



Asia Regional Resilience to a Changing Climate (ARRCC) Met Office Partnership newsletter

December 2021



Welcome

Welcome to the latest edition of our ARRCC Met Office Partnership newsletter. This edition covers the period from September 2021 to December 2021, highlighting some of our key activities and events during this time. We hope you will find the articles informative.

If you have been forwarded this email and would like to receive ARRCC newsletters direct in future, please [**email us**](#) with your details and consent.

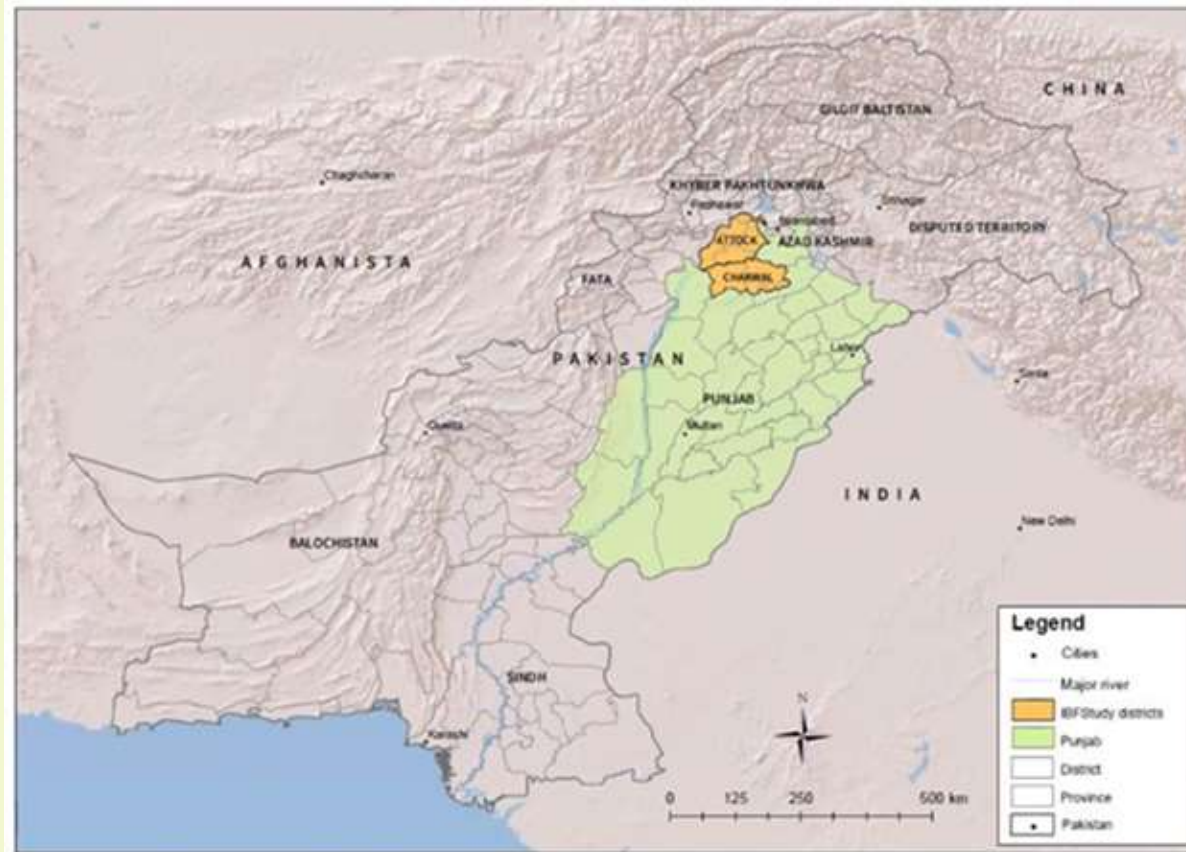
The Met Office ARRCC team

**Impact-based forecasting (IBF) -
work package 1**

Pakistan IBF pilot

Crops grown in the Potohar Plateau area of Pakistan are not irrigated and are therefore highly sensitive to rainfall patterns during the growing season. For this reason it has been selected as the focal area for an IBF pilot which will focus on the impact of the absence of rainfall.

During November ICIMOD conducted a baseline survey of 300 farmers in the Attock and Chatwal districts which are located within the plateau. (map below)



The aim of the survey is to baseline and understand the current use of agro-met advisories produced and disseminated by the Pakistan Meteorological Department (PMD) and any other weather and climate services (WCSs). This covers both the shorter-term weather timescales (1-7 days) and also longer term seasonal timescales (1-3 months).

