, improved economic gains and enhanced conservation and sustainable development
Integrated forest and watershed management	Effective implementation of PES can help people to escape from poverty, protect and expand forests, restore wildlife, provide health services and eventually use revenues they generate for social benefits

This section focuses on evaluating recent progress on SMD initiatives in the SEAP region. It does not refer specifically to Rio 1992, but summarises progress and changes that have taken place over the last 20 years: In the SEAP region, the three pillars of SMD have been influenced by many emerging trends and challenges, which are:

Social transformation: Devolution and decentralisation underpin social transformation across the region as communities become more demanding of attention of their politicians and governments. But income inequalities, rising food prices and water scarcity have aggravated social tensions and regional conflicts. The region is confronted with a development pattern that pushes people and resources against natural or sustainable limits, which is more apparent in the marginalised highlands.

Migration has increased in the last two decades and as a consequence nearly brings to completion the feminisation of subsistence agriculture.[64] Continued migration compensated by remittances results in economies that are as dependent as ever. Inadequate appreciation of mountain specificities has led to unplanned implementation of infrastructural development that has increased vulnerability.

Ecological crises: Infrastructure development has contributed significantly to natural resource degradation,[65] as well as to human displacement. Climate change-induced variability of temperatures and precipitation has multiplied risks through water stress, cropping shifts and natural hazards exacerbating the fragility of the natural resource base.

Climate change adaptation is still new in the region but climate change impacts on crop productivity and food security have been widespread. Across the region, wildlife in cultivated landscapes (due to natural resource degradation) has impinged upon livelihood security of large agrarian populations in the mountains. Efforts in Indonesia to build a monitoring system for food security and livelihood through Community-Based Disaster Risk Management to prevent food shortages provide an alternative option.[66]

Economic transition: Land use change, urbanisation and market expansion have transformed the economic landscape in the mountains. Development came late in mountains with longer history of sedentary agriculture, as in Nepal, Bhutan, Sikkim and Uttarakhand, but has accelerated in the SEAP region in the past decades and has had mixed results.

Community control over resources, for example community forestry efforts in Nepal and *Van Panchayats* in Uttarakhand, India has demonstrated the virtues of community empowerment. However, opportunities to convert such advantages into economically competitive advantages have been squandered in Southeast Asia and governments, knowingly or unknowingly, have allowed poverty to persist.

Institutionalization of Agenda 21, Chapter 13

A key plank for building ecological infrastructure is to institutionalise the decentralisation and devolution of decision-making processes. These must extend from local governance to community-based natural resource management regimes.

The Philippine Congress first enacted the Local Government Code of 1991 enabling various political subdivisions to "attain their fullest development as self-reliant communities and make them more effective partners in the attainment of national goals." Then in 1995, President Ramos issued Executive Order No. 263 adopting community-based forest management (CBFM) as the national strategy to ensure sustainable development of the country's forests. The government also introduced the Philippine Agenda 21 (PA 21) by issuing Memorandum Order No. 399 that identified the roles of the Philippine Council for Sustainable Development (PCSD), which inexplicably left out Chapter 13's SMD agenda that could have complemented the CBFM policy. The Estrada administration re-affirmed PA21 as the country's framework for sustainable development through Memorandum Order 47, which

[64] Increased acceleration and scale of migration has negatively contributed to loss of local labour, brain, enterprise and leadership, has been underscored by delegates at the Regional Assessment Workshop on Rio+20 at ICIMOD, Kathmandu, Aug 23-25, 2011

[65] Road building, urban expansion and mega-projects have contributed to eco-degeneration across SEAP region.

[66] UNFCCC. 2007. Climate Change: Impacts, Vulnerabilities and Adaptation in Developing Countries.

directs all local government units to localise PA21 through sustainable integrated area development (SIAD), now recognised as a potent framework for poverty eradication.[67]

Indonesia's mountain agenda includes the continuous monitoring of volcanic activities through the National Forum for Coordinating Natural Disaster Alleviation to mitigate the impacts of volcanic eruptions, which occur about three to five times each year. Mountains located in highly populated areas, such as Merapi, Semeru and Kelud are the foci of mitigation efforts, while volcano mapping has been undertaken to identify risk zones. The Ministry of Mining and energy has mapped 16 disaster sensitive volcanoes/cauldrons. Mountains in Aceh, North Sumatra, West Java, West Nusa Tenggara, and West Kalimantan have been designated as national parks for conservation.[68]

Malaysia has identified the highlands as critical ecosystems and recognises that these are under increasing pressure from development that encroaches into fragile habitats. It has banned commercial logging above 1,000 m and on 40° and higher slopes to protect water supply in the Main Range highlands. It issued a National Biodiversity Policy in 1998 to provide a framework for integrating and consolidating biodiversity programmes and projects. The government has also carried out a study on "Policy Strategies for the Conservation and Sustainable Use of the Highlands of Sabah and Sarawak" to serve as the basis for formulating the country's draft National Highlands policy.

Review of Sustainable Mountain Development initiatives

a. A recent Centre for International Forestry Research[69] study suggests that strengthening of community-managed forests could be a more cost-efficient and effective solution than traditional forest management to reducing deforestation and ensuring the sustainable use of forests while benefiting local livelihoods. Community forestry forms an essential component of the proposed Philippine sustainable forestry management bill.

b. The Philippine Republic Act 7586, known as the National Integrated Protected Area System (NIPAS) Act, reinforces devolution under which each protected area is to be administered by a Protected Area Management Board (PAMB). Among its functions are to delineate and demarcate protected area boundaries, buffer zones, and ancestral domains, and recognise the rights and privileges of indigenous communities under the Act. Members include government officials, barangay (village) officials, and three representatives from NGOs and community-based organisations. One such protected area under the Philippine system is the Mount Kanlaon Natural Park (MKNP), created by Congress under Republic Act 9154 of 2001. Part of the Western Visayas Biogeographic Zone, MKNP has high biodiversity value because of its relative endemism and species richness.

c. MKNP has formulated biodiversity conservation strategies by zoning land use, implementing community-based protection measures designed to protect, conserve and develop its remaining resources, rehabilitating highly disturbed and degraded habitats and ecosystems, and

