PN-AAJ-989

AMERICAN PUBLIC HEALTH ASSOCIATION
International Health Programs
1015 Fifteenth Street, N.W.
Washington, D.C. 20005

OBSERVATIONS AND RECOMMENDATIONS RELATED TO THE SUMMER WORKSHOP ON POPULATION AND ENVIRONMENTAL EDUCATION

Agency for International Development
Library
Room 105 SA-18
Washington, D.C. 20523

A Report Prepared By:
ELAINE M. MURPHY, Ph.D.
PATRICIA CANCELLIER, M.P.H.

During The Period:
JULY 27 - AUGUST 31, 1981

Supported By The:
U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT
(ADSS) AID/DSPE-C-0053

AUTHORIZATION:
Ltr. AID/DS/POP: 11/12/81
Assgn. No. 582113

...ional Development
Room 105 SA-18
Washington, D.C. 20523

PREFACE

This report describes the activities of Dr. Elaine M. Murphy, director of population education at the Population Reference Bureau, and Ms. Patricia Cancellier, assistant director of population education, during the period July 27 to August 31, 1981.

Dr. Murphy and Ms. Cancellier are particularly grateful to the following individuals for their helpfulness and kindness:

- Mr. Shafik Atta, Undersecretary, Preparatory and Secondary Education, Ministry of Education (MOE), Egypt
- Mr. Mohamed El-Sayed Gamil, Supervisor, Population and Environmental Education Office, MOE
- Mrs. Salha Awad, Director, Institute for Training and Research in Family Planning, Alexandria
- Mr. Maher Mikhail Abdel Malek, Inspector of English Studies, North Cairo Zone (translator for the workshop)
- Mr. Marschal Rothe, AID/Cairo
- Ms. Laura Slobey, AID/Cairo.

Both consultants felt that it was a most rewarding experience, professionally and personally, to work with the dedicated staff of Population Education, Ministry of Education, and with the talented and enthusiastic supervisors who participated in the workshop. Dr. Murphy and Ms. Cancellier wish them every success in their important work.

C O N T E N T S

		Page
PREFACE		i
ABBREVIATIONS		iv
I.	INTRODUCTION	1
	Purpose of the Assignment	1
	Demographic Background	2
	Egypt's Population Education Project	3
II.	THE WORKSHOP	5
	Planning	5
	A. Washington, D.C.	5
	B. Cairo	5
	Leading the Workshop in Alexandria	6
	Evaluation of the Workshop	6
	A. Pretest-Posttest	7
	B. Performance in the Correspondence Course	8
	C. Participants' Performance in the Workshop	8
III.	OBSERVATIONS	9
IV.	RECOMMENDATIONS	11

APPENDICES

Appendix A: List of Persons Contacted

Appendix B: "Education for Neurotics," Egyptian Mail

Appendix C: Materials Used and Exhibited in the Workshop

Appendix D: Six Domains of Population Education

Appendix E: Nontraditional Approaches to Teaching About Population

Appendix F: Specific Objectives of the Workshop

Appendix G: Evaluation Results

Appendix H: "Methods and Materials: The Nontraditional, the Available, the Inexpensive, the Enjoyable"

Appendix I: Selected Population Education Activities Used in Workshop

Appendix J: Workshop Agenda

Appendix K: Examples of Participants' Work

Appendix L: Selected Observations of Subject Matter Supervisors on How Population Topics Fit into the Curriculum

ABBREVIATIONS

MOE	Ministry of Education
PFPB	Population and Family Planning Board
UNESCO	United Nations Education, Scientific, and Cultural Organization
UNFPA	United Nations Fund for Population Activities
USAID	United States Agency for International Development

I. INTRODUCTION

Purpose of the Assignment

The latest in a series of population and environmental education workshops, which began in 1977, was held in Alexandria, Egypt, from August 11 to 20, 1981. The purposes of the workshop and the tasks expected of the consultants were described in the cable shown below.

1. USAID has been asked by Dr. Mohamed Shafik Atta, undersecretary for preparatory and secondary schools, Ministry of State for Education and Scientific Research (MOE), to support another summer workshop on population and environmental education. The purpose of the workshop is to provide an orientation in the fields of population and environmental education to teachers throughout Egypt in order to prepare them to introduce modern methods and materials in these subject areas in the school system. Workshop also aims at preparing Egyptian teachers to run similar local workshops at the governorate level.

2. The workshop is the culmination of the Ministry of Education's past year's work on population and environmental education. Since October 1980 workshop participants have been enrolled in a correspondence course providing theoretical background in the economics and environmental impact of population growth. Participants are teachers and supervisors at the primary, secondary, and normal school levels. Approximately 50 teachers will participate in this year's workshop. The workshop will be similar to those conducted in the past.

3. The MOE has requested two consultants to act as teachers and resource persons. The consultants should have a broad background of training and experience in curriculum development, teaching strategies, and instructional materials design with particular knowledge of the application of these skills to population education. Specifically, the consultants must:

   (a) orient participants to a basic cognitive and affective structure for population and environmental education;

(b) give participants an understanding of a problem-solving approach to teaching population and environmental education; and,

(c) enable participants to conceptualize learning activities, design instructional materials, and produce visual aids to use in their classrooms.

4. The MOE has requested Elaine Murphy of the Population Reference Bureau and Professor J.E. Jayasuria, who is currently working at UNESCO in Bangkok. USAID has cabled Bangkok to confirm his availability.

5. Consultants are requested to arrive in country one week to several days prior to start of workshop to participate in prework planning. Request AID/W contact Elaine Murphy, confirm availability and advise. Suggest services of both consultants be funded under APHA.

Professor Jayasuriya was not available, so Patricia Cancellier, assistant director of population education at the Population Reference Bureau, was asked to join Dr. Murphy. Thus, the Population Reference Bureau's regular teacher training team went on the assignment. Having organized and led scores of workshops together, the team was able to plan efficiently before leaving for Egypt and to lead the workshop in a coordinated fashion.

Although teachers were the target audience, all but 3 of the 45 workshop participants were subject area supervisors. They came from governorates throughout Egypt and represented many disciplines, such as social studies, science, math, Arabic language, philosophy, and art. Of the other 3, the only women participants, 2 were teachers of home economics at a teacher training institute and the third was a librarian.

Demographic Background

In 1981, Egypt had a population of 43.5 million people and is growing rapidly. The difference between its birth rate of 41 and its death rate of 11 yields a 3 percent rate of natural increase and thus a doubling time of 23 years. The total fertility rate is 5.3 children per woman; 41 percent of the population is under the age of 15.

The Government of Egypt is well aware that such rapid growth and a youthful age structure have impeded, and will continue to impede, progress

toward its development goals. Because over 96 percent of Egypt's land area is desert, rapid population growth is a particular obstacle to the achievement of food independence and the improvement of the per capita diet. In addition, the potential for redistributing people is clearly limited, therefore, worsening urban crowding is the inevitable result of rapid population growth. The ability to continually increase social, health, and educational services is a great challenge, as is the creation of jobs for the growing number of young people entering the labor force.

Egypt's Population Education Project

Against this demographic background, the Government of Egypt launched ambitious programs for population, family planning, and development, which are coordinated by the Population and Family Planning Board (PFPB). Many international agencies, such as the U.S. Agency for International Development (USAID), the United Nations Fund for Population Activities (UNFPA), the United Nations Education, Scientific, and Cultural Organization (UNESCO), and the World Bank have contributed to the funding and planning of these programs. All the government ministries have also been enlisted to cooperate in population and development efforts.

