

Sustainable Development Goals on Energy and Environment: Key Issues in Sri Lanka

Abstract

The purpose of this study is to investigate the key energy and environmental issues that Sri Lanka is to address under sustainable development agenda of the United Nations. This study reviewed relevant recent studies and reports published by government and non-governmental sources and documents the issues emerging and being highlighted in relation to relevant Sustainable Development Goals of the United Nations; namely Goal 07- access to affordable, reliable, sustainable and modern energy for all, Goal 13- combating climate change and its impacts, and Goal 15- protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Keywords: Sustainable Development, Climate Change, Sri Lanka, Environment, Energy.

Introduction

Building upon the outcome of the Millennium Development Goals (MDG), the member countries of the United Nations have launched a new set of Sustainable Development Goals (SDG) that are envisaged to be attained by 2030¹. Humanity, according to Brundtland Report (1987), is able to achieve sustainability in developments thereby meeting the needs of the present without compromising the ability of future generations to meet their own needs. The new development agenda is hence interwoven with sustainability principles and commands honest deliberations of humanity to make its developments sustainable across generations. United Nations has thus resolved and adopted 17 Sustainable Development Goals with 169 targets which cross cut five Ps; that is, People, Planate, Prosperity, Peace and Partnership. These goals seek to provide clear guidelines and targets for member countries for meeting the environmental challenges of the world at large. SDGs were adopted at an historic UN General Assembly Meeting in September 2015 by 193 member states of United Nations including Sri Lanka and they came into effect on 1st January 2016. Effective initiatives for the attainment of these goals in a country will require at least the awareness and recognition of the key issues underlying those goals. Thus, the purpose of this paper is an attempt to survey the key issues that Sri Lanka is encountering in selected SDGs. This paper has focused on three SDGs that are connected to energy and environment, namely Goal 07- access to affordable, reliable, sustainable and modern energy for all, Goal 13- combating climate change and its impacts, and Goal 15- protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss. This study reviewed relevant recent studies and reports published by government and non-governmental sources on the issues in relation to selected SDGs on energy and environment.

¹ SDGs were an outcome of the United Nations Conference on Sustainable Development - or Rio+20 - took place in Rio de Janeiro, Brazil on 20-22 June 2012.

Access to Affordable, Reliable, Sustainable and Modern Energy for All

Ensuring access to affordable electricity, reliable and sustainable electricity by 2030 requires intensifying investment in clean energy sources and adoption of cost-effective technologies and effective regulations of electricity consumption and energy waste. Ensuring access to affordable, reliable, sustainable and modern energy is fundamental for growth and sustainability of environment and economy. Sri Lanka encounters certain issues in relation to the achievement of this goal. They may include *inter alia* persistently growing demand for energy, larger dependency on thermal power sources than renewable and modern energy sources, larger cost of imported fossil fuel and foreign currency outflow, increased/ unaffordable electricity tariff which consequently lead to increased cost of living and production, unreliable energy and some issues on access to electricity. Overdependence on fossil fuels for generating energy in Sri Lanka has much bearing on climate change. According to Withanaarachchi *et al.* (2014), it is the thermal oil which is the highest contributor for the nation's electricity generation which source higher emission rate of Greenhouse Gases (GHGs). Thermal power sources which comprise of oil and coal account for 54% of the total installed capacity of Sri Lanka. This increased dependency on thermal power sources causes huge cost of imported fossil fuel and foreign currency outflow. According to Sri Lanka Energy Sector Development Plan for a Knowledge-Based Economy 2015 – 2025, the average annual total bill of imported fossil fuel is 25% of import expenditure of Sri Lanka, and it is nearly 50% of total export income. Therefore the power and energy sector taxes significantly the country's balance of trade and exchange rates.

Affordability is another issue to be remedied under this caption. Affordable energy implies that energy is to be provided at an affordable and reasonable cost to the users. Larger dependency of Sri Lanka on thermal power sources than renewable and modern energy sources is the primary issue in provision of energy at an affordable cost. As of 2010, Sri Lanka has the most expensive electricity tariff for residential and agricultural consumer categories in South Asia, followed by Pakistan (Jameel 2010). Jameel (2010) further claims that Sri Lanka is handling the shortage by generating and selling very expensive electricity to its consumers. This expensive electricity tariff may be mainly attributed to the over reliance of fossil fuels for energy generation in Sri Lanka and thus this issue warrants attention under this Goal.

