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ASSESSMENT OF PROGRESS ON MITIGATING AND REVERSING DESERTIFICATION AND LAND DEGRADATION PROCESSES, AND IMPLICATIONS FOR LAND MANAGEMENT IN THE CHANGING CONTEXT OF THE ESCAP REGION WITH SPECIAL REFERENCE TO THE ASIA PACIFIC COUNTRIES

(Item 3 of the provisional agenda)

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SETTING THE SCENES

1. The Asian and Pacific region bear severe consequences of land degradation and desertification[1], with more and more land each year increasingly showing its effects. Clearly, the associated financial and human welfare consequences are a major concern.

2. Asia and the Pacific is a region of rapidly changing economies and societies. For the eighth consecutive year, developing economies in the Asian and Pacific region grew faster than those in all other regions at 7.9 per cent in 2006[2] .In addition to its newly-acquired status as the production centre of the world, it is also becoming the breadbasket to the world. The unprecedented economic growth in the Asian and Pacific region over the past three decades has therefore had profound impacts on agriculture and rural development, land resources and the demand for water.

3. Although the agricultural sector (including animal husbandry, forestry and fisheries) continues to grow, it is declining in relative importance in Asia, both in terms of its contribution to GDP and its share of the labour force. Farm households are diversifying their sources of income toward services and industry, or leaving the agricultural sector altogether.

4. However, a substantial proportion of the region's population is still dependent on this sector, which is undergoing tremendous change. Increasing per capita income and the influences of growing urbanization and globalization, represent both opportunities and challenges for the agricultural sector. Changing food consumption, marketing and trade patterns, together with increased competition for resources from other sectors, have exerted tremendous pressure on the agricultural sector to become more productive, more competitive and more efficient.

5. The ESCAP region covers a large and diverse range of ecosystems, including deserts, forests, rivers, lakes and seas. The forest cover is second largest in the world, encompassing large tracts of biologically rich tropical forest. Over two thirds of the world's coral reefs and one third of the world's mangrove areas are also located in the region.

6. In recent times, three factors have contributed most directly to the excessive pressure on the environment and natural resources in Asian and Pacific region: a doubling of the region's population over the past four decades; a tripling of the regional economic output in the last two decades; and the persistence of poverty which *inter alia* has had economic and social consequences on the capacity of some governments to implement planned activities relating to environmental protection and sustainable development.

7. Desertification manifests itself in many different forms across the vast Asian continent**.** Out of a total land area of 4.3 billion hectares, Asia contains some 1.7 billion hectares of arid, semi-arid, and dry sub-humid land reaching from the Mediterranean coast to the shores of the Pacific. Degraded areas include expanding deserts in China,

[1] Desertification is defined by UN as land degradation in dryland (arid, semi-arid sub-humid) areas that is caused by a combination of natural and human-induced factors.

[2] ESCAP Economic and Social Survey of Asia and the Pacific 2007.

India, Iran, Mongolia and Pakistan, the sand dunes of Central Asia, the steeply eroded mountain slopes of Nepal, and the deforested and overgrazed highlands of the Lao People's Democratic Republic. Asia, in terms of the number of people affected by desertification and drought, is the most severely affected continent.

8. The increasing population has been exacerbating the pressure for exploiting natural resources. The population in the subregion is over 500 million, the man-land ratio[3] is about 1:1 and poverty occurs in the agricultural sector in some partner countries. The intensification and expansion of agricultural activities have caused significant reduction in the ecosystem resilience and therefore agricultural and pastoral pursuits are becoming more vulnerable to continuing external pressure. Most countries are severely affected by land degradation and loss of biodiversity. Deforestation coupled with unsustainable management of natural resources is causing enormous environmental problems, including land degradation (loss of soil fertility, reduction in land productivity, soil erosion), flash floods, loss of biodiversity, and other associated problems.

9. Many areas are suffering from serious water erosion, mainly because of unsustainable land management practices. Some areas are subject to acute problems of shifting sands and some areas are subject to periodic inundation and water logging and salinity problems while land slips and slope instability present challenges in others. Today, climatic changes and human activities are cited as the main causes of desertification. A considerable role is played by complex interactions of physical, biological, political, social, cultural and economic factors. Un-sustainable land-use practices by the local population and human settlement patterns are conductive to desertification processes.

10. Today many land use strategies and methods are no longer suitable in the face of economic and political changes and because of population growth and the trend for nomadic pastoralists to become sedentary. Other factors frequently identified as contributing to desertification and preventing sustainable natural resources management are lack of legal security for land users, land tenure issues, lack of technical expertise, and unfavorable global economic factors (notably world trade conditions). Wars, political upheaval and other human induced catastrophes also contribute to processes of land degradation in some countries e.g. Afghanistan and some Central Asian countries. These developments have *inter alia* led to soil exhaustion, overgrazing and deforestation, thus placing in jeopardy the future of the productive natural resources base

11. None of the developing countries in Asia and the Pacific are on track to meet all of the Millennium Development Goals (MDGs) by 2015. As of 2000 - 2002, there were still 548 million undernourished people in the developing and transition economies of Asia and the Pacific. Many farmers, and herders, are exceedingly vulnerable to floods, droughts and cyclones as well as less frequent events such as earthquakes and tsunamis. Absolute income gaps between the richest and poorest quintiles as well as gaps between rural and urban areas in terms of the quality of life and livelihood opportunities are widening.

[3] Persons per ha or km^2

12. Meeting these needs implies continued economic growth on an already-constrained resource base. Asia and the Pacific region has the lowest per capita availability of natural resources, and highest population density of all global regions, based on measures of biocapacity developed through ecological "footprinting" methodologies. This is reflected in the fact that the region has used almost all of the available land that is suitable for agriculture, while the demand for agricultural products continues to grow. Land loss to urbanization is increasing the pressure to raise crop yields, while non-food crops are claiming expanding land areas. It also implies that there is a massive and growing demand for the ecosystem goods and services[4], far exceeding that in other regions. Where the demand outstrips the supply of ecological resources, or ecological resources are abused, the result is degraded land, desertification, drought and vulnerability to natural disasters, particularly in rural areas. In a context of climate change (see Section 3) the risks of such negative impacts are multiplied.

13. Healthy ecosystems provide vital services such as water flows, nutrient cycling and biomass production which underpin rural livelihoods (Table 1). As ecosystems become degraded, their capacities to deliver such services are undermined. Furthermore, healthy ecosystems buffer against extreme weather events such as recurrent droughts and floods. These capabilities are undermined as ecosystems are degraded by land degradation. The relationships between land use and ecosystems are dynamic as usage patterns shift and ecosystems evolve. Every land use option we consider has associated consequences for ecosystems and livelihoods and the resilience of ecosystems has significant bearing on what land uses are viable in the future.

Table 1 The benefits people derive from ecosystem services fall under three main categories.

Provisioning Goods produced or provided by ecosystems • **Food** • **Fresh water** • **Wood fuel** • **Timber** • **Fiber** • **Biochemicals** • **Genetic resources**	**Regulating** Benefits obtained from regulation of ecosystem processes • **Climate regulation** • **Disease regulation** • **Flood regulation** • **Water purification**	**Cultural** Non-material benefits obtained from ecosystems • **Spiritual** • **Inspirational** • **Aesthetic** • **Educational** • **Recreational**
Supporting Services necessary for production of other services • Soil formation & conservation • Nutrient cycling • Primary production ***Supporting biodiversity***		

[4] UN Economic Commission for Europe definition: 'A variety of processes through which natural ecosystems, and the species that they contain, help sustain human life'

14. Human security in rural areas is therefore a growing concern due to their vulnerability to ecological changes[5]. However, human security is also impacted by economic changes; increasing commercialization and specialization of agriculture have pointed to concerns that small farmer/herder households may be left out of the growth process unless specifically empowered to effectively participate and benefit from it.

15. In the above context, each country, and the region as a whole, must consider how policies, plans and institutions that impact on agriculture and land use, can ensure that the increasing demand for land resources and water be sustainably met, while supporting the development of a vibrant rural sector. The *28th FAO Regional Conference for Asia and the Pacific* recognized the importance of building a resilient rural society through the adoption of good agricultural practices and sustainable rural development. The Conference considered the experiences, lessons and implications of rapid economic growth for agriculture and food security in the region based on a diagnostic study carried out by FAO. They had generally positive experiences with respect to poverty reduction, food security and rural development, but had also exposed important challenges related to growing income disparities, declining rates of agricultural growth, and environmental degradation. The ESCAP*Fifth Ministerial Conference on Environment and Development in Asia and the Pacific*, held in 2005, stressed the need for urgent action to promote environmentally sustainable economic growth or "green growth", taking into account the declining resource base and increasing demands placed on this resource base by the rapid economic growth and environmentally unsustainable growth patterns manifested in the region.

16. Climate change adds a new dimension to this question; how can this challenge be met in a context of increasing risk of drought and desertification. As the latest *Assessment Report of the Intergovernmental Panel on Climate Change's Working Group*[6] has made clear, unmitigated climate change will have severe consequences for ecosystems and livelihoods (see Section 3).

17. The clear urgency and gravity of such problems have given great impetus to the implementation of the various SubRegional Action Plans SRAPs under the UNCCD and other initiatives more specifically related to croplands in the better-watered areas of the member countries. Preparations for Regional Implementation Meeting (RIM) for Asia and Pacific and the 16 session of the Commission on Sustainable Development (CSD-16)include intense negotiations at the regional and subregional levels regarding the elaboration of National, Subregional and Regional Action Programmes (NAPs, SRAPs, RAPs) related to the whole issue of sustainable land use in areas prone to desertification and drought.