The Ministry of Education (MOE) introduced population education into the national school system in 1974, defining it as "the process of developing awareness and understanding of population situations as well as developing rational attitudes and behavior towards these situations for the attainment of a better quality of life for the individual, the family, the community, the nation, and the world."

The small Population Education Unit that was established in the MOE has two full-time professionals. Recently, persons from the subject matter specialties (math, science, etc.), who are designated liaison officers, analyzed how population relates to their particular subject and made recommendations regarding curriculum revision; however, they are not part of the unit.

The staff of the Population Education Unit works directly under the supervision of the undersecretary for preparatory and secondary education. They have done a great deal of careful work, including:

- Identification of major categories or approaches to the study of population issues, such as population processes (birth and death rates), and their measurement, factors that affect population growth, and the effect of rapid population growth on the quality of life.

- Examination of the curricula of various disciplines and determination of where and at what level the appropriate population concepts and lessons can be interpreted.

- Initial curriculum development in population education, geography and civics, Arabic language, mathematics, science, philosophy, and home economics at the primary, preparatory (junior high), and secondary levels. Primary and preparatory education will soon be combined into one level, called basic education.

- Identification of the best teaching methods to obtain attitudinal change in students, as well as cognitive gains. The school system is traditional and relies largely on lectures, tests, memorization, and examinations (see Appendix B). The decision to introduce new, nontraditional teaching methods, in addition to the new subject matter, is itself bold and commendable.

- Preparation of 23 booklets for teachers and supervisors on population education, ranging from its major concepts, to new methods, to evaluation.

- Organization of two-week summer training courses for supervisors and teachers beginning in 1977 and several smaller workshops and seminars.

- Establishment of a correspondence course on population education which has reached hundreds of educators. Participants in the summer workshops are drawn from this group.

- Distribution of a quarterly population education bulletin to former workshop participants and enrollees in the correspondence course.

The Population Education Unit staff have studied population education systematically through examination of the literature, course work abroad, a UNESCO-sponsored study tour of major population education programs, and work with the foreign consultants who were co-leaders of the summer workshops. The result is a thoughtful, well-organized conceptualization of the field and how it might be introduced into various subject areas and levels in Egyptian schools.

II. THE WORKSHOP

Planning

A. Washington, D.C.

For five days prior to their departure for Cairo, Dr. Murphy and Ms. Cancellier reviewed written and audiovisual materials and developed new training activities for the workshop in Alexandria. A large collection of training activities, lesson plans, and sample materials was finally selected. The collection was larger than needed, but this provided some choice and flexibility when dealing with the Egyptian staff. Materials were drawn from the publications of the Population Reference Bureau and other organizations. The materials used and exhibited at the workshop are listed in Appendix C.

B. Cairo

During the week before the workshop, the American consultants met to plan the agenda with Mr. Shafik Atta, undersecretary for preparatory and secondary education in the MOE, and Mr. Mohamed Gamil, supervisor in the Population Education Unit. Although the study of population involves complex and interrelated facts, history, processes, projections, issues, values, and policies, it must be presented in manageable units. Therefore, the Population Education Unit divided the subject into six "domains," which are described in Appendix D.

Mr. Gamil was particularly interested in the impact of population education on attitude changes, as well as on knowledge and understanding of population information. He wanted teachers to use a variety of nontraditional methods in order to engage the students' interest and to help clarify their values. To introduce educators to the range of nontraditional methods and approaches to population education, Dr. Murphy developed a glossary of 23 nontraditional approaches to teaching population information (see Appendix E).

The task of the Egyptian staff and the American consultants was to plan a workshop that: (1) dealt with all six of the subject area domains; (2) employed a large number of nontraditional methods; (3) contributed to attitudinal changes as well as to an understanding of population problems in Egypt and elsewhere; and (4) incorporated mechanisms for evaluating the success of the workshop in achieving these objectives.

The objectives of the workshop leaders were to:

- Prepare a cadre of experts and leaders in population and environmental education to conduct similar workshops in their local environments.
- Complete the final part of the correspondence course in which the workshop participants had been enrolled. The first part dealt with theory, the second with the participants' local population research, and the workshop represented the training component.
- Introduce participants to modern methods and materials for population education.
- Help participants to develop their own instructional materials using these new methods so that they might carry out their work more effectively.

The specific, measurable objectives of the participants are listed in Appendix F.

Leading the Workshop in Alexandria

The final agenda reflected the objectives of the leaders and the participants. It dealt with the six content domains; demonstrated and actively involved participants in a wide variety of nontraditional methods of teaching; reviewed and measured areas covered by the correspondence course; and dealt with theory and practical applications. In addition, because of the population education project's place in the MOE and its relationship to other population programs, the Egyptian staff invited certain leaders to give lectures on various topics. Evaluation was provided through a pretest-posttest (Appendix G) and student projects. The pretest, sample activities, commentaries, and examples of participants' work are given in the appendices as indicated.

The agenda for the workshop is detailed in Appendix J.

Evaluation of the Workshop

The workshop was designed to accomplish the objectives listed in Appendix E. Success in accomplishing these objectives was measured in several ways.

A. Pretest-Posttest

A pretest-posttest on attitudes toward population issues and population education and on specific teaching methods was administered. The results are given in Appendix G. Almost all items showed significant changes in attitudes and knowledge. However, there was little change in pretest and posttest scores on the following items:

- "Population growth is one of the major problems facing Egypt" (89 percent strongly agreed on the pretest; 91 percent on the posttest).
- "It is important for today's students to have small families in the future" (73 percent agreed on the pretest; 75 percent on the posttest.

Participants probably came to the workshop with the attitude that population growth is a serious problem in Egypt and that small families would be one of the solutions.

It was encouraging that there was a sizable increase in those who strongly agreed that they were ready to teach about population (85 percent, posttest; 62 percent, pretest) and were prepared to help teachers to teach about population (85 percent, posttest; 60 percent, pretest). A sizable change in attitude toward the solvability of Egypt's population problems also occurred, with 73 percent agreeing on the posttest that problems were solvable, but only 51 percent on the pretest. This may have resulted from the emphasis given to problem-solving exercises.

Another item of particular interest: On the pretest, 42 percent of the participants agreed that women must have increased job opportunities, but this increased to 66 percent on the posttest. Although this is encouraging, attitudes expressed during the workshop suggested that male attitudes toward women will continue to be difficult to change. All but three of the supervisors who participated in the workshop are men.

At the time of the pretest, the new teaching methods of working in small groups, role playing, values classification and clarification, using local resources, and using case studies were each defined by less than 4 percent of the participants. After the workshop, however, the posttest figures for these items were 86 percent, 84 percent, 84 percent, 71 percent, and 37 percent, respectively. The methods were used repeatedly during the workshop, with the exception of the case study, which was merely described. The low score on this item underscores one of the most important points of the workshop: Students learn best by doing.

B. Performance in the Correspondence Course

The impact of the content covered by the correspondence course and the lectures given by Mr. Gamil during the workshop were measured by a written test administered one week after the beginning of the workshop. Mr. Gamil also graded, returned, and discussed local research projects, which were assignments of the correspondence course.

C. Participants' Performance in the Workshop

The practical objectives of the workshop were assessed with specific measurable objectives as participants developed group projects, became involved in discussions, evaluated the curriculum, and developed their own instructional materials. After a brief time, participants demonstrated considerable mastery of the content and methods of teaching about population. Some examples of their work are given in Appendix K.

