

## **Case Title: Asia Regional Resilience to a Changing Climate (ARRCC) Met Office Partnership Programme**

### **Country(ies) involved:**

Pan-regional capacity development, supporting partners in the South Asia Region: Afghanistan, Bangladesh, Bhutan, India, Maldives, Myanmar, Nepal, Pakistan, and Sri Lanka.

Four focus countries (where bilateral support provided national level capacity and service development): Afghanistan, Bangladesh, Nepal, Pakistan

### **CD Dimension addressed:**

Institutional ; Technological ; Information and Services ; Human resources

### **Purpose of the CD action/initiative:**

South Asia is one of the world's most vulnerable regions, with extreme climate-related events affecting more than half of the region's population every year.

From 2018, until its closure in August 2022, the Met Office worked in partnership with the World Bank and the UK Government's Foreign, Commonwealth and Development Office (FCDO) on the UK aid-funded Asia Regional Resilience to a Changing Climate (ARRCC) programme, successfully delivering support to over 2 million people to adapt to the effects of climate change.

The programme aimed to strengthen weather and climate forecasting systems across South Asia. This included innovative approaches to help vulnerable communities use weather warnings and forecasts to better prepare for climate-related shocks. ARRCC was delivered as four complimentary work packages, which targeted vulnerable countries in South Asia:

Impact Based Forecasting (IBF);

Strengthening Climate Information Partnerships South Asia (SCIPSA);

Climate Analysis for Risk Information and Services in South Asia (CARISSA);

Valuing the Socio-economic Benefits of Weather and Climate Information Services (VALUE)

### **Case description:**

#### **Step 1. ASSESS capacity assets and needs, establish baseline**

The Programme was informed by a scoping phase (2017) which included consultation with stakeholders across the South Asia Region on needs and opportunities for weather and climate services development. This stakeholder consultation exercise covered: development partners operating in region, intergovernmental organisations (including WMO), regional providers of information, and several national bodies including National Meteorological and Hydrological Services (NMHSs). Stakeholders were asked for views on: 1. Priorities and existing programmes in the region; 2. Organisations and structures operating regionally, their respective roles and remits; 3. Challenges around provision of regional weather and climate information services; and 4. Ideas for projects linked to regional organisations and / or services that could form part of the ARRCC programme. The assessment was then used to inform recommendations for the programme around three core outputs:

- Regional coordination: Enhanced coordination and communication of weather and climate information across the region, including the cascade of information from global to regional and regional to national.
- Institutional strengthening: Stronger regional and national hydro-meteorological and climate organisations, with enhanced capacity, responsiveness, connectivity, and institutional sustainability.
- End user innovation: Development of user-led weather and climate information products and services that allow for improved planning and decision-making over different timescales and across sectors.

## **Step 2. ENGAGE stakeholders**

Stakeholder engagement was informed initially by a desk-based review to identify recent developments in the region, collate information on donor activities and priorities, and identify current and planned regional and sub-regional programmes related to weather and climate services. The review was followed by a consultation exercise undertaken through interviews, bilateral discussions, and workshops with selected stakeholders. Consultation with NMHSs was informed through semi-structured interviews during which they were encouraged to reflect on, amongst other areas, the extent to which they were effectively interacting with their users, and the key gaps and barriers which were potentially hindering this.

## **Step 3. DESIGN capacity development response intervention**

ARRCC facilitated the co-production of weather and climate services, and products and tools, that build knowledge and awareness of specific climate impacts at national and regional levels. For example:

- The development of climate and food security analysis with the World Food Programme in Nepal.
- The piloting of impact-based forecasting systems and services in Nepal, Bangladesh, and Pakistan.
- The development of seasonal decision support systems for the agriculture sector in Bangladesh and Nepal.
- Enhancing the cooperation, forecasting approach and user engagement at the South Asia Climate Outlook Forum.

The collaborative design, development, and delivery of these tools built co-production capacity and forged working relationships across organisational and national boundaries and throughout the weather and climate information services (WCIS) value chain. These have been well adopted by institutions and users and have great potential for further scaling beyond the ARRCC programme.

## **Step 4. IMPLEMENT a capacity development, monitor and take corrective actions as necessary**

During programme delivery the overarching monitoring of progress was informed by the ARRCC ‘theory of change’ and ‘log frame’ which set the programme’s key milestones and targets. Further to this, regular review points were conducted through annual, mid-term and programme completion reviews which allowed for detailed qualitative and quantitative assessment of achievements. Regular and ad-hoc communications were also maintained with NMHSs and other project partners. This frequent correspondence meant that the programme was able to respond nimbly and quickly to change activities considering two major external challenges: 1. the impacts of the COVID-19 pandemic, and 2. funding changes brought about by pressures on UK Government Overseas Development Assistance (ODA).

## **Step 5. EVALUATE results of CD actions, communicate and recommend improvements**

As above, the programme developed a ‘theory of change’ for how it would address the key barriers to realising the full potential benefits of climate services in the South Asia region. The theory of change includes a broad set of change pathways related to building the institutional and individual capacity of both producers and users of climate services, strengthening partnerships within and across countries, and developing systems and tools that enhance the dissemination and uptake of climate services.