[67] *Philippine Agenda 21*. http://www.cadi.ph/philippine_agenda_21.htm. Retrieved September 2, 2011.
[68] Indonesia Country Profile. 2002. Johannesburg Summit 2002. United Nations. http://www.un.org/esa/agenda 21/natlinfo/wssd/Indonesia.pdf
[69] CIFOR. (nd) Deforestation much higher in protected areas than forests run by local communities. Press release, http://www.cifor.org/mediamultimedia/newsroom/press-releases/press-releases-detail-view/article/238/deforestation-much-higher-in-protected-areas-than-forests-run-by-local-communities.html. Retrieved August 29, 2011.

conducting biodiversity monitoring and research, among others. Moreover, official policy has enshrined the importance of different tenurial regimes in public and private lands to provide mountain communities, especially indigenous peoples, with inalienable rights such as FPIC in what otherwise would have been open access to extractive industries equipped with timber or mining licenses.

d. More recently, Philippine President Benigno C. Aquino III tasked the Department of Environment and Natural Resources to implement the National Greening Program that seeks to plant 1.5 billion trees in 1.5 million hectares across the country between 2011 and 2016.

e. In PNG coordinated action of various groups such as Maisin Integrated Conservation and Development (MICAD), Greenpeace and the International Centre for Research in Agroforestry resulted in the cancellation of the proposed Gora-Itokama Forest Management Area and an oil palm operation in 1998. Concerted actions that included letters from lawyers serving as legal representatives of the communities, newspaper advertisements, lobbying government and the Forest Authority Board, and holding press conferences averted the implementation of the environmentally disastrous ventures.

f. Another significant example of how activism can sway governments to stop resource extractive activities in SEAP Mountains was the designation of an area for conservation in the PNG Forest Authority's Forest Plan. This was the first time such formal recognition was given to a forest area that was not initially considered to be a formal conservation area. As a result, there is greater security for the resources of Managalas and Collingwood Bay. These two areas have also opened the possibility for a protected forest corridor from the Kokoda trail to the Oro Province border.

g. Initial financial support to the NGO Partners with Melanesians Inc. (PwM) came from the MacArthur Foundation, the World Bank, and Biodiversity Conservation Network (BCN). Consensus building among the stakeholders began in the late 1980s. As the project evolved to include more area, the Rainforest Foundation of Norway (RFN) entered into a partnership with the group in 1997. Since then, various other partners have joined the project including the Government of PNG through the Targeted Community Development Program (TCDP) and Community Aid Abroad (CAA) of Australia, International Union for Conservation of Nature (IUCN) Netherlands, DOEN Foundation Netherlands, World Bank, UNDP Global Environment Facility (GEF) funds, Democratic Governance Transition Phase (DGTP) of Australian Aid now called Strongim Pipol Strogim Neisen (SPSN), and Canada Fund.[70]

h. Regionally, the members of ASEAN have agreed to adopt the Agreement for Disaster Management and Emergency Response (AADMER).[71] This agreement will intensify the collaboration between nations in early warning, prevention and mitigation, preparedness, response and rehabilitation. It will also increase technical cooperation among Member States and establish an ASEAN Coordinating Centre for Humanitarian Assistance on disaster management (AHA Centre).

[70] Mahuru, R. 2011. The Managalas Plateau Conservation Area Project, Oro Province, Papua New Guinea. SMD Case study.

[71] United Nations International Strategy for Disaster Reduction Secretariat (UNISDR). 2009. ASEAN Countries committed legally to reduce disaster risks in Southeast Asia.
http://www.preventionweb.net/english/professional/news/v.php?id=11101# - retrieved February 9, 2012

Opportunities for Green Economy and poverty alleviation

a. Adopting a human ecology approach, biodiversity conservation also means strategies to promote Green economies and inclusive social development, targeting poverty alleviation among indigenous and settler communities in protected areas while promoting active participation of communities in the management of biodiversity parks. These require the adoption of more sustainable, non-destructive alternative livelihood practices, sustainable agriculture technologies, community-based eco-tourism, provision of land tenure security, and advocacy on ecological integrity.[72]

   The Kalahan Educational Foundation (KEF) in the Philippines secured control of nearly 15,000 hectares of tribal lands from the government in 1974. This was made possible by Memorandum of Agreement No. 1 (MOA#1) that is a tenurial and forest resource use right instrument. It evolved into the certificate of forest stewardship agreement, and later into the community-based-forest management agreement (CBFMA). The land covered by the MOA#1 is known as the Kalahan Reserve.

b. Another Southeast Asian example of devolution is the CFM scheme at the Bidoup Nui Ba National Park (BNBNP) in Vietnam. It was initiated with six forest management units involved in a sub-project for "Establishing a mechanism for collaborative forest management with local communities" carried out between 2007 and 2009.The BNBNP Protected Area Management Board adopted measures to deal with increasing human pressure within the park by boosting the income of people living around or inside the forest, especially through buffer zone development projects and by increasing community-based forest protection efforts. It resulted when the socialist government realised that it alone could not sustain a ranger force big and strong enough to forcibly keep the people out of the forest and that management was not possible without the involving neighbouring populations.

c. Regulation needs to be coupled with economic incentives to achieve Green growth-based development. An emerging approach to developing Green economics in mountain forests is the promotion of NTFPs. The BNBNP assisted communities to develop on-farm alternatives for forest products such as orchids, ornamental plants, and ferns improved for commercial purposes, and the planting of medicinal species.[73] NTFP value chains have a major role in mountain livelihoods.

   In the Philippines, rattan and abaca feed major industries. These serve as traditional materials for furniture and fabrics, which can also be used in the manufacture of specialty products.[74] The livelihoods support from both products is pro-poor and pro-indigenous peoples and low-risk to the ecology, if managed properly.

[72] Malabor, H. 2011. Contribution to the e-Conference on Sustainable Mountain Development in the Southeast Asia. The Southeast Asian e-Conference lead coordinator Benedicto Q. Sánchez confirms Malabor's post. They are both members of the MKNP Protected Area Management Board.

