

# Building Climate and Disaster Resilience in the Sustainable Development Agenda

## Resilience and the Sustainable Development Agenda

The key impetus behind the Sustainable Development Goals is the threat of climate change and environmental degradation that has accompanied our economic and social advancements. Therefore, the sustainable development agenda promotes the idea that improving the lives of the millions whose basic needs have not been met and putting an end to poverty, cannot come at the cost to the environment. It acknowledges that development must be “resilient” to external shocks. **Resilience** can be broadly defined as **the ability of a group or community or an ecosystem to withstand or recover from an external shock – which can be environmental, social or political.**<sup>1</sup> Resilience is a socio-ecological process that deals with safeguarding all human life and the ability for the earth system to continue to function.



Science predicts that the future will bring increasing incidences of droughts, floods, other severe weather conditions. These extreme events or hazards become disasters when there is no resilience to counter the hazard, leading to death, destruction of property, and in a cyclical way also damage to ecosystems. Hence, disaster risk reduction is also about building resilience.

Figure 1: disaster impacts 2000 - 2012.



<sup>1</sup> Social and ecological resilience: are they related? – Niel Adger (2000)

Exposure to these shocks leave poor people homeless, without access to livelihoods, inadequate care and safety nets and little savings or means to rebuild their lives. It can further exacerbate their impoverishment. It also reduces the wellbeing of natural assets that the poor tend to rely on. It can also pull down families that had improved their wellbeing but have unexpectedly lost capital, assets, lives and livelihoods.<sup>2</sup> Recovery becomes a long, arduous process. From 2000-2012 the damage caused by disasters (globally) is estimated to be 1.4 trillion dollars, affecting 2.9 billion people and causing 1.2 million deaths.<sup>3</sup> Eighty seven percent of the disasters in 2014 were linked to climate related disasters (floods, droughts, storms, extreme temperatures).<sup>4</sup>

## Social and Ecosystem Resilience

### Adaptation and Mitigation

### Physical and Human Capacity Development

### Prevention and Recovery

### Investment – in Science and Technology and Information Dissemination

### Coordination and Joint Action

The SDGs also encapsulate the objective that in order to reduce poverty and leave no one behind **building resilience and reducing risks of both people and eco-systems** is necessary to safeguard investments in development. This involves both adapting to the changes and mitigating the impact of our actions (that require physical infrastructure and changes in business as usual practices). It involves **building the capacity** of people – those most at risk, as well as planners, implementers, decision makers and the public, including the next generation. It must strengthen **prevention, recovery and management of risks**. The complexity increases due to the need to prepare, take action and invest in the face of the **uncertainty of the risks**. Building resilience also requires **increased finances** including **investment in science and innovation**, and wide spread **information dissemination** as enabling factors. More importantly, implementation or responding to these threats must involve **coordination and joint action** by a wide network of actors from different disciplines.

#### BOX 1: SDG's and building resilience

The SDGs make direct references to building resilience – for climate and disaster risks in several of its goals directly (1) water (6), infrastructure (9), urban (11), consumption and production (12), climate change (13), terrestrial and marine Eco systems (14,15)). It can also be seen to indirectly contribute to other goals on inequality (5 and 10), health (3) and example. It also acknowledges the need for synergies with the UNFCCC climate convention and the Sendai Framework for Disaster Risk Reduction.



<sup>2</sup> The geography of poverty, disasters and climate extremes in 2030 – A Shepherd, Mitchell, T, Lewis, A. Lenhardt, L. Jones, L. Scott, R. Muir-Wood (2013)

<sup>3</sup> UNISDR Statistics (2012)

<sup>4</sup> UNISDR Statistics (2012)

## Sri Lanka: Current Realities

Climate change threatens to have a significant impact on sectors such as water, agriculture, health, biodiversity and human settlement.<sup>5</sup> Sri Lanka has also seen more frequent disasters, with larger exposure levels – as recently experienced with the droughts and then the floods that affected the whole island. Hence, climate threats can translate into substantial impacts on the nation’s economy.

