



Sustainable Development and the Environment: Issues for the Asian Region

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Introduction

Sustainable Development (SD) received considerable attention since its inception as an overarching goal of economic and social development by the UN agencies and various other nations. SD emerged in response to a growing interest on the conflicts between economic development and the environment. The World Commission on Environment and Development was initiated by the General Assembly of the United Nations in 1982. It was chaired by the then-Prime Minister of Norway Gro Harlem Brundtland, who produced the Brundtland Commission report with the definition of SD in 1987 [1-3]. The report defines SD as a process that promotes development that meets the demands of present and future generations while maintaining essential ecological processes and support systems.

Poverty-reduction is central to both human development and sustainable development, and economic growth is a necessary condition but not a sufficient condition for SD. SD places emphasis on future generations by preserving the earth's natural systems [2]. More generally, it calls into question the anthropocentric bias of all development paradigms, including that of human development. The 1980 became most significant for SD.

Globalization since the 1980s, led to rapid growth in GDP in many developing countries but the degradation of the environment such as the destruction of natural resources often called the natural capital was extensive. In Malaysia, the share of manufacturing in GDP increased from 13.9 per cent in 1970 to 31.5 per cent in 1994 due to expansion in the electrical and electronics sector which contribute to environmental problems such as Climate Change (CC), water scarcity and pollution. The environment was badly affected because growth in GDP was achieved through exploitation of natural resources such as forests, water, rivers and wetlands which form the basis

of life of a nation [4]. Deforestation, droughts and floods, have already had a major impact on Asia's economic growth and development causing enormous economic losses. Decades of negligence of the environment and its exploitation created a multitude of pathways by which the environment and society were destroyed. Climate change is a globally important environmental issue impacting our economic future and livelihoods. It can affect food security in the developing countries of south East Asia which can be further exacerbated due to increased natural disasters. This paper provides a brief overview of sustainable development and the environment in Asia.

Destruction of Natural Resources

The Global Forest Resources Assessment Report in 2000 [5], estimated that 30 per cent of the earth's land area (or about 3.9 billion hectares) is covered by forests and that the world has lost about 40% of forest area. Sri Lanka clears 8000 ha of forest every year for shifting cultivation, commercial farming, logging, firewood collection and infrastructure development. It is estimated that over 3 million hectares of forests of Indonesia had been destroyed between 1990 and 2010 [6]. Warming in Malaysia since the 1970s has been three times as rapid as the preceding 100 years. Oil palm in Malaysia has caused forest loss of about 5 million hectares (20 per cent reduction of forest land) [7]. Over the periods of 1990-2000 and 2000-2005, deforestation rates in Indonesia climbed from 2.3 per cent to 2.7 per cent per year for its primary

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(undisturbed) forests and from 1.2 per cent to 1.3 per cent per year for its secondary naturally regenerated forests.

Many politicians and business elites benefited significantly from these illegal forest activities and most offenders escape with impunity. For the first time, The UN Food and Agriculture Organization (FAO) has identified forest crime and corruption as one of the main causes of deforestation [5].

Deforestation in south East Asia is a major factor causing climate change. Asia accounted for 90% of the world's \$270 billion in economic losses due to natural disasters in 2011. The massive floods in Sri Lanka in May 2017 killed nearly 200 innocent and displaced more than half a million people is a case in point [8].

Asia contributed 31.0 per cent of global emissions in 2006 which is expected to rise to 42.1 per cent of global emissions in 2030. The 1990s saw the warmest decade in the 142 years since temperature records began. Malaysia experienced the warmest year in 2016. Over the next 30 to 50 years, estimated temperature can rise by about 2.6 °C in Malaysia.

Much of the emissions have been due to forest clearing in South East Asian (SEA) countries which have destroyed considerable biodiversity and ecosystem services. Malaysia serious depletion of water quality from industry has occurred due to arsenic and chromium which exceed the WHO recommended safe minimum standards [9]. Analysis of Malaysian rice production also indicates that it is more vulnerable to rise in temperature than a fall in temperature [10]. Human-induced global warming threatens smoothing of short-term rainfall variability provided by irrigation [11] water scarcity, floods and crop losses [12].

The frequency and intensity of floods and droughts have risen to dangerous levels due to climate change. The Intergovernmental Panel on Climate Change (IPCC) confirmed that the Earth's climate is getting warmer and the likely increase in temperature ranges from 1.1 °C to 6.4 °C and the likely increase in sea level ranges from 0.18 meters to 0.59 meters. The unpredictability of climate extremes is unpredictable and countries must be better prepared and be proactive [12]. The FAO, estimates that global food production should increase to feed 9 billion people by 2050 [13]. There has been 30 per cent decline in the bee populations due to increased use of pesticides and climate change. Humanity is pressing against the finite limits of the planet endangering millions of species, including the human race.

The network of small tanks in Sri Lanka, India, Bangladesh and Pakistan represent a socio-ecological system

with deeply interactive relationships between water resources and social systems. But these have failed to provide the ecosystem services required due to mismanagement. Climate change is a critical issue that affects the future of the planet and the resilience of the poor. These risks are considerably higher in developing countries due to lack of coping strategies and hence become more vulnerable to environmental risks [14]. According to the UNDP while 11 per cent of those exposed to droughts, floods etc are from the developing countries, 53 per cent of them lose their lives [15]. Poorer countries also lose more in economic terms and during the 1998 floods, Bangladesh government had to borrow US \$309 million.