18. Most affected countries have already taken preliminary steps leading towards the drafting of such programmes. As RIM and CSD-16 approaches, however, their actual negotiation and preparation becomes crucial. UNCCD Party countries have undertaken to:

- Adopt an integrated approach to desertification and drought (with obvious implications for land management).

[5] Ecological refugees are an important factor affecting China's economic and social development (see "Grapes of Wrath in Inner Mongolia" a May 2001 report from U.S. Embassy Beijing)

[6] IPCC 4th Assessment Report 2007

- Give due attention to the differing situation of affected developing country parties.
- Integrate strategies of poverty eradication.
- Promote cooperation among affected country parties.
- Cooperate with relevant intergovernmental organization and NGOs.
- Promote the use of existing bilateral and multilateral financial mechanisms and arrangements.

(a) The different challenges faced by countries in each ESCAP subregion and the reasons why these are key challenges

Land degradation and desertification are major environmental issues

19. Desertification is a global environmental problem; inevitably there must be certain restrictions imposed on the sovereignty of states. The UNCCD requires reform of domestic affairs, a condition that country parties to the Convention signed up for. Land degradation[7] will remain an important global issue for the 21st century because of its adverse impact on rural productivity and the environment, and its effect on food security and the quality of life. Productivity impacts of land degradation are due to a decline in land quality on site where degradation occurs (e.g. erosion) and off site where sediments are deposited. However, the on-site impacts of land degradation on productivity are easily masked due to use of additional inputs and adoption of improved technology and this has led some to question whether the negative effects of desertification have been overstated[8].

20. Countries are still grappling with the global conundrum that primary production is not being properly valued and that damage that is inflicted on the resource base is largely uncosted. An economic system has developed that rewards broad scale degradation rather than real wealth creation. As a result, current estimates of the economic costs of environmental degradation in developing countries are high, for example the Chinese Ministry of Agriculture[9] estimates the loss of agricultural production due to land degradation is equivalent to about 30 per cent of agricultural GDP, not including the downstream costs of damage to infrastructure, water quality and river navigation.

21. The relative magnitude of economic losses due to productivity decline versus environmental deterioration also has created a debate. Some economists argue that the on-site impact of soil erosion and other degradation processes are not severe enough to warrant implementing any action plan at a national or an international level. They argue that herders and farmers, as the day-to-day managers of land should take care of the restorative inputs needed to enhance productivity. Ecologists and soil scientists, on the other hand, argue that land is a non-renewable resource at a human time-scale and some

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[7] Land degradation is defined by the Global Environment Facility as "...any form of deterioration of the natural potential of land that affects ecosystem integrity either in terms of reducing its sustainable ecological productivity or in terms of its native biological richness and maintenance of resilience." GEF. 2003. Operational Program on Sustainable Land Management (OP 15).

[8] Stiles D. 1995 Desertification is not a myth. Desertification Control Bulletin No. 26 pp.29-36;
Tiffen,Maryand Mortimore,M. (2002) Questioning desertification in dryland sub-Saharan Africa Natural Resources Forum 26 (3), 218–233.

[9] "China Daily" Beijing September 12, 2007

adverse effects of degradation processes on land quality are irreversible. The masking effect of improved technology provides a false sense of security.

22. Most agree that land degradation is a serious economic, social problem related to environment, which faces many nations in the region. It directly affects the livelihood of the rural population by reducing the productivity of land resources and adversely affecting the stability, functioning and the resource quality of natural ecosystems. The causes of land degradation are multiple, complex, and vary across the region, but to a greater extent deterioration and exhaustion of land resources is the result of admittedly incorrect and destructive agricultural practices, overgrazing, deforestation and cutting of shrubs for fuel and medicine, forest degradation, loss of biodiversity and natural disasters.

23. Environmental concerns are at the center of most country's development policies and plans. But many Asian countries face several land degradation issues – some are longstanding and others are emerging. Overgrazing is one of the key issues. Livestock are maintained mainly for meat and dairy production, draught power and production of dung for fuel. Despite consistent government efforts to reduce the livestock population through introduction of improved breeds, artificial insemination and grazing bans, the livestock population has remained high in many vulnerable areas. High livestock population has led to overgrazing and, in many instances, to accelerated land degradation that leads to attrition or loss of biodiversity, reduction of land productivity and soil erosion.

24. Land degradation exerts serious social and economic influence. The condition of the environment has a direct impact on living standards and health of the population, especially on socially vulnerable segments of the population. Major impacts are:

- Decrease in efficiency of and high risk for livestock production caused by pasture degradation and lack of emergency fodder;
- Loss of the individual and national income generating capacity of wildlife management and fisheries in connection with population reduction of target species caused by over-harvesting and habitat destruction;
- Deterioration of drinking water quality and resultant health problems;
- Shortage of timber and non-timber forest products, especially for local vulnerable groups, and loss of environmental services from forests.

25. Several ESCAP member countries are confronting land degradation, soil erosion and recurrent seasonal drought which are forms of desertification[10]. The impacts of land degradation on rural populations increase their vulnerability and add pressure to further exploit land resources for short-term benefit. Land degradation gives rise to a series of life-support problems in the affected lands. Examples are the reduction of productivity on the degraded pastures, and also high vulnerability of agricultural/herding cultures to drought. Processes of land degradation and desertification negatively affect productivity and overall production, especially from livestock. At present the process of desertification is apparent, to a greater or lesser degree, in nearly all countries of the region.

[10] In many South-east Asian countries such as the Lao Republic, desertification refers to the land degradation and seasonal drought caused by inappropriate land use practices such as slash and burn agriculture, deforestation, overgrazing, etc. See also para.46

26. It is now clear that increasing level of environmental degradation, deforestation, soil, water and air pollution, depletion of biodiversity, etc, manifests itself in accelerated climate change. Initiatives by individual farmer/herder households or even small to medium scale enterprises (SMEs) may not have a major impact on the global climate but radical reforms which would conserve the environment in a sustainable manner must be developed by each country. A joint strategy on environmental concerns may help the subregional partners to limit the overexploitation of natural resources. Within a regional arrangement, experiences of member countries in maintaining environmental production standards differ significantly in different sectors despite contiguity of agro-climatic environment within the subregion. As each country's strengths and weaknesses are different, pooling of strengths among the subregional partners can help in achieving common issues of improving environmental sustainability and countering the weakness within the domestic market.

27. From the review of situation within the ESCAP member countries it must be concluded that:

28. **(i).** ***The political and economic context has changed.*** Rapid changes are taking place in the structure and authority of governments, the global economy, the structure of the farming sector, and global and local food industries and retail businesses. Market liberalization and globalization are powerful forces transforming the global economy. The nature of pastoral production is changing in many developing countries. Small-scale family operations are under pressure, threatened by biased investments that encourage large-scale production.

29. Yet the opening of economies in both developed and developing countries poses difficult challenges for developing country food security, agriculture and natural resource management[11]. Many obstacles may prevent low-income countries from capturing the benefits of globalization. Risks include the short term inability of many developing country industries to compete, the potential destabilizing effects of short term capital flows, increased exposure to price risks, and worsening inequalities within and between countries. Public-sector leadership is needed to facilitate privatization and guide the transformation of agriculture in a pro-poor direction.

30. Often poor people lack alternative income sources and migrate, so poverty and food insecurity – while still predominantly rural – are steadily urbanizing. These issues are further complicated by population growth, the aging rural population, increasing demands on women's time at home and in the field, the decreasing cost of capital relative to labour, and the depletion of asset bases resulting from man-made and natural disasters. All of these are affecting growing numbers of people in the Region. At the same time, global and national food systems are increasingly driven by consumer interests, changing consumption patterns, and food quality and safety concerns. Food processing and retail industries are responding, profoundly affecting production, markets, trade, diets, and public policy. At the Regional level, transnational corporations and broad coalitions of Non-Governmental Organizations (NGOs) are becoming increasingly prominent and influential in policy debates.

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[11] FAO (2004) Towards a food-secure Asia and Pacific. Regional Strategic Framework for Asia and the Pacific, second edition, RAP Publication, FAO Rome. FAO (2005), State of Food and Agriculture 2005, FAO, Rome

31. **(ii).** ***Agriculture/animal husbandry is the primary link between human beings and the environment.*** To avoid achieving food security at the expense of the environment, farmers/herders must intensify agricultural production sustainably – that is, they must achieve greater yields per unit area of land, with the assistance of concomitant improvements in institutional support, incentives, infrastructure, and other inputs. Secure property rights, and other policies offering poor pastoralists and farmer/herders incentives for conservation, as well as access to yield-increasing technologies, are critical. Policies should also serve to raise the value of rangelands and forests and offer incentives for sound management.

32. In the light of recent outbreak of Avian flu, foot & mouth disease, and other such epizootic issues, exports of poultry and meat products are adversely affected in the Asia and the Pacific region. Most of the firms engaged in export meat and related products are small to medium sized enterprises (SMEs). This increases the responsibility of private firms to insulate themselves from such occurrences in the future. It requires periodical inspection of their units and greater emphasis on good hygienic practices in their production units and processing facilities such as abattoirs, tanneries etc. In number of farming/herding sectors, joint initiatives by neighboring countries are an attractive alternative because the resource endowments are common to subregional partners and the level of investment as well as technology requirement to meet export standards are very large[12]. Cooperation can play a vital role because subregional countries can collaborate and exchange technical know-how and enrich each other, in an effort to improve the sustainability of farming/herding in desertification-prone areas.