III. OBSERVATIONS

Although the Egyptian school system stresses traditional methods such as lectures and relies heavily on textbooks, memorization, and exams, the supervisor-participants were open-minded and, before long, enthusiastic about the new teaching methods. They particularly liked working in small groups according to disciplines to solve problems and to create posters, demonstrations, simulations, graphs, diagrams, and stories. They were an active, vocal, and enthusiastic group. By the end of the workshop they had demonstrated their knowledge and skills by creating lesson plans on population using the new methods. Examples of group and individual work are given in Appendix K.

The supervisors worked hard reviewing the subject matter of the correspondence course, which they had taken the previous year. They mastered theoretical material on the definitions, goals, objectives, domains, and methods of population education which was stressed throughout the workshop by Mr. Mohamed Gamil. A written examination was given about half-way through the workshop and graded by Mr. Gamil.

It was clear that the Population Education Unit in the MOE had done a great deal of hard work. Definitions, goals, objectives, methods, and subject area "fit" had been carefully thought out. The population education staff also worked in cooperation with the Population and Family Planning Board so that Egypt's population policy would be reflected in the curriculum of its schools. The conceptualization of population education studies by the Population Education Unit is admirable in its thoroughness and organization.

The unit has published 23 paperback books and booklets on goals, concepts, methods, sample activities, evaluation, and other aspects of the field for supervisors and teachers. The staff have made a systematic analysis of various disciplines and at various levels to determine appropriate places to integrate population concepts. Furthermore, several hundred supervisors and teachers have taken a year-long correspondence course on population education. Every summer since 1977, a two-week workshop has been held in Alexandria for 40 to 60 supervisors and teachers from all over Egypt in order to reinforce the correspondence course lessons and to involve participants in new teaching methods. After the workshop, participants receive a quarterly bulletin on population education from the MOE.

Such clarity of purpose regarding the content, objectives, and methods of population education is essential for those coordinating its introduction into the schools. However, this thoroughness may be an obstacle to the goal of teaching population studies as soon as possible. The staff of the Population Education Unit seem to feel that everyone dealing with population education must know as much as they do about concepts and

methodology. They also seem to feel that a precise set of rules must be followed in designing, executing, and evaluating lesson plans and teaching units.

The amount of study, memorization, and commitment required of these teachers and supervisors seems unrealistic because population is only a small addition to the crowded syllabus. The supervisors also seemed distressed by the detailed analysis, definitions, and descriptions given in Mr. Gamil's lectures, of which they were expected to demonstrate a mastery in written assignments and examinations. The participants were most enthusiastic when they were actively involved in population education and were creating and demonstrating their own classroom activities.

The syllabuses of various disciplines had only a few, and in some cases no, population concepts. Several were being revised to include some population concepts. Participants gave thoughtful responses and recommendations about where population should fit into the syllabus (see Appendix L).

Recently, persons in the MOE who represent various disciplines were asked to serve as liaisons between their disciplines and the Population Education Unit. However, these individuals did not attend the workshop in Alexandria. Neither the training officers at the local level (supervisors are responsible for the content of in-service workshops but not for training itself) nor teachers attended the 1981 workshop, although teachers have attended in the past.

According to a World Bank assessment of population education in Egypt, which was prepared by Dr. T.S. Mehta in July 1981, population teaching should reach 4.1 million primary students, 1.4 million preparatory students, and 293,000 secondary students. These are 1977 figures reflecting an enrollment of 62 percent of those eligible between the ages of 6 and 12. There are approximately 33,000 students in primary teacher-training institutes and 87,500 teachers who need training in population education. Almost all the 224 supervisors--7 from each of 32 governorates--have received training.

IV. RECOMMENDATIONS

The following recommendations are made in view of these observations.

1. Subject area teams should be formed, consisting of the Population Education Unit staff, the subject area liaison officer in the MOE, and a small number of subject area supervisors and teachers who have participated in the past population education correspondence course and workshops.

2. Each team should identify or develop student materials and classroom activities that fit into an ongoing course in relevant subjects, and develop teachers' guides relating specifically to these student materials and classroom activities.

3. Materials should be grounded in the appropriate theories and methods, but teachers should be given specific instructions on how to teach the lessons, and very little theory.

4. First generation workshops organized by the MOE's Population Education Unit should use a trainer-of-trainers model; the chief objective should be to prepare participants to lead several local workshops during the following years.

5. There should be separate trainer-of-trainers workshops for each discipline, rather than combining supervisors of various subject areas into one workshop.

6. The leaders of the trainer-of-trainers workshops should primarily be the curriculum development teams, described in Recommendation 2, and MOE leaders in these disciplines. Outside consultants should be called in if necessary, but workshop leaders should be those most involved in supervising and teaching about population in Egypt, especially those who had participated in the previous population education workshops.

7. Workshops should use the student materials and classroom activities developed by the curriculum development teams, described in Recommendation 2, as the primary content, although some basic population teaching is common to all subject areas. Again, theory should be minimized and learning-by-doing emphasized.

8. Participants for each subject area workshop should come in teams from each governorate or school district: the supervisor, the training officer, and at least two teachers. Research has shown that motivation aroused at workshops tends to diminish if the participant works in isolation after returning to the local

school setting. Team members provide moral support and motivation in the months following the workshops.

9. At least half of the trainer-of-trainers workshop should be devoted to the preparation of workshops that the participants will lead in their local areas. This includes organizing, planning the agenda, demonstrating the activities, and using the student materials. The end product developed by each local team should be a workshop agenda that can be put into practice upon return to the local area.

10. Outside lectures on the physiology of reproduction and other subjects not directly related to the development of local workshops should be omitted or reduced as much as possible.

11. Because curriculum development and leadership and teacher training could cover several levels of primary and preparatory (basic) education and secondary education, as well as the seven relevant disciplines, the overall task is enormous. Thus, the development of student material and training for only one or two levels (courses) in each discipline is recommended. The MOE might consider reducing the number of disciplines that population topics are integrated into in order to achieve large-scale curriculum development and training more quickly in a few disciplines.

12. Local area workshops--the second generation--must be a required part of the overall population education plan. The number of teachers and students is too large to concentrate on other models. Perfection may have to be sacrificed in favor of more trained teachers. In reality, probably no subject in Egypt or elsewhere is perfectly conceptualized or taught. It may be better for classroom students to become aware of Egypt's population problems and the need for smaller families at an inappropriate place in the syllabus than not be exposed to these topics at all.

13. The MOE should support the second generation of workshops with funding and leadership. Follow-up, such as the bulletin for workshop participants, should be continued.

14. The high priority of population education must be reflected in national student examinations.

15. Special attention should be given to development of student materials, classroom activities, and teacher training on topics that appear to be obstacles to Egypt's achievement of its population policy, for example, attitudes toward the changing roles

of women, male involvement in family planning, and religious or traditional barriers to family planning.

16. An effort should be made to overcome taboos about sex education. The teaching of reproductive physiology should include reasons for having smaller families, contraceptive methods, and Egypt's population policy.

17. Sufficient funding should be made available to support the plans outlined above, if they are acceptable to the Ministry of Education.

APPENDICES

Appendix A

LIST OF PERSONS CONTACTED

U.S. Agency for International Development

Ms. Laura Slobey, Population Office, USAID

Ms. Laila Stino, Population Office, USAID

Mr. Marschal Rothe, Population Office, USAID

Government of Egypt

Mr. Shafik Atta, Undersecretary, Preparatory and Secondary Education, Ministry of Education

Mr. Mohamed Gamil, Supervisor, Population and Environmental Education, Ministry of Education

Mr. Mansur Hussein, Deputy Minister of Education, Ministry of Education

Dr. Haifa Shanawany, Population and Family Planning Board

Others

Mrs. Zahia Marzouk, President, Institute for Training and Research in Family Planning

Mrs. Salha Awad, Director, Institute for Training and Research in Family Planning

Mr. John Stockdale, Deputy Director, Educational Division, Cassell Ltd.

