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**Trends and progress in the field of environment and development: emerging and persistent issues in energy security****Emerging and persistent issues in energy security****Note by the secretariat***Summary*

Energy issues remain high on the agenda for energy and development policymakers in the Asia-Pacific region with respect to implications of the external shocks, including the uncertainties from the global financial crisis, volatile oil price, natural disasters and others. At the sixty-fourth session of the Commission, in April 2008, the need for a paradigm shift towards a sustainable energy security path that would enable developing a more resilient society against external shocks was discussed. Such a paradigm would be based on policies that value quality of growth responding strongly to sustainable development, rather than merely the quantity of growth.

In its resolution 67/2 of 19 May 2011 on promoting regional cooperation for enhanced energy security and the sustainable use of energy in Asia and the Pacific, the Commission requested the Executive Secretary, among other things, to convene, in 2013, the Asian and Pacific Energy Forum at the ministerial level to discuss the progress achieved in the Asia-Pacific region in addressing the energy security challenges at the regional, national and household levels, and to facilitate continuous dialogue among member States with a view to enhancing energy security and working towards sustainable development.

The present document outlines some of the key issues that could be addressed to make the Asia-Pacific region energy-secure in the context of sustainable development. The Committee may wish to deliberate on these issues and provide the secretariat with guidance on the direction of its future work towards the organization of the Asian and Pacific Energy Forum in 2013.

\* The late submission of the present document is due to the need for extensive consultations.

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## I. Introduction

1. In 2009, as many as 61 million people were pushed below the poverty line of \$1.25/day as a result of the global crisis of 2008.<sup>1</sup> It is estimated that unemployment in Asia and the Pacific rose dramatically and brought the region back to 2004 levels.<sup>2</sup> To worsen the situation, an upward trend in food and fuel prices kept 19 million people in poverty in 2010 and, additionally, up to 42 million people in the region may continue in poverty in 2011.<sup>3</sup> The complexity of these crises presents a case of an emerging challenge turning into a persistent challenge. Financial markets confront, among other things, structural problems of sovereign debt, while commodity markets (food and fuel) remain volatile. The situation threatens the road map to achieve social equity and the world's poor remain the most vulnerable.

2. However, as the Asia-Pacific region strengthens its grip on economic recovery, estimates for some nations are beginning to improve.

3. The developing countries in the Asia-Pacific region are projected to grow in 2011 at 7.3 per cent as the economic recovery process consolidates. This rate is down from the 8.8 per cent growth achieved in 2010, which was high due to a low base, and partly due to the withdrawal of fiscal stimulus policies, the adoption of tight monetary policies and sluggish recovery in the advanced economies. Economic growth in 2011 is expected to be broad-based. To sustain such an economic growth rate, the region will also require a corresponding level of energy resources.

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<sup>1</sup> Rana Hasan, Maria Rhoda Magsombol and J. Salcedo Cain, "Poverty impact of the economic slowdown in developing Asia: some scenarios", Asian Development Bank Economics Working Paper Series No. 153, April 2009.

<sup>2</sup> International Energy Agency, "The impact of the financial and economic crisis on global energy investment", Background paper for the G8 Energy Minister's Meeting, 2009.

<sup>3</sup> *Economic and Social Survey of Asia and the Pacific 2011 - Sustaining Dynamism and Inclusive Development: Connectivity in the Region and Productive Capacity in Least Developed Countries* (United Nations publication, Sales No. E.11.II.F.2).

4. Partially owing to the political developments in the Middle East, crude oil prices increased 21 per cent in the first quarter of 2011 and are 36 per cent higher than a year earlier. These oil price increases impact the price of food—a 10 per cent increase in crude oil prices is associated with a 2.7 per cent increase in the World Bank Food Price Index. Low- and low-middle-income countries have experienced higher food inflation rates, especially when commodity prices spike. In general, net importers of food, fuel and other commodities are the most vulnerable, especially those with large current account deficits and/or low reserve cover.<sup>4</sup>

5. Additionally, energy demand in Asia and the Pacific is projected to increase by about 80 per cent (or almost double) in the next 20 years at an annual rate of 2.4 per cent, which represents a faster rate than the world average growth rate of 1.5 per cent.<sup>5</sup> China and India will account for 45 per cent of the increase in global primary energy demand by 2030, with both countries more than doubling their energy use over that period.<sup>6</sup>

6. In the midst of this “growth” paradigm, globally, about 1.4 billion people lack access to electricity and 3 billion lack access to clean cooking fuel. In the Asia-Pacific region, about 800 million people remain deprived of access to electricity, and close to 2 billion people depend on traditional biomass as cooking fuel.<sup>7</sup> According to the International Energy Agency (IEA), by 2030, globally, 1.3 billion people will continue to be without electricity in a reference scenario.<sup>8</sup> Though this situation is formidable, it can be overcome with a very limited environmental impact. IEA estimates that providing basic universal electricity access (100 kWh per person per year) adds 1.3 per cent of total global emissions in 2030. Further, the extensive use of biomass in a traditional way is incompatible with sustainable development. WHO estimates that household air pollution from the use of these traditional sources of biomass in stoves with inadequate ventilation would lead to over 1.5 million premature deaths per year in the year 2030. These estimates particularly make women and children the most vulnerable groups, underlying a need to secure inclusiveness in the economic model.