These activities have strengthened working relationships between NMHSs, service users and intermediary agencies, along with providing opportunities for applied learning and development in the production and use of weather and climate information to enhance resilience.

### **Application of WCD principles and CD cycle:**

#### **Principle 1: Integrated and holistic approach to capacity along the weather, climate, hydrological and related environmental knowledge and services value-chain**

ARRCC worked across a broad ‘ecosystem’ of weather and climate services, encompassing activities including short range impact-based forecasts, seasonal agricultural advisory products, and sea level rise projections. This entailed designing interventions which would incorporate the whole value chain and involve collaboration with a large range of users and producers.

#### **Principle 2: Sustainability of CD actions – enabling factors**

The programme included a dedicated work package focused on evaluating the socio-economic benefits of the services developed, using case studies to undertake this. For example, The University of Leeds and the International Centre for Integrated Mountain Development (ICIMOD) led a study, in partnership with the Pakistan Meteorological Department, to evaluate the current provision of weather and climate information services in Pakistan. In particular, the study focused on agricultural meteorological advisories aimed at cotton and wheat farmers in the Punjab and Sindh provinces of the country where rising temperatures, more frequent flooding, and prolonged droughts threaten productivity.

#### **Principle 3: Prioritization of CD actions to address critical capacity gaps and societal needs**

The interventions were aligned with the priorities expressed through the initial consultation exercise, which were subsequently grouped into 5 broad categories:

- Activities that are linked to and to, and complement, other programmes and have clear buy-in from key stakeholders.
- Regional coordination of the programme informed by development of links with existing fora including the WMO led SASCOF, SAARC and BIMSTEC groups.
- That the programme had a strong and sustained focus on building capabilities within NMHSs as well as regional providers.
- A focus on translating existing information in a meaningful manner to select sectors; and rather than attempting to cover all users, to focus on selected sectors to demonstrate “end to end” delivery of weather and climate services.

- Use of selected pilots to build on examples of what worked well from previous and existing studies. These pilots were focused on demonstration of end-to-end services for selected sectors within limited geographical areas.

#### **Principle 4: CD actions based on efficiency and innovation**

The programme led to 13 new systems and tools for climate services being implemented, with a further 35 expected to start implementation shortly. These include early warning systems, as well as the piloting and uptake of innovative new technologies. In Nepal and Bangladesh, the programme established a new early warning system for wheat diseases, combining weather information with field surveillance data from mobile phones and disease spread modelling, to submit near real-time wheat disease advisories directly to farmers' phones and through radio and other mediums.

#### **Principle 5: CD actions that build trust and enhance cooperation, equity and inclusion**

It was essential to collaborate closely with our in-region partners to clearly identify gaps in knowledge and how best to bridge these gaps with a variety of different types of knowledge products and outputs. Whilst it was recognised that it was important to identify key knowledge products at the outset of the programme, a flexible approach was required to adapt to new opportunities throughout.

#### **Principle 6: Result-based CD actions – establish/improve feedback mechanisms, evaluate and ensure continuous improvement**

See Step 4 & 5, above.

#### **Lessons learned and recommendations for wider application:**

##### **Supporting remote and blended delivery under COVID.**

Remote delivery of training offers great opportunity to reach more participants, allow for cost-reduction, and reduce travel-related emissions. Experience gained through ARRCC, however, has presented some limitations. For example, for complex technical training, such as code-based training, it can be difficult to identify those in need of specific support. The preparation time required for remote courses was typically much longer than that for in-person training as it required the set-up of online learning spaces and more precise planning. The ability to re-use material and exercises means that the initial effort in development may be recouped through future use. It is recommended that future programmes should decide on the delivery mode of training programmes based on the costs, benefits and needs of attendees.

##### **Importance of engaging and involving stakeholders across the 'value chain'**

Involving stakeholders from across the WCIS value chain was challenging due to current ways of working for information producers, and the impact of COVID-19 meaning that convening end users in-person was often not possible. This made it more challenging to ensure Gender and Social Inclusion (GESI) considerations in the tool and service design from the beginning. It is important that GESI is integrated into planning for co-production processes from the outset. Collaboration with organisations skilled in GESI approaches at the initial inception stage can help to mitigate this.

### **Time and resourcing**

Development of Impact Based Forecasting requires a significant undertaking from NHMSs so there needs to be a clear resource commitment from the outset and buy-in throughout the organisations involved. There is a need for actions to be driven by local demand and embedded within regional and national frameworks which support resources required and encourages co-production. Significant time should be spent building trust between stakeholders and building consensus around the IBF approach.

### **Collaboration and co-production**

Our activities in co-producing knowledge products within the ARRCC programme have taught us that close collaboration with partners, through developing an open and trusting relationship from the outset, is key to ensuring that knowledge products are fit for purpose, have clear objectives, and intended audience, and maximise the reach of the work on weather and climate information services. There is always a risk that knowledge products are generated which have no clear use case, resulting in inefficient use of time and funds. In addition, whilst it is important to identify key knowledge products at the outset of the programme, a flexible approach is required to adapt to new opportunities to share knowledge in an impactful way, which may arise through the programme.