

This is particularly true of the Marmara Scientific and Industrial Research Institute (MSIRI) at Gebze. It was founded in 1972 after TUBITAK had carried out two extensive surveys which revealed that research in Turkey tends to be secondary to education and administration. The universities' research projects are of little relevance to the needs of Turkey and the report recommended the development of applied research in industry or at research institutes outside the universities.

Thus MSIRI was created to centralise industrial research and promote target-orientated research. It now has eight units whose interests range from operational research and applied mathematics to materials, nutrition and food and electronics. Its achievements are equally broad, from the prevention of corrosion by humidity control at the Bosphorus suspension bridge to better utilisation of tea by-products and wastes.

But despite the efforts of TUBITAK and the success of MSIRI, research activities in Turkey are neither coordinated nor directed towards the needs of the country. Turkish industrial enterprises do not

bother to improve the quality of their existing products or develop new ones; they operate on the basis of a straight transfer of technology, chosen randomly and haphazardly. Many institutions, such as the Electrical Power Resources and Survey Department and the Sugar Institute operate as isolated enclaves, repeating efforts and competing for resources.

Much of the research carried out at Turkish universities follows the patterns and priorities of research in western institutions. Pride of place is given to high energy and theoretical physics and astronomy, followed closely by pure chemistry and biology. Turkish scientists actively engaged in research are preoccupied with "basic research" in "pure science" seeking "an international reputation".

Metiu Bara, Assistant Dean of the Faculty of Science, University of Istanbul says "I am doing research on the action of gravity on plant metabolism, which is the field of my doctorate. I cannot honestly claim that I am doing anything for Turkey, but this is the tradition here. You do not become prominent by working on local

problems; in fact, that is a good way of losing respect amongst your colleagues. Prominent Turkish scientists will have nothing to do with local problems." That, in a nutshell, is the tragedy of the Turkish scientific community.

However, the stagnation of research and development in Turkey could well be a blessing in disguise, providing the Turkish scientific community with time to rethink their priorities and policies. Some changes are already taking place. The scarcity of funds, for example, is forcing university researchers to undertake consultancy work and contract research from industry. Thus at METU, the problems of pure physics and chemistry are now being replaced by such projects as the development of flotation methods for the transport of mined chromium, and the enlargement of the harbour for the Ereğli steel and iron factories. The government is also showing more interest in applied research projects. "Now most of our government backed research is dominated by immediate, practical problems", says Tarhan. Examples of such projects at METU are an examination of sewage and environmental

Earthquake research begins to be taken seriously

ON 24 November, 1976 an earthquake struck Caldiran, a sub-district of the eastern province of Van. The death toll was 3,840; 497 people were injured and 9,232 dwellings were either totally destroyed or damaged beyond repair. The Caldiran earthquake caused 415 deaths per 1,000 destroyed dwellings, the highest ratio recorded in Turkey for over ten years.

After a year's investigation, a joint team from the Earthquake Research Institute of the Ministry of Reconstruction and Resettlement and the Earthquake Engineering Research Institute of the Middle East Technical University, published a report strongly criticising government policy. It claimed that the Turkish government does not have a consistent policy on earthquakes, reacting only to large earthquakes, with hasty measures for emergency resettlement. Furthermore, the government has not given people living in the earthquake zones information on appropriate building materials.

But the report's major accusation is that earthquake risk is not taken seriously in the urbanised and industrial regions. Earthquake zones of the North Anatolian fault region cover 91% of Turkey, and 95% of the population lives in the danger area. In both town development and industrial location, however, the 'aseismic code', prepared by the Earthquake Research Institute, is not being implemented. Furthermore, seismic risk is not being considered as a factor in the selection of sites for

industrial and energy producing complexes.

According to Nejat Bayulke, chief engineer at the Earthquake Research Institute, the report produced significant changes in government policy. Since its publication, "work on earthquake zone mapping has been stepped up and a major campaign to inform the public about the hazards of earthquakes has been launched. Moreover, the earthquake design and construction code has been enforced more vigorously."

To assist in more accurate prediction, the institute is installing a country-wide

strong-motion accelerograph network, "We aim to install an average of 15 accelerographs per year within the seismically active regions", says Bayulke. In addition, it is carrying out microzoning investigations at large residential regions and industrial zones to minimise earthquake damage.

The institute has already installed some 80 accelerographs. But, as Bayulke points out, "these are by no means enough for an adequate network. We need 500 accelerographs. But where is the foreign exchange for us to buy the remaining 420?"

Caldiran after the earthquake: government criticised for ignoring seismic risk.