7. Besides, energy poverty also has a significant environmental impact that involves climate change and black carbon. Burning solid fuels in open fires and traditional stoves has significant global warming effects, due to the release of methane and carbon dioxide. Reliance on biomass fuels and coal for cooking and heating is responsible for about 10 to 15 per cent of global energy use, making it a substantial source of greenhouse gas emissions. It is

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<sup>4</sup> [www.worldbank.org/foodcrisis/foodpricewatch/april\\_2011.html](http://www.worldbank.org/foodcrisis/foodpricewatch/april_2011.html).

<sup>5</sup> Asian Development Bank, *Energy Outlook for Asia and the Pacific*, October 2009.

<sup>6</sup> International Energy Agency, *World Energy Outlook 2007*.

<sup>7</sup> International Energy Agency, United Nations Development Programme, United Nations Industrial Development Organization, *Energy Poverty: How to Make Modern Energy Access Universal?* (Paris: OECD, 2010); Richard Jones, “Energy poverty: how to make modern energy access universal?”, Special early excerpt of the *World Energy Outlook 2010* for the High-level Plenary Meeting of the United Nations General Assembly on the Millennium Development Goals (Paris: International Energy Agency/OECD, 2010).

<sup>8</sup> International Energy Agency, *World Energy Outlook 2009*.

projected that by 2050 the smoke from wood fires will release about 7 billion tons of greenhouse gases into the atmosphere.<sup>9</sup>

8. Managing such contrasts requires, among other things, the development of energy security scenarios for Asia and the Pacific with regard to formulating the region's long-term strategies in a sustainable manner.

9. Few things seem probable. The demography of the region is likely to change. Urbanization is likely to continue. Economic growth and thus, demand for energy is likely to grow. At the same time, risks such as the recent economic crisis, natural disasters, political unrest and conflict are likely to pose a threat. However, this very context provides us with opportunities to promote sustainable socio-economic development and build resilience against shocks. Sound energy policies will also contribute towards building such resilience against possible future external shocks.

## **II. Emerging and persistent issues in energy security**

### **A. Sustainable socio-economic development**

10. The context of energy security remains and continues to be defined by the intermittent economic crisis, by political unrest and conflict, and by structural transformations in social and environmental trends, such as demography and urbanization, widening income gaps, lack of inclusiveness, and carbon emissions.

11. Many countries in Asia are facing dramatic demographic expansions. In 2010, the ESCAP region accounted for nearly 40 per cent of the world population. The demographic expansion means that demand for energy services is growing. It is anticipated that, in some countries of the region, population growth will continue to rise in the short term. In turn, what this indicates is that provisioning of "sufficient" energy supplies would, perhaps, remain a moving target.

12. This rapid demographic expansion is accompanied by an urbanization rate of 42.2 per cent in 2010, making the Asia-Pacific region the second least urbanized in the world after Africa, which had a rate of 40.0 per cent. At the same time, half (50 per cent) the world's urban population now lives in Asia-Pacific cities, giving those cities a high population density. In 2010, Asian cities were home to 1.76 billion people. The proportion of Asia's urban population increased from 31.5 per cent in 1990 to 42.2 per cent in 2010, the highest percentage increase (10.7 per cent) among all regions in the world (the second highest being the 9.3 per cent increase in Latin America and the Caribbean during the same period). While the world became predominantly urban in 2008, Asia is expected to reach the 50 per cent mark by 2026. This evolution means that, over the next decade, two thirds of the demographic expansion in the world's cities will take place in Asia.

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<sup>9</sup> Amie Gaye, "Access to Energy and Human Development", *Human Development Report 2007/2008*, Human Development Report Office Occasional Paper 2007/25 (United Nations Development Programme, 2007).

13. As cities keep adding more people and industries, they become “hot spots” for energy consumption and also witness an increase in energy intensity. At the same time, the widening income disparities in cities indicate that people at the extremes of the spectrum have very different energy consumption patterns, with higher income groups consuming an amount of energy comparable, perhaps, to those in the developed world. It is likely that cities will continue to compete with rural areas to attract commercial-scale financial investments in the energy infrastructure to keep up with ever increasing demand and, as anticipated, would drive the majority of the region’s economic growth.

