

How the Geographical Sciences could promote sustainable development

Weather, climate, water and sustainable development is the theme of World Meteorological Day which falls today and is celebrated by the World Meteorological Organisation (WMO).

This is in an effort to recognise the vital role and outstanding contribution of meteorology, hydrology and related Geographical Sciences to human progress, sustainable socio-economic development, environmental protection and poverty alleviation.

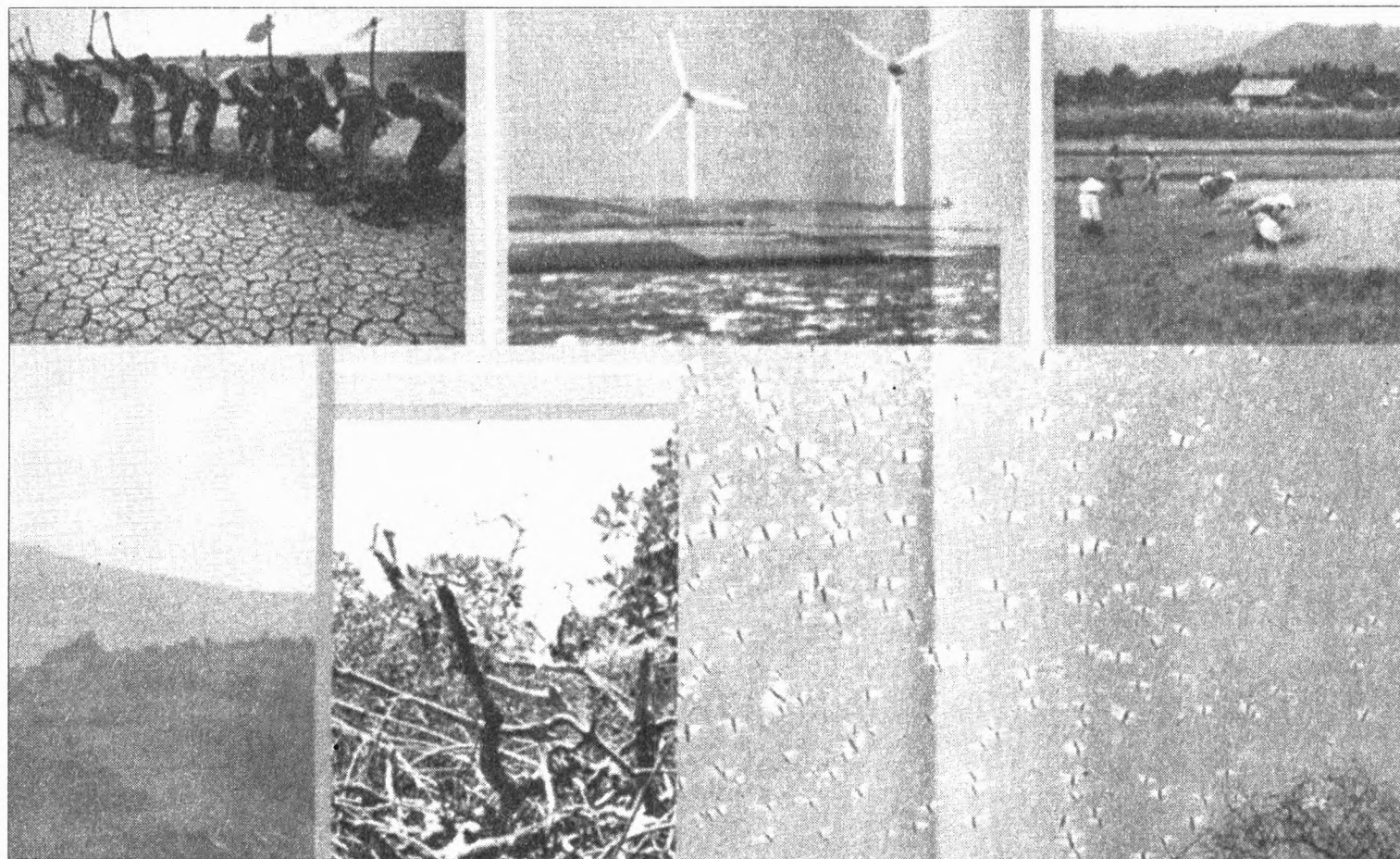
Rapid progress

WMO has engendered rapid progress in these sciences, related technologies and international cooperation.