SDG TARGET	CURRENT REALITY
<p>1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters</p>	<p>Floods account for 40% of economic losses; are the most frequent (78%) recorded disasters (1990 – 2014), and result in annual average losses of USD 144 million<sup>6</sup>. Floods affect more districts (16 – 23) and people (300,000 to 2 million) per year.<sup>7</sup> Landslides impact people mainly in the hilly areas and are the 2nd highest cause of deaths (without tsunami).<sup>8</sup> In 2016 a tropical storm (Roanu) resulted in the worst floods and landslides in 25 years affecting over 300,000 people and resulting in over 100 deaths.<sup>9</sup> The recovery of many jobs, homes, and infrastructure is still ongoing. Droughts affect people over time especially those involved in agriculture and have been more severe in Kurunegala, Hambantota, Puttalam and Anuradhapura.<sup>10</sup></p> <p>DMC reports that damages due to disasters have reduced due to better early warning, response capacity at a local level, and infrastructure improvements; however, severity and frequency of weather events are increasing.<sup>11</sup></p> <p>There are communities who live in highly vulnerable locations/social circumstances – such as tea estate workers to landslides, urban slum dwellers to floods, small scale farmers to both floods and droughts. Both prevention and recovery are crucial to manage vulnerability.</p>
<p>2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality</p>	<p>In 2011 floods resulted in agriculture damages and losses of 15 million (LKR) in Batticaloa, Pollonaruwa, Anuradhapura and Ampara.<sup>12</sup> LKR 227 million was paid in compensation to paddy farmers in these areas.<sup>13</sup> While insurance is a safety net, coverage is around 6% of farmers’ island wide.<sup>14</sup> The main thrust in the Agriculture sector is production and chemical intensive agriculture while sustainable agriculture is a subsidiary function. Agricultural methane emissions are 65% of total and due mainly to chemical fertilizers.<sup>15</sup> Some drought, flood and salinity resistant paddy varieties have been introduced. Recently greater political interest has been shown to transform the agriculture sector, through the newly launched “Wasa Wisa Nethi” programme.</p>

<sup>5</sup> National Adaptation Plans for Climate Impacts for Sri Lanka – Ministry of Mahaweli Development and Environment (2015)

<sup>6</sup> Sri Lanka Disaster & Risk Profile – Prevention Web – UNISDR (2014)

<sup>7</sup> Sri Lanka Comprehensive Disaster Management Plan – Ministry of Disaster Management (2014)

<sup>8</sup> Sri Lanka Comprehensive Disaster Management Plan – Ministry of Disaster Management (2014)

<sup>9</sup> Sri Lanka: Floods and Landslides Situation Report No. 2 - UN OCHA (2016)

<sup>10</sup> Sri Lanka Comprehensive Disaster Management Plan – Ministry of Disaster Management (2014)

<sup>11</sup> Sri Lanka Comprehensive Disaster Management Plan – Ministry of Disaster Management (2014)

<sup>12</sup> Sri Lanka Comprehensive Disaster Management Plan – 2014 – 2018 – Ministry of Disaster Management (2014)

<sup>13</sup> Annual Report 2012 - Agricultural and Agrarian Insurance Board (2012)

<sup>14</sup> Role of Social Protection in Disaster Management in Sri Lanka - Kanchana Wickramasinghe (2013)