14. Economic growth in the Asia-Pacific region has been robust over the past two decades, except for the short 1997-98 financial crunch and the effects of the 2008-09 global economic crisis, from which the region is now recovering. The recent economic crisis, which caused world economic growth to slow from 2.6 per cent in 2007 to 1.0 per cent in 2008, undermined the strength of export-orientated Asia-Pacific economies, whose growth fell from a robust 4.7 to 2.7 per cent.

15. Though the effects of the global economic crisis have been uneven across Asia-Pacific subregions, domestic demand and timely fiscal responses (for example, higher public spending) have enabled the region’s economies to sustain economic growth. The pace was relatively robust where domestic demand accounted for large shares of economic growth, such as in India, the Philippines, Indonesia and Viet Nam.<sup>10</sup>

16. Further, the developing countries in the region are projected to grow in 2011 at 7.3 per cent, as the economic recovery process consolidates. This rate is down from the 8.8 per cent growth achieved in 2010, which was high due to a low base, and partly due to the withdrawal of fiscal stimulus policies, adoption of tight monetary policies and sluggish recovery in the advanced economies. Economic growth in 2011 is expected to be broad-based. The fastest-growing economies in 2011 are expected to be China at 9.5 per cent and India at 8.7 per cent, respectively, followed by Indonesia at 6.5 per cent. The economies of India and Indonesia stand to benefit from robust consumption and investment, while China should benefit from the Government’s measures to reorient towards a more consumption-driven economy.<sup>11</sup>

17. The region has been growing faster than most regions of the world for two decades or more and is projected to lead global growth. As the newly affluent Asians aspire to attain higher standards of living, there are fears of intense competition for finite natural resources (such as energy, water and fertile land), while the eradication of extreme poverty remains its most important challenge. Additionally, the large and, in some cases, increasing inequities within and across countries and subregions could undermine social cohesion and political stability and halt its growth momentum. Countries also risk falling into the “middle income trap” due to

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<sup>10</sup> United Nations Human Settlements Programme and Economic and Social Commission for Asia and the Pacific, *The State of the Asian Cities 2010/11*.

<sup>11</sup> *Economic and Social Survey of Asia and the Pacific 2011—Sustaining Dynamism and Inclusive Development: Connectivity in the Region and Productive Capacity in Least Developed Countries* (United Nations publication, Sales No. E.11.II.F.2).

a host of domestic economic, social and political challenges. The volatility of energy and food prices has only added to the concerns.

18. Since early 2010, global food and oil prices have been on a sustained and synchronized upward trend. ESCAP estimates that oil price increases will reduce growth by up to one percentage point in some developing Asia-Pacific economies and will place pressure on inflation and adversely affect current accounts. High oil prices will increase costs for domestic industry, push up the price of imports and reduce demand for exports. Among other factors, energy price increases impact the price of food — a 10 per cent increase in crude oil prices is associated with a 2.7 per cent increase in the World Bank Food Price Index. Food prices have increased in various countries by up to 35 per cent. Low- and low/middle-income countries have experienced higher food inflation rates, especially when commodity prices spike.

19. In general, net importers of food, fuel and other commodities are the most vulnerable, especially those with large current account deficits and/or low reserve cover. While adverse climatic conditions have affected supply in many countries, increasing conversion of food crops into biofuels, export bans, hoarding and heightened speculative activity in food commodities backed by the massive injection of liquidity in the advanced countries have exaggerated the price surge. Rising food prices are having dire effects on the poor, and can reverse hard won development gains. Due to the higher food and energy prices, ESCAP estimates that up to 42 million people across Asia and the Pacific may remain in poverty in 2011 in addition to the 19 million already affected in 2010.

20. In the worst-case scenario, in which food price inflation doubles in 2011 and the average oil price rises to \$130 per barrel, achieving the Millennium Development Goals for many least developed countries would be postponed by up to half a decade.<sup>12</sup>

21. It is important to remember that, while rapid growth remains the surest route to reducing both income poverty and non-income poverty (such as insufficient or poor-quality public goods (education, health, transport and housing)), in the current context, the pursuit of pure economic growth has troubled the world economy. For instance, inflationary pressures have eroded social protection margins for the poor, especially in developing countries, and made the goal of eradicating poverty even more elusive.

