



Importance of focused and localized scientific research

At the least, it is important for governments to maintain a national scientific establishment that is capable of using research results from other countries for its societal benefit. More specifically, it is especially important for at-risk countries to improve the ability of their scientific communities to understand the ENSO cycle and its implications for decision-making by individuals, corporations, government agencies and national policy makers. This is prudent because preventive measures can then be identified and pursued, and prevention is often less costly than restoration.

National scientific establishments need the support of their governments, as well as international donor agencies, to undertake studies on regional and local teleconnections related to ENSO's extremes. The carrying out of such studies would also help to broaden national expertise in El Niño studies. This is an area of capacity building where donor assistance will be most beneficial. To reinforce such a scientific capacity-building effort, it is important for national governments to give significant weight to the assessments and views of their own national scientists. In the past, some governments have given greater credence to the assessments of foreign experts than to those their own national experts.

Communication within the scientific community

As the impacts of an El Niño ripple through society and economy, a cascade of uncertainty will accompany those impacts from first to second to third order (called "knock-on") effects. The increase in the level of uncertainty that surrounds these knock-on effects must be accurately conveyed by scientists to the users of El Niño information.

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It is very important to encourage research on the *socio-economic setting* of each country at the time of onset, in addition to scientific research on the physical and societal impacts of El Niño. The impacts of El Niño can clearly be mitigated or worsened by the existing conditions of the country's political system, infrastructures, environment and economy. Because these socio-economic and political conditions vary over time, an El Niño of the same magnitude in the same place but at a different time can, as noted earlier, generate totally different impacts. Thus, there is a strong need for multidisciplinary studies that involve the physical and social sciences and the humanities.