[73] Le Buu Thach, Vu Ngoc Long, Le Van Huong. 2011. A Vietnam case study: Collaborative forest management (CFM) in Bidoup Nui Ba National Park, Lam Dong province.

[74]Sustainable mountains: people, resources, community and environment, http://winner-tips.org/magazines/sustainable-mountains-people-resources-community-and-environment/. Retrieved August 28, 2011

d. NTFPs are emerging as alternative resources to timber. Furniture continues to be one of the Philippines' dominant exports, and rattan furniture accounts for more than 65 per cent of exports in this sub-sector. Rattan is also used as raw material in the manufacture of walking sticks, fish traps, hammocks or sleeping mats, handicraft, football, carpet beaters, hats, bags and baskets, buggy whips, twines and toothbrushes. The Philippines also supplies about 90 per cent of the abaca in the world. This NTFP is also used as plant hedge for supporting crops planted on a sloping land, applying the sloping agricultural land technology, better known as SALT. This technology was developed in the Philippines and has now been adopted in other countries including the Hindu-Kush Himalayan Mountains.

e. Another devolved process in developing the Green economy is the community-based Forest Honey Network Indonesia (JMHI). Those involved in the process said that among the drivers of the success was the full support (in some locations) of local governments/agencies.

   The JMHI has developed NTFP subsectors that have created an organic industry-wide niche market. One such example is that of organic wild honey. The JMHI actors included in the value chain are honey collector groups and local supporters involved in organising the primary producers. Riak Bumi handles coordination of technical support in the network, particularly the production side and Dian Niaga EcoTraders, based in Jakarta, takes the lead in the joint marketing of products nationally and regionally.[75] It is an example of public-civil society-private sector partnership for promoting pro-poor solutions for mountain people.

   Other institutional support groups are BioCert, a certifier based in Bogor that guides the process toward organic certification and assists JMHI in establishing internal control mechanisms. Gekko Studio develops promotional materials such as video clips and organises special events. The NTFP Exchange Program for South & Southeast Asia (NTFP-EP), a regional network and its partners, notably the Bee Research & Development Centre in Hanoi and the Keystone Foundation in Kotagiri (TN), India for technical assistance.

f. Tasked to finance the building of ecological infrastructure at the institutional level some heavily indebted Southeast Asian countries negotiated that a portion of their foreign debt be written off in exchange for local investments in environmental conservation measures.

g. The Tropical Forest Conservation Act of 1998 of the United States of America provides developing nations with significant tropical forests, democratic governments, and economic reform agendas, with debt relief in return for conservation efforts. This programme has benefited upstream mountain stakeholders, especially communities. The US signed an agreement with Indonesia in 2009 to forgive nearly US$ 30 million in debt in exchange for the government efforts to protect Sumatra Island forests, which are home to endangered tigers, elephants, rhinos and orangutan. These tropical animals are found in the mountains dominated by Lake Toba, formed from the caldera of an ancient volcano.

   Through the endowment fund established through a 1992 debt-for-nature swap, the United States Agency for International Development and the Philippine government created the Foundation for the Philippine Environment (FPE) with an endowment worth US$ 21.8 million. Similarly, the 1996 debt reduction agreement between governments of the Philippines

[75] De Beer, J. 2011. Indonesian case study on wild honey.

and Switzerland led to the creation of the Foundation for a Sustainable Society (FSSI) to sustainably manage economic development of poor communities, including mountain communities such as those with various community-based tenurial instruments. Further, in 2002, the US and Philippine governments created the Philippine Tropical Forest Conservation (PTFCF) to manage the debt swap to improve the status of dipterocarp rainforests in the mountains.

h. The Philippines enacted Republic Act 10068, the Organic Farming Law of 2010. Elsewhere in Asia, civil society and other private initiatives practice organic farming. Indonesia has the highest area coverage under organic agriculture (52,882 ha). Other countries with major organic farms are Japan (29,151 ha); South Korea 28,218 (ha), Philippines (14,134 ha), Thailand (13,900 ha), Vietnam (6,475 ha), Malaysia (600 ha), and Laos (60 ha).[76]

   In Negros Island the governors of the two provinces declared intentions to make the entire island as the organic food bowl of Asia in 2005. People in Negros began diversifying their economy some years ago, turning some large sugar plantations into more profitable ventures such as ponds for fish farming, farms for high value crops, and organic farming.[77] NGOs have been leading the promotion of organic farming in the Philippines.

i. The sales of organic products are expected to grow along with the market for organic inputs. In the cold highlands of Benguet province in the Philippines, organic Arabica coffee is being grown through a partnership of a private firm, Figaro Foundation Corp., and the Benguet State University (Inquirer News Service 25 March 2004).[78] While Southeast Asian countries reel from the conversion of mountain and lowland forests into monocultures, some countries have begun turning environmental losses into opportunities.

j. Similarly, as mentioned earlier, the Bacolod-based Alter Trade group has exported mascabado sugar to fair trade markets in Japan, Germany, Switzerland, Austria, France, Malaysia, and South Korea.[79] The biggest challenge facing domestic mascabado producers is complying with standard production processes to overcome foreign quality restrictions. Alter Trade had sought assistance from the Industrial Technology Development Institute of the Department of Science and Technology to improve the production processes. Products of only one of Alter Trade Company's two mascabado mills pass the strict global market requirements.

k. Finally, ecotourism is another potential in the SEAP Mountains. It has been targeted for expansion and promotion of nature-based tourism. Ecotourism can provide the economic basis for conservation. An indication of commitment to ecologically sustainable tourism was manifested when the three ASEAN travel associations (the Tourism Association, the Federation of Travel Associations, and the Hotel and Restaurant Association), met to discuss the quality and sustainability of tourism in the region.[80]

[76] Danuwat P., A. Pintarak and N. Thanupon. 2011. Organic Agriculture in South East Asia, http://info.organic.org.tw/supergood/ezcatfiles/organic/img/img/1085/61701466.pdf. Retrieved August 28, 2011.
[77] Dionela, C. 2011. Negros Goes Organic, Philippine Information Agency press release, January 27, 2011. http://www.pia.gov.ph/?m=1&t=1&id=13769&y=2011&mo=01. Retrieved September 3, 2011.
[78] Faylon and Cardona, 2007. Op. cit.
[79] Alter Trade Manufacturing Corp., Technology in Business, A Catalogue of DOST-ITDI-Assisted Food Companies. http://itdibiz.com/ecatalog/index.php?option=com_content&task=view&id=74&Itemid=117. Retrieved August 29, 2011
[80] Dowlings, 2000. Op. cit.