22. Lastly, a rebound in energy consumption implies a corresponding increase in greenhouse gas (GHG) emissions. Average global surface temperatures in 2010 tied those in 2005 for the warmest on record. Despite the recent economic recession, GHG emissions increased more than ever during 2010, making the international goal to limit the rise in global temperatures to 2°C above pre-industrial levels, even harder to achieve.<sup>13</sup> Global warming and climate change (including increased extreme natural disasters), as well as associated water shortages, could threaten agricultural production, coastal populations and numerous major urban areas. The ESCAP region is home to some of the top GHG emitters, and the paradigm

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<sup>12</sup> Ibid.

<sup>13</sup> Renewable Energy Policy Network for the 21st Century, *Renewables 2011: Global Status Report* (Paris: REN21 Secretariat, 2011).

of “grow first, clean up later” cannot apply in a situation where there is a limited natural resource base and a rapidly growing population directly dependent on it.

23. Finally, it is now imperative for countries in the region to confront the overarching challenge related to governance and institutional capacity and reassess their development paths to secure social inclusiveness and internalize environmental impacts in the growth paradigm. The recent crises are reminders of systemic economic and financial problems that make people more vulnerable.

## **B. Regional energy security**

24. Energy consumption rebounded strongly in 2010, following the global recession. Consumption growth reached 5.6 per cent, the highest rate since 1973. It increased strongly for all forms of energy and in all regions. Total consumption of energy in 2010 easily surpassed the pre-recession peak reached in 2008. In the ESCAP region, energy consumption in China grew by 11.2 per cent and, with a 20.3 per cent share of global energy consumption; it surpassed the United States as the world’s largest energy consumer. The Asia-Pacific region continues to lead global energy consumption, accounting for 38.1 per cent of world total primary energy and for 67.1 per cent of global coal consumption. Within the region, coal is a dominant fuel, accounting for 52.1 per cent of total energy consumption.

25. In addition, the Asia-Pacific countries are also leading users of oil (31.5 per cent) and hydroelectric (32 per cent) power. The region also accounted for about 21 per cent of total nuclear energy, for 20.5 per cent of renewable energy, for 17.9 per cent of natural gas, and for 5.5 per cent of biofuel consumption worldwide.<sup>14</sup> Another emerging trend in Asia and the Pacific is the presence of one or two key countries that contribute more than 50 per cent of the production of electricity in their respective subregion. Geographically, these key countries are spread from the Pacific (Australia) to South-East Asia (Indonesia, Thailand) to South and South-West Asia (India, Islamic Republic of Iran) to North and Central Asia (Russian Federation and Kazakhstan) — indicating a potential for trade.

26. Oil remains the world’s leading fuel, at 33.6 per cent of global energy consumption, for the eleventh consecutive year. However, dependence on imported fossil fuels, particularly oil, may result in macroeconomic shocks, as experienced recently. Lower-middle-income countries are found to be the most vulnerable followed by low-income countries, even though these countries consume less oil per capita than industrialized or high-income countries. This is because the ratio of value of net oil imports to gross domestic product tends to be higher in lower income countries, meaning they spend a greater share of their gross domestic product (GDP) on energy imports. Further, rising energy prices is emerging as an issue of concern across much of the region. While oil prices, denominated in United States dollars, have been influenced by a quantitative easing of that currency, it can be seen that oil prices have been

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<sup>14</sup> BP Statistical Review of World Energy, June 2011 (available at [www.bp.com/statisticalreview](http://www.bp.com/statisticalreview)).

on a rising trend even when expressed in terms of a basket of major currencies, such as special drawing rights.<sup>15</sup>

27. Between 2000 and 2008, the world observed a declining trend in energy intensity (energy consumption per unit of GDP produced). Against a world average of 9.5 per cent, Africa led with an improvement factor of 12.6 per cent, whereas the Asia-Pacific region improved energy efficiency by about 12 per cent. In 2010, however, global energy consumption grew more rapidly than the economy, meaning that the energy intensity of economic activity increased for a second consecutive year. The Asia-Pacific region experiences relatively high levels of energy intensity when compared with other regions, such as North America or Europe. This trend towards higher energy prices and higher energy intensity could have a harmful cascading effect on national and regional competitiveness, jeopardizing employment opportunities and threatening income levels.

28. Besides consumption for productive uses, rising energy prices also undercuts the basic energy requirements of the poor, depriving them access to energy. It is important to note that, although there is no established baseline, the lowest threshold proposed by IEA is 100 kWh of electricity and 100 kilograms of oil equivalent of modern fuels (equivalent to roughly 1,200 kWh) per person per year.<sup>16</sup> Most of this basic demand comes from rural areas. However, the problem of energy access is not an economic issue alone. It is also an issue of technology, infrastructure, social, environmental, cultural and political barriers. As indicated above, the impacts of lack of access to clean energy are multidimensional, including social upheaval and conflict. As rural areas are characterized by little or no access to electrical grids, governments in the region are exploring all options — extension of the grid, off-grid generation and installation of mini-grids at the village level.

