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Development of national meteorological services in response to users' needs

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सार — किसी भी देश के सामाजिक-आर्थिक विकास के विभिन्न क्षेत्रों में, मौसम विज्ञान के निवेश विस्तृत रूप से महत्वपूर्ण भूमिका अदा कर रहे हैं। अत: राष्ट्रीय मौसम विज्ञान सेवाओं को, प्रभावी सहयोग को सुनिश्चित करने के लिए, अपने उत्पादों और सेवाओं को उन्नत करने की आवश्यकता है। यह निश्चित करना होगा कि राष्ट्रीय मौसम विज्ञान सेवाओं में योजना की प्रक्रियाओं में प्रयोक्ता की आवश्यकताओं का ध्यान रखा जाए। इस संबंध में प्रयोक्ताओं के साथ समुचित परस्पर प्रभावशील प्रक्रिया का विकास करना उपयोगी रहेगा।

ABSTRACT. Meteorological inputs are increasingly playing an important role in various sectors of socio-economic development of any country. It is, therefore, essential for national meteorological services to upgrade their products and services to ensure effective contribution. This would necessitate that planning processes in national meteorological services take into account users' needs. It would be useful to develop appropriate interactive mechanism with users.

1. Introduction

There was a time, not very long ago, when the involvement of meteorology was confined mainly to aviation, shipping and agriculture. This is apparent from Article 2 (d) of the Convention of the World Meteorological Organization (WMO) which states that one of the purposes of the Organization shall be "to further the application of meteorology to aviation, shipping, water problems, agriculture and other human activities". That was a little over four decades ago. We have to admire that the founders of WMO had the foresight to add the phrase "other human activities" to the stated purpose of the Organization, although the future extent of involvement of meteorology in human activities and its implication to society might not have been fully appreciated at that time.

The role of a national meteorological service is no longer confined to support just a few user sectors, such as aviation or agriculture. Today, meteorology pervades almost all endeavours of national development. Weather and climate are very valuable resources. Variations in these natural resources influence considerably the economic and social activities in all societies — developed or developing. Modern meteorology is the science that tries to understand weather changes and climate characteristics on national as well as global basis; and applies this knowledge for better fulfilment of those needs of society which depend on earth's atmosphere and its associated system. Now meteorology has an increasingly important role to play in socio-economic development, especially in developing countries; and it will continue to be so in the future. The national meteorological services have a bounden duty to their citizens and decision makers to play this role efficiently and convincingly.

2. Role of a national meteorological service itself an indicator of nation's development

It is obligatory on the part of national meteorological services to upgrade visibly their effective participation in the economic and social planning processes in their countries. To fulfil this objective, the national meteorological services need to ensure excellence of their products, launch effective promotional efforts, and instal a result-oriented internal system of regular review and readjustment. The general public has to be kept informed of the role of national meteorological services as

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important instruments of development and progress. The opinion-leaders and decision-makers have to be convinced of the effectiveness of meteorological services as valuable tools of socio-economic progress. Meteorology needs to be brought to the mainstream of national planning and development process. Awareness and confidence among citizens and decision-makers about the importance and usefulness of national meteorological services in routine activities and in development processes will enhance the involvement (and thereby the role and status) of national meteorological services in economic and social progress. In fact, role and status of a national meteorological service are in themselves good indicators of the state of overall development of the country.

3. Crucial times ahead

While recognizing that the involvement of meteorology in the life and part of society will continue to increase, national meteorological services are at a stage in this development process where it is necessary to pause to take stock of the situation and to see the tasks ahead in a clearer perspective than what was possible four decades ago, or what could have been possible even a decade ago.

It is the considered opinion of the author that national meteorological services are at the threshold of an exciting era when in all countries, society is conscious of the immense potential of contributions from meteorology to the economic and social development of community; when effective tools seem to be in meteorologists' hands or within reach; when the political will of nations is in favour of development of meteorology irrespective of the political systems followed in individual countries; when there is a time-tested and dynamic international organization like WMO to aid and assist in more ways than coordination only. Yet, in many ways, meteorological services are also at the cross-roads of history today where a wrong step, or inadequate preparation, could put the clock back and create a credibility gap for meteorologists *vis-a-vis* society.

4. Importance of users' needs

In most of the countries till recently, planning and development of a national meteorological service went ahead according to perceptions internal to the organization. This continues to be the position in many countries even today. In such a situation, the users could get only that which suited the organization and every user might be getting the same or similar products/services. There was perhaps no scope for made-to-order products or customized services.

The scene is undergoing a significant change. With the increase in awareness among the people, the rising credibility of meteorological services, introduction of the concept of market forces, and rise in the expectations of the public, has come the concept of the primacy of the user. It used to be said that customer (*read* user) is king. Nowadays, it is really so. This applies equally to the meteorological and climatological products and services generated by a national meteorological service.

5. Interaction with users

If the premises (really these are facts of the situation) in the preceding sections are valid, this would necessitate an intense, bilateral, and constructive interaction between users (present or potential) and a national meteorological service. This encompasses the following :

* User identification (This can be at the instance of either side, *viz.*, the national meteorological service or the user)
* Delineation of particular requirements of the user
* Conceptualizing, rationalizing and documenting the requirements
* R&D work including validation
* Cost-accounting and quotation
* Conversion to specific product/service by national meteorological service
* Absorption in the routine activities of the national meteorological service
* Monitoring and refining on part of the national meteorological service as well as the user and furnishing feed-back to each other.