Further, according to Sri Lanka Energy Sector Development Plan for a Knowledge-Based Economy 2015 – 2025 published by Ministry of Power and Energy, the total annual electricity demand in Sri Lanka is about 10,500 GWh. Domestic sector and industries consume respectively 38% and 39% of the total electricity demanded. Commercial sector demands nearly 20% of the total electricity usage. It is also reported that the overall annual demand for electricity is anticipated to increase by around 4-6 %. This persistently growing demand for energy while unparalleled interventions/ investments in supply side is going to be an issues in ensuring access to affordable, reliable and sustainable energy for all categories of energy users in Sri Lankan.

It is estimated that the need for electricity will be doubled by 2020 compared with 2010 figure, more precisely 5,430 MW by 2020 (RAM Report-Sri Lankan Power sector, 2012). Meanwhile, power cuts occur frequently in Sri Lanka and it hinders the reliability and quality of services. The reliability issue primary arises because of technological constrains. Issues in reliability of electricity will damage the economic sector in particular and foreign direct investments.

According to World Bank statistics as at 2012, the Sri Lanka has given access to electricity to its 88.7 of the total population. However, it is reported in Sri Lanka Energy Sector Development Plan for a Knowledge-Based Economy 2015 – 2025, that Sri Lanka has already achieved a grid connectivity of 98%, which is commendable by South Asian standards. Yet, another 2% of population needs electrification. In Sri Lanka Energy Sector Development Plan for A Knowledge-Based Economy 2015 – 2025 Major Challenges in the Energy Sector of Sri Lanka, the following challenges have been identified to be overcome in the energy sector in Sri Lanka. These challenges are also seen relevant in meeting the targets of this sustainable development Goal-07.

- Energy wastage and losses
- Unsustainable consumption patterns
- Large investment need for infra-structure development in the power & energy sector
- Traditional institutional setup not geared to meet emerging energy sector challenges
- Lack of local capacity development, research and technology
- 100% dependency on imported oil for the transport sector
- High cost of electricity
- Increasing demand trends across all sub-sectors.

Combating Climate Change and Its Impacts

Sri Lanka is a tropical island and is regraded to be highly sensitive to climate change impacts. Climate change is a multidimensional phenomenon the impact of which, in Sri Lanka, ranges from the natural environment to agriculture, tourism, society, and health (Baba, 2010). According to a recent study documented by the UNDP, it is observed that inundation caused by raising level of sea is a progressive phenomenon in Sri Lanka. Its impact is relatively significantly observed in the districts of Puttalam, Jaffna and Hambbantota.

Another significant issues caused by climate change is the turnout of such extreme weather events as high intensity and erratic rainfall and consequential flash floods and landslides. Extreme weather on its other extreme causes extended dry periods and resultant water scarcity. It is commonly observed that extreme weather events primarily caused by changing climate have become common phenomenon these days in Sri Lanka. Sanjeewani and Manawadu (2014) state that severe rainfall extreme events are one of the frequent weather hazards in Sri Lanka causing massive damages to many sectors and its effect is concentrated in the Southern and Eastern quarter of the country while severe rainfall extreme also significantly affects Western province including Colombo, Ratmalana. They, on the other hand, claim that dry extremes occur in other dry zonal regions through its impact is becoming lesser. According to Ministry of Environment (2011), predicts “the wet zone is expected to become wetter and the dry zone drier with climate change” as it expects that Southwest Monsoon will increase by 48% by 2050 affecting the southern part of the country, while the Northeast Monsoon of northern region is estimated to decrease by 27–29%.

Though agriculture is inherently dependent on weather and thus remain highly sensitive to climate change, it is unavoidably one of the prominent economic sector in Sri Lanka and records

its significant contribution to gross domestic product (GDP) and employment of large and rural population every year. De Costa (2010) *argues that* in addition to the long-term shifts in rainfall and temperature regimes, extreme climatic events such as droughts and episodes of high temperature can cause substantial damage to both rice and tea crops thereby seriously impacting on the national food security, foreign exchange earnings and causing substantial socio-economic damage to the large number of families that are dependent on these two crops.