29. With regard to decentralized solutions (off-grid, mini-grid power projects), the financing trend during the past decade has been to provide large amounts of funding to local private or public financing institutions that are committed (or trained) to support rural and renewable energy projects. Typically, such banks or funds develop a portfolio of possible projects, although they can also react to requests for new lines of financing by reviewing project proposals. They do not provide financing to households directly; rather, it is up to private companies, concessionaires, non-governmental organizations and microfinance groups to organize the demand for the energy service and to apply for project funding after developing a sound business plan to serve rural consumers. This successful model has been implemented in many countries, including Bangladesh and Sri Lanka.

30. As a result, renewable household systems, improved biomass stoves and village or community small-grid systems can all be serviced by the same financing agency. In practice, many of these funds specialize initially

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<sup>15</sup> *Economic and Social Survey of Asia and the Pacific 2011 - Sustaining Dynamism and Inclusive Development: Connectivity in the Region and Productive Capacity in Least Developed Countries* (United Nations publication, Sales No. E.11.II.F.2).

<sup>16</sup> United Nations, *Energy for a Sustainable Future: the Secretary-General's Advisory Group on Energy and Climate Change — Summary Report and Recommendations* (New York, April 2010).



in a single technology, such as solar home systems, but they are expanding increasingly to other renewable energy systems as well as to non-renewable energy access. On the other hand, carbon credits are another growing source of project finance. One such project, initiated in China in late 2008, involves the promotion of biogas digesters to produce energy for domestic heating, lighting and cooking using animal waste. More than 33,000 households in low-income rural communities (or approximately 165,000 people) are benefiting from the installation of domestic digesters, displacing carbon-intensive domestic fuels, such as coal and coke.<sup>17</sup>

31. At the same time, renewable sources have grown to supply an estimated 16 per cent of global final energy consumption by 2010. By year's end, renewable energy made up one quarter of global power capacity from all sources and delivered close to one fifth of the world's power supply. Despite the recession, total global investment in renewable energy set a new record in 2010. Investments in renewable power and fuels reached \$211 billion, up 32 per cent from \$160 billion the previous year. Developing country investments in renewable energy companies and utility-scale generation and biofuel projects exceeded those of developed countries, with China attracting more than a third of the global total. It is an encouraging trend, since most of the future growth in energy demand is expected to occur in developing countries. Further, the spread of renewable sources to more regions and countries helps more of the world's people gain access to energy services not only to meet their basic needs, but also to enable them to develop economically.<sup>18</sup>

### C. Key challenges facing the region

32. According to the optimistic development scenario "The Asian Century", elaborated by the Asian Development Bank (ADB), Asia's GDP would increase from \$16 trillion in 2010 to \$148 trillion in 2050, or half of the global GDP, similar to its share of the global population. With a per capita GDP of \$38,600 (purchasing power parity), Asia in 2050 would have incomes similar to those of Europe today. It would have no poor countries (with an average per capita GDP of less than \$1,000), compared with seven today. Further, the region would be transformed as the urban population nearly doubles, from 1.6 billion to 3.1 billion. All this assumes that Asian economies can maintain their momentum for another 40 years and adapt to a shifting global economic and technological environment by continually recreating their comparative advantage. The basic dynamics of Asian growth depend on three factors: technical progress, capital accumulation and labour force growth. In addition to these classical growth drivers, economic growth will be driven by other significant trends, such as the emerging middle class. Based on ADB projections, 3 billion people in the Asia-Pacific region could rise to affluent status by 2050 if the region sustains its present growth momentum. The region would surpass the countries of the Organization for Economic Cooperation and Development long before 2050 to become the largest energy consumer group. Energy demand in Asia and the Pacific is projected to increase by about 80 per cent (almost double) in the next 20 years at an annual rate of 2.4 per cent, which represents a faster rate than the world average growth rate of 1.5 per cent.

<sup>17</sup> Renewable Energy Policy Network for the 21st Century, *Renewables 2011: Global Status Report* (Paris: REN21 Secretariat, 2011).

<sup>18</sup> Ibid.

33. Further, IEA estimates that China and India will account for 45 per cent of the increase in global primary energy demand by 2030, with both countries more than doubling their energy use over that period. The implications of this projection, however, transcend national boundaries, and the regional energy supply cannot readily accommodate changes in demand of this size, especially for conventional energy. This is a zero-sum game: more for one economy means less for another. It is a situation that could lead to intense competition for scarce energy resources and possibly give rise to conflicts.