33. **(iii).** ***Growth and improvement in land management is patchy.*** Some countries within the region have made good progress toward implementing the NAP and other initiatives under the various United Nations conventions but progress is patchy. Implementation of the programme developed under the various SRAPs has been slow for the reasons outlined above.

34. Agencies such as ESCAP and UNCCD can exert influence by providing information to politicians and other stakeholders who call for policy change and who design and implement policy. Often there are substantial gaps between stated policy (such as commitment to increase government spending on agriculture and rural development) and the actual implementation. Anticipating key policy issues and knowledge gaps is essential for formulation of good agriculture and land management policy. Achieving influence, not to mention impact, takes a great deal of time and active engagement in policy communication and awareness-rising.

35. **(iv)** ***Technological innovations may bypass poor people.*** New technological developments related to agriculture, human and animal nutrition, biotechnology, energy, and information and communications offer great opportunities to improve poor people's food security. The challenge is to identify and target high-priority actions to solve critical problems facing small holders and poor consumers. More information is needed to help integrate farmers/herders' own knowledge with modern agro-ecological approaches. Similarly there is much to be gained from better use of information technology. Much scientific research in the area of food and agriculture is market-driven and hence focused on meeting the demands of well-off people in rich regions.

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[12] Lutz, E., and Young, M. (1992), "Integration of Environmental Concerns into Agricultural Policies of Industrial and Developing Countries", World Development, Vol. 2, pp.241-253.

The research environment in many of the ESCAP countries is changing, with strengthened national systems in some developing countries and weakened institutions in others. To reach poor farmers/herders and consumers, public agricultural research must continue to play a key role in developing countries.

36. **(v)** ***Progress is too slow.*** According to ESCAP statistics[13] the number of food insecure people in South-east Asia actually increased. In order to focus the international community's focus on these critical issues, the UN Agreed in 2000 on eight MDGs – specific measurable targets to be met by 2015 that will make definite improvements to the lives of the regions' poor and hungry.

37. The MDGs represent a significant revision of the fundamental paradigm of development thinking and have become an important focal point for food security and development policy, including the emphasis on sustainable agricultural land use. Achieving the MDGs by 2015 will be particularly challenging for some countries. One thing is clear: it will not be achieved through business as usual. More effort is needed to remove barriers to accelerating the sluggish progress of eliminating hunger in a food-rich world and raising incomes to take account of growing aspirations of the rural poor to have better education, health and modern amenities.

38. **(vi)** ***Gender inequality and other discrimination policies and cultural practices*** that marginalize people on the basis of gender, class, age, caste, religion, ethnicity, race, and agro-ecological location, contribute to food insecurity. Research by the International Food Policy Research Institute (IFPRI) has found that giving women the same access to physical and human resources as men increases pastoral and agricultural productivity.[14] For example in Viet Nam[15] Compared with men, women tend to devote a greater share of the resources they receive to household food security and child nutrition. Improvements in women's social status relative to that of men and in female education help reduce child malnutrition significantly. Translating these research findings into policy actions remains a challenge.

39. Research findings by IFPRI [16]provide empirical evidence that empowering women leads to greater household food and nutrition security. Accomplishing this task requires policies that eradicate gender discrimination, proactively promote catch-up for women, and involve women directly in their implementation (Table 2).

40. Although it is impossible to generalize across cultures and resources, it is important to identify the nature of rights to land, trees, and water held by women and men, and how they are acquired and transmitted from one user to another[17]. Property rights to resources such as land, water, and trees play a fundamental role in governing the patterns of natural resource management, as well as in the welfare of individuals, households, and communities who depend on those resources. Policies that shape

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[13] ESCAP Economic and Social Survey of Asia and the Pacific 2007.

[14] IFPRI International Food Policy Research Institute) 2001. Rural Poverty Report. Washington D.C.

[15] Research Report No. 148 Poverty and Inequality in Viet Nam Spatial Patterns and Geographic Determinants. Nicholas Minot, Bob Baulch, and Michael Epprecht December 200

[16] Women**:** Still the Key to Food and Nutrition Security IFPRI, 2005. Washington D.C.

[17] IFPRI 1997 Gender, property rights, and natural resources Ruth Meinzen-dick, Lynn R. Brown, Hilary Sims Feldstein, and Agnes R. Quisumbing. FCND Discussion paper no. 29 International Food Policy Research Institute. Washington, D.C.

property rights can play a major role in promoting (or inhibiting) economic growth, equity of distribution, and sustainability of the resource base.

Table 2. Summary of IFPRI's research findings on gender as a factor affecting agricultural and pastoral output and environmental impacts, including health.

Primary findings	Recommendation for action
• Targeting women in agricultural technology dissemination can have a greater impact on poverty than targeting men. • Targeting programmes to women benefits the whole household, but particularly girls.	• Target resources to women
• Equalizing agricultural inputs between men and women results in significant gains in agricultural productivity	• Increase women's ability to actively participate in the development process.
• Gender disparities in property rights threaten natural resource management. There is no single path to strengthening women's property rights.	• Reform and monitor legal institutions to eradicate gender discrimination and improve the status of women
• Raising a woman's status dramatically improves the health, longevity, and productivity of her children.	• Ensuring women's participation through networks or group-based programmes.

Source: IFPRI 2005 (op.cit.)

41. To be fully effective, activities to combat desertification need to be carefully tailored to the particular circumstances and needs of each country. It is clear that in many countries the rural economy drives overuse of resources, and low levels of income by rural people is perhaps a root cause of land degradation. The challenge for governments is to devise ways and means that can reward the rural people for sustainable land use practices. Reform of land tenure or guaranteeing user rights to publicly-owned land is a solution in some countries. Neglect of the stewardship role of rural land users is a serious factor that contributes to accelerated land degradation but solutions are not easily found in areas where population is growing rapidly and pressures on the resource base are pushing ecosystems to their limit. Governments are uncertain about to how to reduce these pressures without compromising the survival of the rural poor. Widespread exodus from rural areas to the already overcrowded urban areas is not an option that governments want to encourage.

42. There are strengths and weaknesses in each country that impact on the realization of the United Nations Convention to Combat Desertification (UNCCD). These arise from the complex interactions between social and economic, political, ecological and other factors. The key weaknesses in most member countries can be grouped as follows:

(i) Lack of awareness and access to relevant information

- Weak knowledge by the population at large on the basic ideas of UNCCD, its objectives and how they can contribute to halt and/or reverse desertification and other forms of land degradation;
- Insufficient explanatory work with local population;
- Shortage of the literature on UNCCD in the national languages.

(ii) Shortage of funds and support

- Insufficient attention from the international organizations;
- Insufficient financing.

(iii) Lack of integration and coordination of effort

- Weak coordination between the national bodies which deal with various problems of desertification;
- Absence of monitoring and evaluation;
- Lack of opportunities for rational use of natural resources, such as forests and mines, by the local population -- leading to irrational use of natural resources by those who exploit the resource and by the local population themselves.

(iv) Lack of capacity in government agencies

- Weak development of the technical base and reliance on obsolete technologies;
- Disregard for traditional methods of preventing desertification.

43. This suite of weaknesses has negative impacts on the mitigation measures and action plans. Additionally, some coordination and harmonization mechanisms for combating desertification have been rendered inefficient through the lack of coordination. Towards that end, more capacity building is needed in order to improve cooperation on implementation, monitoring and evaluation of programmes and projects on combating desertification.

(b) South-east Asia

44. The countries in South East Asia, both island nations and mainland nations[18], are endowed with rich and diverse ecosystems. It is a region of high population density, rich diversity of cultures and biodiversity. The agricultural ecosystems are diverse and with great variations regularly occurring over short distances.

45. The major causes of desertification in the South-east Asia subregion region are shown in Box 1.

[18] The island nations are: Brunei, Timor Leste, Indonesia, Malaysia, The Philippines and Singapore. The Mainland nations are: Cambodia, Lao PDR, Myanmar, Thailand and Viet Nam.

Box 1 Principal immediate causes of dryland degradation and desertification in South-east Asia	
(i) Unsustainable agricultural practices	- Extensive and frequent cropping of areas. - Excessive use of fertilizers.
(ii) Unsustainable water management	- Shifting cultivation without an adequate recovery. - Poor & Inefficient Irrigation Practices. - Over abstraction of ground water, particularly in coastal regions resulting in saline intrusion into aquifers.
(iii) Conversion of Land for other uses	- Prime forest into agricultural land. - Agricultural land for other uses. - Encroachment of cities and towns into agricultural land.
(iv) Deforestation	- Unsustainable forest management practices. - Forest land clearances for agriculture (including shifting cultivation). - Other land use changes (Projects- energy, roads). - Overgrazing, excessive fuel wood collection and forest fires.
(v) Industrial, mining and other activities with satisfactory measures for prevention of land degradation and land rehabilitation.	
(vi) Demographic pressures – human and livestock.	
(vii) Frequent droughts/failure of monsoon and their link with global climate shift.	

(c) South and South-west Asia

46. This subregion includes Afghanistan, Bangladesh, Bhutan, India, Islamic Republic of Iran, Nepal, Pakistan, as well as Sri Lanka. All face problems of high population densities and resource depletion. This is a land-scarce subregion with a growing population. Though land is the most important provider of economic and social security for the people, and agriculture is one of the most important vocations of its population. The per capita land, particularly for agricultural production has been diminishing with the increase in population; the loss of agricultural land is taking place at the rate of approximately 1 per cent per year. Land degradation in varying degrees is affecting tens of million of hectares.

