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SCIENCE

International Cooperation in Geology

Relationships between the developed countries and the less developed countries (LDC's) are evolving. Some changes that are not so dramatic as the shifting behavior with respect to energy and materials may have equally important long-term consequences. One is a growing realization of the role of science and technology as determinants of standards of living. This awareness has only been partially acted on. Nevertheless, competence in science has been growing in some of the LDC's, and in some fields, notably the earth sciences, the gap between the two worlds has been closing. In proportion to their populations the LDC's do not have as many geologists as the advanced countries. However, the quality of their best is excellent.

Existence of widespread competence in geology has made feasible a major program which is likely to facilitate development while aiding in further transfer of geologic capabilities. The new enterprise has organizational aspects that reflect evolving attitudes and realities. First, it is a child of two parents—the International Union of Geological Sciences (IUGS) and the United Nations Educational, Scientific and Cultural Organization (UNESCO). Second, the program is guided by a Board on which the developing countries are solidly represented.

The enterprise, called the International Geological Correlation Programme (IGCP), includes 73 countries that have begun active participation or have indicated intention to do so. The program consists of more than 30 projects and additional ones will likely be approved by the Board. The projects must meet the following criteria: (i) be relevant to the major scientific and practical objectives of the program; (ii) fill a world-wide, continental, or regional need; (iii) preferably involve various branches of geology and their applications and require interdisciplinary cooperation; (iv) require coordinated international action and facilitate common understanding between specialists from different countries; and (v) result not only in long-term benefits but also, whenever possible, yield tangible short-term practical results for the participants.

Examples of projects include Holocene changes in sea level, circum-Pacific plutonism, and a number of projects on Precambrian geology and geochemistry. The project on sea-level movements has important world-wide applied aspects since many millions of people live in low-lying coastal regions. The project on circum-Pacific plutonism includes studies of phenomena related to the collisions of tectonic plates and will surely lead to better understanding of geochemical processes giving rise to ore formation. The projects on Precambrian geology and geochemistry will exploit major opportunities for studies. Earlier Precambrian investigations were handicapped by lack of accurate dating. Thus about six-sevenths of Earth history was incompletely accessible. More than half the world's mineral wealth comes from Precambrian formations and crucial information about origin and evolution of life remains buried in those rocks.

While the joint program is only in its initial phases and definitive results are few, indications are that it will be a success. It has already generated widespread international cooperation and interest and has involved developed and less developed countries in joint enterprises. The magnitude of accomplishments will depend on the extent to which supporting funds become available. Thus far the total expenditures by UNESCO and IUGS have amounted to about $400,000. It has been used to provide for a Secretariat and to cover expenses of organizational, working group, and regional meetings. To facilitate broader participation, especially by the poorer LDC's, additional funds must be found. Involvement in projects relevant to their own country's needs, in cooperation with experts from other lands, would serve as an ideal training experience. This principle was proved in practice during the 1950's and 1960's by the Agency for International Development and the U.S. Geological Survey which together participated in the upgrading of geological competence in some 80 countries. The present IGCP represents a program that builds on a solid foundation of previous constructive effort with an organizational arrangement reflecting changed international realities. —PHILIP H. ABELSON