Expectations for SMD raised by Rio 1992

Many SEAP countries have translated the ideals of Agenda 21 into their own national development plans or have created national councils for sustainable development. They have passed laws and regulations to control environmental degradation and natural resource depletion. In addition, recent advances in science and technology and democratisation in the region have also helped in improving people's lives. Economic, social, and environmental cooperation among the countries, such as ASEAN and the Greater Mekong sub-region, has also begun yielding positive results in many areas.

The problems, however, remain and have instead become more serious in some areas. Rapid population growth, which has resulted in greater demand for natural resources and energy, is threatening the gains that have been made in several countries. The major constraints to adopting Agenda 21 include a lack of financial support and the absence of uniform capacity to address an overwhelming number of issues while official development assistance has slowed down or has not been as forthcoming at it was in the past.

In 2001 a sub-regional report for Southeast Asia by the Asian Development Bank put forward nine sub-regional action plans (SRAPs) for sustainable development. The report also developed discussions on "Emerging Issues" to cover globalisation, biotechnology, and information technology. However, none of the SRAPs dealt with problems peculiar to mountain development. The oversight came to light recently after extreme weather events brought about by climate change caused mudslides and flash floods that killed thousands, destroyed property, and disrupted economic activities.

The Philippines joined the UN in celebrating the 2002 International Year of the Mountains (IYM). Some civil society groups also organised their own IYM committees (e.g., Negros IYM Committee in Central Philippines) that linked up with other stakeholders in local government, national line agencies, academia, community and faith-based organisations. They also crafted their own SMD agenda for lobbying. After the IYM, the Mountain Forum has established links with representatives from civil society, academia, corporate foundations, and the government in the Philippines.

However, the civil society agenda never went beyond the crafting of provincial resolutions and the annual observance of June as the Mountain month, in compliance with a presidential declaration to this effect. Often, civil society develops good practices based on alternative development models at the grassroots level, which later find traction in academia and political circles. But cutting edge, good practices at the local level have remained oases of sustainable development amidst dominant high-profit driven economic models of over-utilisation and overconsumption of natural resources are common in lowland urban centres. For them mountains have remained important as long as industries can extract resources to feed the needs of lowlands, or overseas while subsistence concerns of mountain communities are ignored. Indigenous knowledge systems of human interaction with mountain natural resources, especially NTFPs, have also been neglected since lowland-based economies view these as unprofitable.

New issues/challenges after 1992

Climate change was already an issue of discussion at Rio 1992, but every country invariably focused on reducing its own global carbon footprint. Two decades later, the theme that resonates among Southeast Asian countries is climate change adaptation, which has to include disaster risk reduction.

With worsening climate change, civil society and community-based organisations have begun exploring ways to turn the crisis into opportunities. In Vietnam, the BNPP project on PES in the forest sector was designed to contribute towards poverty reduction and enhance forest protection, through forest management groups (FMG) equipped with practical mechanisms for implementing PES. Under the scheme, forest protection payments ranged from 350-400,000 VND/ha. This exceeds the amount previously paid under Program 661 (100,000 VND/ha) and appears to have provided greater motivation for forest protection work – the level of payment now competes with the rate paid for rural labour (100,000 VND/day).[81]

Twenty years ago, development planners talked of isolation, remoteness and ruggedness of mountain communities. Today advances in information technology has reached even mountain farmers and indigenous communities who can use cellular/mobile phones for communication. Local governments in the Philippines have linked up with corporate telecommunication groups to set up missionary cell sites for rapidly transmitting information for forest protection from poachers.

Major themes of SEAP regional initiatives

Community based natural resource management, NTFP, and SFM have been the major development themes in the region, while ecological agriculture, integrated water resources management, and inclusive development have received far less attention. Prior to Agenda 21, the Philippines implemented the Environmental and Natural Resources Accounting Project, 1991-2000 (ENRAP) to address deficiencies in the System of National Accounts (SNAs) in order to reflect economic-environment interactions by explicitly recognising the potential of the natural environment as a productive economic sector. The ENRAP project, which developed an environmental accounting framework that drew on principles from the environmental and resource economics literature, applied imputation approaches that are consistent with definitions of depreciation and environmental damage widely accepted in economic theory that is now used by practicing environmental economists.[82]

Future actions needed

Green Accounting or Inclusive Wealth Accounting within the mountain context should be developed for measuring Green economy transition at the macroeconomic plane. As the ICT revolution is helping to address the inaccessibility of the mountains, fragility can be addressed by building community-based ecological infrastructures. Likewise, marginality can be tackled through decentralised governance.

[81] Ibid. Le Buu Thach.
[82] Peskin, H. M. and M.S. delos Angeles. Selected Country Frameworks, International Workshop on Environmental and Economic Accounting.
http://www.nscb.gov.ph/peenra/workshop/Technical%20Papers/Session%203%20ENRAP.PDF. Retrieved September 1, 2011.

Emerging trends and opportunities for SMD

Climate change, disasters, and social and political conflicts are the emerging challenges facing the SEAP Mountain ecosystems, while gradual democratisation, devolution, and good governance are opportunities that can help bring about sustainable development in mountain communities.

