

Promotion of meteorology in developing countries : How better awareness can be created among public and decision makers

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1. Introduction

While some literature is available on cost-structure and socio-economic roles of national meteorological services (Berggren 1975; Bernard 1973, 1975, 1976; Schneider 1975, there does not seem to be any significant amount of published work on promotion of meteorology in general, and in developing countries in particular. Promotion of meteorology and the efforts to create a better awareness among public and decision makers have been largely matters of local endeavour within national meteorological services without any appreciable sharing of experiences except for occasional informal conversations at international meetings. Therefore the initiatives by the World Meteorological Organization (WMO) and its Constituent Bodies are welcome. In this context, mention may be made of the Informal Meeting of the Heads of National Meteorological Services in Regions II and V (Singapore 1987), and the WMO Technical Conference on Economic and Social Benefits of Meteorological and Hydrological Services (Geneva 1990).

2. Understanding the issues — Keywords

In order to conceptualize the subject of this presentation, it is advisable to have a close look at the following keywords in the title and understand their full connotations in the present context.

Meteorology

Gone are the days when the role of meteorology was confined to support one or a few user services such as aviation, shipping or agriculture. Today meteorology is the science which tries to understand the mechanism of changes in weather and climate and applies this knowledge for better fulfilment of those needs of the society which depend on the atmosphere and its associated system. Modern meteorology has a prominent role in socio-economic development, especially in developing countries.

Developing countries

There appears to be no precise definition of a developing country. Economic analysts seem to have started referring to "developing" and "developed" countries a few decades ago. The membership of the "Group of 77", established in 1964, is now around 130. Broad criteria seem to be :

- * Gross national product
- * Level of industrialization
- * Structural diversification of national economy
- * Acceptance of aid from UNDP

General public

While the entire population constitutes the general public and better awareness of the role of meteorology has to be created among all the citizens, special emphasis needs to be placed on informing the leading sections of society who are present or potential opinion leaders. These comprise :

- * Intellectuals
- * Educators
- * Communicators
- * Community workers
- * Youth at school and college levels
- * Special interest groups, such as agriculturists; industrialists; small scale entrepreneurs; sports recreation & adventure groups.

Decision makers

Government authorities constitute the bulk of decision makers in any country. Apart from the political

Note :—This article is based on a lecture presented by the author at the informal meeting organized by the World Meteorological Organization in Singapore in September 1987 to discuss problems in promotion of meteorology in developing countries. Many of the ideas expressed in this article have been put into practice in the India Meteorological Department with good results over the last four years. This article is now published in *Mausam* for dissemination of the concepts to a wider meteorological community.

leadership of government, some sectors whose decisions could significantly affect the demands on meteorological services are :

- * Agriculture, including fishing
- * Water resources & irrigation
- * Energy
- * Public health
- * Tourism
- * Aviation
- * Shipping & other ocean related activities
- * Town & country planning
- * Construction
- * Transport
- * Telecommunication
- * On-shore and Off-shore exploration
- * Environment & pollution
- * Scientific research
- * Defence

In addition, certain national non-government authorities (such as Statutory Bodies, Learned Bodies or Advisory Bodies) and citizen action lobbies (like environmentalists or conservationists) also contribute to the decision making processes.

Better awareness

Better awareness can be created only by better dissemination of knowledge, better understanding, and better realization of the different aspects of the science and profession of meteorology.

Promotion

The dictionary meanings of promotion are as follows:

- Help the progress of
- Encourage by publicity
- Publicize the products of
- Provide information to win public interest
- Bring to attention of public
- Keep the products constantly before the public

While each of the above listed six phrases explains the process called "promotion", there are subtle differences of detail. Therefore for effective promotion, appropriate methodologies have to be employed to :

- Help the progress of (meteorology)
- Encourage (the meteorological effort) by publicity
- Publicize the products of (the national meteorological service)

- Provide information (on the socio-economic benefits of meteorology and the use of meteorological data for national development) to win public interest.
- Bring (the achievements and limitations of national meteorological service) to the attention of public.
- Keep the products (of national meteorological service) constantly before the public.