34. In the Asia-Pacific region, the energy situation and challenges vary substantially between countries. Some have considerable unmet demand for electricity, while others are heavily dependent on imported fossil fuels and often suffer from an undiversified energy sector. What binds them together is their increasing vulnerability to global and regional crises. Thus, a key challenge is to evolve a systemic response set to future risks and make the region resilient to fuel shocks.

35. As discussed in the previous sections, lack of access to electricity and dependence on biomass produce a series of negative and cumulative social consequences. Increasing energy intensity has a negative impact on national competitiveness. Over-reliance on fossil fuels may expose economies to systemic shocks. All of these things damage the environment. Thus, there is a growing consensus that these issues should be addressed in a coherent manner with clear targets.

36. As observed in the Global Status Report published by the Renewable Energy Policy Network for the 21st Century,<sup>17</sup> of the 118 countries that now have renewable energy policy targets or support policies, at least half of them are in the developing world. At the regional level, however, only a handful of targets exist, such as the EU 2009 Renewables Directive and the Mediterranean Solar Plan (which would add 20 GW of renewables by 2020). Although no targets exist at the global level, UN-Energy has suggested three for 2030: (a) ensuring universal access to modern energy services; (b) reducing global energy intensity by 40 per cent by 2030; and (c) doubling the renewable energy share in the overall global energy mix. For the Asia-Pacific region, the challenge associated with adopting a generic set of targets stems from the diverse nature of the region, as countries have dissimilar developmental needs.

37. Further it is estimated that, globally, to achieve the suggested goal of basic universal access by 2030, capital in the range of \$35-40 billion will be required on average per year, and this represents only about 5 per cent of the total global energy investment expected during this period.<sup>19</sup> The sources of funds and specific challenges associated with tapping them are varied. The flow of foreign grants and development assistance is prone to disruptions during economic crises. The traditional banking and structured finance sector is inhibited when it comes to making commercial loans for “social” projects. The private sector, on the other hand, despite having both the technical expertise and financial resources, is not usually motivated to assume the responsibility of supplying basic energy services to the poor, as it normally does not make good business sense. Thus, it remains a challenge to bring a “pro-poor” focus to market development activities, as relatively

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<sup>19</sup> Ibid.

weak legal and regulatory frameworks make it difficult to build or support confidence for attracting investments.

38. The provision of sustainable energy services is not commonly associated with, or integrated into, broader development or poverty goals including the Millennium Development Goals. None of the investment clusters expressly intended to achieve these Goals — such as increasing food output, promoting jobs, ensuring universal access to essential health services and investing in improved natural resource management — mention electricity or energy specifically. Although in the international community it is now widely recognized that energy is a critical input to the development process and is acknowledged to be a key ingredient in the pursuit of the Millennium Development Goals, its linkages with other areas of national and subregional economic and social development remain weak.

#### **D. Opportunities in the region**

39. Despite the financial and economic crisis confronting the region, demand for energy will continue to grow. In this context, managing scarcity and the ever increasing competition for natural resources pose a daunting challenge for governments and policymakers. These challenges are sometimes heightened by uncertainties such as the recent food, fuel and financial crises, natural disasters, political unrest and conflict. However, this very context presents opportunities to promote sustainable socio-economic development and build resilience against shocks.

40. Regional cooperation in energy connectivity would play a key role in the implementation of Commission resolution 67/2 of 19 May 2011 on promoting regional cooperation for enhanced energy security and the sustainable use of energy in Asia and the Pacific. As the Asia-Pacific region has both large energy-importing and large energy-exporting countries, energy security would benefit from better physical connectivity between them and from institutions to promote cooperation. A potential regional energy arrangement should also explore low carbon paths that place more emphasis on efficiency and take greater advantage of renewable resources. Additionally, it is important for the region to consider issues of pipeline security and safety and to develop a deep, liquid and transparent market for crude oil, oil products and gas.<sup>20</sup> Finally, in the wake of recent natural disasters, political unrest and conflict that have had an impact on energy demand and supply in Asia and the Pacific, there are prospects for a dialogue on resilience to promote energy security. A process aimed at building resilience against fuel shocks could permit the examination of risk management strategies on energy security issues in an integrated manner. A structured Asia-Pacific regional dialogue towards a trans-Asian sustainable energy system may be established to foster sustained energy cooperation.

41. The potential exists for developing and tailoring energy policy options in order to absorb transient shocks while keeping economic diversity, development needs, culture and resource availability in perspective. For instance, at the subregional and national levels, an appropriate risk response may include diversifying the energy portfolio

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<sup>20</sup> *Economic and Social Survey of Asia and the Pacific 2011 - Sustaining Dynamism and Inclusive Development: Connectivity in the Region and Productive Capacity in Least Developed Countries* (United Nations publication, Sales No. E.11.II.F.2).

