

**Ministry of Earth Sciences
Government of India**

New Delhi, January 28th, 2016

**UNION MINISTER DR. HARSH VARDHAN CALLS FOR FURTHER
STRENGTHENING OF WEATHER AND CLIMATE FORECAST
SERVICES TO FARMERS AND FISHERMEN**

The Union Minister for Science & Technology and Earth Sciences Dr Harsh Vardhan has mooted the idea of further strengthening services of the Ministry of Earth Sciences for providing weather and climate forecast to farmers and fishermen. Addressing a Press Conference in New Delhi today he said we all have seen significant change in quality of forecasts and the Ministry of Earth Sciences has been asked to strengthen dissemination of such data to users in the field. The Minister noted that the Gramin Krishi Mausam Seva has been successful in providing crop specific advisories to farmers at the district level twice a week. The Potential Fishing Zone Advisory Service has also been operationalized to benefit the coastal fishermen community.

The Minister of State for Science & Technology and Earth Sciences Shri Y.S Chowdary said is proposed to increasingly involve network of NGOs through State Governments to disseminate information to farmers. He said electronic media in regional languages, besides the recently launched Kisan Channel should also increasingly help in reaching such information to peasants.

The task of carrying out a comprehensive third party assessment of socio-economic benefits of these services was entrusted to the reputed National Council of Applied Economic Research (NCAER), Delhi and in its report the Council pointed out that the farming community of the country is using such Agro-Meteorological Advisory Service products for critical actions during their farm operations viz.

- Management of Sowing in case of Delayed onset of Rains;
- Shifting to short-duration crop varieties in case of a long-term delay in rainfall;
- Deferring of Spraying of pesticides for disease control on forecast of occurrence of rainfall in near future;
- Managing (curtailing) artificial irrigation in case of Heavy Rainfall Forecast.

The Secretary Ministry of Earth Sciences Dr. M Rajeevan gave a presentation on the findings of the report.

Concurrently, with the implementation of District Level Agro-meteorological Advisory Services, India has seen improved agriculture performance in the rain-fed farming, which in turn covers 60% of the total arable land. More importantly, the study found that 95% of the farmers (surveyed) have been experiencing an improved reliability of the service in recent years. The incremental profit due to Agro-Meteorological Advisory Services is assessed to be 25% of their net income.

Further, the Annual Economic Profit of 24% of the community, cultivating 4-principal crops (wheat; Paddy; Sugarcane; Cotton), after using the Agro-Meteorological Advisory Service in 2010, was assessed at Rs. 38,463crs and for the same base this has raised to Rs. 42,000crs in 2015. The study also suggests that the Gramin Krishi Mausam Seva has the potential of generating net economic benefit up to Rs. 3.3 lakh crores on the 4-principal crops alone when Agro-Meteorological Advisory Service is fully utilized by 90.3million agriculture-dependent households.

The Union Minister noted that recent efforts like the KISAN Portal, state level service partnerships etc., to enhance the penetration of SMS dissemination, has led to increase in the subscriber base to 11.50million farmers from 2 million farmers in 2010. The Ministry is intending to rope in all available agencies including NGOs operating at sub-district level, by organizing district level awareness and training programs at Krishi Vigyan Kendras. It would lead to the maximization of the outreach of the Agro-Meteorological Advisory Service and increase the SMS dissemination to cover all farming families in coming years.

The annual value addition since Potential Fishing Zone Advisory Services are being extended to one million coastal fishermen community is assessed to be Rs. 4700 crores. The GDP contribution of Potential Fishing Zone and Ocean State Forecasting services for the fisheries sector has been assessed at 3.9% in 2012-13 from 1.9% in 1995-96 and can potentially increase to 7.8%. Accordingly, the additional income to fishermen is aggregated at Rs. 3,034crores annually.