Appendix B

"EDUCATION FOR NEUROTICS"

The following is an editorial which appeared in the Egyptian Mail on August 22, 1981.

A teacher freshly returned from England who had taken up a teaching post in an Egyptian school happened to run into one of his pupils a few weeks ago--long after term had ended. The first question the pupil asked was "Oh Sir! How was my exam?" The teacher recoiled, then answered with a little confusion and hesitation that he could hardly remember, since it was so long ago and they were well into the summer holidays.

The teacher's confusion at this question is easy to understand, when one realises that in England, once the holidays have started, one of the last things any pupil wishes to discuss is exams or indeed anything pertaining to school matters. But then in England there is only one major examination, the General Certificate of Education which pupils sit for at the end of their final year at school.

Even then, not all pupils sit for it, only those intending to go on to the university or some higher institute that demands such a qualification. Then again, they do not have to sit an exam for each and every subject, only those required for the particular branch of study they are to embark on.

Here in Egypt, from the age of twelve we subject our children to a never-ending series of examinations: the Primary Exam, then the Preparatory Exam and finally the Secondary Exam, although this year we have, Thank God, seen the last of the Primary Exam.

Anyway, at each exam the pupil is made to answer a long paper in each subject on which rests his promotion to a higher grade or his repeating the year. Parents are constantly bullying and beating their children into studying. Children sit for hours swotting at their studies, and whether they pass or fail, by the time they are ready for the university are already well on their way to being nervous wrecks.

One disturbed student told his teacher that his father, a graduate in commerce himself, used to beat his children till their bodies were covered in weals and bruises just to get them to come out first in the class. Once he got them out of bed

late at night and held their heads down the toilet bowl while he pulled the cistern. Their crime: they had not been studying hard enough. Admittedly that is an extremc example, but unfortunately not the only extreme example. Is it surprising then that in a recent study of a random sample of university undergraduates, 70 percent suffered from nervous or psychological disturbances?

In Britain and most European countries the tendency over the past ten or twenty years has been to try to make education a pleasure for the child rather than a chore. It is true that they often overstep the mark in their endeavor to remove all toil from learning with the result that many children do not learn the basic skills. We in Egypt go to the other extreme and make education all toil and no pleasure. Using physical and mental coercion to force learning down children's throats, we too produce armies of children who are still illiterate at twelve when their compulsory education ends. Those who carry on after that end up able to graduate with a degree but unable to do much beyond that. They are examination oriented; to them every real-life situation is an examination to be approached with trepidation. They are unable to make any decisions, since throughout their educational career they have never had the freedom of choice. They are without ambition since they have never been conditioned to aspire to anything beyond passing an exam.

Worse still, teachers spend most of the long hot summer days correcting examination papers when they could be taking school children on trips or running summer playschemes. Once again we would like to pose the question: Is this what education is all about?

Appendix C

MATERIALS USED AND EXHIBITED IN THE WORKSHOP

Printed Materials

"Egypt: The Effects of Population Factors on Social and Economic Development," R.A.P.I.D. 1980. The Futures Group, Washington, D.C. Handbook and 35mm slides.

Food for Thought, A Population Simulation Kit, revised edition, 1980. Population Reference Bureau, 1337 Connecticut Avenue, N.W., Washington, D.C., 20036.

"Health: The Family Planning Factor," Population Reports, Series J, No. 14, December 1977 (Arabic edition). Population Information Program, Johns Hopkins University, 625 No. Broadway, Baltimore, Maryland, 21205. (Arabic edition distributed to each workshop participant.)

Investigating Your Environment: Teaching Materials for Environmental Education, 1977. United States Department of Agriculture, Forest Service, Washington, D.C.

Jacobson, Willard J. Population Education: A Knowledge Base, 1979. Teachers College Press, New York.

Murphy, Elaine M. "The Future and Population: What Will a No-Growth Society Be Like?" (teaching module), 1978. Population Reference Bureau, 1337 Connecticut Avenue, N.W., Washington, D.C., 20036.

1981 World Population Data Sheet. Population Reference Bureau, 1337 Connecticut Avenue, N.W., Washington, D.C., 20036. (English edition distributed to each participant.)

Population Education in Science, Population Education in Social Studies, Population Education in Mathematics, 1980. Population Education Programme Service, UNESCO Regional Office for Education in Asia and Oceania, Bangkok, Thailand.

Population Education Resources Kit, revised edition, 1980. Zero Population Growth, 1346 Connecticut Avenue, N.W., Washington, D.C., 20036.

Population Education: Sources and Resources, 1979. Population Reference Bureau, 1337 Connecticut Avenue, N.W., Washington, D.C., 20036.

Population Handbook, 1980 (Arabic edition). Population Reference Bureau, 1337 Connecticut Avenue, N.W., Washington, D.C., 20036. (Distributed to each workshop participant.)

PRB Chart Series I: Charts on World and U.S. Population Topics, 1975. Population Reference Bureau, 1337 Connecticut Avenue, N.W., Washington, D.C., 20036.

"Twenty-Two Dimensions of the Population Problem," Population Reports, Series J, No. 11, November 1979 (Arabic edition). Population Information Program, 1337 Connecticut Avenue, N.W., Washington, D.C., 20036. (Arabic edition distributed to each workshop participant with a study guide developed by Elaine M. Murphy.)

van der Tak, Jean, Carl Haub, and Elaine M. Murphy. "Our Population Predicament: A New Look," Population Bulletin, Vol. 34, No. 5, December 1979. Population Reference Bureau, 1337 Connecticut Avenue, N.W., Washington, D.C., 20036.

Working with Villagers, "Trainers Manual," "Prototype Lessons," and "Media Resource Book," 1977. American Home Economics Association International Family Planning Project, 2010 Massachusetts Avenue, N.W., Washington, D.C., 20036.

"World Fertility Survey," Population Reports, Series M, No. 3, June 1981 (Arabic edition). Population Information Program, 1337 Connecticut Avenue, N.W., Washington, D.C., 20036. (Arabic edition distributed to each workshop participant.)

World's Children Data Sheet, 1979. Population Reference Bureau, 1337 Connecticut Avenue, N.W., Washington, D.C., 20036. (Arabic edition distributed to each workshop participant.)

Audiovisual Aids

"For Your Pleasure," 3-minute, 16mm film, 1972. Mass Media Ministries, 2116 No. Charles Street, Baltimore, Maryland, 21218.

"More," 3-minute, 16mm film, 1972. MacMillan Films, 34 MacQuesten Parkway, Mt. Vernon, New York, 10550.

"World Population," 3-minute, 16 mm film, 1972. Coronet Films, 65 E. South Water Street, Chicago, Illinois, 60601.

Appendix D

THE SIX DOMAINS OF POPULATION EDUCATION

1. Population Concepts and Their Major Components

   Family Roles
   The Population
   Population Composition
   Density
   Demographic Processes
   Demographic Measures

2. Elements Which Affect Population Growth

   Population Situation in the Family and Local Community
   Effects of Fertility, Mortality, and Migration on Population Growth
   Values and Traditions which Affect Population Growth

3. Effects of the Population Problem in the World and Egypt

   On the Size of the Family
   On the Quantity and Quality of Food, Health, Clothing
   On Agriculture
   On Food Production
   On Education
   On Transportation
   On Housing
   On the Ecosystem

4. Physiology of Reproduction

5. Population Policies in Egypt and Around the World

6. Planning for the Future

Appendix E

NONTRADITIONAL APPROACHES TO TEACHING ABOUT POPULATION

A lecture is a fast way to transfer a large quantity of information. It can be very effective, but it is often overused. Students and listeners find it difficult to concentrate on, understand, and respond to an excess of information in a brief time. It is more effective to use a variety of methods to help students learn, care about, and remember an important topic. Research shows that student involvement is the most successful approach to learning.