Sustainable Development and the Environment

Sustainable development requires the integration of the economy, environment and society simultaneously because they are highly interconnected. The separation of the environment, society and economy created narrow technical approaches to promote economic growth through exploitation and destruction of the environment, communities, and cultural diversity. A core element in the economic literature on SD is the focus on growth and the use of man-made, natural, and social capital. The fact that there are three different types of capital that can contribute to economic growth has led to a distinction between weak and strong sustainability, as discussed by Pearce and Turner [16], and Rennings and Wiggering [17].

Weak sustainability describes a situation where it is assumed that the total capital is maintained and that the three different elements of the capital stock can, to some extent, be used to substitute each other in a sustainable solution. On the other hand, strong sustainability requires each of the three types of capital to be maintained in its own right, at least at some minimum level. An example of an application of the strong sustainability concept is Herman Daly's criteria, which state that renewable resources must be harvested at (or below) some pre-determined stock level, and renewable substitutes must be developed to offset the use of exhaustible resources [18]. Furthermore, pollution emissions should be limited to the assimilative capacity of the environment. Furthermore, ecosystem processes are not completely understood and too uncertain to permit accurate predictions of the environmental impacts of anthropogenic disturbances. Preserving biodiversity is critical to SD and when one species becomes extinct, it cannot be replaced by another species.

Asia embraced the goals of sustainable development [19]. In 2015, the UN developed the Sustainable Development Goals (SDGs) ratified by 193 countries. The SDGs were designed to mobilize global scientific and techno-

logical expertise to promote practical problem-solving by governments for sustainable development.

Policy makers need to identify environmental activities that limit development of society, configure usable knowledge, and develop sustainable strategies. In 2015, the 17 Sustainable Development Goals (SDGs) were agreed at the Sustainable Development Summit in New York [20]. Asia suffers nearly one third of the total global mortality caused by disasters. Therefore, it is especially relevant for Asia to focus on the SDGs that seek disaster resilience (SDG 1), resilient infrastructure (SDG 9), resilient urbanization (SDG 11), and action to combat climate change and its impacts (SDG 13). Environment is more complex and natural and social phenomena are nonlinear and have tipping points. Sudden collapses of systems can occur once they reach the tipping point. The ferocity of the floods in New Zealand in 2017 has never been witnessed for nearly 500 years. The massive hurricanes in Houston and Louisiana in September 2017 in the US and the floods in Bangkok in 2011 are reminders of this collapse of natural systems.

The SDGs are a political initiative that recognizes that people live in a continuum of interrelated communities and ecosystems. It therefore demands a complete revolution in the way we organize ourselves and in the way we work [20]. The 2030 Agenda means that to achieve the SDGs, every developing country needs to change the way it operates, considering the wider impact of its policies and actions beyond its own national borders, to contribute toward a sustainable future for the world. There is concern that Donald Trump's withdrawal from the Paris climate agreement of 2015 is a serious blow to the unity required to achieve the SDGs. China may come to fill the vacuum created by the US unwittingly abdicating her leadership role.

Policy Formulation and Actions Needed

The Malaysian Government officially formalized environmental protection in the Third Malaysia Plan (1976-1980), Fifth Malaysia Plan (1986-1990) and Sixth Malaysia Plan (1991-1995). The Malaysian Government introduced environmental policies for the manufacturing sector, specially the electronics sector, during its Third Economic plan^a [21].

Steps are also taken to eliminate specific chlorofluorocarbons in order to protect the ozone layer. Global Environmental Forum [22]. The government restructured

the Malaysia Energy Centre as the National Green Technology Centre to give priority to environmental-friendly products and services [21].

The Malaysian and Indonesian oil palm industry are moving towards integrated pest management, establishment of green lungs, riparian borders, and high conservation value forests [23]. But protecting riparian buffers, leaving patches of natural forest within plantations, and growing flowering plants in the understory of oil-palm plantations do not help much to conserve biodiversity.

Policy should focus on mitigation and adaptation to avoid major break downs of ecosystems. Adaptation to climate change requires a better understanding of the inter-linkages between climate change and socio-economic vulnerabilities of the population. All countries must promote awareness, capacity building and encouraging the organizations and the public to take affirmative action to evaluate and respond to climate change.

Integrated River Basin Management (IRBM), Integrated Flood Management (IFM), Hydroclimatic modeling, topographical maps and land use maps may be relevant to reduce the extent of damage to the environment, lives and property [24]. By 2025, 70 Indian cities will have a population of more than one million people. India and China have invested heavily on infrastructure, energy, water and telecommunications for growth but need to reexamine these development trajectories for mitigation of GHG emissions.

Correct decisions backed by academics in universities, research institutes, bureaucrats and independent thinkers can provide the expert knowledge in their special areas is essential. These academics are vital to provide effective leadership to SD driven by knowledge, information, revolutionary communications technologies and ideas. Policy makers often fail to understand the interconnectedness and the need to ensure holistic integrated management. Embracing its multidisciplinary and holistic nature of sustainable development and explicitly recognizing economic, environmental and social issues is critical. We must shift our emphasis towards decarbonise the production. Burning coal and natural gas in energy generation, is the major offender here and should be phased out. But most important, the governments in the Asian region must furnish the funds necessary to adopt the desired changes which are not easy.

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^aBy 1997, there were 58 applications to export scheduled wastes, including 18 outstanding cases, but only 12 were approved within the year, and waste export is no longer allowed unless for resource recovery under the strictest criteria (Global Environment Forum 2000).

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