On account of increase in per unit catch due to targeted potential fishing zone identification, aggregate annual benefit is expected to be RS. 36,200crores. In addition to this there are environmental benefits as saving in overall diesel consumption which, in turn, is computed as carbon credits. Additional cumulative economic benefits are also realized from Ocean State Forecasting services by Indian Navy, Coast Guard, and value-addition for oil & gas exploration platforms (not quantified in the study).

Delving into the future potentiality of this initiative, Dr. Harsh Vardhan said that the Ministry is intending to cover all minor and medium fishing harbours in 72 coastal districts in various States and Union Territories by organizing district level workshops/awareness programs. The Ministry of Earth Sciences has been asked to prepare detailed action plans, to accomplish these targets by 2019, the minister pointed out.



Ministry of Earth Sciences (MoES) Earth System Science Organization (ESSO)



ASSESSMENT OF SOCIO- ECONOMIC BENEFITS OF AGRO-METEOROLOGICAL AND OCEAN SERVICES

28 January, 2016, New Delhi

Gramin Krishi Mausam Seva

Parameters

Rainfall, Wind speed and direction, Maximum temperature, Relative humidity, Minimum temperature, Cloud cover

Weather Prediction Products
Tuesday Friday
(valid for next 4-Days)

Composite State Level Bulletin,
National AAS bulletin

State Meteorological Centre
Agrimet Division, IMD

Value addition

•Crop specific Bulletin for total 633 districts in 13 languages.

Agromet Field Units (AMFUs): Total 130

•Uploading in IMD website (<http://imdagrimet.gov.in>)

Dissemination of Agromet Advisory, alerts on extreme weather through Multi-Channel



11.50 million farmers receive SMS

Agromet Advisory

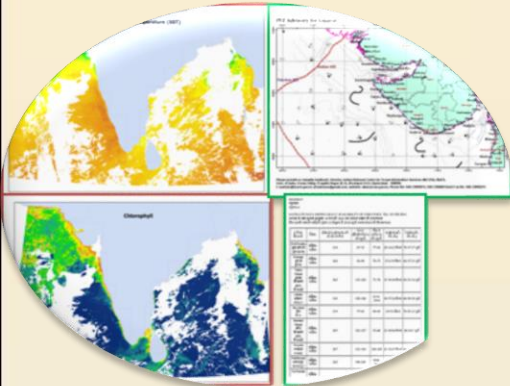


Brochures for Awareness-14 languages

Marine Fishery Advisory Service

Mission:
To make the Potential Fishing Zone advisories as part of the value chain of fishing community

**Increased User Base
(More than One Lakh Users)**

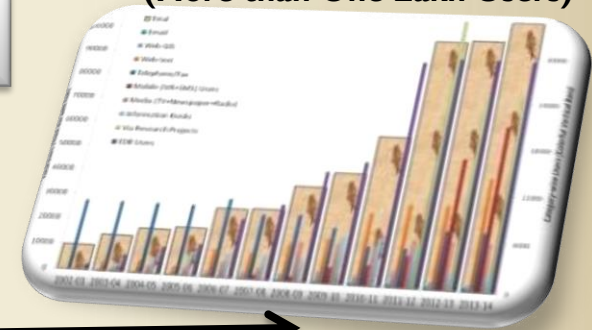


PFZ Map
& Text



Benefits

- **Success Rate:** 80%
- **Net Profit Increase:** 3-4 Times
- **Searching Time Reduction:** 30-70%



2001-02 to 2013-14

Case Study

A fishing village of 32 fishing boats in Raigad Dt., Maharashtra saving 70,000 litres of diesel

ASSESSMENT OF ECONOMIC BENEFITS

**Third Party study carried out by
National Council of Applied Economic
Research (NCAER) in 2015**

- Gramin Krishi Mausam Seva**
- Marine Fishery Advisory Service**
- The earlier reports made in 2010 and 2012.**
- Objective of the survey to elicit farmer's perception on the use of weather forecasts, crop wise, during both the Kharif and Rabi seasons.**

Benefits of weather forecasts

- The NCAER survey revealed that the weather forecasts help farmers in two ways:
 - Control on farm expenses
 - Increase in net farm income
- Thus, it was necessary not only to compute the overall net income from crop production but also the expenditure incurred by farmers on farm inputs.