Promotion of meteorology

From the above effort at conceptualizing the issues, it would be evident that efforts at promotion of meteorology should take the following routes :

- * Creating awareness by publicity
- * "Selling" meteorology to the public and decision makers by presenting the achievements, potential and the limitations of meteorology in a convincing manner stressing their role in national development
- * Building the image of the science and profession of meteorology and of national meteorological service

3. How to achieve these objectives — Three anchor points

An effective and successful promotion campaign rests on the following three anchor points :

- * Excellence of the product(s)
- * Effective publicity
- * Eternal vigilance

Translated into the context of promotion of meteorology, this would mean that we need to ensure the following :

- * Maintaining a bright image of national meteorological service which in turn depends upon the internal strength of the service and the quality of its output
- * Mounting effective promotional efforts which should be tailor-made for each target audience (user group) and should be explained in an idiom appropriate to each target (user) group
- * Regular review and re-adjustments

The following Sections contain some suggestions to achieve success in these directions.

4. Image of national meteorological service — Its internal strength and the quality of its output

The image of a national meteorological service is determined by its internal strength and the quality of services and output products. These in turn depend on the affiliation and structure of the national meteorological service, the personal image of its Head, the

technical facilities, competence of personnel, and range of output products. All these factors should, individually and collectively, inspire confidence among the public and decision makers. National meteorological services would do well to have well defined objectives, conduct management by objectives, ensure careful forward planning and be alert and ready for emerging situations as is often the case in developing economies. A healthy sensitivity to societal reaction will be helpful in brightening the image of a national meteorological service.

In regard to the factors enumerated in the preceding paragraph, the following suggestions would go a long way to upgrade the internal strength of a national meteorological service and the quality of its output thereby brightening its image.

Affiliation — For a balanced and all round development of national meteorological service, it should not be affiliated to any particular user interest such as aviation, shipping, etc. It is preferable that a national meteorological service should function under an umbrella Ministry such as Science & Technology or Natural Resources or Environment or Planning.

Structure — Senior management structure and the titles of the senior personnel are the most visible aspects of the image of national meteorological service. Care should be taken to avoid a rigid bureaucratic structure with non-scientific or non-descript designations such as general managers, controllers or chief executives, especially for the senior management personnel. The management structure should provide for an effective public relations and information outlet system.

Facilities — The facilities should bear a neat, tidy and business-like look as would be fit a scientific and professional service organization. The library of books and meteorological records should be a visible feature. To the extent resources permit, increasing use should be made of computers beginning with PCs which do not cost much. Occasional open-house for public, especially for students, is helpful for promotion of meteorology among general public.

Personnel — On-job-training and continuous updating of competence among the personnel will contribute a great deal to generate confidence of public and decision makers in a national meteorological service. Apart from competence in meteorology, the personnel should be well informed with a good perception of national goals and aspirations and role of meteorology in achieving these. They should develop speaking and writing capabilities and build up the faculty of committee-manship in order to be effective when interacting with decision makers. Above all, the personnel should possess a sense of involvement along with the pride of belonging to an interesting science and a challenging profession. Their commitment and belief in the role of meteorology as a tool for national development have to be of a high order. Subtle suggestions to achieve attitudinal corrections, inculcation of team spirit, and development of optimistic outlook will go a long way to achieve the desired objectives.

Product — Quality control of meteorological data at every stage, from measurement to archival, is essential to ensure the quality of the service. Weather forecasts constitute the most visible output products of national meteorological service and any improvement in the weather forecasts will contribute very significantly towards brightening the image of a national meteorological service, thereby serving the objective of promotion of meteorology. A system of regular feedback and review should help in maintaining/improving the quality of weather forecasts. Issue of authoritative statements on meteorological topics of current national interest by national meteorological service will have very useful educational value to the public and opinion leaders, and will serve the cause of promotion of meteorology very well.