47. Agricultural intensification and the increase in irrigated area have led to a number of environmental problems, viz. loss of biodiversity through the conversion of forest land into agricultural land and abandonment of many indigenous crop varieties in favour of high yielding varieties leading to irreversible loss of the country's genetic resources. The increased use of agrochemicals caused pollution of surface and ground water.

48. Sustainable use of the limited supplies of water and the avoidance of degradation of irrigated soils are complex issues affecting all countries in subregion. Over-irrigation combined with inadequate irrigation systems and, in water-scarce areas, the reuse of drainage water for irrigation, has led to water logging and salinization. Improved efficiency in the use of marginal water is being explored in several countries through use of brackish aquifers and treated wastewater.

49. Major constraints to the use of marginal water and reclamation of saline soil for agriculture include: insufficient precipitation or irrigation water for leaching salts from agricultural soils; the high investment cost of treatment facilities for wastewater; outdated regulatory standards governing the use of saline and waste and surface waters in agriculture; inadequately defined national policy and institutional responsibility for management of marginal waters and saline soils, and insufficient technical expertise and access to ongoing activities in this field of research and development. All countries face severe water supply and utilization problems as well as encroaching deserts. The challenges are (i) to overcome decades of neglect of rural lands as ecosystems and their exploitation for economic gain, (ii) to reverse policy interventions with unintended consequences and (iii) overcome the negative attitudes toward the rural poor that has hampered efforts to take effective action to prevent and control desertification and land degradation

(d) North-east Asia

50. North-east Asia comprises: five countries: China, Japan, Republic of Korea, Mongolia and Democratic People's Republic of Korea. It has the highest populations of all the subregions with a total of 1.48 billion people. North-East Asia's population accounts for approximately one-fourth of the world total. China is the world's most populous country. This large number of people can be environmentally destructive as such a large population base leads to over-consumption of natural resources.

51. The subregion faces many serious environmental problems because of the high population density, rapid urbanization, accelerated economic growth and a dwindling resource base. Desertification is an important environmental issue in this subregion. Mongolia and China are being deeply affected by land degradation and top soil loss.

52. Sustainable agriculture practices along with greater awareness about land management will help impede desertification and help to prevent the serious dust and sandstorms (DSS) that plague the cities on China's eastern seaboard and contribute to the transboundary environmental problems that affect neighbors on the Korean peninsular and Japan.

53. The rate and growth of land degradation in China and Mongolia (see also para.60) is of concern in the subregion. Land degradation has long-term repercussions and it is not easy to regenerate land that has been degraded. Rapid and increasing land degradation can have effects on the food producing capacity and food security of the subregion. The indisputable fact is that the total area of degraded rangeland in China increased by about 95 per cent between 1988-1998, from about 30 Mha to about 65 Mha, with a notable acceleration in the mid-to-late 1990s. From all accounts it is still expanding. This land degradation is caused by a combination of natural factors and human factors such as inappropriate land use policies, inadequate rangeland management, and over-harvesting of rangeland products. The human-induced factors are exacerbated by: (i) overall poor understanding of the functioning and resilience of ecosystems; (ii) lack of awareness by various levels of government officials of the medium and long-term environmental impact of interventions and (iii) a failure to seek an objective analysis of the past decades of mismanagement.

(e) Central Asia

54. All the Central Asian Countries (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan) are affected or severely affected by drought and desertification. In Kazakhstan, 66 per cent of the land area is affected by desertification, while in Turkmenistan and Uzbekistan this figure is as high as 80 per cent. Erosion affects over 88 per cent of arable land in Kyrgyzstan and 97 per cent of agricultural land in Tajikistan. With the majority of the population of these countries living in rural areas, desertification and land degradation are taking a heavy toll on their ability to survive[19].

55. The main feature of the Central Asian subregion is that it comprises countries with very similar patterns of historical, economic and political development in the pre-independence (1991) period. Since the early 1990s, all countries of the subregion have been undergoing a process of radical socio-economic reforms, including democratization, decentralization, privatization, improved access to information for ordinary citizens, and land reforms, which have direct or indirect implications for environmental protection, including combating desertification. The transformation period has been accompanied in most countries by serious economic difficulties, which, in some cases, have been exacerbated by political disturbances.

56. Despite these difficulties outlined in paragraphs 62-64, and the various constraints listed in paragraph 63, the Central Asian countries have adopted measures that are conducive to the effective implementation of the Convention. For example, the Subregional programme for combating desertification within the UNCCD context (SRAP/CD) reflects areas for subregional cooperation in combating desertification and land degradation. Agreement was also reached to start implementation of the SRAP/CD through organizing training courses for countries of the subregion. Activities are now being undertaken to start implementing national projects to combat desertification under the Central Asian Countries Initiative for Land Management[20] Sustainable use of the limited supplies of water and the avoidance of degradation of irrigated soils are complex issues affecting all countries in Asia and the Pacific region. Over-irrigation combined with inadequate irrigation systems and, in water-scarce areas, the reuse of drainage water for irrigation, has led to water logging and salinization. Improved efficiency in the use of marginal water is being explored in several Central Asian countries through use of brackish aquifers and treated wastewater, especially for forage production.

(f) Pacific subregion

57. The Pacific subregion covers the island Pacific countries, New Zealand and Australia. Land degradation is a major economic, social and environmental problem exacerbated by threats of sea level change brought on by global warming. Small Island

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[19] A Partnership Approach for Financing UNCCD Implementation: The Central Asian Experience.2005 A joint Publication of the Strategic partnership agreement for the implementation of the UNCCD in the Central Asian countries and the Global Environment Facility See also Executive reports of Asian countries to UNCCD

Committee for the review of the implementation of the convention Fifth session Buenos Aires, 12–21 March 2007

[20] An ADB/GEF initiative launched in 2006. The CACILM partnership will be implemented over ten years (2006-2016) with the overall goal of combating land degradation and improving rural livelihoods. See also the National reports for Asian countries presented to UNCCD for COP 8 in Madrid 2007.

Developing States (SIDS) are particularly vulnerable and fragile and area special case for sustainable development particularly due to their limited access to financial resources and limited institutional capacities. Major environmental problems include, deforestation, accelerated soil erosion loss of biodiversity and water pollution. Climate change and land use changes are crucial threats to the extremely fragile environmental carrying capacity of the Small Island Developing States (SIDS).

58. Environmental pressure associated with economic activities and population growth has become unsustainably high. At the same time, erosion of traditional lifestyles and weakening of community-based decision making processes have impacted negatively on sustainability of natural resource use[21].

(g) The subregions/countries which, overall, are most challenged

Mongolia

59. Mongolia faces many challenges**.** The Human Development Index (HDI) increased consistently for all the countries of the subregion except Mongolia where it slightly decreased during 1990 to 1995. During the last decade of the 20th century, Mongolia had the highest average growth rate in population, admittedly from a low base of only 2.5 million. But the infant mortality rate within the subregion is highest in Mongolia – 61 per 1000 live births. Poverty is a problem. The number of people living on less than US$1 per day was 14 per cent of Mongolia's population in 1995[22,23] Economic Growth in Mongolia was strong in the middle of the 1990s, but weak at the beginning and end. Mongolia needs higher rates of growth to achieve poverty reduction. Gross National Income (GNI) in Mongolia is the lowest in the subregion – US$0.95 billion. GNI per capita is extremely low -- $US390 and this severely constrains investment in desertification and land degradation.

60. Desertification is an important environmental issue in North-east Asian subregion. Mongolia is adversely affected by land degradation and top soil loss and an increase in frequency and severity of DSS. Mongolia has the largest arable land per capita in the subregion, but this capacity has degraded over the 1990s. Land degradation, desertification and salinization have also contributed to the loss of arable land. Overgrazing in Mongolia by the nomadic livestock herds that occupy 75 per cent of the total land area and the creation of multi-tracks in the Gobi desert, after vehicles are driven on wide new strips alongside rural roads when old tracks deteriorate have led to degradation of the land. The threat to mammalian biodiversity, in terms of threatened and vulnerable species, increased in Mongolia during the 1990s. Nearly half of Mongolia is the treeless Gobi desert, and nationally there was less than seven per cent forest cover in 2000 and this has decreased at an annual rate of 0.5 per cent since then.

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[21] Chapter 8 Pacific IN: ESCAP State of the Environment in Asia and Pacific: Economic Growth and sustainability. 2005

[22] UNEP 2004. Environmental Indicators for North East Asia. Regional Resource Centre for Asia and the Pacific (UNEP RRC.AP) Thailand

[23] World Bank. 2003. Global Economic Prospects and the Developing Countries - Investing to Unlock Global Opportunities :2003. (World and Regional Data) and World Bank. Millennium Development Goals. http://www.developmentgoals.org. (March-April 2003) (Country data)

South Asia, South-east Asia, and East Asia

61. East, South-east, and South Asia have very varied climates and contain much biological diversity**.** Nevertheless, the magnitude of soil erosion and the resulting loss of biodiversity and agricultural productivity are increasingly threatening both the ecological and the economic base of many countries[24] e.g. Mongolia, China, Viet Nam, Cambodia, India and Bangladesh. Concerted action is needed to halt the emerging trends. The 1996 Regional conference in New Delhi and the 1997 Beijing Ministerial Conference on UNCCD Implementation endorsed the principle of cooperation across climatically different regions in order to prevent further land degradation. South Asian Country Parties adopted SRAP in Sri Lanka in July 2004, and South-east Asian Country Parties launched the framework of SEA SRAP in December 2005 in Viet Nam and reviewed and finalized SEA SRAP in December 2006 in Thailand. Many countries have expressed interest in organizing regional and subregional consultative meetings on the Asia-wide TPNs.