(risk diversification), developing indigenous energy resources (mainly renewable energy) and promoting research and innovation, such as large-scale energy storage (risk avoidance and risk mitigation), and, finally, developing capacities for adaptation (contingency measures in the event of risk realization).

42. The key drivers of energy demand remain: (a) a growing population, (b) a rapid process of industrialization and urbanization and (c) a rapidly growing middle class seeking improved infrastructural services. However, decision makers in the region need a solid analytical basis for implementing social and economic policies aimed at meeting the growing energy demand and pursuing sustainable socio-economic growth. Developing energy security scenarios is crucial for the formulation of such policies and measures. In its resolution 67/2, the Commission requested the Executive Secretary, among other things, to assist member States in meeting their energy security challenges through collaborative development of energy security scenarios. Towards this end, the secretariat is conducting analytical research on energy security scenarios for Asia and the Pacific. The research, which is to be concluded by the end of 2011, is an attempt to assess the energy resource mix that is available for the rapidly emerging economies of the region and will thus provide analytical inputs for considering, among other things, ways to meet the massive energy needs of the region, ways to contain GHG emissions and the role of regional integration and regional energy connectivity in meeting energy demand and reducing dependence on imports.

43. The secretariat's main goal in studying energy security scenarios is to demonstrate that sustainable and coherent energy policies in ESCAP member countries could eliminate possible economic risks associated with the energy sector. In other words, the purpose of the research is to demonstrate that smart energy policies and investments decisions in the areas of energy efficiency and renewable energy and in fostering private investment for research and development in advanced energy technologies could establish a basis for sustainable socio-economic development.

44. In resolution 67/2, the Commission also requested the Executive Secretary to ensure effective coordination with other United Nations bodies and agencies, in particular through UN-Energy, and with multilateral agencies and subregional organizations in working towards enhancing the capacity of ESCAP member States. UN-Energy is a system-wide network and a mechanism by which a range of organizational actors could work with the United Nations to ensure a more coherent approach to addressing energy issues. Energy security in the region would benefit from a similarly coherent approach in the development of policy frameworks. It is important to embark on an evidence-based, integrated strategy for developing energy policy. This would ensure that meeting the needs of one sector does not make it more difficult for others to meet their goals; it would also develop resilience against shocks or natural disasters. In addition to fostering the optimal use of resources, a coherent strategy would increase the sharing of information, encourage and facilitate joint programming and develop action-oriented approaches to coordination.

45. Additionally, the General Assembly in its resolution 65/151 of 20 December 2010, decided to declare 2012 the International Year of Sustainable Energy for All. The Assembly also noted the efforts of the

United Nations system working to ensure energy access for all and to protect the environment through the sustainable use of traditional energy resources, cleaner technologies and newer energy sources. As such, the year 2012 presents an opportunity for member States to deliberate upon and adopt nationally appropriate targets in the context of their development priorities. Apart from ensuring energy access for all, these targets could cover key areas of improving energy efficiency and enhancing the use of renewable energy sources. At the regional level and as part of the regional cooperation efforts, collecting data, disseminating good practices and conducting research and analysis should be explored to support a structured Asia-Pacific energy dialogue to facilitate the process.

46. As stated above, the Asia-Pacific region has relatively high levels of energy intensity in comparison with others. It is important to note that efficiency investments are usually characterized by low payback periods and substantial benefits from increased economic competitiveness. The costs of standard but unimplemented renovations and equipment improvements typically run at one quarter of the cost of a commercial energy supply and well below the capital cost of installing new generating capacity. Furthermore, energy efficiency lessens the pressure related to energy security. As many countries continue to rely on imported energy resources, their vulnerability to international energy price fluctuations increases. In such cases, curbing energy demand by improving energy efficiency represents an attractive option. Developing economies have a huge opportunity to strengthen their economic prospects by boosting energy productivity<sup>21</sup> and thereby saving foreign exchange. Thus, it would be beneficial for member States to explore various economic instruments (such as energy pricing and subsidies) that encourage the development of a market for energy efficiency. Energy saved is energy generated, and indirectly, this also helps to improve energy access.