The biggest challenge facing SMD is the formulation of mountain specific policies that can go beyond traditional forestry concerns. The Southeast Asian synthesis has identified different stakeholder groups whose varied interests need to be brought to the discussion table to ensure that their rights are respected and protected, and their needs are fulfilled. The stakeholders, as defined by the e-conference included the indigenous peoples, non-indigenous migrant settlers from the lowlands, resource users and extractive companies, visitors and travellers, indirect stakeholders, and even the future generations.[83]

Addressing the challenges

Evidence-based advocacy to influence policy-making can help in addressing the new challenges. A range of innovative solutions on resource conservation, alternate market and institutional development in Hindu-Kush Himalayan region can assist in determining ways to catalyse SMD also in the SEAP region, these include:

Niche markets: Given the rich biodiversity in the SEAP Mountains, there is an urgent need to build markets for niche products. Capturing diversity to compensate for lack of volume, and branding of mountain products can leverage market opportunities for building and strengthening local economies and resource base.

Partnership protocols: Increased electronic communication has been one of the hallmarks of change in the SEAP Mountains. Mountain communities are now connected with the world but are essentially driven by the externalities of change. The change is neither demand-led nor based on community needs, and consequently has an appearance of being imposed against local will.

Mountain communities need partnership protocols with diverse actors like community organisations, cooperative societies and the private sector under a sub-regional growth agenda to promote SMD. An array of good practices can trigger policy changes at the macro-level, with the new partnerships as change drivers.

Green growth: Favourable demographic conditions are creating potential for increasing prosperity in many developing countries, as large youth populations enter the workforce. Better marketing, institutional arrangements and policies can ensure benefits from Green economy (ecotourism, niche products and eco-system services) improve local livelihoods. For this the current Green economy agenda needs to be made more mountain-sensitive, focussing on the issues of the SEAP Mountains.

Opportunities and challenges in the SEAP Mountains

[83] Razal, R.A. and B. Sánchez. Sustainable Mountain Development in Southeast Asia - The Synthesis. pp. 6-10

Challenges

A lot of challenges remain for the Southeast Asian Green Economy in the light of national/regional efforts to promote SMD. The main hurdle is the deep-rooted brown economy that includes land use conversions of forests to chemical-based monocultures such as palm oil and sugarcane plantations, extractive industries such as mining and logging, and mainstream tourism.

China, already the world's largest generator of electricity from freshwater, has announced plans to nearly double its hydropower capacity by 2020. The plan could trigger cross-border conflicts and supply issues for downstream SEAP states of Myanmar, Laos, Thailand, Cambodia and Vietnam. One issue is how much water will be impounded in Chinese reservoirs. Another issue is how hydropower operators, all of them state-owned firms, will regulate the flow of water after the reservoirs have impounded enough water and the generating units are ready to run.

Competing demands for forest-based resources can give rise to major conflicts in the SEAP Mountains. Different armed conflicts have affected forest areas in the past 20 years. Examples are Cambodia and Myanmar where rebel warfare was largely concentrated in remote cross-border forests. Conflicts of lesser intensity include inter-communal struggles and protests that occur frequently along forest frontiers in Indonesia. Although these conflicts have their own historical and political contexts, many are also related to the benefits from forests and the rights of people over them.[84]

The Maoist-inspired revolt in the Philippines, based largely in remote mountain forests, has stubbornly resisted the government's efforts to end it and the ungoverned remote, isolated and rugged terrain of scattered mountainous islands provide insurgents the space needed to build resistance fronts. The country also has armed Muslim secessionists and bandits based in Mindanao's forested mountains.

The Golden Triangle is one of two main illicit opium-producing areas in Asia. Encompassing 950,000 sq. km., the area overlaps the mountains of four countries: Myanmar, Vietnam, Laos, and Thailand.

Findings by the Intergovernmental Panel on Climate Change (IPCC) indicate that the effects of climate change will impact all countries of Southeast Asia. IPCC predicts rapid glacier melt in the Himalayas – with a rate of recession greater than anywhere else in the world, along with increased floods and landslides, reduced water and food resources, more frequent storms, and rising sea levels.

The Philippines, lying along a typhoon belt, is visited by an average of 19-20 cyclones each year. Figure 10 shows the paths of tropical cyclones that have visited the Philippines from 1900-2009. Central and Northern Philippines are badly battered by typhoons some of which also reach the Asia mainland, hitting primarily Vietnam and parts of China. Most of the typhoons emanate from the Pacific Ocean. A natural mitigation measure is the mountain range along the eastern coast. Other mountains which dot the country have also served as natural barriers to the strong winds that have often breached 250 km per hour.[85]

Many SEAP countries are well within the Pacific Ring of Fire. This is a 40,000 km-long "system of faults" responsible for 90 per cent of the world's earthquakes. Mountainous countries like Indonesia

[84] de Koning, R., D. Capistrano, Y. Yurdi, and P. Cerutti. (nd) Forest-Related Conflict Impacts, Links, and Measures to Mitigate, Rights and Resources Initiative, p. 1
[85] Delica, Z. (nd) Preserving the Mountains, http://www.adpc.net/infores/adpc-documents/zen-mountains.pdf

and the Philippines face volcanic eruptions and tectonic earthquakes. These natural hazards add to the fragility of the SEAP Mountains.

Ecotourism has been on the drawing board since 1998, but countries still face problems associated with lack of infrastructure, adequately trained personnel, and implementation plans, and political instability that have impeded progress.[86] Retaining mountain youth in the locales where they could help develop niche goods and services has been a problem in many countries. As more mountain children get to study within the mainstream educational system, they are tempted to pursue the "beaten path of other rural youths", and thus join the brain drain of the people to urban centres.