Central Asia

62. Many Central and South Asian countries are challenged by dryland and rangeland sustainability and rely on regional trade to obtain livestock fodder during lean seasons and on long distance transboundary transhumance. Herders are vulnerable to climate change that is believed to be causing accelerated land degradation, and the threat of diseases and noxious weeds that arise from transboundary movements of livestock and fodder supplies.

63. The Central Asian countries have faced a series of obstacles to effective implementation of their National Action Programmes (NAPs). To overcome the implementation problems the following areas have been identified by ADB[25]as needing attention in the five countries:

- In order to address the causes and consequences of desertification effectively, enabling policy, legislative and institutional conditions need to be created by national governments in view of the factors linking poverty, the environment and the economy.
- Governments should integrate the UNCCD into national development plans and strategies and should focus particularly on incorporating sustainable land management into economic reform processes.
- The relevant ministries should coordinate their activities in order to encourage harmonized responses across a broad range of state sectors.
- Governments should ensure that local communities and civil society organizations are more involved in decision-making processes and implementation activities.
- In order to combat desertification and drought, more funds need to be allocated nationally and from external sources.

[24] Task Force for the Preparation of WSSD in Asia and the Pacific (2001**)** South Asia subregional report for the world summit on sustainable development; UNEP 2005 Environmental indicators for North East Asia

[25] A Partnership Approach for Financing UNCCD ImplementationThe Central Asian Experience www.adb.org/projects/CACILM/

Pacific

64. **The 14 Pacific island country Parties** are unique in their problems and the ways to address those problems. Drought preparedness, land productivity and vulnerability to natural disasters and economic shocks are the main issues confronting them in relation to sustainable development. The Pacific Island Workshop held in Apia, Samoa in May 2001 laid down the blueprint for developing a Pacific Island Initiative on agroforestry, water harvesting, land use monitoring, and early warning systems for drought forecasting as the basis for arresting land degradation and combating desertification. In view of their geographic isolation and the relatively small size of their economies, the countries at that meeting recommended the adoption of a subregional approach in the implementation of the UNCCD, together with national level activities.

REVIEW OF IMPLEMENTATION OF DESERTIFICATION AND LAND DEGRADATION MITIGATION MEASURES.

(a) Major Initiatives to Combat Land Degradation

65. A comprehensive review and assessment of the progress made by countries in the ESCAP region was undertaken in 2005[26]. Since that time there have been updates and the most recent was from the 36 countries of Asia and Pacific region who submitted their National Reports to the COP 8 held in Madrid in September 2007.

66. The recently enunciated 10-year strategic plan of the UNCCD has considerable relevance**.** At least for the Asia and the Pacific region, the UNCCD ten-year strategic plan "opens a way for renewed commitment among stakeholders." There are several stated policy objectives:

67. At the recent COP 8 in Madrid the Strategic objectives and expected impacts (and their associated indicators) were agreed upon:

68. **Strategic Objective 1: To improve the living conditions of affected populations**

> *Expected impact 1.1.* People living in the areas affected by desertification/land degradation and drought to have an improved and more diversified livelihood base and to benefit from income generated from sustainable land management.
>
> *Expected impact 1.2* Affected populations' socio-economic and environmental vulnerability to climate change, climate variability and drought is reduced.
>
> *Indicator S.1.* Decrease in numbers of people negatively impacted by the processes of desertification/land degradation and drought
>
> *Indicator S.2* Increase in the proportion of Households living above the poverty line in affected areas.

[26] Lu Qi, Yang Youlin and Victor R. Squires "*Regional Review of UNCCD implementation and Best Practices in Asia and the Pacific*". China Environmental Science Press, Beijing. 2005.279 p.

Indicator S.3 Reduction in the proportion of the population below the minimum level of dietary energy consumption in affected areas.

69. **Strategic Objective 2: to improve the condition of affected ecosystems**

Expected impact 2.1 Land productivity and other ecosystem goods and services in affected areas are enhanced in a sustainable manner contributing to increased livelihoods.

Expected impact 2.2 The vulnerability of affected ecosystems to climate change, climate variability and drought is reduced.

Indicator S.4 Reduction in the total areas affected by desertification/land degradation and drought

Indicator S.5 Increase in net primary productivity in affected areas.

70. **Strategic Objective 3: To generate global benefits through effective implementation of the UNCCD**

Expected impact 3.1 Sustainable land management and combating desertification and land degradation contribute to the conservation and sustainable use of biodiversity and the mitigation of climate change.

Indicator S.6 Increased carbon stocks (soil and plant biomass) in affected areas.

Indicator S.7 Areas of forest, rangeland, agricultural and aquaculture ecosystems under sustainable management.

71. **Strategic Objective 4: To mobilize resources to support implementation of the UNCCD through building effective partnerships between national and international actors**

Expected impact 4.1 Increased financial, technical and technological resources are made available to affected country Parties.

Expected impact 4.2 Enabling policy environments are improved for UNCCD implementation at all levels.

Indicator S.8. Increase in the level and diversity of available funding for combating desertification/land degradation and mitigating the effects of drought.

Indicator S.9 Development policies and measures address desertification/land degradation and mitigating the effects of drought.

72. While there are numerous programmes and activities of the governments of most Asian countries that, directly or indirectly, contribute to combating land degradation even if they are not specifically or inherently aimed to do so, there are several major initiatives that stand out for their exclusive focus on land degradation problems.

- China/ADB/GEF Partnership on Land Degradation in Dryland Ecosystems (2005-2015). To combat land degradation in China a US$1.1 billion investment over a 10 year period to halt and reverse land degradation in the western region of China
- ADB/GEF Central Asian Countries Initiative for Land Management (2006-2016). The objective is to combat land degradation and desertification in five Central Asian countries with an expenditure of over $USD 1 billion over 10 years.

73. The UNCCD through its Regional Coordination Unit in Bangkok has also worked to strengthen international cooperation both among countries and among entire regions including an initiative aimed at highlighting and strengthening links among the UNCCD and the other two international Conventions resulting from the United Nations Conference on Environment and Development: the Convention on Biodiversity and the Framework Convention on Climate Change. Also, the subregional governments have pursued activities related to the elaboration of framework programmes of action to combat land degradation and implement more sustainable land use.

74. These subregional consultations brought stakeholders together to formulate the elements of a programme for subregional cooperation to implement the UNCCD in light of the UNCCD Annex for Asia and endorsed a range of options for the preparation of NAPs and of several SRAPs. They called upon countries to nominate a coordinating Agency for the implementation of the UNCCD, addressed issues related to the preparation of NAPs and enumerated priority programme areas for the region. Furthermore, they recognized that actions to combat desertification and drought are an essential part of national sustainable development strategies and emphasized the need for capacity building in fields such as environmental education, institutional strengthening and training.

75. National projects and activities have focused on **priority areas**, namely:

- Sustainable **natural resource management** in rangelands, forests and woodlands
- **Sustainable agricultural practices** in irrigated and rainfed areas
- **Land rehabilitation** in the affected areas in each country
- **Biodiversity conservation** and **protected areas management** and
- **Capacity building** for enhancing land use planning and the enabling policy, legislative, institutional and incentive frameworks.

76. Multi-country activities will include integrating sustainable land management into planning, developing a land management information system, research, and knowledge management and information dissemination.

77. Agenda 21 emphasized the need for developing indicators[27] to provide the solid base for decision making at local, national, regional and global levels. The Johannesburg Plan of Implementation in 2002 reiterated the need for indicators to monitor economic, social and environmental progress for sustainable development. MDG7 set for countries

[27] Indicators can be defined as statistics, measures or parameters that can be used to track changes of the environmental and socio-economic conditions. Indicators are developed in synthesizing and transforming scientific and technical data into fruitful information.

to ensure environmental sustainability through integrating principles of sustainable development into country policies and programmes, and reverse the loss of environmental resources.

78. The 1992 United Nations Conference on Environment and Development (UNCED) in Rio recognized the role of indicators towards promoting sustainable development. Chapter 40 of the Agenda 21 calls on countries at the national level, as well as international, governmental and non-governmental organizations to develop indicators in order to provide the solid basis for decision-making at all levels. Agenda 21 specifically called for harmonization of efforts towards developing sustainable development indicators at the national, regional and global levels.

79. The CSD in 1995 undertook an initiative to assist countries with developing framework for sustainable development indicators, and building capacity for integrating indicators in policy formulation and decision-making. The overall goal of the programme was to develop country specific indicators that will be used by countries while reporting the progress on sustainable development. Indicators would be the useful tools to track the economic, social and environmental progress over the timeframe.

80. A comprehensive assessment of the indigenous knowledge is still a weak point.[28]. More effort should be oriented towards these native practices that played an important role in conserving the natural resources of local communities.

81. Information and data on land degradation may be available but is limited and scattered, as there is often no specific database dedicated to UNCCD at the national level. Existing environmental monitoring and evaluation mechanisms in land use changes are in place in most countries, but are limited in scope both in resolution and spatial coverage. Equally, quality data and capability to interpret and convert data into understandable formats like Geographical Information System (GIS) to support policy decision making are also lacking.