While developing a project or programme for a specific user, the national meteorological service will have to ensure that the goals and objectives are clear and are explained in an idiom appropriate to the particular user. From the very beginning, care has to be taken that there is no conceptual confusion at any stage.

The user would need to be motivated adequately so as to be strongly committed to the project/programme. The user would need to be associated in making major decisions and changes and in helping selection of subcontractors or consultants, if any. Excellent communication (rapport) and information exchange are required. Clarity in defining user requirements and products specifications will indeed be essential. Obviously, time, money and performance goals have to be agreed upon mutually and clearly documented. Contractual and legal aspects would need to be taken care of. A reporting and review mechanism has to be built in.

6. Need for directorate of user affairs

It needs to be appreciated that mere public relations work or even an aggressive marketing would not deliver the desired results in the form of user development, user satisfaction, user retention, and continued profitability for national meteorological services. For the desired results, a special directorate of user affairs will be required in national meteorological service staffed with knowledgeable and well-motivated persons under charge of a real go-getter accountable to the Head of the national meteorological service.

These persons, apart from having competence in meteorology, should be well informed with a good perception of national goals and aspirations and role of meteorology in achieving these. These persons should acquire and update information on existing and potential users of their national meteorological service. These persons should develop adequate communication (oral and written) capabilities in order to be effective when interacting with users. Above all, these persons should be proud to belong to an interesting and challenging science and profession and they should possess an intense sense of involvement in the development of their national meteorological service so as to meet the demands of users. Their belief and commitment regarding the role of meteorology as an important tool of socio-economic progress of their country should be of a high order.

The prime responsibiliy of the proposed Directorate of User Affairs in a national meteorological service should be to develop and nurture the required linkages with the users and within the service.

7. Importance of building linkages

In the development of a national meteorological service in response to users' needs, appropriate linkages are fundamental to good progress. Linkages need to be developed not only with users but also with governmental authorities and also within the different disciplines in the national meteorological service. These linkages have to be viable, workable, flexible, and productive and should serve the ultimate aim of development and progress.

Linkages can take different forms. A few illustrative examples are :

* Enabling Linkages	:	For obtaining governmental authority, seeking initial resources, providing protection within a legal framework, supporting a new public image.
* Normative Linkages	:	For defining linkages with other associated organizations, providing framework for defining objectives creating support and acceptability to make new ideas fit present practices.
* Functional Linkages	:	For promoting the activities of national meteorological service, defining programme boundaries, reinforcing the interaction with the clientele (*read* users).
* Diffuse Linkages	:	For broadening the support base, developing working relationships with organizations having similar general objectives or programmes, strengthening the public image of the national meteorological service and thereby ensuring better acceptance by users and the society at large.

8. Credibility with the users

A meteorological product, say a forecast or a severe weather warning, is not worth anything unless it is believed in and acted upon by the recipient (user). In order to be believed in and acted upon, the meteorological product or service should inspire confidence as judged from its track record. Hence, there is an inescapable need on the part of national meteorological services to inspire confidence and credibility among users of its products/services. In the profession of meteorology, nobody can rest on past laurels. A national meteorological service will always be judged by its next forecast. Therefore, it is not sufficient to build an appropriate image of the science and profession of meterology in the public mind and to develop a good (and hopefully well-paying) clientele. The confidence and credibility in the minds of users (including general public) have to be maintained carefully and sustained assiduously through regular reviews (alongwith users) of performance of the national meteorological service *vis-a-vis* the user satisfaction.

Care will have to be taken to ensure that in the enthusiasm to have a large clientele quickly, credibility gaps do not get created especially in the perception of the users. There has to be a balance between promise and practice and between claims and realization. Further this credibility should be self-evident.

9. Conclusions

National meteorological services have been a combination of science and professional service for long. Now with the concept of catering to users' requirements (on commercial terms, wherever possible), national meteorological services are acquiring the role (and responsibilities) of an industry as well. This development necessitates a considerable attitudinal re-orientation in thinking, planning and execution processes in national meteorological services although the basic cornerstone in the modern context where national meteorological services continue to provide public warnings of severe weather, serve as collector and repository of weather and climate data, and provide valuable inputs to national development and socio-economic progress, remains unchanged.

This is an opportunity which needs to be seized by national meteorological services with all the will and competence at their command. We cannot afford to remain prisoners of the past or captives of inertia. National meteorological services have to recognize the realities of the times and the exacting demands of the user community. There is urgent need to redesign, innovate and develop the services in order to achieve a better alignment with the users' needs.

It is often said that to achieve results, one has to be constantly on the lookout for opportunity and one cannot go on waiting for opportunity. Further, one should not complain of the noise when opportunity knocks at the door and one should also not be so blind to realities that he goes on knocking even when the door in wide open.

The door is indeed open already. The opportunity to develop national meteorological services in response to users' needs is before us. We can no longer wait to seize this opportunity.

While seizing this opportunity, national meteorological services would do well to adopt "user satisfaction" as their service goal.