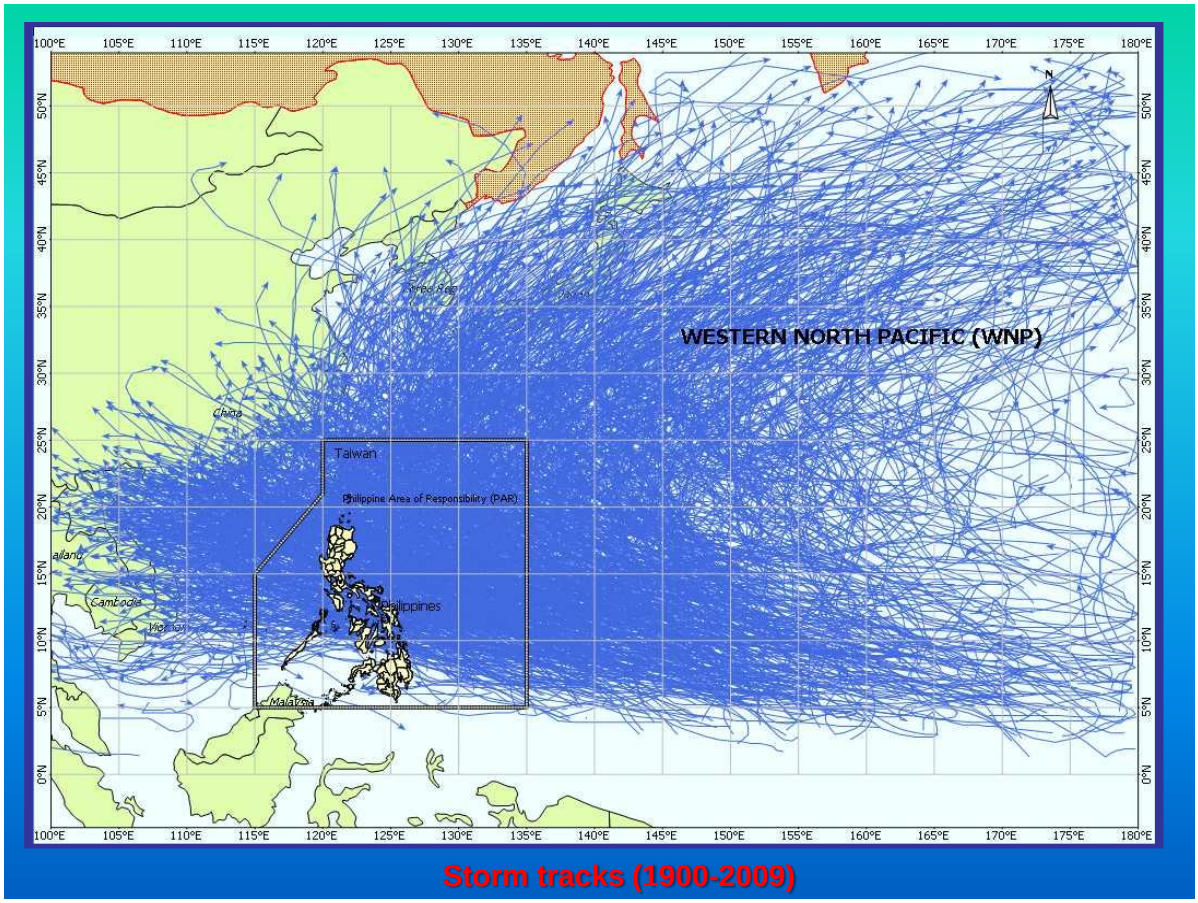


Figure 10. Paths of typhoons that visited the Philippines from 1900-2009 (Source: Racelis 2010)

In some cases highly urbanised mountain cities such as Baguio City in the Philippines grapple with population growth due to the influx of immigrants from the plains and outlying mountain communities. This has strained the limited resources and increased the vulnerability of mountain

[86] Dowlings, 2000. Op. cit.

dwellers, especially when new communities are established without regard for the risks associated with steep slopes, erodible soils, and unstable ground foundations. Managing these contradictions, diversities and social tensions is another major challenge that needs adequate attention.

Opportunities

Global efforts after Agenda 21 led to the creation of ecological infrastructures to reduce deforestation and increase reforestation to support upstream and downstream agriculture, and rural livelihoods. Tropical rainforest goods and services support the livelihoods of the SEAP Mountain communities. Increasing ecological infrastructures managed by local governments and Green-for-debt-swaps schemes can offer appropriate opportunities for forest-rich communities. Collaborative forest management can be a good strategy to carry out REDD+ initiatives in the mountains because community participation can help assure social equity and inclusive development, eventually leading to poverty reduction.

The Royal Cambodian Government has prepared a National REDD+ Road Map, which served as the basis of funding applications to the UN-REDD and of the Readiness Preparation Proposal (RPP) to the World Bank's Forest Carbon Partnership Facility (FCPF). The UN-REDD approved the proposal for US$ 3 million over two years, and UNDP and the FAO committed an additional US$ 1.35 million. The World Bank has already earmarked US$ 3.6 million for three years that is likely to be approved, provided there are no major civil society concerns.

Key concerns raised by Cambodian NGOs and civil society groups centre on securing NGO/CSO representation in REDD+ management arrangements, the definition of main drivers of deforestation in Cambodia to include economic land concessions and mining activities and concessions, and the explicit integration and application of FPIC in the management arrangement and implementation.[87]

The year 2009 was crucial year for climate change lobbyists, and although many were disappointed with the turnout of the UNFCCC negotiations in Denmark in December that year, it also opened up opportunities for forest conservation through REDD. With its 3.8 million hectares of remaining dipterocarp forest, rich biodiversity, decentralised forest governance, and enabling forest management policies, the Philippines hopes to become eligible for the REDD + regime.[88]

[87] Annual Report 2010 to Hivos.
[88] Ibid.

Policy messages

Need-based conflict resolution and seeking FPIC of local communities before planning natural resources conservation management in fragile and biodiversity rich ecosystems need to be made mandatory for all development programmes. As funds from the government and donors for local initiatives dry up, there will be a need for timely update of community based forest management policies for accessing other funding opportunities, such as that from private sector groups and donors with more stringent requirements.

There are many examples of how problems can be turned into opportunities. Examples of the institutional frameworks are decentralised PES, and the strengthening of local governments through decentralisation, devolution and empowerment. Weak local community participation and poor benefit-sharing schemes can be addressed by upholding communal property rights. The Philippines provides an example of a decentralised community based forest management institution that other SEAP countries can replicate. Decentralisation without devolution cannot lead to good resource governance while a multi-stakeholder approach to resource management can help in implementation of laws, policies and executive orders more effectively.

