Met Office | ICIMOD | ARRCC Asia Regional Resilience to a Changing Climate

Working in partnership

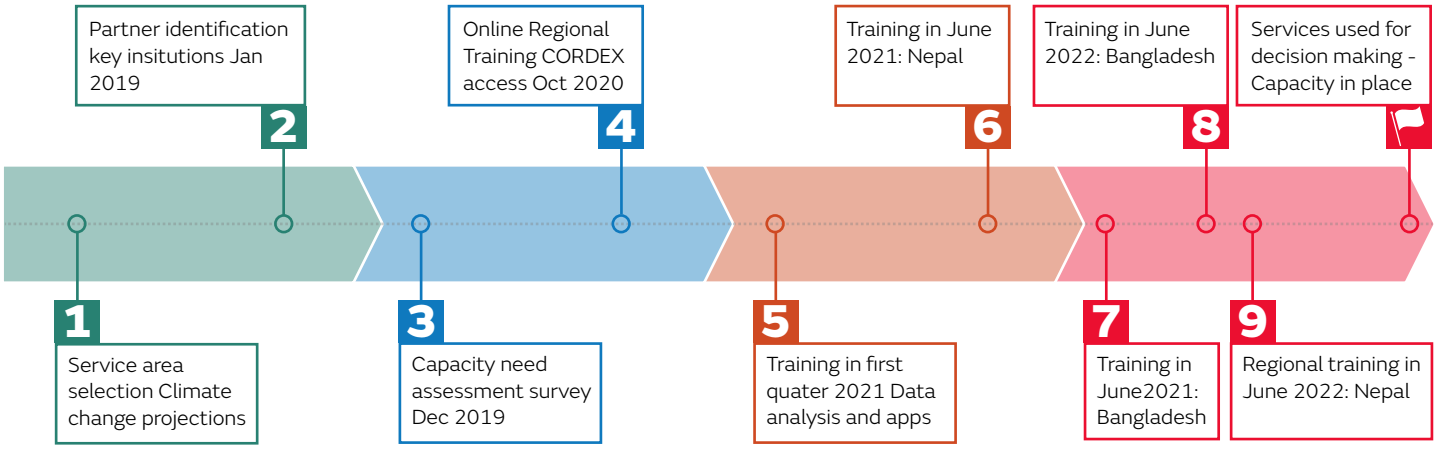
ARRCC Impact story

Strengthening capacities to analyse future climate projections and deliver climate services

Motivation

To enhance the institutional capacity of National Meteorological and Hydrological Services (NMHSs) in ARRCC focal countries, a series of training workshops were convened as part of the Climate Analysis for Risk Information and Services in South Asia (CARISSA) project. The workshops focussed on the analysis, use and communication of future climate projections. They were led by International Centre for Integrated Mountain Development (ICIMOD), in partnership with the Met Office and organisations involved in the Co-Ordinated Regional Downscaling EXperiment (CORDEX) South Asia initiative, including the World Climate Research Programme (WCRP), the Swedish Meteorological and Hydrological Institute (SMHI) and Indian Institute of Tropical Meteorology (IITM)-Pune. The capacity building has targeted NMHSs and other organisations working to deliver climate services to government, communities, and industrial sectors.

Institutional capacity building approach



Our Approach

Evidence collected from a regional training needs analysis informed the development of an institutional capacity building approach, targeting participant needs and interests. A brief overview of the CARISSA training workshops held over 2020-2022 follows.

Part 1

Regional training: climate change analysis using CORDEX regional climate models over South Asia (October 2020)

A six-day regional training workshop was held virtually using Microsoft Teams and attended by 25 participants from ARRCC focal countries. Taught sessions introduced participants to climate change science, climate modelling and downscaling of model projections to regional scales.

Interactive sessions provided experience of accessing and analysing CORDEX data sets, and using different open-source tools to visualise climate change projections at different timescales for user-specified locations. The workshop promoted discussion on knowledge gaps and capabilities. A road map was co-developed by facilitators and participants to guide subsequent support under ARRCC for institutional capacity building around climate change projections and services.

Part 2

National training: spatial and temporal climate change analysis using CORDEX regional climate projections for Nepal (June 2021) and Bangladesh (December 2021, March 2022)

Three national-level training workshops were held over 5 days and attended by participants from the Nepal Department of Hydrology and Meteorology (DHM) and climate research organisations in Nepal (June 2021), Bangladesh University of Engineering and Technology (BUET) (December 2021), and Bangladesh Meteorological Department (BMD) and the Institute of Water Modelling in Bangladesh (March 2022).

They built on the content from part 1, refreshing participant skills in accessing and downloading CORDEX data, and focused on how to apply bias calculations in CORDEX data against reference historical data sets, and more specific analysis of model simulations for user-specified locations. The training provided experience of using R-based tools to generate annual and monthly data plots using CORDEX and APHRODITE data, visualising climate change projections over different space and timescales, and interpreting uncertainty in model results.

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Part 3

Regional training: spatial and temporal analysis of climate change indices (June 2022)

The final part of the training series involved a four-day hybrid training workshop attended by 16 participants in-person from BMD, DHM and the Pakistan Meteorological Department (PMD), with some remote contributions from international experts. The workshop focussed on the Climate Data Indices Tool, newly developed at the University of Jena.

The training helped to build skills using the tool to calculate and analyse specific climate indices relevant to different sectors (agriculture, health and water resources) and using selected models for a defined region of interest. Taught sessions included CORDEX South Asia-based climate indices used in the Intergovernmental Panel on Climate Change AR6 report and bias correction methods.

Impact

Overall, the training workshops reached approximately 80 participants from across the region (33% of which were women), with many of those attending multiple training workshops and some who were able to attend the whole series. These workshops have helped to increase the capacity of people from a range of climate services organisations to access, use and generate new information from climate model data, which can be used to support their work on climate resilience in vulnerable sectors.

These events have supported the CORDEX initiative ambitions to increase the usage of CORDEX data in climate change applications and strengthened collaboration between the partner organisations involved in training development and delivery.

Group photo of participants and resource persons at the part 3 regional training (Photo credit ICIMOD)

This training has supported participants in carrying out research that can guide policymakers in developing medium- to long-term contingency plans, including for agriculture and water security. I recommend that such regional training is conducted regularly, as it allows experience and knowledge sharing between researchers from regional member countries and helps develop harmony and relationships amongst the scientific community.

Shahzada Adnan, Pakistan Meteorological Department

What's next?

Following the training series and conclusion of ARRCC, there is commitment to continue support NMHSs and climate services organisations in South Asia to generate new national climate projections and climate information products for vulnerable sectors. The outcomes and feedback from these workshops will be used to inform future training priorities under the upcoming FCDO-funded WISER Asia Pacific programme, and linked to the priority actions of the newly conceived South Asia Climate Forum.

This work was conducted in the Climate Analysis for Risk Information and Services in South Asia (CARISSA) project of the ARRCC Met Office Partnership programme.