Forward planning — A national meteorological service, that thinks ahead, generates confidence and respect among public and decision makers. Every national meteorological service should draw up a 10-year profile (prioritized in the national context) of which the immediate five-year schedule should be in good focus. As resources permit, new disciplines should be started and new facilities should be established taking care to avoid sub-critical investments. Over-dependence on external assistance should be avoided. In meteorology, a lot can be accomplished by own national resources. Building up self-reliance by encouraging local talent and by efficient use of scarce resources will project a very desirable image of a national meteorological service.

Management by objectives — An annual or biennial SWOT (Strengths-Weaknesses-Opportunities-Threats) analysis for each subject/area/division of national meteorological service will be helpful in refining the objectives in that subject/area/division. National meteorological service should set certain basic directive principles for its management. A few examples are: openness, objectivity, excellence, co-operation, scientific attitude. Basic directive principles, if chosen carefully and implemented faithfully, will project a convincing image and an inspiring personality of national meteorological service, which should clearly and increasingly be counted among nation's premier, scientific, inter-disciplinary, development agencies.

Personal image of the head of service — A positive and inspiring personal image of the Head of the national meteorological service makes a very significant contribution to promotion of meteorology in a country. He or she has a very important role, being always under scrutiny of staff, decision makers, media and the general public. The Head of Service is required to project the image of:

- * Competent scientist (it certainly helps to be a meteorologist)
- * Efficient manager
- * Capable of achieving good interagency relations in the country

- * Promoter of useful international relations in the meteorological field, especially with the neighbouring countries and with international organizations such as WMO
- * Enthusiastic supporter of the country's developmental goals, and
- * Wise counsel who is heard with respect by Government

To achieve this image, the Head of Service has to be an astute judge of the on-coming opportunities and should be able to seize them. He or she should develop the faculty to turn adversity into opportunity. Needless to stress, the Head has to maintain and upgrade scientific, technical and managerial competence among his colleagues.

5. Effective promotional efforts — Tailor made for each target audience

As already indicated, the promotional efforts in order to be effective have to be tailor-made for each target audience (user groups) and should be explained in an idiom appropriate to each target (user) group.

The following are some suggestions in this regard :

- * *To promote a favourable general image*
 - Tidy and business like working environment
 - Good impression on telephone and in personal conversation
 - Quick response to correspondence
 - Well drafted and well typed communications
- * *To inform the general public*
 - Articles in newspapers
 - Talks, discussions on radio and television
 - Sponsored programmes or features in media on important international/national meteorology-related occasions
 - Talks in clubs, service societies
 - Open-house on selected occasions

The aim has to be to inform the general public about meteorological phenomena; role of meteorology, climatology, and hydrometeorology in national development; how weather forecasting is done and about the on-going activities, achievements and plans of national meteorological service. Sustained support can come only from a well informed general public who should have authentic information on the current applications, potential and limitations of the science and profession of meteorology. It is the duty of national meteorological service to ensure that in the mind of general public, there is no mystique or mystery about meteorology or the meteorological service.

- * *To educate school and college students*
 - Encourage visits to meteorological facilities
 - Give talks to student bodies in schools & colleges
 - Participate in their science programmes such as science fairs, quiz, exhibitions
 - Start Meteorology Study Circles in schools and colleges
 - Give grants-in-aid for equipment, research and seminars
- * *To interact with opinion leaders and speciality groups*
 - Arrange awareness programmes such as lectures & group discussions
 - Explain the potential and limitations of meteorology in the national context
 - Stress the wide range of applications of meteorological data for development
 - Focus on visible and high impact items in the framework of national development
 - Assess the requirements of meteorological data or processed information for their programmes and projects
 - Provide them the desired service
- * *To upgrade the on-going services to different user interests*
 - Build up (and regularly upgrade) the capability of national meteorological service to serve user interests
 - Meteorological information has to be objective and well balanced
 - Seek a say in the planning process of user agencies
 - Evolve a regular machinery of participatory process with users of meteorological data/processed information
- * *To establish rapport with non-government bodies*
 - Take initiative to increase interaction by participating and assisting in their programmes
 - Develop special rapport with scientists, intellectuals, educators and opinion leaders
 - Secure their co-operation to serve on advisory committees of national meteorological service
- * *Establish a national meteorological society*
 - Start a research journal