Context of Agricultural Practices in India

(Findings on Gramin Krishi Mausam Seva -AAS)

- **Reliability of Forecasts:** 93% of farmers say they are very reliable
- **Improved reliability of service:** 95% farmers (last 2-4 years) say forecasts have improved
- **Most of farmers felt that there had been an improvement in the timeliness of the weather forecasts.**
- **Among various components of weather elements, rainfall component has the highest priority.**
- **Farming community currently using the weather forecast products for**
 - **Management of Sowing – Delayed onset of Rains**
 - **Changing Crop Variety – Delayed Rainfall**
 - **Spraying Pesticides for disease control – Occurrence of Rainfall**
 - **Managing Irrigation – Heavy Rainfall Forecast**
- **Concurrently, with District Level Agro-meteorological Advisory Services (AAS) implementation, the country has seen improved agriculture performance in the rain-fed farming (which covers 60% of arable land)**

Findings on Gramin Krishi Mausam Seva (Agro-Meteorological Advisory Service)

- **Estimated Annual Economic Profit by using AAS products**
 - **4-Crops (wheat; Paddy; Sugarcane; Cotton):**

	Rs.	38,463crs(2010)
	Rs.	42,000crs (2015)
 - **Top 11 - Principal Crops:** **Rs. 50,555crs (2010)**
 - **Top 11 - Principal Crops:** **Rs. 56,310crs (2015)**
 - **Top 28 - Principal Crops:** **Rs. 67,000crs**
- **GKMS has the potential of generating net economic benefit up to**
 - **Rs. 3.3lakh crs on the 4-principal crops**
 - **Rs. 5.2lakh crs on the 28-principal crops**
(assuming all farmers make use of the service)

Fishing community

- Roughly one million people are active fishers
- Approximately 0.66 million people are involved in allied fishing activities such as marketing fish, processing fish etc.
- 44% of fishermen are uneducated
- Marine fisheries accounts only 33% of total revenue from fisheries activities
- the foreign exchange earnings from exports is 3%.

POTENTIAL FISHING ZONES (PFZ), OCEAN STATE FORECAST (OSF) ADVISORY SERVICES

- Annual value addition during the Post PFZ (post 2004-05):
Rs. 4700crs (1.0million marine fishermen)
- Economic benefits due to PFZ and OSF Services are
 - Annual Growth of Production in fisheries sector increased from 1.9% (1995-96) has grown to **3.9% (2012-13)** (potential to grow up to 7.8%)
 - Additional Annual Income to the Fishermen: **Rs. 3,034 crs (2012-13)**
 - Annuity amounts to **Rs. 23,800crs** over a 25-year useful life
- Estimated Saving due to reduced diesel consumption computed as carbon credits: **Rs. 36,200crs per annum**
- Additional cumulative economic benefits are also realized by Indian Navy, Coast Guard, value addition of oil & gas exploration platforms (**not quantified in the study**)

Future Strategy

- **Expansion of Agro-Meteorological Advisory Service units to cover all farmers**
 - Roping in all available agencies including NGOs at sub-district level by organizing Awareness and Training Programs at Krishi Vigyan Kendras
 - Increase spatial and temporal resolutions of forecasts
 - Nowcasting (up to 3 hours) and Extended Range Forecasts (15-20 days)
- **Extension of Marine Fishery Advisory Service**
 - Engaging Fishermen of small and medium fishing harbours in 72 coastal districts of states and Union Territories by organizing Awareness and Training Programs
 - Plans for improving Potential Fishery Zones Advisories
 - Launch of Coastal Marine Pollution Monitoring and Advisories

Thank You