Teaching methods may include the following:

1. Small group work

Divide the class into several groups of five or six students. Assign them a task such as discussing an idea, "brainstorming," creating a product such as a poster, a script, or collage, or solving problems. A group representative will report results to the group. This approach engenders interest and teaches cooperation.

2. Brainstorming

In small groups or with the whole class, ask students to call out ideas in response to a question, such as "What are some ways to solve the population problem?" There are no rules in brainstorming. "Good" ideas, "bad" ideas, and "impractical" ideas are all acceptable for the time being. The objective is to involve all students in thinking about the problem without judging their ideas.

3. Problemsolving

This is a more formal activity than brainstorming and does involve judging the worth of ideas. The steps involved are: (1) identifying the problem ("Is this village growing too rapidly?"); (2) gathering, tabulating, and displaying the data (for example, in a chart or table); (3) presenting the data to the group; (4) summarizing consequences of the trends suggested by the data; (5) drawing conclusions; and (6) developing solutions. The last step should begin by brainstorming, then eliminating unethical, unworkable, unpolitical, and overly expensive (etc.) solutions.

Consider the remaining solutions and test them, if possible, by gathering further information. Finally, develop a plan for implementing the most practical solutions.

4. Graphing and making tables and charts

It is important that students learn how to understand graphs and tables. A good way to help students is to ask them to make graphs, tables, and charts. Supply them with paper that has the scale of measurements of the graph to be constructed. Or give them a table that is only partly filled in. Then give them the data to be graphed or added to the table and have students complete the work.

5. Quiz

A quiz is a small test which is not used to grade the student, when it is used as a teaching tool. Its purpose is to ask the students questions about a new topic so that he or she will be interested in the answers. It can replace a lecture. Make sure the quiz contains one or two easy questions so that students feel confident that they can master the new topic (for example, "True or False? Our population is growing.")

6. Student-developed quiz

After students have learned an important part of the subject matter divide them into small groups. Ask them to produce a brief quiz--about 5 questions--on the new topic. Then have the groups exchange quizzes among each other and answer the quiz given to them. Return the completed quiz to the group who wrote it originally for scoring. A representative from each group can then read the questions, give the right answer, and tell which question the other group missed.

7. Using local resources

Teachers do not have to rely on expensive materials and equipment to do population education. Ask students to make a scrapbook of newspaper articles, photographs, and advertisements that are related in some way to population growth, possibly as cause or effect. A newspaper itself can be folded to make the book. When the book is finished, ask students to write a brief essay about the evidence of the effects of population growth they have collected or to describe their book to the

whole class or the small group. A diary of their own observations of population and environmental problems could also be kept in this "book."

Using people in the community as resources is also a good way to bring the real world into the classroom. Teachers might invite a nurse from the family planning clinic or a person in charge of schools, health, or transportation to discuss local population and environmental problems. Have students prepare two or three questions to ask the visitor.

8. Springboard

An idea can be a "springboard" or a bridge to a new classroom activity. For example, a newspaper article about a traffic accident can lead to a discussion of crowding and congestion, pollution, and urban problems which follow rapid population growth.

9. Case study

Students can continue using their local environments as a resource by doing a case study. A case study focuses on one situation but illustrates a trend or a category of problems. For example, a student may investigate air pollution from a certain factory. In so doing, he or she will also learn something about environmental health, environmental planning or the lack of it, pollution control or the lack of it, and the dilemma of choosing jobs over clean air.

10. Research report

Students who have access to libraries and documents should be encouraged to do a research report on a specific aspect of population, such as "Population Growth in Egypt and Its Effect on the Food Supply." The students should obtain figures on population growth for a certain interval of years and the corresponding figures for food production, imports and exports of agricultural products, etc.

11. Classroom questionnaires and interviews

Students can develop questionnaires or opinion surveys to use with other students. For example, an individual or a small group could develop a set of questions, such as: What profession do you wish to have? Do you plan to marry? If so, at what age? Do you plan to have children?

How many? Do you plan to stay where you live now or to move? Students should interview approximately 10 classmates and then tabulate their data. When all tabulation is completed, the results can be listed on the blackboard and the average number of children desired, the average age at marriage, etc., can be calculated and discussed.

12. Interviewing outside the class

Students can follow the procedures for classroom development of questionnaires and interviews but can interview people in the community and their relatives and friends. The teacher must be careful that the questions are not too personal or impolite. Results can be tabulated and discussed.

13. Values classification

There are many customs, practices, laws, traditions, and policies which favor or encourage large families either deliberately or not deliberately. But things are changing in some places. Ask students to list these laws or practices which either encourage or discourage childbearing and then to classify them. For example, parents may encourage their married sons and daughters to have children because they want to be grandparents. Or the cost of an apartment in the city makes having children very expensive.

14. Values clarification

While cognitive gains are important (understanding how populations change, the momentum of growth and age structure, etc.), it is equally important to understand values and attitudes. Certain activities can help students examine their own attitudes. For example, the teacher can distribute a series of statements about population or environmental issues. The student may respond by indicating his level of agreement or disagreement with the statements, using "strongly agree," "agree," "undecided," "disagree," and "strongly disagree." Examples of statements are: "I would like to have many children." "I think the government should reward people for having small families." "People should have as many children as they can afford."

15. Confrontation--acting out or through writing

Values in society often are in conflict with each other, especially during times of change. Attitudes toward population growth, migration, and environmental issues may vary widely. Ask a student to state his or her position on a population or environmental issue. Ask another student to challenge this position. The first student must defend his or her position. The same confrontation of values or attitudes can be done as a writing exercise if students are given a series of statements they must challenge, such as "Population growth is good for the economy," or "A man must have many children to be a man."

16. Creative use of the blackboard

The blackboard is another inexpensive resource. It can be used for brainstorming, problemsolving, or values statements which students must challenge. It can be used for mapmaking by a small group, showing sewage, water and air pollution, transportation problems, and other environmental consequences of rapid population growth. Teachers can write "strongly agree" on one end of the blackboard and "strongly disagree" on the other end. They can then read a series of statements about population and environmental issues (see "values clarification"). Students will stand at one end or the other, according to their agreement or disagreement with the subject.

The blackboard can be used for tabulating data, making population pyramids, graphs, and charts. It can also be used for drawing pictures of people working or talking--stick figures will do. Ask students to make up a conversation or story about these figures having to do with population or environment or family size issues.

17. Picture interpretation

Using posters or photographs relating to population issues, ask students to interpret the situation shown, as with the stick figures on the blackboard. These posters or photographs can be "springboards" to a good discussion about family size or the environmental effects of population growth or can be the inspiration for an essay.

18. Creative expression

It is important to learn population dynamics and to clarify values. It is also important to express feelings about this complex topic. Students can express their feelings through short stories (students like to write about the future and population through science fiction), poems, songs, collages, drawings, paintings, and displays. They can create games, puzzles, and riddles. They can create a script for a situation and dramatize it before the class. They can write essays about their feelings, their plans, or their opinions. Ask students to imagine that they are grown up and married. They have just had a daughter, their first child. Ask them to write a letter to their baby daughter describing their hopes and dreams for the child when she is grown up. Later discuss these hopes and whether they represent a change from the role of most women. Will family planning be important in realizing these hopes?

