Agrometeorological Activities in Nepal

Development of Agrometeorological Advisory Services in Nepal

Until **2012**, the concept of **Agrometeorological Advisory Services (AAS)** had not been prioritized in Nepal. However, during **2013-14**, discussions took place to establish **operational AAS**, and by **2015**, with assistance from the **World Bank**, these services were officially launched through a **collaborative effort between the Nepal Agricultural Research Council (NARC) and the Department of Hydrology & Meteorology (DHM).**

Initially, **26 districts** were selected for AAS implementation, utilizing **weather forecasts, historical weather data, and crop conditions** to generate **provincial-level bulletins**. These bulletins, based on **72-hour weather forecasts**, are issued **every Friday**, with plans to expand advisory services to the **district and local levels** in the future.

The **Agriculture Information Centre**, Nepal's central agency for agricultural information dissemination, plays a crucial role in **spreading AAS information**. Farmers receive these advisories via **SMS, mobile applications, and radio broadcasts**. Additionally, **roving seminars** have been organized in **26 districts** to raise awareness and enhance farmers' capacity to utilize AAS effectively.

Future Directions and Challenges

Efforts are underway to **strengthen and expand AAS** in Nepal through **short- and long-term strategic plans**. Given Nepal's vulnerability to **climate change**, greater emphasis is required on:

- **Capacity building** for the use of **ICT tools, remote sensing, and artificial intelligence in agrometeorology.**
- **District and seasonal weather forecasts** for precise agricultural decision-making.
- **Weather-based insurance** to protect farmers from climate-induced losses.
- **Public-Private Partnerships (PPP),** which currently remain underdeveloped in Nepal.
- **Smart agriculture practices** and expansion of **Automatic Weather Stations (AWS), particularly in hill regions.**

- **Climate change adaptation programs** tailored to Nepal's diverse topography and agricultural conditions.

Farmers in Nepal have begun to **recognize the value of meteorological and hydrological data** in supporting agricultural planning. Studies have shown the **positive impact** of AAS on farming activities, increasing confidence among farmers.

The **Pilot Programme for Climate Resilience (PPCR)** has played a crucial role in **helping Nepal, as a least developed country, integrate climate resilience into its development strategies.** With the **successful completion of the PPCR project**, further initiatives have been introduced to **sustain and expand** its impact.

There is a growing need for **more Automatic Weather Stations (AWS), especially in hill regions**, to support **weather-based insurance** and improve localized forecasts. Additionally, enhancing **research programs** on **crop-weather relationships, pest and disease impacts, and climate variability** will further strengthen Nepal's **agrometeorological system.**

To maximize the benefits of AAS, it is essential to ensure that advisories are **farmer-friendly**, considering that many farmers **lack literacy and technical knowledge**. Developing **simplified communication methods** and **practical field demonstrations** will help bridge this gap and improve the adoption of AAS in Nepal.

Agriculture Management Information System (AMIS)

The **Agriculture Management Information System (AMIS)** is a key initiative led by the **Ministry of Agricultural Development (MoAD)**, which consists of the following core components:

1. **Infrastructure Development**
2. **Agro-climate Information Products**
3. **Agro-Information Dissemination**
4. **Capacity Building**
5. **Support for Project Management Unit (PMU), Monitoring & Evaluation (M&E), and Outreach**

Objective of AMIS

The primary goal of **AMIS** is to deliver **critical and timely agro-climate and weather data** to farmers, aiming to **boost agricultural productivity** while minimizing losses caused by **meteorological and hydrological hazards**. Specific objectives include:

1. Establishing a system to provide **timely, relevant agro-climate and weather information**, functioning as part of an **early warning system**, to support **agriculture decision-making** for farmers and other stakeholders.
2. Ensuring **open access to data** through **information and web portals**, making it easily available to those who need it.
3. Enhancing **ICT-driven communication channels** to amplify **farmers' voices** on key agricultural concerns.
4. Mitigating the **impacts of extreme climate-related events**, ensuring more resilient farming practices.
5. Safeguarding **lives and assets** by providing actionable insights in advance of adverse weather conditions.
6. Supporting **agricultural livelihoods**, thereby improving farmers' resilience and well-being.

Different Activities under AMIS

Roving Seminar

Crop Simulation modelling Training

Dissemination through Call Centre

Mobile SIM Distribution

Kisan Call Centre

GIS Training

Drought monitoring and early warning system in Nepal

- The Ministry of Agricultural Development (MoAD), Government of Nepal and the International Center for Integrated Mountain Development (ICIMOD) join hands to develop the drought monitoring and early warning system for Nepal.

- The system incorporates suitable earth observation datasets and land surface and climatic models to produce key drought indices to inform on the agricultural drought condition in Nepal
- The agricultural drought information system allows the user to visualize drought indicators aggregated at district level along the growing season of key cereal crops in Nepal.