Further, the Sector Vulnerability Profile devised under National Climate Change Adaptation Strategy recognized five core issues relating to climate change. First, vector-borne diseases specifically dengue fever are expected to increase as it is sensitive to humidity and temperature. Second, leptospirosis and other rodent-borne diseases correspond with the two yearly monsoons in Sri Lanka. Third category of issues are such food and water-borne diseases as dysentery, viral hepatitis and typhoid. These are influenced by the floods, landslides and droughts associated with climate change. Fourth, a number of other disorders, such as heart related illnesses, respiratory and cardiovascular disorders, and mental health issues, may be exacerbated by the changing environment. Finally, climate change is expected to affect nutrition through changes in food production and food security. Any adverse changes in already volatile weather patterns are likely impact adversely on the socio-economic activities in the country. Other issues include acidic oceans, bleaching and dying off of coral reefs and losses to fisheries.

Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters is one of the target to combat climate change and its impacts. Some of the major challenges that stand between the achievements of this target is insufficient climate adaptation research, lacking modern technological availability and application thereof and inadequate financial appropriations for the effective implementation of adaptive agenda sustainably. It is reported that in some sectors that are sensitive to climate change e.g. health sector, even the causal relationship between climate change and health impacts in Sri Lanka is not clearly understood (WHO, 2015). Though there are projects and initiatives to the effect of integrating climate considerations into national policies, strategies and planning, one of the key challenge in this regard is that the process gets weaker, distorted or discontinued when political regime changes. Though there are some state institutions. e.g. Ministry of Environment and Renewable Energy, Climate Change Secretariat Sri Lanka housed in the Ministry of Environment and Renewable Energy, Centre for Climate Change Studies (CCCS), The Centre for Climate Change Studies (CCCS) housed in the Department of Meteorology, Epidemiology Unit housed in the Ministry of Health and some other relevant ministries, there is no effective overarching institutional agency that is enabled through an enabling legislation so that it can work across different sectors on a holistic and comprehensive fashion and incorporate environment and other sustainable development perspectives into national policy and development. It is however noted that present government is working towards the establishment of a sustainable development council through the enactment of Sustainable Development Act (which is currently as a bill).

Protect, Restore and Promote Sustainable Use of Terrestrial Ecosystems, Sustainably Manage Forests, Combat Desertification, and Halt and Reverse Land Degradation and Halt Biodiversity Loss

According to the official webpage designated for sustainable development goal², ‘Goal 15’ focuses specifically on managing forests sustainably, halting and reversing land and natural habitat degradation and combating against desertification and biodiversity loss. Sri Lanka encounters certain issues below discussed that should be addressed in the realization of this Sustainable Development Goal-15.

Though the rate of deforestation has declined as compared to passed assessment, the iusse still remain significant. Pethiyagoda (2010) strongly claims that the area covered by forest in Sri Lanka is speedily diminishing and it is even less than 20 % as compared to the forest cover during the pre-colonial period. Though historically 90% of the land area of the country was under natural forest cover in 1840s, the latest assessment by the Forest Department in 2010 showed that the forest cover of the country represents 29.7 % of the land area (NAP, 2015). Encroachment of forests, high demand for forests for development activities and spread of invasive plant species and frequent fires are the prevalent threats/ issues challenging conservation of the forest cover of the country (NAP, 2015).

Though, according to National Report on Desertification/Land Degradation in Sri Lanka (2000), no part of Sri Lanka is currently comes under desertification zone as it does not fall within the range of ratios for desertification as specified in United Nations Convention to Combat Desertification, it is however likely that desertification may emerge as a problem in the Dry Zone in the near future in Si Lanka considering the monthly variations in evapotranspiration, frequent droughts experienced, anticipated climatic changes and the accelerated land degradation that is taking place due to human activities .

Land degradation is generally understood as the decline of productive capacity of land temporarily or permanently through natural phenomena or through human interference. It is widely accepted that land degradation is one of the most life-threatening problems affecting the future environment and economic development in Sri Lanka. According to National Report on Desertification/Land Degradation in Sri Lanka (2000), “heavy soil losses; high sediment yields; soil fertility decline and reduction in crop yields; marginalization of agricultural land; salinization; landslides and deforestation and forest degradation” are the important manifestations of land degradation issue in Sri Lanka.