19. Roleplaying

In this method, students assume roles--a father, a mother, a bride, a groom, children in a large family, members of a decision-making council, etc. They then act out a scene or solve problems according to the way the person they represent would act. For example, four students are asked to represent members of the local family planning council. Their task is to develop recommendations to encourage parents to plan smaller families.

20. Simulations

In a simulation, objects or people represent or simulate other things or people. For example, a fishbowl can represent the earth and a cup of water poured into it can represent births while half a cup of water taken out can represent deaths. Or three different colored beans in a clear cylinder can represent the population of a country divided into those under 15 years of age, those between 15 and 64 years of age, and those over 64. These can be used as demonstrations by the teacher or as a "learning-by-doing" activity by small groups or individuals.

21. Demonstrations

A student, groups of students, or a teacher can demonstrate a concept or process in front of the class. It can be a simulation, such as

dividing a loaf of bread which represents protein among two or three groups of students, each of which represents a family with varying numbers of children. The carrying capacity of a fishbowl can be demonstrated directly with two fishbowls. One fishbowl is overcrowded and the oxygen and food supplies have been depleted, causing the fish to die. The other demonstrates a healthy environment in which the fish population, food and oxygen supplies, and waste disposal are in balance.

22. Inquiry approach

The inquiry approach refers to a style of teaching which does not tell the students to memorize facts or lists of causes. It asks students to inquire into the nature or causes of a situation and to draw conclusions from their own investigations and research. It is the approach used in problemsolving, brainstorming, group discussions, and other activities in which teachers encourage students to ask questions rather than giving them answers to learn.

23. Active use of films

Before showing a film (or slide program) ask students to look for the main points or message of the film while they are watching it. Ask students to analyze the ways in which the filmmaker got the points across and whether the film was accurate and objective. Afterwards discuss these questions and why the film was successful or unsuccessful and how it might be better.

Appendix F

SPECIFIC OBJECTIVES OF THE WORKSHOP

Participants, after ten days of study, will be able to:

1. Define the effects of the population explosion on education.
2. Define the features of the policy for population and family planning in Egypt.
3. Mention some steps which the Ministry of Education has achieved in the field of population education.
4. Define the role of the Ministry of Education in solving the population problem in Egypt.
5. Write the Egyptian population education definition.
6. Mention the domains of population education in Egypt.
7. Define these domains in our existing curriculum--where do they fit in?
8. Write some details about the physiology of reproduction in men and women.
9. Practice some method of teaching population education, such as small group discussion, springboards, roleplaying, etc.
10. Integrate population concepts into different disciplines.
11. Write specific objectives for their lessons.
12. Practice values clarification as a nontraditional method of teaching population education.
13. Practice problemsolving as a method of teaching population.
14. Practice and prepare teaching aids for population education.
15. Show the scientific method for preparing practical research about population growth.
16. Demonstrate the relationship of population growth to economic and social development.

Appendix G

EVALUATION RESULTS

Pretest-Posttest

Part A

Indicate whether you strongly agree, agree, disagree, strongly disagree with, or are undecided about the statements below.

1. Teaching about population is important.

   Pre 77% Agreed
   Post 82% Strongly Agreed

2. Teaching about population is difficult.

   Pre 42% Disagreed, 34% Agreed, 24% Undecided
   Post 53% Disagreed, 24% Strongly Disagreed

3. The lecture method is the best way to teach about population.

   Pre 60% Disagreed
   Post 26% Disagreed, 38% Strongly Disagreed

4. Lectures can give a lot of information in a short amount of time.

   Pre 48% Agreed
   Post 45% Agreed, 27% Strongly Agreed

5. Lectures can change attitudes fairly quickly.

   Pre 55% Disagreed
   Post 44% Disagreed, 28% Strongly Disagreed

6. Students learn best the lessons in which they are actively involved.

   Pre 73% Agreed
   Post 86% Strongly Agreed

7. Using a variety of teaching methods is most effective for population education.

   Pre 64% Strongly Agreed
   Post 77% Strongly Agreed

8. I feel ready to teach about population.

   Pre 62% Strongly Agreed, 24% Agreed
   Post 86% Strongly Agreed, 9% Agreed

9. I feel ready to help teachers teach about population.

   Pre 60% Strongly Agreed
   Post 88% Strongly Agreed

10. Rapid economic development--not slowing population growth--will solve this country's problems.

    Pre 32% Disagreed, 24% Undecided
    Post 55% Strongly Disagreed, 44% Disagreed

11. Women must be given new opportunities for jobs and leadership.

    Pre 42% Agreed, 18% Disagreed
    Post 66% Agreed, 11% Disagreed

12. Men should share with their wives the responsibility for planning the size and spacing of their families.

    Pre 71% Strongly Agreed
    Post 77% Strongly Agreed, 20% Agreed

13. Rapid population growth is one of the most serious problems in this country.

    Pre 89% Strongly Agreed
    Post 91% Strongly Agreed

14. It is important that students today plan to have smaller families when they marry.

Pre 73% Strongly Agreed
Post 75% Strongly Agreed

15. The population and environmental problems in this country are solvable.

Pre 33% Strongly Agreed, 51% Agreed
Post 73% Strongly Agreed, 18% Agreed

Part B

Define and provide an example of each of the five methods of teaching listed below.

1. Small-group work
2. Role playing
3. Values clarification
4. Using local resources
5. Case study

Pre 96% were unable to define or provide an example of any of these methods.

Post
1. 86% answered correctly
2. 84% answered correctly
3. 84% answered correctly
4. 71% answered correctly
5. 37% answered correctly*

---

* Participants were provided with a definition of a case study during the workshop, but did not see an example of one or participate in an activity using one.

The pre- and posttests were corrected by Mr. Gamil and only the most pertinent responses were tabulated and translated into English for the American consultants. For this reason a complete breakdown of the responses on the pre- and posttest was not available for this report.

Appendix H

"METHODS AND MATERIALS: THE NONTRADITIONAL, THE AVAILABLE, THE INEXPENSIVE, THE ENJOYABLE"

Basic Definition

Population Education is an inquiry into the causes and consequences of population trends and the meaning of these trends for the individual, the community, the nation, the world, and the ecosystem.

Subject Matter

While population growth is the dominant population trend in most of the world, and in Egypt, population education could also deal with non-growing populations and population decrease. In addition, population education deals with population distribution (rural/urban balance). Migration patterns and population characteristics, such as age structure (the percentage of people of various ages) and ethnic composition.

Goals

Our definition of population education agrees with the definition of the Egyptian Ministry of Education in identifying four major goals for students as outcomes of population education:

1. Awareness and understanding of the population problems of the world or of a particular country and its effects on many aspects of life;

2. A change of attitude which follows the study of population problems and their effects on economic development and other aspects of life;

3. The development of decision-making skills. Population-related situations for which decision-making skills are required occur mainly out of school: to marry or not, at what age to marry, whether to have children and how many, child spacing, birth control methods, etc. However, the school can prepare students for the real life decisions they will make in the future; and

4. Striving for a superior quality of life--the student should see that solving population problems will help achieve a better life for the citizens of the country and for himself or herself.

Methods

There is a great variety of methods that can be used in population education. No one method is best. Rather, a mixture of methods is preferable.

While lecturing and having students read from a textbook are good methods of transmitting information, educational research and our own experiences suggest that methods which actively involve the learner are most effective: Students learn more quickly, remember longer and often experience attitude changes as a result of being actively involved in the learning process.