To achieve this aim, the research is split into four objectives, which are:

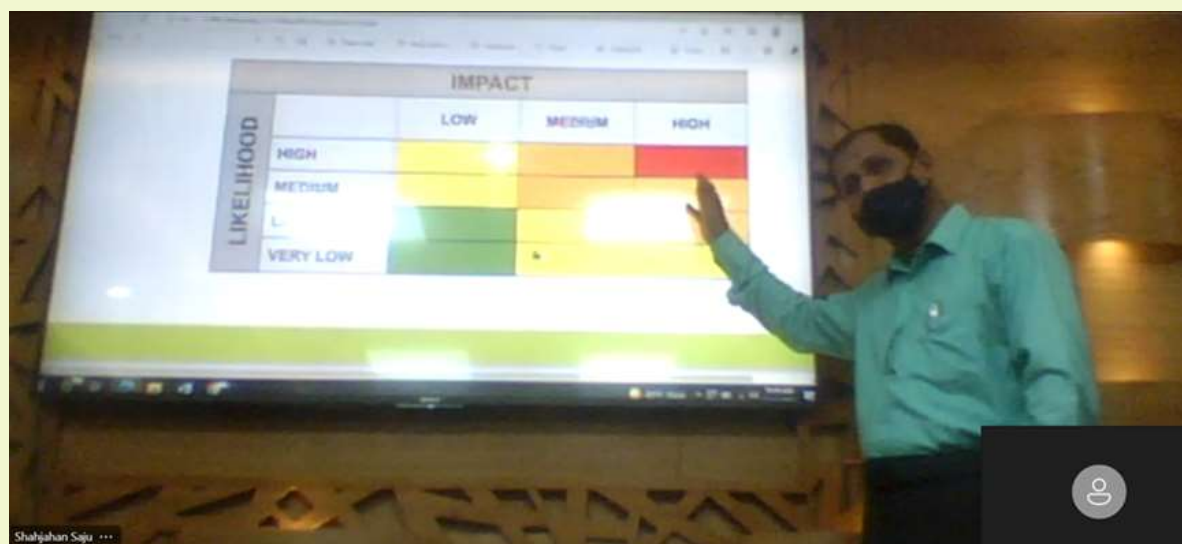
- to understand the user landscape i.e. who uses the services provided by PMD and who does not;
- to understand whether users have access to any additional sources of weather or seasonal information;
- to understand what decisions users are trying to make based on the information provided; and
- to understand how users plan their planting, crop management and harvesting activities, and the influence of weather and seasonal information on this cycle.

Data was collected using quantitative household surveying with equal numbers of men and women surveyed wherever possible. The information gathered will inform the design of the IBF pilot which is due to be launched during the Kharif growing season (April to August).

Bangladesh IBF pilot

A two-day stakeholder workshop, led by the Bangladesh Meteorological Department (BMD), took place on 11 and 12 December. Over 50 participants attended and included representatives of the Cyclone Preparedness Programme from the 13 coastal facing districts covered by the pilot. Representatives from the Ministry of Disaster Management and Relief, Department of Disaster Management and from District level officials also attended.

The impact tables and matrices which underpin the IBF product were shared along with the risk maps. Feedback provided by the stakeholders will inform further refinement of the IBF product.



This was followed up by meeting with BMD and 40 key stakeholders to share and refine the impact tables in September. Participants included representatives from each of the 13 coastal districts which could be potentially impacted by a Tropical Cyclone.

During September we have also continued to provide support to BMD in the development of the new IBF product. The IBF pilot is due to launch during the forthcoming Tropical Cyclone season.

Strengthening Climate Information Partnerships South Asia (SCIPSA) - work package 2

SASCOF-21: An outlook for the DJF season

On November 25, representatives from national meteorological services across South Asia, as well as colleagues from international research organisations, gathered virtually to co-produce an outlook for the upcoming December, January, February (DJF) season for South Asia. This season holds particular importance in Afghanistan and Pakistan where much of the total annual rainfall occurs during this time. As such, the South Asian Seasonal Climate Outlook Forum (SASCOF) community, led by RCC-Pune, has endeavoured to undertake a robust seasonal prediction activity for this season, as is done for other key monsoon seasons in the region, by holding a formal SASCOF event. This was the second DJF Climate Outlook Forum event to occur during the life of ARRCC (the first being held in November 2020), with the aim to sustainably embed this approach going forward.

