

INDIAN KNOWLEDGE OF WEATHER FORECASTING MECHANISMS AND DOCUMENTATION NEEDS

Dr. Mangesh Pathak

Assistant professor, Sanskrit department, R. S. Mundle Dharampeth Arts and Commerce

College, Nagpur. 9423148771

Mangeshnpathak9@gmail.com

Abstract:

This study endeavours to bring to the forefront the pressing necessity for recording the traditional methods of forecasting the weather. In a predominantly agrarian country such as India, where two-thirds of the population directly derive their livelihood from land resources, accurately forecasting both short-term and long-term weather conditions is crucial for developing effective crop strategies and managing farm operations. Local farming practices are often based on traditional knowledge that has been passed down through generations, accumulated over hundreds of years and shared orally. Conversations with farmers in Malegaon and Takli, located approximately 50 kilometres north-west of Nagpur in the Savner Tahsil, have revealed that they employ traditional knowledge with a high degree of precision and a success rate during the farming season. A comprehensive review of the existing literature has shown that this valuable practical information has not been thoroughly documented in India on a large scale. Research has been carried out in isolation to collect and record this information.

A methodology and environmental indicators have been proposed in an attempt to facilitate the collection and documentation of indigenous knowledge. It would be beneficial for researchers to conduct studies based on this research design.

Key Words: Traditional Knowledge, Weather Predictions, Documentation, Methodology

Introduction

The Indian economy is primarily based on agriculture. Approximately two-thirds of the country's population continues to directly rely on soil and land resources for their livelihood. The growth and development of the Indian economy are heavily reliant on agricultural production. The stability of governments at the national and state levels relies on agricultural sector output and people's access to affordable food grains.

India is essentially a tropical country. Consequently, the temperature does not control the agricultural sector. But it is heavily dependent on monsoon rainfall, whose variability in time and space has adversely affected agricultural production. It is said that the economy of India is a gamble of the monsoons. In non-irrigated areas, it is at the mercy of the rain god. As a result, when rain fails, agricultural production is badly affected. Still 62 percent of the agricultural area is rain-fed. The failure of monsoon leads to drought and famine, which ultimately leads to food insecurity. Thus, the characteristic of Indian rainfall has a dominant role in disturbing the economy of the nation, way of life, mode of living, etc. Despite a lot of scientific and technological development, our dependence on monsoon rainfall has not been minimised (Tiwari, 2004).

The Significance of Indigenous Weather Forecasting Methods.

In this perspective, traditional knowledge of weather predictions has an important role to play in Indian context. Indigenous or traditional knowledge refers to the knowledge and know-how accumulated across generation and renewed by each new generation, which guide human societies in their innumerable interactions with their surrounding environment (Nakashima, 2012, P.7). Traditionally; farmers have used traditional knowledge to understand weather and climate patterns in order to make decisions about crop and irrigation cycles (Regalakshmi). Thus since ages farming community has developed established knowledge on weather predictions. In fact, farmers of India at local level are using such knowledge from start to the end throughout agricultural season to plan and decide timing of various agricultural operations and protect their crops. It has been developed on the basis of their understanding and observations of the various biotic and a-biotic components of the local environment and ecosystem. This has been passed on from one generation to another orally. Through this, they have developed defensive mechanism to reduce their losses.

The distinction between Traditional and Scientific Knowledge is significant.

Traditional knowledge is instinctive and based on experience and therefore holistic . It is preserved in the minds of communities. Remarkable differences between traditional and scientific knowledge is presented in Table 1.

Table 1: Comparison of Traditional and Scientific Knowledge Styles

Traditional Knowledge	Scientific Knowledge
Assumed to be the truth	Assumed to be a best approximation
Sacred and secular together	Secular only
Teaching through storytelling	Didactic
Learning by doing and experiencing	Learning by formal education
Oral or visual	Written
Integrated, based on a whole system	Analytical, based on subsets of whole
Intuitive Model	hypothesis-based
Holistic	Reductionist
Subjective	Objective
Experiential	Positivist

Source: ANSC, 2005 (http://www.nativescience.org/html/traditional_and_scientific.html)

It is imperative to record this information in arid regions immediately.

Review of literature revealed that not much attention has been paid on this critical issue of research in India, particularly in the context of climate change. Climate change is adversely affecting agricultural sector due to its heavy dependence on rainfall. Recently, the inconsistency of climatic conditions has drawn much attention. The most important sufferer is of course the agricultural sector of semi-arid areas. Much of the part of Vidarbha comes under the semi-arid climatic conditions. The current generic forecast information does not help farmers make alternate decisions at the farm level (Regalakshmi).

After an intense investigation of published literature it is realised that traditional knowledge of weather forecasting has not been documented. Some isolated studies at local level have been conducted (Rengalakshmi, Chinlambianga) but wide scale efforts are missing.