These new methods stress this philosophy and encourage the student to ask questions rather than to memorize answers. This general approach is called "inquiry" and it employs problem-solving techniques based on the scientific method.

Among these new methods are the small group session, used to discuss issues, solve problems, come to a consensus, create a project, etc.

Role playing asks students to take the parts or roles of persons important in the situation one is dealing with, such as members of a council formulating population policies, or a couple discussing their plans for the size and spacing of their family or a family planning worker discussing new methods with a group of reluctant villagers.

Simulations use objects and people to represent certain situations. For example, a bowl of water can represent the earth and its people while water poured into the bowl represents births and water taken out (by a smaller container) represents deaths.

Springboard is the name given to ideas which stimulate or spark other ideas, such as an article on the housing shortage in the newspaper can be the springboard to a discussion of population problems. Among other springboards are a brief film, photograph, or poster.

Problemsolving as a formal method of research can be used by more advanced students who have access to a library or other resources for finding information. The steps in problemsolving are: identifying the problem (forming a hypothesis); gathering data; tabulating the data; displaying the data (e.g., in a chart); presenting the data; summarizing the consequences; drawing conclusions and developing solutions.

Materials

While it is nice to have expensive textbooks, other curricular materials and electronic equipment such as movie and slide projectors, etc., it is not necessary.

One can use local resources effectively for population education--newspapers, beans, water, buckets, blackboard. One can also use the local community as a laboratory for identifying problems, using problem-solving methods for finding solutions, doing case studies, local research, and interviewing. Visitors can be invited to the class to discuss population and environmental problems with students, such as family planning officials or city planners.

Perhaps most importantly, one can use people as resources. In the classroom, the students learn from each other--through small group work, brainstorming, demonstrations, reports of local research and case studies, displays of student-developed art work, posters, photos (if available), collages made from newspaper articles and photos relating to population, etc. Students, given certain facts and figures, can develop their own graphs and tables and can write essays on the relationship of population to many aspects of life--the environment, the economic well-being of the country, jobs, health, the education system, food and agriculture, the role of women, the relationship of family planning goals to religious views, traditional attitudes, etc. Thus, student research can help create classroom materials. By sharing these essays among all the students, students have created their own textbooks.

The main point is that one can teach about population without expensive books and equipment, using local resources and people for classroom activities.

Appendix I

SELECTED POPULATION EDUCATION ACTIVITIES USED IN WORKSHOP

Quiz on World and Egyptian Population Trends

1. What is the population of the world today?

   a) 900 million; b) 2.2 billion; c) 4.5 billion; d) 7.4 billion; e) 22 billion

2. How fast is the population of the world growing each year?

   a) .06 percent; b) 1.7 percent; c) 5 percent; d) 10 percent; e) 25 percent

3. If the world population continues at its present rate of growth, how long will it take to double?

   a) 10 years or less; b) approximately 20 years; c) approximately 41 years; d) approximately 96 years; e) approximately 140 years

4. T or F: There is a population explosion in the world today.

5. T or F: There is a population crisis in the world today.

6. Which has NOT been a major cause of the population explosion?

   a) an increase in birth rates; b) modern preventive medicine; c) improved sanitation; d) lower infant mortality; e) longer life expectancy

7. What is the population of Egypt today?

   a) 2.5 million; b) 4.3 million; c) 43.5 million; d) 450 million

8. At what rate is Egypt's population growing?

   a) .03 percent; b) 3 percent; c) 30 percent; d) 300 percent

9. If Egypt continues to grow at the current rate, what will its population be in the year 2000?

   a) 4.5 million; b) 45 million; c) 65.4 million; d) 654 million

10. How many children does the average Egyptian woman have?

    a) 1.5; b) 3.5; c) 5.3; d) 7.3

The Stork and Grim Reaper
(The Water Game)

Props:

World Population Data Sheet of the Population Reference Bureau* (found in teacher's kit; put up extra copy near demonstration so you can refer students to it)
Clear container (plastic box, aquarium, or similar; should be at least 1-quart capacity)
Old towel (place under clear container to absorb drips)
Two sheets of paper labeled: "Stork" and "Grim Reaper"
Straight pins to attach labels to wearer
Bucket of water (the "Great Beyond")
Food color (add to water in bucket for easier visibility)
Two measuring cups or dippers: 1 large (perhaps 2-cup) and 1 small (1-cup)

Script:

I'd like to show you an interesting way to convey the concept of the Earth's carrying capacity and to illustrate the effect on that carrying capacity of a birth rate that is larger than the death rate.

This exercise is called "The Stork and the Grim Reaper." Today, we shall have people come into our world via the Stork, and, of course, depart it via the Grim Reaper.

I'll need two volunteers from the audience: one to be the Stork, representing birth rates, and one to be the Grim Reaper, representing death rates. (If no one volunteers, immediately pick two students; pin appropriate sign on each.)

(Hold up clear container.) Now, you may think this is just a (plastic, glass) container, but actually it represents the world. (Suggestion: you could also have it represent a city or country at any point in history).

The water in this bucket (point to or hold up) represents people. I have added a little food color so that it shows up more clearly.

We are going to ask our Stork to add people--that is, to add water--to our globe and then ask the Grim Reaper to take people out of our globe by dipping water out of the container.

Now, students, we need to help our Stork and Grim Reaper by giving them some information. Let's turn to the World Population Data Sheet on the wall (or to their individual copies, if applicable). What is the

birth rate of the world? (Answer: 29 per 1,000)* And what is the death rate of the world? (Answer: 12 per 1,000).*

The birth rate is more than twice as high as the death rate, so we'll give our large dipper to the Stork, and the small dipper to the Grim Reaper. So, would each of you start doing your task--Stork, adding water, and Grim Reaper, removing water--and continue to do so until I say "stop." (Let them proceed until the water level gets dangerously high). Students, what is happening to the water level? (Answer: it's rising). What will happen if there is no change in birth or death rates? (Answer: water will overflow.) (Depending on the age level of your students, you may decide not to carry this example to its grim implication: that losing water really means losing people, as the Earth's carrying capacity is exceeded.)

What does this suggest about the carrying capacity of the Earth? (Answer: it has limits; if the birth rate isn't slowed, a crisis could result. It's important to note trends while there is still time for thoughtful analysis and humane problemsolving.)

Thank you very much, Stork and Grim Reaper. (Help them unpin their signs before returning to seats.)

Variations:

There are several variations of this exercise. Maybe you would like to show the different growth rates of two countries--for instance, a developing country with a higher growth rate and a developed country with a lower growth rate. Again, you could get this information from the World Population Data Sheet.

To do this, you could use two containers--each representing one of the countries--with a Stork and Grim Reaper for each. Both sets of people would have to work at about the same speed, with the differential growth rates shown by variations in sizes of dippers. The more slowly-growing country, of course, would have a more slowly-rising water level.

Perhaps you would like to show in-migration and out-migration for the U.S. You could use a thimble for out-migration, a 1-cup dipper for the birth rate, a ½-cup dipper for the death rate, and a ½-cup dipper for in-migration.

In another variation, the teacher or students can call out the name of a country or continent, perhaps at a certain date in history, and the Stork and Grim Reaper can adjust their speed (and/or the size of their dippers?) to correspond to the birth and death rates of that particular time and place. (Example: in Europe, during the Black Plague, the Grim Reaper would be very busy!)

---

* From 1978 World Population Data Sheet.

Population Activities

What Is A Billion?

World population in 1980 is over four billion people. Is that a little or a lot? This exercise will help you appreciate how much one billion is. Because we are really talking about people and not dollars, it may help to consider the needs and hopes of human beings as well as the impact on society and the environment of 4 billion people.