<sup>15</sup> Data on Emissions (2010 data) – World Bank

<p>6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes</p>	<p>Managing river basins is closely tied to the land use patterns and climatic conditions and need river/use specific plans. Wetlands in the metro Colombo region are reducing at the rate of 1.2% annually and as much as 60% of the wetlands have been lost due to infilling since the 1980s.<sup>16</sup> Wetlands are extremely important to DRR to manage the impact of floods, reduce shocks of cyclones and to manage pollution. Therefore wetlands should feature in creating resilient cities.</p>
<p>9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all</p>	<p>Sri Lanka has a large scale infrastructure driven development agenda. The National Physical Plan aims to have several metro regions around the country, growth of transport, oil exploration, industries and livelihoods (fisheries and agriculture) for regional growth. The central hills are recognized as an environmentally sensitive area where new development is discouraged and the disaster management aspects referred to are internally relocating people from around the coasts and the hills as well as reforestation of the central hills. Overall the need to increase resilience, adjust for climate change or inclusive development is not highlighted.</p>
<p>11.5: By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations.</p>	<p>Large part of the GDP in Sri Lanka is generated along the coastal belt, where there is also a higher level of urbanization and these areas are most vulnerable to climate change. Some scenarios predicts disasters will result in 1.2% loss in GDP by 2050 and currently 0.22% of GDP is spent on poverty reduction and disaster mitigation.<sup>17</sup> Investing in risk mitigation, setting aside budgets for relocation and recovery are inadequate for protecting the vulnerable (i.e. moving people from the central hills would require investment in housing as well as livelihoods as many are reliant on the tea industry).</p>
<p>11.b: By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels</p>	<p>The Western Region Megapolis Masterplan<sup>18</sup>, the latest urban development plan has highlighted that environmental sustainability will be done through no build zones (Muthurajewela, coastal buffer), sea level rise mitigation, new and improved storm water drainage plans, conserving wetlands and improved waste management. The plan does not describe how issues related to climate change, DRR or investment in risk management is incorporated into planning framework or the implementation. The integrated approach that links other sectors such as health and education into the masterplan has not been used.</p>
<p>13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p>	<p>The policies and plans in the climate change sector and the disaster management sector have recognized the need for physical and human capacity building to adapt to climate change and disasters. The economic sectors highly vulnerable to climate change have been identified as Agriculture, Fisheries, Tourism and Coastal Infrastructure. The comprehensive disaster management plan recognizes vulnerable geographic areas and communities.</p>

<sup>16</sup> Metro Colombo Wetland Management Strategy – Sri Lanka Land Reclamation and Development Corporation (2016) 17 National Physical Plan and Project Proposals – 2011 -2030 – National Physical Planning Department (2012).

<sup>17</sup> Sri Lanka: Ending Poverty and Promoting Shared Prosperity – World Bank (2015)

<sup>18</sup> Western Region Megapolis Masterplan - Ministry of Megapolis and Urban Development (2016)

<p>13.2 Integrate climate change measures into national policies, strategies and planning.</p>	<p>Plans are in place mainly from the environment sector –i.e. climate change polices and plans, the Haritha Lanka programme and more recently a new policy initiative for national consumption and production (on going), however integration into other sectoral plans and buy in to integrate has not been widespread.</p>
<p>14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans</p>	<p>60% of industries, agriculture (17% of coastal land) and fisheries (50% of coastal population) livelihoods are in the coastal zone and face climate change related issues.<sup>19</sup> Inadequate knowledge of fish stocks, exploitation by Indian trawlers, inadequate fishing gear/storage hinders more efficient use of natural resources. The coast is threatened by a range of point and non-point pollution sources (untreated industrial and domestic waste) that reduce the health of the oceans and coastal areas.</p>
<p>15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts.</p>	<p>In a small island the pressure for land – for conservation and human settlements - is the most challenging battle. Human settlements and activities are planned without adequate consideration of biodiversity needs and result in Human elephant conflicts, encroachment and fragmented ecosystems that have circular effects on human wellbeing due to loss of carbon sinks, erosion/flood control methods, catchment areas, loss of pollution capacity etc.</p>

(Conceptualized in collaboration with the Centre for Poverty Analysis, Sri Lanka)

<sup>19</sup> Country Report on Pollution - Bay of Bengal Large Marine Ecosystem Project (2011)