Sri Lanka is one of the countries commonly recognized as a destination for biodiversity and rich species. Land degradation however severely threatens the biodiversity of the country and has resulted in loss of bio diversity. According to National Action Plan for (NAP) for Combating Land Degradation 2015-2024 in Sri Lanka, loss of bio diversity is primarily attributed to such factors as deforestation, pollution, indiscriminate use of agrochemicals, soil erosion, frequent floods & droughts.

² <http://unstats.un.org/sdgs/report/2016/goal-15/>

Though Sri Lanka is inherited with abundant water resources, climate changes and land and water degradation activities have created frequent and regular water shortages severely impacting lives on the earth and lives under water. It also seriously impacts on development activities in the country. Ministry of Environment and Renewable Energy in its National Action Plan for (NAP) for Combating Land Degradation 2015-2024 in Sri Lanka recognize that this situations provoked by quality deterioration and degradation of watersheds due to mismanagement of lands. It also claims that both surface and ground water has been subjected to this fate. This issue of water degradation is an urgent issue to be remedies under this Sustainable Development Goal in order to prevent acute water shortages and to meet the future water demands by all sectors.

In relation to achievement of many of the target set to achieve this sustainable development goal, Sri Lanka would have to overcome many challenges. One of the very important challenge is persisting growth of population and population density and their causal effect on land demand and consequential and degradation activities. National Action Plan for (NAP) for Combating Land Degradation recognizes the fact that in Sri Lanka the wet zone districts show very high densities while dry zone districts show lower densities where Colombo and Gampaha districts experience the highest densities followed by Kalutara, Galle, Matara, Kandy and Matale districts. Haphazard garbage disposal and impediment to drainage are said to be grievous concerns in this regard.

Though the incidence of poverty is gradually declining in Sri Lanka, its impact on land and water degradation is not to be ignored in certain districts that are having relatively high incidence of poverty. Land and water degradation especially of rural area are primarily attributable to land and water based livelihoods of people living in poverty. Wildlife crimes are another significant challenge to overcome for the successful attainment of many targets under this Goal. Reduction of degradation of natural habitats, halting the loss of biodiversity and protection and extinction of threatened species would not be possible if the wildlife crimes persist and are not controlled. Climate Change is a crosscutting issue that underlie many target under this goal. High intensity rains and subsequent floods cause severe soil erosion, siltation of water bodies, wetlands & agricultural lands, water logging in low-lying areas and loss of biodiversity. Frequent droughts may deplete water resources in drought prone areas leading to loss of vegetation. Therefore, it is a challenging fact targets set under this Goals cannot be effectively met in isolation and require a broader integration with climate issues as well. Lacking public awareness is another challenge to overcome.

Discussion and Conclusion

The target to provide access to affordable, reliable, sustainable and modern energy for all has numerous economic and social implications. The achievement of this goal would ensure that 100% of Sri Lanka population will have access to affordable, reliable and modern energy services. A shift from conventional energy sources to modern and renewable sources of energy will stop environmental degradation caused while generating power and energy. Aching a substantial share of renewable energy in the Sri Lanka energy mix, would considerably decline the emission rate of GHGs and will control and prevent the depletion of Ozone layer. These developments will impact on reduction/elimination of dangerous climate change related hazards. As this goal aims to double the global rate of improvement in energy efficiency by 2030, it will reduce energy waste and thus the energy demand will decline. This will also reduce emission rate of GHGs to the environment and will curtail the impact of climate change.

Further, the attainment of the sustainable development goal on combating climate change would positively impact on the reduction of various dangerous consequences of climate change. The Carbon emission can be minimized and controlled. Public investment and expenditures would be made in harmonization of climate considerations. The attainment of this goal would ensure that the government would plan and implement its long term public investment and the recurrent expenditures in a way that support to the agenda of combatting the climate change. The adaptive capacity of the country would be enhanced. The country would be able to manage the risk associated in the climate change at a minimum level. The attainment of this goal will increase the awareness level of public about the hazards relating to climate change thereby enabling the public to act spontaneously in a way that is friendly to the environment. Unless people individually and collectively act spontaneously, the achievement of many targets under this goal cannot be met sustainably. Achievement of this goal will minimize environmental degradation activities and the related damages such activities cause to the sustainability of environment which include restoration and maintenance of sustainable use of terrestrial ecosystems, sustainable management of forests, controlling desertification, halting and reversing land degradation, halting biodiversity loss, reversing climate change and economic and social sustainability.

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