82. National Action Programmes[29] (NAPs) are one of the key instruments in the implementation of the Convention. They are strengthened by Action Programmes on Subregional (SRAP) and Regional (RAP) level. National Action Programmes are developed in the framework of a participative approach involving the local communities and they spell out the practical steps and measures to be taken to combat desertification in specific ecosystems.

83. NAPs for Combating Land Degradation have been formulated or revised in the light of this framework and South Asia Subregional Action Programme (SEA—SRAP) has been prepared in the context of NAPs of country Parties throughout SE Asia. Hence, one can observe significant changes in approaches to implement the UNCCD in the ESCAP member countries, especially in the Asia and the Pacific region since 2002. Such changes are marked by creation of conditions for broader stakeholders' participation in

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[28] CCICCD (1999) Traditional Knowledge and Practical Technologies for Combating Desertification in China, Secretariat of UNCCD, China Environmental Science Press, Beijing, 181 p.

UNCCD 2005 Promotion of Traditional Knowledge: A compilation of UNCCD Documents and Reports from 1997-2003, UNCCD Committee of Science and Technology, UNCCD Bonn p.156

[29] The NAPs are a comprehensive framework to combat desertification and mitigating drought based on participation by all key stakeholders in each country.

the planning process, harmonization of existing plans and programmes, inter-sectoral cooperation, effective consultation and negotiation with external partners

84. A series of meetings in South-east Asia strengthened the impetus for regional cooperation and collaboration among all players involved in implementation of the UNCCD in the South-east Asian region. The agenda involved reviewing and adopting proposals for a Regional Coordinating Mechanism, as well as an initial Regional Action Programme for the implementation of the UNCCD. These culminated in the UNCCD SEA-SRAP launching meeting that was held in Phan Thiet City, Binh Thuan Province, Viet Nam (December, 2005). The meeting endorsed the Framework for the South-east Asia Subregional Action Programme for Combating Land Degradation and Eradicating Poverty in Drought Prone, Seasonally Arid and Food In-secure Areas.

85. The availability of funds directly for the implementation of NAP related activities is not sufficient. But the agencies responsible for NAP implementation have partnerships with donor agencies through donor funded projects. These projects provide financial and technical assistance to the relevant agencies. However, substantial investments have yet to be made, since the projects cater only to a limited number of years and mainstreaming of the mitigation activities into the routine activities of the agencies is a necessary follow-up.

86. The main stakeholders in most ESCAP member countries are the government, non-governmental organizations (NGOs), community-based organizations (CBOs) with some limited private sector support, and the community at large. Insufficient awareness on land degradation and the NAP has caused inadequate financial allocation to activities to combat land degradation. The need for greater efforts on prevention of land degradation is accepted by the governments of all partner countries; however, serious deficiency of financing does not allow the realizing of all the planned measures. Attraction of target international investments and increase in budgetary financing is required. It is important to note that the private sector is not actively involved in most Asian countries in the development of policies or in mobilizing financial resources for implementation of development projects in marginalized areas that actually benefit the local people[30]. Incentive frameworks for a supportive role by the private sector must be strongly prioritized.

(b) The Asian and Pacific countries to have adopted their NAPs

87. China, India, Indonesia, Islamic Republic of Iran, Kazakhstan, Kyrgyzstan, the Lao People's Democratic Republic, Mongolia, Myanmar, Nepal, Pakistan, Palau, Philippines, Sri Lanka, Tajikistan, Thailand, Turkmenistan, , Uzbekistan, and Viet Nam,. The other affected developing countries in the Asia and Pacific region are at various stages of NAP formulation. The preparation of NAPs is a dynamic ongoing process and the status of each country is subject to change over time. The Convention's "bottom-up" approach, whereby existing desertification programmes are reviewed by the stakeholders, including non-governmental organizations (NGOs), local authorities, and community leaders, was generally adopted in formulating NAPs. Mainstreaming the

[30] An example of active private sector involvement is the cooperation between ELion company in China and the development of desert industries (including a tourist resort) in the Kubuqi desert of Inner Mongolia, China. Website <www.elion.com.cn>

NAPs in order to enhance their effective implementation is another important consideration in this regard.

(c) Regional Action Programme (RAP) and Thematic Programme Networks (TPN)

88. The resolutions adopted during the first Regional Conference on the Implementation of the United Nations Convention to Combat Desertification, held in New Delhi, August 1996, prepared the ground for the preparation of the Convention's Regional Action Programme for Asia. Guided by the principles and provisions of the Convention, especially those in its Annex II, the Regional Implementation Annex for Asia, Asian country Parties, with continued assistance from the UNCCD Secretariat, have taken initiatives aimed at achieving the objectives of the Convention.

89. International Experts Group Meeting on the Preparation of the Regional Action Programme for Combating Desertification and Mitigating the Effects of Drought in Asia, held in Bangkok in November 1998 paved the way for the formulation of a framework for the Regional Action Programme (RAP) and the development of NAPs. Furthermore, the meetings established thematic programme networks (TPNs) that provide structural support to RAP and NAPs which, essentially, are at the core of action for combating desertification in the region.

Regional activities are being launched through TPNs.

90. Based on the principles contained in the Convention to Combat Desertification and its regional annex for Asia, a number of regional meetings introduced an approach that has become central to regional cooperation in Asia: the TPNs. Each network deals with one core aspect, which is either a cause or an effect of desertification, and aims at providing and promoting regional solutions through improved and innovative regional cooperation and exchange of information. The networks have evolved following the 1997 Beijing Ministerial Conference, the 1998 Muscat meeting and the 1997 Tashkent Conference.

91. The implementation of the NAPs is advanced by the promotion of regional cooperation and capacity-building at national and subregional levels through the six Asian Regional Thematic Programme Networks (TPNs) adopted at the Beijing Ministerial Conference. These are desertification monitoring and assessment (hosted by China and launched in July 1999), agroforestry and soil conservation (hosted by India and launched in May 2000), rangeland management and fixation of shifting sand dunes (hosted by Iran and launched in May 2001), water resources management for arid-land agriculture (hosted by Syria and launched in July 2002), strengthening capacities for drought impact mitigation and combating desertification (hosted by Mongolia and launched in July 2003), and assistance for the implementation of integrated local area development programmes (LADPs) (hosted by Pakistan and launched in June 2004).

South East Asian countries are implementing a subregional programme (SRAP) to strengthen their activities under the Convention

92. South Asian Country Parties adopted a SRAP in Sri Lanka in July 2004 with goals set in response to the guidelines and objectives of the UNCCD: South-east Asian countries adopted the framework of SEA-SRAP in Viet Nam in December 2005 and countries agreed to:

(1) To establish ASEAN Country Party Network for knowledge-based geo-information and data base and best integrated watershed management practices needed to combat land degradation and desertification as a long-term and strategic approach to reduce rural poverty in the ASEAN countries;

(2) To mainstream policy formulation and mitigation measures established by the ASEAN country Parties during their implementation of various and key projects within the SEA-SRAP Framework

93. Effective implementation of the various programmes and project activities by the SEA-SRAP country Parties, depends on adherence to the following principles approaches and strategies:

(1) *Mainstreaming of validated technologies and measures for implementing the UNCCD.* Each South-east Asian country Party focal point will exert all efforts to mainstream their respective implementation programme to ensure its sustainability and likewise create nationwide awareness to establish constituency for the UNCCD as the environmental and development country programmes on land degradation and poverty.

(2) *Cluster Approach for Sustainable Land and Ecosystem Management (SLEM) employing Trans-boundary Management of Land and Ecosystem and Cross-border Land and Ecosystem Management.* The SLEM is focused on concerns and requirements creating efficient land resource management and to combat land degradation and poverty. The trans-boundary management of ecosystem is employed for regional basin which serve as a common watershed for the specific group country Parties and which served a basis of convergence of implementation for groups of country Parties that share common concerns in managing land and ecosystems of South-east Asian country Parties. On the other hand, the Cross border Land and Ecosystem management is concern with networking of implementation of archipelagic South-east Asian country parties. The cluster approach likewise serves as basis for exchange of experts and information.

94. The country clusters are:

a. SEA Trans-boundary Clusters
Sub-cluster 1: Cambodia, Myanmar, Lao PDR, Thailand and Viet Nam
Sub-cluster 2: Indonesia and Timor Leste.

b. SEA Cross Border Clusters
Brunei, Indonesia, Malaysia, Timor Leste, and the Philippines

(3) *Participatory and Bottom up Approach with emphasis on Community Initiatives and Local Governance.* Central to the implementation of all South-east Asian SRAP programmes and project activities is the identification and the full participation of all stakeholders, particularly in those areas and communities affected by desertification.

Subregional Action Programme (SRAP/CD) for the Central Asian countries on combating desertification within the UNCCD context was completed in 2003

95. Central Asian countries are implementing a subregional action programme (SRAP) to strengthen their activities under the Convention in response to the subregion's needs, The CACILM represents innovative international cooperation of donors to support development and performance of the framework programme at the national level (NPF), aimed at development of all-round and complex approaches to combat desertification through sustainable management of land and water resources as stated in the Global Environment Facility (GEF) Operational Programme on sustainable land management (SLM).