* *To raise the status of national meteorological service*

- Stress the wide ranging applications of meteorological and climatological data
- Emphasize the socio-economic benefits of meteorology and its increasing role in national development
- Strengthen the administrative and working bonds with national government agencies
- Develop and intensify links with national scientific agencies and learned societies
- Develop the scientific base and scientific image of national meteorological service
- Adopt sound managerial and public relations practices to maintain the status of the service
- Make use of WMO and its programmes

* *To increase societal interaction on national scale*

- Apprise the community of the capabilities of meteorology as an instrument of progress & development
- Convince the decision makers of the utility of meteorology as a tool of socio-economic progress with a very favourable benefit-to-cost ratio
- Bring meteorology in the mainstream of national development

* *To develop international co-operation*

- To take active part in WMO activities
- Ensure close co-operation and active working relationship with neighbouring meteorological services

Regular review and adjustment

It is not sufficient to build the image of the science and profession of meteorology. It has to be maintained carefully and sustained assiduously if promotional efforts are to lead to a durable upgradation of the status of meteorology and national meteorological service. This calls for regular review of performance of a national meteorological service and effectiveness of promotional programmes, and consequent adjustments as necessary.

National meteorological services have to be vigilant otherwise one action (or inaction) can give considerable setback to the promotional efforts and success of the past. Problem areas (within or outside the Service) need to be identified, in advance if possible, and timely remedial measures should be taken.

For this purpose, feedback is very important. This can be achieved by keeping regular tab on general feelings among all categories of staff, decision making agencies of government, sister departments, national scientific and advisory bodies and pressure groups, if any. National meteorological services should evolve

a system of feedback analysis from each committee, meeting, seminar, attended by any staff in the country or abroad. Regular scanning of scientific literature, managerial literature, and media news will also provide useful feedback.

7. A few words of caution

Care has to be taken that in the enthusiasm to promote meteorology, credibility gaps are not created in the minds of general public or decision makers. National meteorological services, especially those in developing countries, have the duty to maintain proper perspective in this regard. There has to be a balance between promise and practice and between claims and realization. Further, this balance and credibility should be self-evident for everyone to see. All plans, actions, advice and claims should not only be logical but should clearly appear to be so.

Promotional efforts should appear to be neither naive nor oversmart. Promotional campaigns should have clear messages and should not suffer from conceptual confusion.

National meteorological services may not try to promote meteorology by commissioning professional marketing agencies because the aim is neither to create a dream world by upstaging reality nor to provide an attractive wrapping to a consumer product. The objective of a national meteorological service is to ensure the quality of its products and make useful contribution to various areas of national development. Therefore, promotion of meteorology has to be a subtle process backed by excellence of performance and tenacity of effort. Only then, it will create a lasting impression on the general public and decision makers. Hence national meteorological services, especially in developing countries, should rely on their own instincts and experience to create better awareness among general public and decision makers in their countries by devising their own home-spun responses to the genius of their public and decision makers.

8. Conclusion

This article has attempted to document a general framework for promotion of meteorology and for creation of better awareness among general public and decision makers in developing countries. Needless to say, these general suggestions will require to be converted to specific action plans by a national meteorological service according to its specific national needs taking into account the current status and growth profile in the national context.

Even then one thing is certain irrespective of the scale or scope of the promotional effort in a particular developing country. A half-hearted attempt with cliché-ridden campaign will not do. A well planned, enthusiastic, and sustained action with specific goals, defined objectives and clearcut strategies, will be required.

If a national meteorological service succeeds in "selling" meteorology to general public and decision makers and if the latter get "hooked" to the application

of meteorology for national development, it would be a sure indication that meteorology has taken deep roots and that there has been a real promotion of meteorology in more sense than one.

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