Under such circumstances if young generation of farmers is provided with authentic documented area-wise information of indicators of weather predictions, it will serve their purpose. They can use this information to take decision. Therefore, it is felt that investigating traditional knowledge and connecting with the current knowledge is the need of the hour.

Objectives:

The provided information originated from. This will establish a research framework and facilitate the investigation of these concerns at the local or village level.

Source of Information:

Secondary sources, research and case studies were consulted to identify the types of indicators that could be used to gather information on traditional weather prediction knowledge. Farmers from the Malegaon and Takli areas of Savner Tahsil were consulted before finalising the list of indicators for weather forecasting. The compiled data have been summarised, tabulated and examined statistically.

Discussion

Age Group for Individual and Focussed Group Discussion: Farmers have local long-established conventional information to predict and forecast the approaching weather conditions. These people use diverse warning signs of environmental indicators to guess coming weather conditions. They use this knowledge as early forewarning system. This helps in adjusting farm work as per the changing weather. Therefore 70 + age group is recommended for discussion and investigation taking into account their vast experiences.

The Study Area/ Region for Research: A village unit and tribal areas should be focussed for investigation. Perceptive of elderly tribal's and farmers regarding weather and climate will definitely benefit agrarian society at large. On priority basis semi-arid areas of Vidarbha (Western Vidarbha) which is moderately to highly drought prone (Girgaonkar, 2002), should be selected for investigation.

Methodology: Prepare tables for recording considering all environmental indicators separately (suggested in Table 2). After selecting an area, work together with local farming community and perform survey to know about people's viewpoint and practices on weather forecasting. Gather information from them through direct interaction. Arrange repeated discussions with selected farmers/ tribal's (70+) to understand local situation. Discuss and judge various signout biotic and other indicators used by the individuals and record the information carefully. If possible document forecasting incidences of the last five years. Gather data about

plant and animal species used by them and their behaviour used for predictions of weather conditions.

Environmental Indicators: After investigating various secondary sources and discussions with farmers of Malegaon-Takli, 50 KM from Nagpu, a list of biotic and other weather-related environmental factors of weather predictions has been prepared and presented in Table 2. Researchers can prepare tables for the survey work considering these indicators.

The discussion would centre on the specific time of year or month when the indicator is observed, the purpose of using it, such as forecasting low rainfall, high rainfall, or drought conditions, as well as the duration of long dry or wet spells, including predictions for the approaching rainfall in a few days or hours, the early or late finish of the rainy season, the earliness or lateness of the rain's arrival or departure, and the characteristics of the rainfall, including whether it's beneficial or detrimental, ultimately impacting the quality of the cropping season. Facets of the prediction's reliability, including high, low, or moderate levels, should also be examined and documented during discussions.

Summary and Recommendations

It is clear from the preceding discussion that, based on traditional knowledge, a specific prediction of rainfall, especially for semi-arid regions, can be made to safeguard crops and coordinate farm activities in light of climate change. Current satellite-based weather forecasts are quite reliable at the national and regional scales, but at the local farm level, indigenous knowledge is of the utmost importance. This traditional knowledge, rooted in centuries of experience and observations of environmental indicators, should be considered for everyday use. Therefore, investigation, reporting, and documentation are essential.

References

ANSC (Alaska Native Science Commission) (2005): What is traditional knowledge? http://www.nativescience.org/html/traditional_and_scientific.html.

Chinlapianga, M, (2011): Traditional Knowledge, Weather Predictions and Bioindicators: A case Study in Mizoram, India, Indian Journal of Traditional Knowledge, Vol. 10(1), January 2011, pp. 207-211

Girgaonkar S., (2002): Drought Assessment for Vidarbha and Rural Development, Unpublished

Mengistu Dejene, (2011): Farmers Perception on Knowledge of Climate Change and their Coping Strategies to the Related Hazards: Case Study from Adiha, Central Tigray, Ethiopia, Agricultural Sciences, Vol.2, No 2, pp. 138-145

Nakashima, D.J., (2012): Weathering uncertainty: Traditional Knowledge for Climate Change Assessment and Adaptation, Paris, UNESCO and Darwin, UNU, pp. 120

Rengalakshmi R.: Harmonising Traditional and Scientific Knowledge Systems in Rainfall Predictions and Utilisation, <http://www.millenniumassessment.org/documents/bridging/bridging.12.pdf>

Linking Traditional and Scientific Knowledge Systems on Climate Prediction and Utilisation, <http://www.unep.org/maweb/documents/bridging/papers/raj.rengalakshmi.pdf>

Tiwari R. C. (2010): Geography of India, Prayag Pustak Bhavan, Allahabad