47. The Asia-Pacific region is characterized by a high number of people living without access to electricity or clean cooking fuels. As stated above, 1.3 billion people globally will continue to be without electricity in the year 2030, and, to achieve the goal of basic universal access by 2030, capital in the amount of \$35-40 billion will be required, on average, per year.<sup>22</sup> Given the scale of the effort, access to various sources of financing is critical. Traditionally these are known to come from fiscal measures, such as government subsidies, cross-subsidization, end-use tariffs and concessional loans, apart from various international grants and development assistance programmes. While these continue to be applied in an optimal manner, there are opportunities to engage the private sector in multiple ways (for example, voluntary services, corporate social responsibility, project finance and public-private partnerships) and at multiple levels (national, subregional and regional). Towards this end, the ESCAP secretariat is currently executing two projects designed to enhance access to energy services in rural areas using locally available renewable sources. To meet the goal, these projects aim at promoting innovative business models and financing sources, such as the Pro-Poor-Public-Private-Partnership (5P) model and carbon financing, respectively. As part of the plans for

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<sup>21</sup> [http://www.un-energy.org/cluster/energy\\_efficiency](http://www.un-energy.org/cluster/energy_efficiency).

<sup>22</sup> United Nations, *Energy for a Sustainable Future: the Secretary-General's Advisory Group on Energy and Climate Change — Summary Report and Recommendations* (New York, April 2010).

implementing the relevant resolutions of the Commission and the General Assembly, the potential for strengthening the policy, legal and regulatory frameworks of member States should be explored with a view to encouraging private sector participation in the rural energy sector, using locally available renewable sources to ensure market development and business continuity.

### **III. Towards the Asian and Pacific Energy Forum in 2013**

48. In paragraph 7(e) of resolution 67/2, the Commission requested the Executive Secretary to convene, in 2013, the Asian and Pacific Energy Forum at the ministerial level to discuss the progress achieved in the Asia-Pacific region in addressing the energy security challenges at the regional, national and household levels, and to facilitate continuous dialogue among member States with a view to enhancing energy security and working towards sustainable development.

49. A key expected outcome of the proposed forum is renewed political commitment to enhancing energy security and the sustainable use of energy through regional cooperation. This entails: (a) developing a regional consensus on addressing challenges and opportunities related to energy security; (b) establishing effective collaboration with development partners in order to mobilize financial and technical support; (c) establishing an effective mechanism for ensuring coordination with other United Nations bodies and agencies in order to enhance the capacity of member States; and (d) improving the capacity of member States to formulate policies, strategies and institutional frameworks with a view to enhancing energy security for sustainable development in Asia and the Pacific.

50. The road map towards the Asian and Pacific Energy Forum, which will involve sundry activities, is under development by the secretariat in consultation with member States. A key milestone is the planned establishment of UN-Energy Asia-Pacific under the Thematic Working Group on Environment and Disaster Risk Management. It is expected that UN-Energy Asia-Pacific, in consultation with member States, will facilitate the development of an agenda for energy security issues to be addressed at the Forum. The secretariat will continue to seek feedback and views from different channels, including the electronic forum, to facilitate a continuous discussion on substantive issues related to energy security in the region.

51. The ESCAP secretariat will hold an expert group meeting to seek guidance and advice from technical experts and policymakers on issues pertinent to energy security and the sustainable use of energy. This is expected to contribute towards the development of the draft agenda of the Forum. The secretariat also intends to convene a preparatory meeting in the third or fourth quarter of 2012 or approximately six months prior to the Forum.

52. Apart from the issue papers to be presented at the Forum, the secretariat intends to develop information materials to highlight, through statistics, indicators and other relevant data and information, issues that are relevant to energy security and the sustainable use of energy. In addition, an exhibition/trade fair and/or business forum could be held in conjunction with the Forum.

#### **IV. Issues, conclusions and recommendations**

53. The region's economic prospects are expected to be on a continued growth trajectory for the next 20 years. However, rising energy demand in the years ahead pose a daunting challenge for the region. Challenges related to governance and institutional capacity compound the problem.

54. As long as energy prices remain volatile and there is heavy dependence on fossil fuels, energy security and environmental degradation will remain high on the agenda of energy and development policymakers in the Asia-Pacific region. Additionally, with the recent natural disasters, political unrest and conflict, and the food, fuel and finance crises, issues surrounding social inclusiveness and resilience to shocks have also risen to prominence across the region. Furthermore, regional, subregional and national competitiveness could become key concerns as economies emerge from the recent crises and compete for finite natural resources.

55. To support and ensure sustainable development, the region needs to overcome some of the challenges associated with energy security and the sustainable use of energy identified in the present document. The Committee may wish to deliberate on the prospects outlined above under the section "Opportunities in the region" (paras. 39-47) and provide the secretariat with appropriate suggestions, in particular with a view to transforming these opportunities into regional initiatives aimed at ensuring energy security and the sustainable use of energy for possible consideration at the Asian and Pacific Energy Forum.

56. The Committee may also wish to provide the secretariat with guidance regarding the road map and approach to preparing for the Asian and Pacific Energy Forum in 2013.

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