

Influencing climate change policy in Sri Lanka

Key fact

Under the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), the International Water Management Institute (IWMI) has influenced climate change policy in Sri Lanka and raised awareness about the implications of climate change for the country and farmers.

Summary

A partnership between IWMI and Sri Lankan Government agencies dates back to a national 'Water for Food' conference in 2009. After presenting research on the impacts of climate change on water resources and agriculture in Sri Lanka, the Institute was invited to attend workshops organised by the Ministry of Environment, provide information and comment on draft government reports.



In Sri Lanka agriculture contributes 32% of total employment and 12% GDP

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Through this collaboration, IWMI has made a significant contribution to the development of Sri Lanka's climate change adaptation policies. IWMI research findings have been incorporated in the country's Climate Change Adaptation Strategy 2011-2016 and Sri Lanka's Second National Communication on Climate Change, which was submitted to the United Nations Framework Convention on Climate Change (UNFCCC) in 2011. IWMI's findings are being used in a number of new projects, including a 2012 UNDP initiative aimed at building climate resilient activities into national household food security improvement and rural infrastructure programmes.

Facts & figures

- Mean annual precipitation in Sri Lanka decreased by 144mm (7%) during the period 1961-1990 compared to the period 1931-1960.
- Studies which spell out future climate scenarios for the country are scarce, and typically project contradictory futures, especially with regard to rainfall. While projected temperature increases range from 0.9-4°C, some studies project an increase in mean annual precipitation while others project a decrease.
- A study by IWMI in 2010 emphasised the high degree of uncertainty associated with Sri Lanka's future climate, and recommended 'no regrets' interventions that combine climate resilience with other development needs.
- In preparing the Sri Lanka Climate Change Adaptation Strategy, the Ministry of Environment modified and refined IWMI's climate change vulnerability index to identify the current status and key climate change related issues that need to be addressed in five major sectors: agriculture and fisheries, water, health, urban development and biodiversity and ecosystem services.
- Findings from the IWMI study were also incorporated into the thematic reports and final summary report of Sri Lanka's Second National Communication on Climate Change to the UNFCCC in 2011.

European funding

This project was funded by IWMI's core funds. Between 2010 and 2011, France, Germany, Ireland, the Netherlands, Sweden, Norway, Switzerland and the UK Department for International Development (DFID) provided US\$6,100,000 in unrestricted funds. This was about 13.5 per cent of total revenue in 2011, and 40 per cent of the unrestricted total.

Project milestones

- February 2009: Review of the status of climate change research and activities in Sri Lanka is initiated by IWMI.
- June 2009: Initial findings are presented at the Water for Food Conference in Colombo, attended by representatives from government agencies, international organisations and NGOs. Two partners express interest in joining IWMI to conduct a wider study involving climate change vulnerability mapping.
- September 2009: IWMI is invited to take part in the formulation of Sri Lanka's Second National Communication to the UNFCCC by the Ministry of Environment.
- February 2010: IWMI is consulted by the Ministry of Environment in formulating the Sri Lanka Climate Change Adaptation Strategy 2011-2016.
- May 2010: IWMI Research Report, *Impacts of Climate Change on Water Resources and Agriculture in Sri Lanka: A Review and Preliminary Vulnerability Mapping*, is published. The Ministry of Environment adopts, refines and extends the IWMI climate change vulnerability index, published in the research report, to formulate the Sri Lanka Climate Change Adaptation Strategy 2011-2016.
- Latter part of 2009 and 2010: IWMI takes part in the process of formulating both Sri Lanka's Second National Communication to the UNFCCC and the Sri Lanka Climate Change Adaptation Strategy 2011-2016 by attending meetings, workshops and also commenting on draft reports.
- November 2010: Findings from the IWMI study are incorporated into the thematic reports and final summary report of Sri Lanka's Second National Communication on Climate Change to the UNFCCC.
- January 2011: Both the Second National Communication and the Climate Change Strategy are finalised.
- February-March 2011: A series of five articles by IWMI scientists on the impacts of climate change in Sri Lanka are published in the *Daily Mirror*, following an invitation by the paper to create awareness among the general public.

Costs and benefits

- Costs: Approximately US\$40,000 to cover staff and transport costs.
- Benefits: Identification of priority areas, especially among rural agricultural districts, for implementing climate change adaptation measures; identification of 'vulnerability hotspots' in other sectors such as fisheries, health, urban development and biodiversity conservation; identification of 'no regrets' adaptation interventions which simultaneously achieve development needs and climate resilience.

More information

CGIAR Research Program on Climate Change, Agriculture and Food Security -

www.ccafs.cgiar.org

International Water Management Institute - www.iwmi.cgiar.org

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There is ample evidence to suggest that Sri Lanka's climate is changing. Annual mean temperatures show a significant warming trend while mean annual precipitation decreased by 144mm (seven per cent) during 1961-1990, compared to 1931-1960. In a country where agriculture contributes approximately 32 per cent of total employment and 12 per cent of GDP, rising temperatures and changes in the quantity and distribution of rainfall could have a significant impact on farming activities. For example, they could lead to an increase in irrigation water requirements for rice and a decline in coconut productivity, two key crops for Sri Lanka.



