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World Health Organization The Special Programme of Research, Development and Research Training in Human Reproduction Task Force on Indigenous Plants for Fertility Regulation*

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Introduction

The Special Programme of Research, Development and Research Training in Human Reproduction was established almost 10 years ago in response to the demand of its Member States that the World Health Organization take a more active role in research in family planning. The Programme is concerned with research on the safety and efficacy of currently available methods of fertility regulation; the development of improved and new technology; studies on the service and the psychosocial aspects of family planning; research on infertility; and with the strengthening of resources in developing countries to undertake research in these areas. In 1980, the Programme brought together the talent, skills and resources of scientists and administrators from 85 countries, of which 57 are developing.

Research

Concern about the safety of family planning methods has been far greater than for any other drugs, devices or surgical procedures, for these methods, as distinct from agents that are used to cure an illness, are used mainly by healthy people over long period of time and with little of no medical supervision. Moreover, the number of users involved is much larger than for therapeutic agents, since methods of family planning are potentially of concern to all persons of reproductive age. In addition, unlike therapeutic agents most family planning methods are intended to interfere with normal body processes. These being reproductive processes, the theoretical possibility exists of an effect on the health of subsequent generations.

The Programme's research on the safety and efficacy of oral contraceptives, injectable contraceptives, termination of pregnancy, female sterilization and natural family planning represents the largest world effort on this question in developing country populations. The research is conducted mainly through a network of WHO Collaborating Centres for Research in Human

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Reproduction, using common protocols so that, as well as obtaining data of immediate local relevance, inter-population comparisons can be made, and sufficiently large numbers of subjects can be evaluated to answer questions rapidly.

In research and development of new methods of fertility regulation, the Programme follows two main lines. One seeks to make injectable contraceptives, IUDs, methods based on periodic abstinence, and sterilization techniques safer, more effective, more acceptable and simpler to use and to provide. The other line aims to make available to family planning programmes entirely new birth control modalities which they consider would considerably extend acceptance and use, e.g. post-coital preparations, once-a-month pills, drugs for men, abortifacient drugs, birth control vaccines, and preparations from indigenous plants.

The success of voluntary family planning depends on human decisions. The spread of information, the provision of services, the acceptance and continued use of methods of fertility regulation, all rest on the behaviour of individuals, couples, groups and societies. Psychological, social and cultural data are needed to formulate government policies, to enable family planning communication and education programmes to fit particular audiences, to allow clinic services to be adjusted to meet the needs of clients and to ensure that new methods are culturally appropriate. Research on these topics are included in the Special Programme.

Great stress is placed on the need for health services research by WHO's governing body, i.e. the World Health Assembly, and by the WHO Global and Regional Advisory Committees on Medical Research. Research conducted by the Special Programme on service systems as they relate to the delivery of family planning care concerns itself with topics such as the need for services, e.g. the effects of the timing, spacing and number of pregnancies on the health of mothers and children, and the use of different categories of health personnel, e.g. can an adequately trained nurse midwife provide standards of clinical care for IUD users comparable to those provided by a physician?

The prevention and treatment of infertility is an integral part of family planning care. In some developing countries, up to one third of either family planning or other gynaecological consultations relate to complaints to infertility. The Programme supports research dealing with the prevalence and causes of infertility, the evaluation and development of diagnostic procedures, and the effectiveness of different treatments.

Strengthening of Research Resources in Developing Countries

The Programme collaborates with national authorities in building up manpower and facilities to enable developing countries to plan and carry out research on all aspects of family planning. Institution-strengthening activities aim to achieve national self-reliance in research. To do so, requires mobilizing the capabilities of many countries to provide research training and consultant expertise.

The strengthening of research resources is primarily accomplished by the Special Programme through the provision of equipment, supplies, salaries for personnel, research training grants and consultant assistance to existing and new national institutions and through the involvement of investigators in all aspects of research from the development of a project through the analysis and reporting of results. In 1980, the Programme supported research training courses on topics such as clinical pharmacology, epide-

miology, service research, andrology and radioimmunoassay of reproductive hormones. It provides reagents and has developed a quality control programme for the standardization and improvement of laboratory procedures.