REDD is not yet fully understood by many people, particularly forest communities who could become victims of unscrupulous carbon traders. Thus is why the network NTFP-EP for South and Southeast Asia formed a consortium of NGOs and forged a partnership with the Forest Management Bureau to spread awareness on the concept, and come up with a National REDD Plus Strategy to ensure local community participation in the global climate change discourse.[89]

Specific actions needed to contribute to the Rio+20 priorities in the SEAP mountains

The analysis of the case studies and e-discussion outputs indicate that mountain people have not been the real drivers of change in the SEAP Mountains. The traditional power holders are therefore still drive the development of the SEAP Mountains. Traditional or public sector institutions that are generally centralised and function in archaic ways have determined the course of change in the region. Although changes did take place after Rio 1992, some of the changes have negatively affected many mountain areas. Due to continued neglect, marginality and poverty, mountain communities have generally been the losers even in the seemingly pro-people processes of decentralisation, devolution and governance.

In general, the changes introduced by successive regimes have occurred at the expense of prevailing peace and harmonious co-existence in the SEAP Mountains. New conflicts over sharing and appropriating natural resources such as water, forest, pasture, and biodiversity have emerged, which in many cases have gone beyond the carrying capacities of traditional social institutions in the mountains. Engaging diverse mountain dwellers in discussions and dialogues and in actions for change can help reserve the undesirable – even the seemingly irreparable changes that have taken place. A new institutional mechanism for nurturing Green Economy that suits the mountain people needs to be created, while investing in developing technology to lessen vulnerability.

Translating good intentions into sustainable or smart actions warrant a re-think of existing institutional frameworks and the development of good governance practices while promoting low-carbon growth

[89] Ibid.

paths. There is a downstream demographic push to extract more resources that will add pressure on the ecological balance. A multi-pronged strategy including education, awareness-raising, levelling the playing field, crafting enabling policies, and creating institutional spaces can help in managing the growing demand on mountain resources and services. Learning from local cultures, building on local knowledge, and encouraging good practices are crucial for change. Participatory conflict resolution techniques as those practiced in the Philippines might also be useful lessons for some of SEAP countries.

The trans-boundary nature of natural resources including water, and the cross-border management of mountain resources have yet to get the attention they deserve. Countries in the region ought to develop joint policies, programmes, regulations and institutions for sustainable development of the SEAP Mountains because they face common problems. Cross-border linkages can help in unravelling complexities arising from the need to equitably share natural resources across diverse social systems. Clearly, there is a case for negotiating out-of-the-box solutions that are possible through collaboration and cooperation among the key players involved in sustainable management of the SEAP Mountains.

A diverse group of people influence the Rio+20 agenda, and also interpret and position the Green Economy agenda based on their own understanding and contexts. They contend that Green Economy should not merely be an upgraded concept of sustainable development agreed 20 years ago, and instead it should be a different programme for reinvigorating sustainable mountain development. The crucial question to ask is, "What form of Green Economy can be an effective instrument for addressing the problems faced in the SEAP Mountains?" Like the concept of sustainable development that has limits in terms of its interpretation and application, care needs to be taken to ensure that "Green Economy" concept should not be applied for other purposes.

It has been argued that the top down agenda of Green Economy is to break the current inertia in the global climate change debate. In the SEAP mountain regions, it is understood that environmental gains need not come at the expense of the economy in order to provide Green jobs and deliver Green products. A balanced approach is needed to promote the Green Economy in the SEAP Mountains taking into account the issues of scale and indigenous peoples' rights to resources alongside the intended outcomes. The concept has been assailed as being too heavily dependent on technologies, on financial and human resources, with negative implications on feasibility, sustainability and gender dimensions. Therefore it is important to address governance issues and explore ways to include mechanisms for multi-stakeholder participation in designing, implementing, and benefit sharing from Green Economy.

Evolving development and institutional frameworks for low-carbon, or Green growth should clearly and properly reflect the needs and aspirations of mountain people so that they can liberate themselves from the vicious cycle of poverty, unbridled population growth, and environment degradation. Local people represented by community leaders need to be the drivers for the transformation to Green Economy and institutional mountain governance, not external forces who might fund and benefit from such initiatives.

Way forward for SMD in the SEAP Mountains

Undertaking more research to define carrying capacity of mountains

Apart from high elevation and steep slopes, the SEAP Mountains have relatively thin topsoil that is vulnerable to erosion, which is aggravated by human-made activities, such as unsustainable farming practices, settlements, construction of roads, and destructive logging and mining. Information is needed to assist planning for implementing measures that can assist the mitigation of climate change impacts, and the unregulated human exploitation of mountain resources. Scientific inputs, as well as strategies that consider political and socioeconomic factors must be taken into account within a multi-disciplinary framework, to come up with realistic solutions to address the environmental crisis besetting the mountains.

The paucity of data is further aggravated by inadequate information on mountain resources that to some extent is exacerbated by government with disaggregated information that is difficult to use locally. There are also questions on the reliability of mountain data owing mainly to the methods employed to gather information. Research and development efforts on the mountains have been *ad-hoc*, focused on a few objectives determined using the experience from the lowlands or outside the mountains, and has usually involved little fieldwork resulting in unreal outcomes. Improving the design of mountain research needs to take into account local and customary rules and regulations, geographical terrain, aspect, and values, among others.

To avoid the pitfalls of research that does not produce meaningful results or whose value is not acceptable to mountain stakeholders, multi-stakeholder, participatory research should be undertaken giving everyone opportunity to be involved in conceptualising research design, planning the methodology, data gathering and field trials, and in interpreting data. Experience in Northern Negros Natural Park in Negros Island, Philippines demonstrates that this is possible. The dialogic approach may appear to follow a non-conventional research methodology, but the fact that it has generated information acceptable to users and regulators attests its acceptance, and possibly can even withstand scientific inquiry.

The manner of doing research is just as crucial as the kind of research to be undertaken. It is critical that planners of mountain interventions listen to what stakeholders say are important. Research on mountains must include low carbon, clean fuel initiatives, and slope conservation efforts. The conduct of biodiversity research also needs to be prioritised and done in conjunction with developing strategies for economic and social development so as to engender active participation of communities in or near protected areas in managing the resources. The problems of water scarcity, disposal of waste, and crowded streets and traffic jams that are associated with growing urbanised mountain centres like Baguio in the Philippines and Vientiane, Lao PDR could have been anticipated if their carrying capacity had been properly measured.