The developments were rapidly translated into the establishment of global operational systems for the protection of life and property, mitigation of natural disasters and applications to a wide range of socio-economic activities in support of sustainable development defined as 'meeting the needs of the present generation without compromising the ability of future generations to meet their own needs.'

Today, the pace of change is faster than ever before, thanks to their many achievements in the recent decades. Much more is now expected of the sciences of meteorology and hydrology.

The expectations arise also from the recognition that the world's economy is increasingly sensitive to weather and climate. Virtually every human activity is influenced by weather, climate and water and



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an increasing number of activities are taking place with a reduced margin to accommodate risks.

This situation calls for new and more sophisticated types of meteorological and hydrological services in almost every sector of the economy such as health, transport, urban development, food security, management of water, energy and other resources, tourism and leisure.

Better services will be

required from WMO and the National Meteorological and Hydrological Services (NMHSs) to anticipate, avert and minimise the impacts of extreme events, desertification and other threats to human safety and security and to the global environment, including climate change, ozone depletion and increased pollution.

In 2000, the United Nations refined and refocused its efforts in promoting social and eco-

nomc development without harming the environment by calling on all UN members to achieve the Millennium Development Goals (MDGs). Some of these which are to be achieved by 2015, are of particular interest to WMO: Halve the proportion of people living on less than a dollar a day or suffering from hunger, halve the proportion of people who are unable to reach or afford safe drinking water, address vulner-

ability, risk assessment and disaster management including prevention, mitigation, preparedness, response and recovery as essential elements for a safer world, address issues related to climate change, including monitoring, projection and implementation of relevant strategies at national, regional and international levels, ensure environmental sustainability and develop a global partnership for development.

WMO contributes to these initiatives in various forms. A primary focus is on improved observation and prediction of the state of the earth's atmosphere and water, their interaction with one another and with other earth systems and on early warnings. While development in science and technologies has greatly improved the well-being of humankind, new challenges have arisen such as the increased concentration of greenhouse

gases in the atmosphere, climate change, depletion of stratospheric ozone layer, dwindling fresh water resources and increasing pollution of the atmosphere and water.

At the same time, a significant threat to sustainable development is the increased impact of extreme weather and climate events such as tropical cyclones, floods, drought and heat waves in several parts of the world.

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Development strategies

Development strategies and technologies must emerge which do not harm the environment or the climate and which include adaptation measures to help all countries, especially the developing ones, address the potential impacts of climate change.

Information about weather, climate and water is used in every aspect of socio-economic activity and is increasing in importance as more numerous and more severe natural disasters strike populations, destroying lives and livelihoods and setting back economies of the most vulnerable for decades.

The provision of that information requires a high level of commitment among nations and support to international cooperation.

Assessing the impact of weather and climate fluctuations on food produc-

tion is vital to sustainable development.

The application of agro-meteorological methods to improve land use, crop selection, locust control and management practices, contributes to food security.

While no one can control the weather, accurate observations, predictions with higher levels of accuracy and lead-time can radically improve people's chances of living in relative safety, building more comfortable lives and protecting precious natural resources more effectively. For vulnerable countries, endogenous capacity building and global partnerships are essential in fulfilling these goals.

In the longer term, sustainable development requires that the climate system is better understood with the possibility to project future climate changes and their potential impacts on climate variability, socio-economic activities and the environment. Planning to meet the threat of climate change requires more detailed scenarios at regional level, including variability in storm and rainfall patterns, impacts of sea level rise and threat to urban areas.

WMO says that it will pursue its efforts in improved monitoring and the development of better climate models to reduce uncertainty in climate projection in order to assist in successful adaptation and enable sound political and economic policies to be implemented at the national and international levels.

(Source: WMO Reports)