FUTURE CLIMATE CHANGE: OPTIONS AND CHALLENGES FROM AN ASIA-PACIFIC PERSPECTIVE

96. Climate change is now seen as having a profound impact on ecosystems and societies, challenging some basic assumptions concerning the reliability of the production and consumption patterns of our emerging global civilization. Global temperature will probably rise by 5.8 °C in the next 100 years and the sea level will rise by nearly one metre in the same period. Moreover, it is predicted that the evaporation rate might increase by about 5 per cent with a 1 °C rise of temperature in mid-latitude regions of the earth. Based on this information, it is natural to worry that with the advance of global warming, drought will be developed on a global and local scale, leading to severe damage in agricultural and forestry production. If the reduction of soil moisture due to temperature rise continues, the arable soils will become desiccated, resulting in abandonment of arable land and eventual desertification. The recent changes in climatic events, particularly the increasing frequency of dry events notably related to El Nino, have increased the frequency and severity of a new emerging climate pattern called 'seasonal aridity'. The dry spell can extend 6 to 7 months in areas where this previously did not occur e.g. in the Lao Republic's Huaphane, Xiengkhuang, and Savannakhet provinces and parts of Cambodia[31].

97. In addition to the reduction of biological productivity, another consequence of temperature rise will be loss of biological diversity through direct impacts like habitat loss and fragmentation, and species losses through pollution. A key challenge for the biodiversity programmes is the implementation

98. Scientists now generally agree that increased atmospheric concentrations in carbon dioxide (CO_2) and other greenhouse gases such as methane – a common by product of ruminant livestock - are causing significant warming. Cattle farming produces as much as 100 million tonnes of methane annually and livestock production is rapidly increasing in response to the increase of meat consumption. Since the production levels of methane differ with the feeding conditions of cows, development of technology to reduce methane emissions is important, especially in developing countries where cows are fed on a sparse diet.

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99. It will not be easy to find an effective and efficient way to balance productivity with sustainability in biological production by agriculture under a scenario of progressive climate change. Because local populations have no choice but to scratch a living from increasingly scarce natural resources, the challenge is to meet their requirements for sustainable livelihoods while combating land degradation in a manner that is adaptive to climate change. Many recent national workshops in member countries on climate change awareness called for the development and implementation of a national climate change policy that will take into effect adaptation options and mitigation of land degradation.

100. Such key areas as science and education, agriculture, forestry, rangeland management, sustainable energy and supply and management of water resources represent platforms for synergistic efforts to meet this challenge.

101. Many countries are now facing up to the challenge of coping with climate change. Climate change could have a variety of important implications. An urgent need is for information that can be used to design effective schemes to mitigate the effects, including development of insurance schemes to ensure that poor farmers/herders have access to climate forecasting and other tools (such as market forecasting) that can help manage risks. There is a need to develop and/or strengthen, with international support, climate information and early-warning systems, with particular emphasis on the areas of risk-mapping, remote-sensing, and agro-methodological modeling, There is a strong link with drought mitigation because climate change will affect seasonal rainfall distribution and rainfall intensity[32].

COMMITMENT TO SUSTAINABLE AGRICULTURE AND LAND MANAGEMENT IN THE ESCAP SUBREGION

102. The commitments by the international community are many and varied (Table 4) but few have been delivered. International Development Goals (IDG) were formulated and agreed by the international community at different UN conferences that took place in the last decade. In order to achieve environmental sustainability, goals called upon developing countries to formulate a national strategy for sustainable development by 2005, and to reverse the current trends in the loss of environmental resources, at both global as well as national level, by 2015. These goals are merged into Millennium Development Goals (MDG).

103. At the UN Millennium Summit held in 2000, MDG (8 goals, 18 targets and 48 indicators) were endorsed by the governments and civil society, in order to improve economic, social and environmental conditions in a specific timeframe. Goal 7 is set for countries to ensure environmental sustainability *through integrating principles of sustainable development into country policies and programmes, and reverse the loss of environmental resources*. Sustainable Agricultural and Rural Development (SARD) was a major focus

[32] See companion paper by Dr Liu on this topic)

104. The Johannesburg Plan of Implementation (JPOI), 2002 called upon countries to initiate work on indicators in order to monitor progress on sustainable development. Governments in Johannesburg committed to various goals, targets and financial assistance (through ODA and partnership) in order to achieve a measurable positive change.

Table 3 Main commitments made by the international community at the Rio and Johannesburg World that are relevant to combating desertification

Improve Food security, hunger, nutrition

- Increase sustainable food production and food security **[A21/14.1; CSD-8, 8/4, para 2]** and
- Halve number of undernourished people in world by 2015 **[PFIA21/63; CSD-8, 8/4, para 5];** incorporated in Millennium Declaration **[JPOI/40 a]**

Promote Balanced ecosystem approach:

- Intensify agriculture by diversifying the production systems, minimizing environmental and economic risks. **[A21/14.25]**;
- Pursue an ecosystem approach to SARD, considering impacts of agriculture on natural ecosystems. **[CSD-8, 8/4, para 9]**;
- Develop and implement integrated land management and water-use plans that are based on sustainable use of renewable resources. **[JPOI IV 40b]**

Promote Policy reform to optimize land use and promote sustainability

- Ensure that policies and policy instruments support the best possible land use and sustainable management of land resources with particular attention to the role of agricultural land. **A21 10.6**;
- Allocate land to the uses that provide the greatest sustainable benefits and to promote the transition to a sustainable and integrated management of land resources. **A21 10.5; CSD-3 167**;
- Promote programmes to enhance in a sustainable manner the productivity of land and water resources, especially through indigenous and local community-based approaches. **JPOI IV**;
- Develop adequate land administration systems supporting sustainable land tenure **[CSD-8/3 4.10]** take into account land-use interdependence between rural and urban areas, and undertake implementation of integrated approaches to their administration. **8/3 5.g 23**;
- Develop and/or adopt policies and implement laws [land tenure reform processes] that guarantee to their citizens well-defined and enforceable land rights and promote equal access to land and legal security of tenure, in particular for women and disadvantaged groups, including people living in poverty and indigenous and local communities. **CSD-8 8/3 4.9**

Foster Participation, Planning and Administration

- Ensure people's participation…for sustainable agriculture **A21/16-24**;
- integrate sustainable development considerations with agricultural policy analysis and planning. **[A21/14.5]**;
- Enhance the role of women. **[JPOI/40]**;
- Make most efficient use of scarce water resources, including through community-based approaches. **[A21/14.53 and chapter 18; JPOI/40 d]**;
- **40d; CSD-8 8/3 1.3**

Support Conventions

- UN Framework Convention on Climate Change, UNCCD, Biodiversity
- Climate change and land management, desertification control, conservation of biodiversity.

POLICY OPTIONS

105. The major challenge for most ESCAP countries is how to reconcile development and sustainable land use. The issues raised in the foregoing sections are well known and there have been many attempts to deal with them. The underlying problem seems to be lack of funds and lack of capacity within the developing countries to deal with problems such as high (and expanding) human populations at such an early stage in their economic development. This is why at successive international fora that the necessity for the developed nations to contribute massively to those developing regions was so strongly stressed and why pledges were made to give financial and technical support. But there were many unfulfilled promises.

106. Two main vehicles were designed at Rio for financing environmental protection and ensuring that the development process continued unhindered. The first was increased official development assistance (ODA) flows to developing nations. The United Nations Conference on Environment and Development (UNCED) Secretariat had estimated that US$600 billion would be required each year between 1993 and 2000 to implement Agenda 21 in the low-income countries. Of this, US$125 billion was supposed to come from international donations or concessions[33].

107. Towards this end, the high-income countries reaffirmed their commitment at Rio to reach the UN target of providing 0.7 per cent of their GNP as ODA. The reality however has been that ODA flows have failed to reach the 1992 figure of US$ 60 billion which is less than half the requirements. In fact the OECD records that ODA fell to its lowest of less that US$48 billion in 1997.

108. The second vehicle was in the form of additional investment flows to the developing nations, through the Multi-lateral Environmental Agreements (MEAs) that were signed and agreed to during Rio. The only visible financial outcome of Rio is about US$5 billion worth of commitments, mostly for the Global Environment Facility. Of this only US$2 billion has been actually spent. The fact remains that more than a decade after the Earth Summit in Rio in 1992 all developing nations and regions, including the developing ESCAP member countries continue with obsolete technologies even as the rhetoric of technnology transfer and cooperation continues. There are no firm commitments from the industrialized nations and therefore no compliance mechanisms within the international system to forge meaningful North-South technology transfers. It is clear that ODA has been decreasing over the years and the likelihood of it increasing substantively are remote. The reality is that ODA flows have failed to reach even half the requirements that were identified by the Rio, Johannesburg and other fora as well as the CSD.

[33] WSSD Report p.172 (op.cit)

(a) Policy responses and reforms required to address to the key issues

Poverty reduction and improved nutrition

109. ***Poverty and vulnerability*** of the affected population is higher in Asian dryland regions. Dryland populations, at least 90 per cent of whom live in developing countries, on average lag far behind the rest of the world in human well-being and development indicators. Two key indicators of human well-being (GNP per capita and infant mortality) show that in Asian dryland populations there is the lowest GNP per capita and the highest infant mortality rates[34]. It is clear that relatively low rate of water provisioning in drylands limits access to clean drinking water and adequate sanitation, leading to poor health.

110. In many parts of the developing world, including parts of the Asia Pacific region, gender discrimination negatively impacts production, household income, asset accumulation, food security and nutrition. Yet women play an enormously important role in livestock and crop production throughout the developing world. Giving women greater opportunities in land use rights/tenure, access to micro-credit and better educational opportunity can help break the cycle of poverty.

