

Technology Fact Sheet for Adaptation

Improving management of existing protected areas, increasing extent, creating buffer zones and new areas in vulnerable zone ⁱ

1. SECTOR: <i>To be written by sector expert</i>	Biodiversity
TECHNOLOGY CHARACTERISTICS	
2.1 Technology name:	Improving management of existing protected areas, increasing extent, creating buffer zones and new areas in vulnerable zones
2.2 Introduction: <i>Low/high, Brief introduction to the technology</i>	<p>Protected areas are a conservation tool to conserve biodiversity by protecting species and ecosystems.</p> <p>This strategy will focus on effectively managing established protected areas. If possible it will also entail increasing the extent of terrestrial and aquatic habitats, which has been identified as a climate change adaptation strategy¹.</p> <p>Conservationists often favor protected areas as they aim to provide a safe haven and minimize impacts from humans and other threats.</p> <p>Protected areas have various purposes and levels of protection². In Sri Lanka these vary from Strict Natural Reserves where access is strictly limited to Sanctuaries, which may contain private land³.</p> <p>Thus it is vital to ensure that in these areas there is good representation of biodiversity and these also need to be effectively managed for long-term survival.</p> <p><i>Reference in existing policies, strategies and action plans:</i></p> <p>The Biodiversity Conservation - Framework for Action for Sri Lanka identified that the current protected area system excludes many biodiversity rich areas, which remain unprotected. It recommends that</p>

¹Mawdsley, J.R., O'Malley, R., Ojima, D.S., 2009. A review of climate-change adaptation strategies for wildlife management and biodiversity conservation. *Conservation Biology* 23, 1080–1089.

² IUCN. 2011. IUCN Protected Area Management Categories

http://www.iucn.org/about/work/programmes/pa/pa_products/wcpa_categories/

³ The Fauna and Flora Protection Ordinance No. 2 of 1937 and Amendment Act No. 49 of 1993.

	<p>critically important biodiversity hotspots in the country to be brought under the relevant protected area category⁴.</p> <p>According the National Action Plan for Haritha Lanka Strategy 2 in Mission 2: Saving the Fauna, Flora and Ecosystems is to 'Establish optimum Protected Area network and ensure recovery of important threatened species'. Section 2.1 specifically refers to 'Identify critically important biodiversity hotspots in the country outside existing protected areas and declare these under a relevant category and develop representative Protected Area Network and Section 2.7 recommends to 'Improve management of Protected Areas by habitat enrichment, boundary demarcation and fire management'⁵. The Climate Change Adaptation Strategy⁶ for Sri Lanka and the Sector Vulnerability Profile for Biodiversity and Ecosystem Services⁷ has identified to 'Establish and/or effectively manage PAs and other important wildlife refuges in all climatic zones' - (B iv).</p>
<p>2.3 Technology characteristics/highlights: <i>Few bullet points, ie. Low/high cost, advance technology; low technology</i></p>	<p>It is vital to effectively manage existing protected areas as creating new areas is challenging when there is much demand for land in a developing country. However there are numerous areas that are earmarked as proposed reserves, which can be included into the protected area network.</p> <p>Creating new protected areas or expanding existing areas does not require advance technologies. Sri Lanka has been creating such areas from the 1930's.</p> <p>They will require some investment, especially if the area used for other purposes, or if people need to be relocated. Management and conservation activities will also require investment.</p> <p>The technology should ensure biodiversity is well represented in the protected area, include habitats that are threatened and vulnerable to climate change.</p>

⁴Ministry of Environment and Natural Resources. 2007. Biodiversity Conservation in Sri Lanka: A Framework for Action – Addendum.

⁵National Council for Sustainable Development . 2009. National Action Plan for Haritha Lanka Programme

⁶Ministry of Environment. 2010. National Climate Change Adaptation Strategy for Sri Lanka 2011 to 2016.

⁷Ministry of Environment. 2010. Sector Vulnerability Profile: Biodiversity and Ecosystem Services.

	<p>New areas can be created through purchase and planting.</p> <p>In order to find suitable areas to be included, climate change and its impacts on biodiversity should be modeled (this is a separate technology).</p>
<p>2.4 Institutional and organizational requirements: <i>How much additional capacity building and knowledge transfer is required for the adaptation option to be implemented.</i></p>	<p>As this is not a 'new technology' the departments currently engaging in this activity will have sufficient capacity to deal with this strategy.</p> <p>Capacity building and knowledge transfer will be required to (1) Effectively manage existing areas, with maximize available resources, (2) Select suitable areas based on climate change modeling and predictions, and (3) To introduce climate change-integrated conservation strategies.</p>
<p>3. OPERATIONS AND MAINTENANCE</p>	
<p>3.1 Endorsement by experts:</p>	<p>For details of endorsement by local experts and relevant agencies see section on '<i>Reference in existing policies, strategies and action plans</i>' in Section 2.1.</p> <p>Increasing extent of protected areas has been identified as an important climate change adaptation strategy for biodiversity according to reputed peer reviewed papers in journals⁸.</p>
<p>3.2 Adequacy for current climate: <i>Are there negative consequences of the adaptation option in the current climate? Some adaptation may be targeted at the future climate but may have costs and consequences under the current climate.</i></p>	<p>There is no negative consequence of this option as this is not a new technology. As mentioned above the Biodiversity Conservation - Framework for Action recognizes as this as an important strategy for biodiversity conservation in the current climate⁹.</p>
<p>3.3 Size of beneficiaries group: <i>Technology that provides small benefits to large number of people will be favored over those that provide larger benefits, but to fewer people.</i></p>	<p>The beneficiaries of this technology will include both local and the larger population of the country. Often local communities will benefit from ecotourism related activities and community conservation program, often this is sufficient to offset the benefits of direct use and extraction of the protected area by local people which benefits only a small, select group.</p>

⁸Mawdsley, et al. 2009. Op. Cit.

