

## Reviews

### **Economic and Social Benefits of Meteorological and Hydrological Services**

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The Publication contains the Proceedings of a Technical Conference on the "Economic and Social Benefits of Meteorological and Hydrological Services", held in Geneva from 26-30 March 1990. The Conference was chaired by Dr. W. J. Maunder.

There are 61 papers; three are by Indian authors : Kulshrestha, S. M., Mavi, H. S., and Raman, C. R. V. About 40 papers are from Governmental Service Organisations, the rest are from universities and other academic institutions all over the world. The papers cover four main topics :

- (a) Methodologies for assessing the economic and social benefits of meteorological and hydrological services,
- (b) User requirements for specific weather and climate services and related economic studies,
- (c) User requirements for hydrological services and related economic studies, and
- (d) The role and status of National Meteorological and Hydrological Services in Economic and Social development.

The introduction also contains summaries of the discussions and recommendations of the conference under each of the above four topics.

It is generally accepted that the various national meteorological and hydrological services of the world give good value in return to the money of the taxpayer. It is also true that the information and advice provided by these services are under-utilised and therefore under-valued. The papers presented highlight how these two services can make even a greater contribution to the economic and social welfare of the nations, individually and collectively.

The papers provide a review of the available knowledge on the economic and social benefits of these two services, both realised and potential, based on a large number national surveys and case studies. The evaluation of economic benefits is a highly complex task. Several of the papers have explained the complexity and provided guidelines for undertaking such a task. The long-term beneficial effects to social and ecological aspects are difficult to measure in monetary terms. For example, it is not possible to measure monetarily

the social benefits accruing from a large reduction in the loss of human life, say from a ten-thousand to a few hundreds in a developing country, through the issue of timely cyclone warnings and appropriate action.

The economic benefit is related to various factors like : the awareness of the users, the actual uses, the timeliness of the information, the reliability of the information, etc. With large increase in industrialisation, especially in the developing countries, the utility of climate data, current and forecast weather information is steadily on the increase. With developments in modern instrumentation like automatic weather stations, weather ships, radars and satellites, fast telecommunication systems, super computers, etc, the cost of providing more and more reliable information is also rising. Some Government Administrators feel that commercial users should bear at least part of the costs, instead of making the common tax-payer bear all the costs.

Charging a user is related to his purchasing the service. A private medical practitioner is paid for his medical advice by the patient. It would mean "Marketing" Weather Service and Hydrological Service; a skill yet to be developed by these organisations. Even if the users are not charged, it is desirable that service organisations make greater efforts to locate potential users and convert them into actual users. These aspects are also discussed in several of the papers presented at the conference.

While most of the papers state that meteorological and hydrological information provided by the national services are highly beneficial, numerical values of benefit to cost ratio are given only in a few papers. Some estimate the ratio as 40 : 1, others as 20 : 1, and one author as 3 : 1. Various papers do describe a few methodologies for quantifying the benefits. These would be useful to all concerned.

User agencies like aviation, agriculture, shipping, water management are well known. Areas which are also weather sensitive like sales business at shopping centres, electric supply, off-shore drilling, transport by road, rail and river, building industry, etc are not. Public alerts for adverse weather like strong winds, heavy rain and storm surges are certainly the responsibility of any government.

It is suggested that academic institutions and service organisations like the India Met. Department, the Central Water Power Commission and the Indian Council of Agricultural Research study this volume and implement the recommendations in it. That would lead to a greater utilisation of the facilities available for the welfare of India.

— P. R. PISHAROTY