111. A comprehensive assessment of the indigenous knowledge is still a weak point. More effort should be oriented towards these practices that have played an important role in conserving the natural resources of local communities.

Balanced ecosystem approach:

112. This requires participatory and cross-sectoral approaches for creating an enabling environment and undertaking on-the-ground investments in sustainable land management for the conservation of natural resources that take into account the ecological, economic and social dimensions, while addressing land degradation and desertification issues.

113. Land degradation and sustainable land management issues can only be addressed through mainstreaming and harmonizing integrated ecosystem management (IEM) within the national development priorities and integration of desertification and deforestation prevention and control measures into national development programmes. Affected countries should revise their NAPs into strategic documents and integrate them into development planning and relevant sectoral and investment plans and policies.

Policy reform to optimize land use and promote sustainability

114. Within the ESCAP region institutional capacities for sustainable development are generally weak in most developing member countries, and there is a low level of public awareness of sustainable development issues. A major paradigm shift is required so that balanced and sustainable development outcomes are viewed as preferable to more narrowly focused economic, environmental or social objectives. Policy, institutional,

[34] Ecosystems and human well-being. Millenium Ecosystem Assessment: Desertification Synthesis World Resources Institute Washington.D.C. 2005

financial and socio-economic drivers of desertification/land degradation should be assessed and appropriate measures to remove these barriers are put in place.

115. In this perspective, policy prescriptions involve strategies designed to break the socio-economic exclusion of poor rural dryland populations through secure access to resources (land, water etc), improved access to credit, and better and more equitable insertion into national and world agricultural Markets. Trade policy and accompanying national policies appear to play a key role in this regard, given that they can either exacerbate or attenuate the exclusion of the poorest segments of rural populations in the developing regions through their socioeconomic impacts.

116. Development processes such as international trade, liberalization of agricultural markets, monetarization of local economies, urbanization, sedentarization and political marginalization all play a role in further social exclusion of poor rural dryland communities. Social exclusion is a problem that limits the extent to which transmission mechanisms enable the poor to benefit from agricultural growth. Socio-economic marginalization may be a cause rather than a result of poverty and desertification. In that context attention should be shifted from addressing the physical processes of desertification, to addressing questions of land tenure and land markets, water supply, transport and access to markets, marketing and trade, and credit markets .

Participation, Planning and Administration, including gender issues

117. Participatory processes have been used during the formulation of the NAP through field visits, community meetings, workshops, discussion in the seminars, etc. Stakeholders involved in the NAP preparation process are government (central and local), NGOs, CBOs, universities, research institutions, and private sectors. Participatory awareness campaigns have been conducted in many countries dealing with the growing threat to ecosystem, poverty eradication, land degradation prevention, lessons learned and best practices.

118. Measures to improve the capacity of community participation in land rehabilitation activities, such as social forestry, crop-livestock programme for upland conservation, have been given top priority, either by Government, NGOs or CBOs.

119. Effective knowledge sharing systems, including traditional knowledge, are in place at the global, regional, subregional and national levels to support policy makers and end users, including through the identification and sharing of best practices and success stories.

120. In general, women face unequal rights vis-à-vis men to household and community resources and face greater institutional biases than men in access to training and new technological inputs. This results in lower observed productivity in agriculture for women and reinforces the concept that women are poor farmers. The relatively recent shift in development focus from high-input technologies to low-resource farming and the need for locally-adapted technologies has allowed for a better recognition of differences between men's and women's roles in production. Attention to gender differences in property rights can improve the outcomes of natural resource

management policies[35] and projects in terms of efficiency, environmental sustainability, equity, and empowerment of resource users.

International Conventions and commitments

121. Climate change adds a new dimension to the question of how to reconcile development and sustainable land use, especially in a context of increasing risk of drought and desertification. All ESCAP countries should be committing to the key international conventions on climate change, desertification, biodiversity conservation and international trade in endangered species. Making development more sustainable by changing development paths can make a major contribution to climate change mitigation, but implementation may require additional resources to overcome multiple barriers. There is a growing understanding of the possibilities to choose and implement mitigation options in several sectors to realize synergies and avoid conflicts with other dimensions of sustainable development... Irrespective of the scale of mitigation measures, adaptation measures are necessary. Addressing climate change issues can be considered as an integral part of sustainable national development policies.

122. Member countries should make use of existing national legislation, even if it is not specifically aimed at desertification, where it represents a considerable potential for fulfilling obligations under UNCCD. National coordinating bodies should implement a multi-stakeholder exercise across several sectors, involving multiple ministries including finance and planning. It is important that the focal points serving these bodies have sufficient authority and resources to impact project portfolio management and coordination among ministries

123. Desertification/land degradation issues should be addressed in relevant international fora, including those pertaining to agricultural trade, climate change adaptation, biodiversity conservation and sustainable use, rural development and sustainable development and poverty reduction.

124. Knowledge of interactions between climate change adaptation, drought mitigation, and restoration of degraded land in affected areas is improved to develop tools to assist decision making. Mutually reinforcing measures among desertification/land degradation action programmes and biodiversity and climate change mitigation and adaptation should be introduced and/or strengthened so as to enhance the impact of interventions.

CONCLUSIONS AND RECOMMENDATIONS

125. It was decided that the Commission for Sustainable Development (CSD) sessions in 2008 and 2009 should focus on agriculture, rural development, land, drought and desertification, and on Africa. RIM recognizes the importance of all topics on the CSD-16/17 agenda, and the inter-linkages between the four thematic areas. Decisions made

[35] IFPRI 1997 FCND Discussion paper no. 29 Gender, property rights, and natural resource Ruth Meinzen-Dick, Lynn R. Brown, Hilary Sims Feldstein, and Agnes R. Quisumbing. International Food Policy Research Institute, Washington. D.C.

today on how to tackle these problems in the Asian context will have long-lasting implications for ecosystems and the livelihoods of people that depend on them.

126. This thematic cluster addresses the core of concerns of the ESCAP member countries and constitutes an opportunity to focus attention on progress achieved as well as highlighting the on-going and emerging problems in the entire Region that also encompasses the Asian and Pacific countries, Central Asia, and South-west Asia.

Discussion points for RIM to consider

127. The RIM may wish to take note of and bring the following key points for the attention of the Commission for Sustainable Development at CSD-16.

(a) RIM encourages the CSD to recognize the inter-linkages between land degradation, ecosystem structure and function and rural livelihoods. More specifically, the CSD should consider how reversal of land degradation will affect ecosystems and livelihoods and how ecosystems provide services such as water flows and biomass production which underpin rural production systems. Integrated management approaches are needed to ensure that land use policies are a driver rather than a constraint for sustainable development and for achieving the Millennium Development Goals.

(b) RIM wishes to highlight that there are inter-linkages between this thematic cluster and other thematic clusters that will be the subject of discussions at future meetings of the CSD and supports measures to harmonize policy options across all key issues.

(c) RIM recognizes that desertification in Asia and the Pacific is quite a complex phenomenon. Desertification manifests itself in many different forms across the vast Asian continent. To be fully effective, activities to combat desertification and drought need to be carefully tailored to the particular circumstances and needs of each country and because of the lack of funds and of trained personnel, Asia and the Pacific more than most regions, requires more assistance to combat and reverse desertification. In particular, to support the activities of the fledgling (Thematic Programme Networks) TPNs. For example, the countries of North-east Asia could become financial supporters of the TPNs in Mongolia and China.

(d) RIM recognizes the need for greater technical and financial assistance, as discussed in the Doha Development Agenda. The pledges made there remain yet to be realized. In the Uruguay Round of Trade Negotiations, industrialized countries had assured the developing countries to support them in developing their capabilities to deal with the environment-related problems. Non-fulfillment of these commitments was raised from time to time by developing countries. This issue needs to be pursued to achieve the basic objective of improving environmental sustainability.

(e) RIM recognizes that developing countries and subregions need to identify their own priorities and initiate concerted action with maximum self reliance and minimal external assistance to arrest desertification/land degradation and retard poverty. The fact remains that more than a decade after the Earth

Summit in Rio in 1992 all developing nations ands regions, including the developing ESCAP member countries continue with obsolete technologies even as the rhetoric of technical transfer and cooperation continues. There are no firm commitments from the industrialized nations and therefore no compliance mechanisms within the international system to forge meaningful North-South technology transfers. It is clear that (Overseas Development Assistance) ODA has been decreasing over the years and the likelihood of it increasing substantively are remote. The reality is that ODA flows have failed to reach even half the requirements that were identified by the Rio, Johannesburg and other fora as well as the CSD.

(f) RIM recognizes that the international agencies have a greater role by positioning themselves as liaison between developed and developing countries for transfer of technology, imparting training, and other capacity building activities, etc., in the Asia and the Pacific region and across the full spectrum of ESCAP member countries.

(g) RIM recognizes the importance of developing, and using, indicators to track changes of the environmental and socio-economic conditions and urges the national governments within the ESCAP member countries to work with bilateral and multilateral donor groups (through ODA and partnership), NGOs and the Commission on Sustainable Development itself to develop a framework for sustainable development indicators, and build capacity for integrating indicators in policy formulation and decision-making. Reversal of environmental degradation is the paramount essential in order to safeguard the well being of present as well as future generations. Indicators are means of measuring progress of desired actions. In order to track the progress on implementation of the Agenda 21, and Millennium Development Goals, there is an expressed need to develop a framework for simple indicators on environmental resources, i.e. air, water, land and biodiversity.

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