Climate Analysis for Risk Information & Services in South Asia (CARISSA) -

work package 3

How well do climate models capture “drivers” of extreme precipitation in South Asia?

As part of work to co-develop climate change information for the water and hydropower sectors, the CARISSA team are producing a series of technical reports on 'Understanding and quantifying extreme precipitation events in South Asia'. The first two instalments are now available on the ARRCC website:

- [Part I - Understanding climate drivers through case studies](#)
- [Part II - Process-based evaluation of climate model simulations for South Asia](#)

Part I explores case studies of recent extreme events that have impacted ARRCC countries (e.g. through causing flooding and landslides) and the climate conditions that led to these events. The findings highlight the importance of the specific nature, location and timing of monsoon rainfall, and that extreme precipitation events are not necessarily captured by large-scale spatial averages and seasonal means.

Part II, informed by the findings of Part I, presents a “process-based evaluation” of available climate model simulations for South Asia. The evaluation focuses on how well global and regional climate model simulations capture atmosphere-ocean processes that drive the extreme precipitation. The report provides guidance and discussion on the appropriate use of climate model simulations for assessing future trends in extreme precipitation in South Asia.

Subsequent reports in the series will focus on Nepal, where work is ongoing to co-develop climate change information with hydropower stakeholders. Part III will cover the representation of extreme precipitation in observation datasets, and Part IV will present an assessment of the risk of extreme precipitation in the current and future climate.

VALUE - work package 4

The second round of surveys has been completed with cotton and wheat farming households in the Sindh and Punjab provinces of Pakistan. This followed up with farmers who participated in the survey earlier in the year to understand how they had used weather and climate information (WCIS) throughout the cropping season. Surveys were accompanied by focus group discussions which focussed on why participants were or were not using WCIS and what their WCIS needs were. The next steps will be to analyse the data collected and share findings with the Pakistan Meteorological Department (PMD) and other stakeholders in early 2022.



Interviews with female farmers

New impact stories

Two new impact stories have been published on the SCIPSA work package. They detail the motivation behind specific areas of work, the approach that was taken and the impacts this has had. The first, on [enhancing the seasonal monsoon outlook](#), highlights the new features in the seasonal climate outlook statement with feedback on how these have been received. The second, on [measuring the skill of South Asian precipitation forecasts](#), details the outcomes of this research and the next steps identified.

Two new impact stories have also been published on the CARISSA work package. They detail the motivation behind specific areas of work, the approach that was taken and the impacts this has had. The first impact story, on [creating local sea-level projections](#), explains how impacts included capacity development, managing coastal climate risks and integration into policy. The second, on [gridding climate observation records](#), included details of the capacity building and climate research impacts.

The ARRCC programme

The UK aid-funded ARRCC programme is being led by the Met Office and the World Bank and aims to strengthen weather forecasting systems across Asia. The programme is delivering new technologies and innovative approaches to help vulnerable communities use weather warnings and forecasts to better prepare for climate-related shocks.

Asia is highly vulnerable to natural disasters and this vulnerability is expected to increase. The ARRCC Met Office Partnership (MOP) programme is targeting the most vulnerable countries in the region, primarily Bangladesh, Pakistan, Nepal and Afghanistan, and will support:

1. enhancing regional collaboration and capability for provision of weather and climate services;
2. development of regional and sub-regional forecasting and early warning systems;
3. improving capacity in focus countries to develop and disseminate impact based forecasting (across multiple timescales) to climate sensitive sectors and vulnerable communities;
4. development of new technologies to deliver climate information to vulnerable groups; and
5. the mobilisation of additional resources for building climate and environmental resilience.

The Met Office is working closely with a number of key partner organisations in the region to support delivery of ARRCC, including:

- UN bodies such as the World Meteorological Organization (WMO), the World Food Programme (WFP) and the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP);
- existing regionally mandated organisations involved in development of weather and climate services, including the International Centre for Integrated Mountain Development (ICIMOD) and Regional Integrated Multi-Hazard Early Warning Systems (RIMES) and research organisations such as the International Maize and Wheat Improvement Center (CIMMYT);
- NGOs such as the Red Cross Climate Centre (RCCC); and
- National Meteorological and Hydrological Services (NMHS) and related agencies with responsibility for disaster risk management.

Find out more on the [**ARRCC Met Office Partnership webpages**](#).

Meet the Met Office ARRCC team



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