⁹Ministry of Environment and Natural Resources. 2007. Op. Cit.

	<p>Both local communities and the larger population will benefit immensely from ecosystem services such as micro-climate regulation, watershed services, erosion and flood control, carbon sequestration etc.</p>
4. COSTS	
4.1 Cost to implement adaptation options: <i>Cost measures</i>	<p>It is estimated that this activity will cost Rs. 90 million annually. This is based on the assumption that a budget increase of 4.5% of current conservation budgets will be necessary for this activity (based on total Forest Department and Wildlife Department annual budgets). It is estimated that 25% of this will be borne by the public sector.</p> <p>This activity will need to be carried out until most prioritized sites are covered, and will have to be an annual budget.</p> <p>Cost will be for improvement management and conservation activities, enforcement; while for establishing new areas site selection (with use of models and available information), prioritization, establishment (legal declaration, acquisition of land if necessary) and monitoring will be necessary.</p>
4.2 Additional costs to implement adaptation option, compared to "business as usual"	<p>This too will vary. Creating or extending some protected areas will be of low cost if they are unutilized for any other purpose and need to be simply given a legal status – however there will be costs involved in monitoring and conservation.</p> <p>Some protected areas will require more investment as they may require more intervention, restoration and management. It may also include costs of relocating communities and creating park infrastructure, staff and administrative costs. Some of these costs can be offset, especially operation and maintenance by visitation and ecotourism. There could be opportunity costs if the area has other valuable uses.</p>
5. DEVELOPMENT IMPACTS, INDIRECT BENEFITS	
5.1 Economic benefits: Employment - <i>Jobs</i> Investment - <i>Capital requirements</i>	<p>Employment:</p> <ul style="list-style-type: none"> • There will be an increase in jobs due to work associated with conservation activities and running of the protected area. There will be many opportunities for jobs associated with ecotourism. • There could be future opportunities from community conservation and ecotourism.

	<p>Investment:</p> <ul style="list-style-type: none"> Investment will be required to acquire land, purchase, and pay compensation, if necessary.
<p>5.2 Social benefits:</p> <p>Income – <i>Income generation and distribution</i></p> <p>Education – <i>Time available for education</i></p> <p>Health – <i>Number of people with different diseases</i></p>	<p>Income:</p> <ul style="list-style-type: none"> There will be income due to tourism, community conservation, REDD and payments for ecosystem services. <p>Education:</p> <ul style="list-style-type: none"> Educational benefits will include a ‘living laboratory’ for students to learn about science and nature. <p>Health:</p> <ul style="list-style-type: none"> Good environmental quality, ecosystem services play a role in creating good health.
<p>5.3 Environmental benefits:</p> <p><i>Reductions in GHG emissions, local pollutants, ecosystem degradation etc.</i></p>	<p>Carbon sequestration, microclimate regulation, flood control conservation of ecosystems and other associated services.</p>
<p>6. LOCAL CONTEXT</p>	
<p>6.1 Opportunities and barriers:</p> <p><i>Barriers too implementation and issues such as the need to adjust other policies</i></p>	<p>Opportunities:</p> <ul style="list-style-type: none"> There will be no legal and policy changes required as these mechanisms are already in place^{10,11}. It will improve ecosystem services and benefits for the larger population. Possible benefits from community conservation, ecotourism, REDD and payments for ecosystem services. <p>Barriers:</p> <ul style="list-style-type: none"> Main barrier for implementation will be current activities in the area to be acquired and the ease in which it can occur. Competition for land due to development and infrastructure projects.
<p>6.2 Status: <i>Status of technology in the country</i></p>	<p>The technology is currently in place and has been so for several decades.</p>
<p>6.3 Timeframe: <i>Specify</i></p>	<p>Can vary from a few months to a few years depending on the current</p>

¹⁰Ministry of Environment and Natural Resources. 2007. Op. Cit.

¹¹ The Fauna and Flora Protection Ordinance No. 2 of 1937 and Amendment Act No. 49 of 1993.

<i>timeframe for implementation</i>	use and legal status.
6.4 Acceptability to local stakeholders: <i>Whether the technology will be attractive to stakeholders</i>	<p>It should have high acceptability as it has been identified as an important recommendation to conserve in-situ biodiversity in Sri Lanka¹².</p> <p>Additionally it will create environmental benefits and new opportunities for local communities. There will be some income to local stakeholders as well.</p>

ⁱ **This fact sheet has been extracted from TNA Report – Technology Needs Assessment Reports For Climate Change Adaptation – Sri Lanka. You can access the complete report from the TNA project website <http://tech-action.org/>**

¹²Ministry of Environment and Natural Resources. 2007. Op. Cit.