Task Force on Indigenous Plants for Fertility Regulation

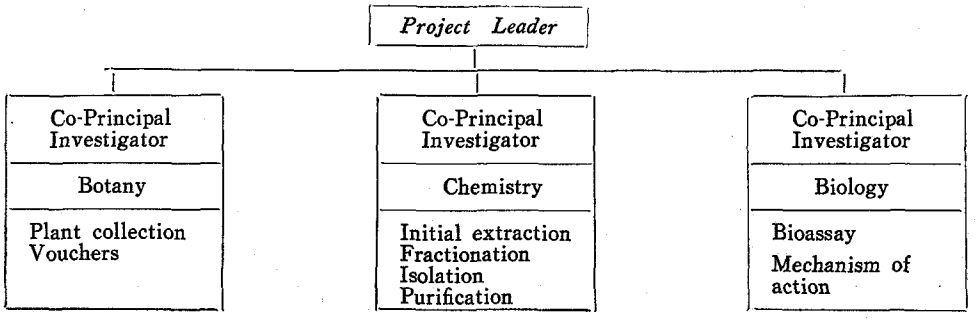
Plants have been used for fertility regulation in traditional medicine for many centuries and in many cultures. Interest by governments of developing countries in their potential for family planning programmes is considerable for economic reasons in terms of self-reliance, and on the grounds of the potentially greater acceptability of local products. The focal point for research in this area within the WHO Special Programme of Research in Human Reproduction is the Task Force on Indigenous Plants for Fertility Regulation.

The objectives of the Task Force are two-fold. Firstly, the development of safe, effective and acceptable fertility regulating methods of plant origin and, secondly, the strengthening of resources in developing countries to undertake research in this area. At present, major emphasis by the Task Force is placed on identifying orally effective agents for use by women on a "morning-after" or post-coital basis or "after one-missed menses", and on plants that would permit fertility regulation by men.

The majority of the work of the Task Force is conducted through a network of collaborating centres. At present there are four such centres located at the Chinese University of Hong Kong, Department of Biochemistry, Hong Kong; the Natural Products Research Institute, Seoul National University, Republic of Korea; the University of Peradeniya, Department of Pharmacology, Sri Lanka; and the University of Illinois Medical Centre, Department of Pharmacognosy and Pharmacology, Chicago, USA. During 1977~1979 the Programme provided funds to these centres to improve their laboratory and animal facilities, to purchase equipment and supplies, to hire staff, to convene workshops and to support research training and the exchange of investigators between centres. The building-up phase of the project, for the most part, was completed in 1979 and the centres are now fully operational.

The structure of the collaborating centres is shown in the following diagram:

The collaborating centres require a truly multidisciplinary effort in order to reach the objectives of the Programme—the botanists, chemists and biologists work together as a team in order to systematically and intensively collect, extract and screen a large number of plants with alleged fertility regulating properties, and to isolate the active compound(s) and demonstrate novel activity in several species. The priority leads for the collaborating centres are identified from a



novel computerized data base on natural products at the College of Pharmacy, University of Illinois Medical Centre, Chicago, USA (Dr. N.R. Farnsworth). This facility also ensures that all investigators collaborating with the Task Force have access to relevant scientific and folkloric publications on the plants which they are studying.

Standardized protocols have been established to permit the comparison of results between centres and to maximize the likelihood of reaching the objectives of the Programme. The biological focus of the Task Force in the testing for anti-implantation activity by oral route of administration in rats with the confirmation of activity demonstrated in hamsters.

Protocols for the extraction of plants and for the subsequent fractionation, isolation, purification and structure elucidation of active leads have also been developed by the Task Force. The first extract for bioassay is prepared according to available ethnomedical and scientific literature; in the absence of such information, hot water extracts are made.

In addition to the work conducted in the collaborating contres, the Task Force funds a number of other studies on plants, usually not identified through the computer approach, with reputed fertility regulating activity. These studies help to ensure that novel ideas not emanating from the collaborating centres are followed up by the Programme.

It remains to be seen whether or not the Programme will be successful in developing a new method of family planning of plant origin. In the attempt to do so, since 1976 the Task Force on Indigenous Plants for Fertility Regulation has collaborated with scientists from the following 21 countries:

Argentina
Australia
Bangladesh
Brazil
Colombia
Denmark
Ghana
Hong Kong
India
Kenya
Mexico
Nigeria
New Caledonia
Paraguay
Republic of Korea
Sri Lanka
Sweden
Switzerland
Thailand
United Kingdom
United States of America

Permit me to end this introduction with two quotes which are appropriate to the subject of this Seminar. The first comes from Dr. Chén Wen Chieh, Assistant Director General, WHO: "*Today WHO encourages countries to make better use of medicinal plants to become self-reliant the use of medicinal plants is an appropriate health technology.*"

The second is from Dr. Halfden Mahler, Director General, WHO: *Let us not be in any doubt—modern medicine has a great deal still to learn from the collector of herbs... the judicious use of herbs, flowers and other parts of plants in primary health care can make a major contribution towards reducing a developing country's drug bill.*"