Improving mountain governance and innovating on institutional mechanisms

The precarious state of some of the SEAP Mountains and the marginalisation of locals is attributed in part to the failure of governance. Such failures arise because of incompatibility between traditional governance systems employed by the native people, and state governance and development interventions, which may appear sound but can be out of sync with local realities. The state is also seen as generally tolerant of extractive industries in the mountains in the name of development, which impacts greatly on the environment and often can be reason for river pollution, erosion, landslides, displacement and community conflicts.

Mountain people must be empowered to exercise governance over their resources. However, this will not materialise nor become sustainable, if the economic standards of mountain people are not improved. Giving them access to state power can be achieved through proper education, and that can assist mountain people to appreciate that they are responsible for the consequences of their own actions and that they are empowered to take decisions for their community. Mountain communities should be given access to basic education, livelihood opportunities and basic services, and also be given a say on the kind of projects implemented in their communities.

Common grounds and bases for regional cooperation

Caring for and protection of SEAP mountains is a collective responsibility. A few urban centres in the SEAP Mountains are growing, but the fact remains that large parts of the mountains have remained undeveloped, difficult to access, and structurally weak and fragile. There is awareness of the numerous benefits the mountains provide, as well as of the impending threats associated with global climate and economic pressures. This common awareness of the mountains as a wellspring of benefits has grown after Rio 1992. So has the anticipation of mountain-related disasters that can have far greater negative consequences. This has driven all mountain stakeholders to consider collaborative efforts in protecting and conserving the mountains and the resources therein.

Melding traditional knowledge with science is a key to sustainability in SEAP Mountains. Despite some reservations over the value of scientific knowledge brought to the mountains by external scientists, some cases have demonstrated the value of combining traditional knowledge with science, e.g., stakeholder's knowledge on proper use of NTTPs in a mountain community in the Philippines. Participatory approaches in planning, including community ranking of resources with economic and ecological values and knowledge on the marketability of NTFP or the lack of it, offered opportunity for a more balanced gender perspective although the outcome is still tilted toward resources preferred by men. The continuing dialogues also resulted in avoiding the harvesting endangered ferns that were essential for natural regeneration of the secondary community rainforest ecosystem and of wild orchids, which were cheaply priced compared to domesticated species in the market.

***Active participation of communities in mountain governance can produce results that suggest there is hope to look forward to in the SEAP Mountains*.** The active participation of mountain communities has helped ensure success of projects that otherwise would have failed. Community participation in determining use thresholds of different rattan species has assisted in setting different limits. These are more stringent than the existing thresholds defined by natural resource management policies, and have thereby ensured the sustainability of rattan resources. Community planning and participation results in transparency in project implementation, enhances enthusiasm among the people, and makes them give up destructive methods, and embrace sustainable solutions. The Ikalahan model in the Philippines has shown how indigenous and sustainable mountain management practices have strengthened the community's hold on ancestral territory and promoted the development of their culture and identity. As Grazia Borrini-Feyerabend[90] has aptly put, "The alternative to destructive megaprojects is not hopeless 'poverty'… it is small scale, carefully-planned and community-controlled, sustainable human development."

[90] Borrini-Feyerabend, G. 2011. Contribution to the e-Conference on Sustainable Mountain Development in the Southeast Asia.

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In 1992, at the United Nations Conference on Environment and Development – commonly referred to as 'Rio 1992' or 'the Rio Earth Summit' – mountains received unexpected high political attention. They were granted a chapter in the 'Agenda 21' as fragile ecosystems that matter for humankind.

Since then, efforts by different actors have been undertaken to promote Sustainable Mountain Development. Some of them relate to the above event, others just emerged on their own. However, in view of the UN Conference Rio+20 – United Nations Conference on Sustainable Development in 2012 it seemed relevant to assess and understand what has been achieved by whom and how. It appears equally important to learn what has worked and what has not worked, and why, in order to draw lessons for more effective interventions in future. The anticipation of possible future challenges or opportunities may further help to be better prepared for their management. This will certainly encompass the adaptation to and mitigation of global change as the mainstream concern of the last decade as well as the new, albeit disputed paradigm of a Green Economy. As in the past, major unexpected and unpredictable political, social, economic or technological innovations may overshadow such mainstreams.

The Swiss Agency for Development and Cooperation, committed to sustainable mountain development since many decades, has commissioned a number of regional reports to assess achievements and progress in major mountain regions such as in particular Central Asia, Hindu Kush-Himalaya and the South East Pacific, South and Meso America or the Middle East and North Africa. The Swiss Federal Office for Spatial Development has commissioned - in the context of the Swiss Presidency of the Alpine Convention 2011/12 – a report on the European Alps. In addition, UNEP has facilitated the production of the report on Africa's mountains and mountains in Central, Eastern and South Eastern Europe; and the Aspen International Mountain Foundation together with the Telluride Institute has prepared a report on the mountains of North America.

The insights gained through these reports, which were presented at the Lucerne World Mountain Conference in 2011, and in which key local, regional and global actors have been actively involved provided the inputs for a mountain section in the outcome document of Rio+20. They are also meant to feed into future global and regional processes, institutional mechanisms, and initiatives that emerge as a result of Rio+20 in support of Sustainable Mountain Development.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development and Cooperation SDC

UNEP

UNESCO MaB

ZOI environment

b UNIVERSITÄT BERN

CDE CENTRE FOR DEVELOPMENT AND ENVIRONMENT

mri mountain research initiative

IMS International Mountain Society

ICIMOD

CONDESAN Consorcio para el Desarrollo Sostenible de la Ecorregión Andina

UCA UNIVERSITY OF CENTRAL ASIA
Mountain Societies Research Centre

ASPEN INTERNATIONAL MOUNTAIN FOUNDATION AIMF

Mountain Partnership