Rainfall projections for Sri Lanka are confusing and contradictory

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Although past trends are fairly clear, Sri Lanka's future climate appears more uncertain. Studies which look at future climate scenarios are rare but there is general consensus among these projections that Sri Lanka will become increasingly warm during the 21st century, although the projected magnitude of temperature increase by 2100 ranges from 0.9-4°C. Rainfall projections, however, are confusing and contradictory, with some studies projecting increased mean annual precipitation and others projecting a decrease. In the face of such uncertainty, how should Sri Lanka's agriculture sector adapt to climate change?

A partnership between the International Water Management Institute (IWMI) and Government agencies began in 2009, when IWMI invited officials from several ministries and water and agriculture agencies to a national 'Water for Food' conference to raise the profile of their research. As part of the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), IWMI researchers had embarked on a major review, later titled *Impacts of Climate Change on Water Resources and Agriculture in Sri Lanka*. Its lead author, Nishadi Eriyagama, presented some of the material the team was working on, focusing in particular on analysis of vulnerability to climate change.

The study elaborated the high degree of uncertainty associated with Sri Lanka's future climate, and pointed out that the best course of action would be to embrace 'no regrets' adaptation interventions which simultaneously deliver climate resilience and address current development needs, rather than to wait for climate modelling to unravel the ambiguities and uncertainties.

The best example of such an intervention is the restoration of the ancient tank storage system, to provide irrigation water during droughts and store excess water during floods. Other identified 'no regrets' interventions include rainwater harvesting and storage during higher rainfall seasons, development of sustainable groundwater, promotion and adoption of micro-irrigation



Rising temperatures and changes in rainfall could have a significant impact on farming activities

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The CCAFS study identified agricultural vulnerability hotspots
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technologies and wastewater reuse.

The timing of the CCAFS study was propitious. The Ministry of Environment had begun to prepare the Sri Lanka National Climate Change Adaptation Strategy 2011-2016 and was also in the process of drafting the country's Second National Communication to the UN Framework Convention on Climate Change (UNFCCC). Eriyagama and her colleagues were subsequently invited to attend workshops organised by the Ministry of Environment, and to provide information and comment on draft reports. The National Climate Change

Adaptation Strategy 2011-2016 used IWMI's methodology for mapping vulnerability to climate change, while the Second National Communication presented information drawn from IWMI's research.

The IWMI study also identified the country's agricultural vulnerability hotspots using an index which measures exposure, sensitivity and adaptive capacity. The vulnerability maps, which have been reproduced in a sub-report of the Second National Communication, indicate that certain farming districts - such as Nuwara Eliya, Badulla, Moneragala, Ratnapura and Anuradhapura - are particularly vulnerable to climate change due to their heavy reliance on primary agriculture, coupled with low ownership of infrastructural and socioeconomic assets.

"As the Government initiated it, I have no doubt that the Strategy will influence future policy, and encourage the Government to formulate plans which help farmers in the most vulnerable areas adapt to climate change."

Nishadi Eriyagama, IWMI

In preparing the Sri Lanka Climate Change Adaptation Strategy, the Ministry of Environment modified and refined IWMI's climate change vulnerability index to identify the current status and key climate change related issues that need to be addressed in five major sectors: agriculture and fisheries, water, health, urban development

and biodiversity and ecosystem services. At every stage, the Ministry of Environment engaged with different stakeholders, including IWMI, to formulate the Strategy.

Although faced with a high degree of uncertainty, the Sri Lankan Ministry of Environment has been able to identify plausible policy and technical solutions to adapt to climate change, based on available tools and information, rather than seeking definitive climate projections for the country. The Strategy, for example, contains some of the 'no regrets' adaptation options suggested by IWMI's study, including restoration of the country's ancient tank system and the promotion of rainwater harvesting, as priority measures for implementation.



The Strategy promotes rainwater harvesting
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The National Climate Change Policy of Sri Lanka was approved in January 2012. In accordance with this policy and the Climate Change Adaptation Strategy, National Expert Committees on Climate Change Mitigation and Adaptation have been convened. The Ministry of Environment is preparing

mitigation and adaptation action plans for each sector in consultation with the Expert Committees.

IWMI's vulnerability study and the National Adaptation Strategy have helped to raise awareness about the implications of climate change for the country. The media has certainly taken note: in 2011, the *Daily Mirror*, the country's leading English-language newspaper, commissioned IWMI scientists to write a series of five articles about the implications of climate change for Sri Lanka as a whole, and farmers in particular. Topics covered included groundwater use, flood prevention and urban agriculture. Eriyagama has also been invited by the Ministry of Environment to become a member of the National Expert Committee on Climate Change Adaptation, which held its first meeting in September 2012.



The IWMI study has helped to raise awareness about the implications of climate change for Sri Lanka
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IWMI's findings are also being used by a number of new projects, including a 2012 GEF-funded UNDP initiative aimed at building climate resilient activities into national household food security improvement and rural infrastructure programmes.

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IWMI research has made a significant contribution to the development of Sri Lanka's climate change adaptation policies
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