Your rich uncle has just died and left you $1 billion. But if you accept the money you must count it for eight hours a day at the rate of $1 per second. When you are finished counting, the $1 billion is yours and then you may start to spend it.

a. Do you accept your uncle's offer? _____

b. Why or why not? _____

_____

c. How many years will it take to count the money? _____

Work space:

These activities were taken from the Population Education Resources kit, produced by Zero Population Growth (1346 Connecticut Ave., N.W., Washington, D.C., 20036, $4).

CALENDAR RIDDLE

At the 1979 rate of growth, about 1.7 percent, world population will double approximately every 41 years. Doubling a small number over and over soon means we are doubling ever larger numbers. 1979's 4.4 billion will double to 8.8 billion in the year 2020 if current growth patterns continue. This riddle helps to illustrate the concept of exponential growth (an increase at a constant rate per year or other unit of time) and its implications for problemsolving in the future.

A father complained that his son's allowance of $5 per week was too much. The son replied, "Okay, Dad. How about this? You give me a penny for the first day of the month, 2¢ for the next, 4¢ for the next, 8¢ for the next, and so on for every day of the month." The father, thinking he had a foolish son, readily consented.

Which, indeed, was the more clever? (See reverse side of page.)

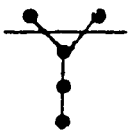
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

The One- Versus Two-Child Family
(or Two- Vs. Three-Child)

Props:

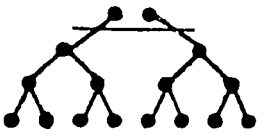
None; only people are needed. To figure out the number of generations you can depict, given the number of people in your audience, refer to the attached diagram. It's okay if the number in the audience doesn't compose a complete set of three (or more) generations. If you have a small number in the audience (12-21), One- Versus Two-Child Family could easily be done. Two- Vs. Three-Child Family requires a total of 57 people to show parents plus three generations. See below for One Vs. Two:

Couple A



Total: 5 people for parents plus 3 generations

Couple B



Total: 16 people for parents plus 3 generations

Script: (For One Versus Two)

The activity I'd like to show you next is called the "One- Versus Two-Child Family."

The purpose of this game is to show the importance of average family size and its impact on population size over time. (Point out that many different arithmetic combinations of family size can result in a 2-child average. For example, some couples may have 3 or 4 children; others none. This exercise is simple in that it does not consider death, immigration or the existence of spouses. Still, it manages to make a point.)

For this demonstration, I'd like all of you to stand up and move with me to the back of the room, where we have some open space.

First, we need to designate Couple A and Couple B. Any volunteers? (If none, quickly choose four students.) You must think of yourselves as grandparents, because we've more generations about to be added.

Let's say that each of our two couples is having a family reunion and they want to see if they have room at their table for a family dinner. So we have to help to see if they have enough space by helping them count up their respective families.

There's only one difference between Couple A and Couple B: Couple A has a family tradition of having only 1 child per family, whereas Couple B has a family tradition of having 2 children.

Now, Couple A, both of you were "only children" and you want to continue that tradition, so would you please go pick out your first child from the group and have that child stand in front of you.

Couple B, you have a family tradition of 2 children, so would you go pick out your two nice children and have them stand in front of you.

Now, child of Couple A, time goes by and you are now grown up. You enjoyed being an only child so much that you decide to have only 1 yourself. So would you go pick your child from the group.

Likewise, children of Couple B, time has gone by and you each decide to have 2 children, so would each of you go and get two.

Grandchild of Couple A, it's your turn to go to get your one child. Grandchildren of Couple B, it's your turn to go and get 2 children each.

Couple A, would you please count up your family, and Couple B, would you please count up yours. If we had had 4 complete generations, there would be 5 in Family A and 16 in Family B. If we had compared a 2-child average family size and a 3-child average family size, the numbers would be 16 and 41.*

Now you can see the difference it would make if the childbearing decisions of these two families were multiplied by the decisions of millions of couples. While it doesn't matter much if one family has 10 children, if the average family has 10 children, the impact on world population and resources is indeed enormous.

(It is important to be sensitive to the feelings of children from large families; this exercise is illustrative of the cumulative impact of individual decisions and, for the students, would apply only to the future, not the past.)

It looks as if Couple A can have its family reunion at the dining room table but Couple B has to put in all those extra leaves and use a card table, too! Thank you; you may return to your seats.

---

* See "The 2- or 3-Child Family" - information section (second section); "tree diagrams," comparing the two- and three-child average family over three generations, are shown.

Variations:

Another interesting way to illustrate the impact of an average 2-child family compared to an average 3-child family norm if continued over a number of generations is with the use of kidney beans (or any other type of bean).*

Here we have a plastic bag ("baggie") of kidney beans representing the 1st generation of a 2-child family: 2 (HOLD UP) and 1st generation of a 3-child family: 3 (HOLD UP). Here are the relative numbers for the second generation: 6 (HOLD UP) and 12 (HOLD UP). After 3 generations, we have 14 (HOLD UP) and 39 (HOLD UP). After 4 generations, there are 30 (HOLD UP) and 120 (HOLD UP). (An easy way to keep track of the number of beans in each bag is to put a little slip of paper containing this information in each. Just be sure the slips are visible at demonstration time.)

(Another variation: you can also glue beans to poster board to illustrate this same concept. Just copy the "tree" diagram in this teacher's kit.)*

---

* See "The 2- or 3-Child Family" - information section (second section); "tree diagrams," comparing the two- and three-child average family over three generations, are shown.

Taken from The Future and Population: What Will A No-Growth Society Be Like? A teaching module published by PRB.

OBSERVING AND COMPARING

Country	Rate of natural increase	Years to double population	Per capita G.N.P.[a]	Urban population	Life expectancy	Infant mortality[b]	Population under 15 yrs. old
Countries which have stopped growing							
United Kingdom	0.0%	—	$4,020	76%	72 yrs.	14	23%
Belgium	0.0	—	6,780	87	71	14	23
West Germany	-0.2	—	7,380	92	71	17	21
East Germany	-0.2	—	4,220	76	72	14	21
Fast-growing countries							
Bolivia	2.9%	24 yrs.	$ 390	34%	48 yrs.	157	42%
Kenya	3.3	21	240	10	50	119	46
India	2.0	35	150	21	49	129	40
Indonesia	2.4	29	240	18	48	137	44
A country in transition							
Mexico	3.4%	20 yrs.	$1,090	64%	65 yrs.	66	46%

a. G.N.P.: Gross National Product, a measure of a country's wealth.
b. Infant Mortality: Number of deaths per 1,000 live births.

Countries approaching or at zpg are different in many ways from countries which are growing rapidly (even though there may be recent slight declines in fertility).

1. Examine the table above for important differences, and note what you observe below (the first answer is given as an example).

	Fast-growing countries	No-growth countries
Per capita G.N.P.:	Low wealth per person	Higher wealth per person
Urban population:	_____	_____
Life expectancy:	_____	_____
Infant mortality:	_____	_____
Population under 15:	_____	_____

2. Describe briefly how Mexico—which is changing rapidly—is like a fast-growing developing country in some ways and how it is becoming like a slow-growing developed country in other ways.

Script for Conducting Food for Thought Simulation*

Props:

Assorted colors of yarn for 6 "continents"; see "Diagram for Continent Game - Sample Floor Plan" on last page of this section for size of each continent
Masking tape (to tape yarn to floor)
Ambassadors' cards (attached)
6 placards labeled with names of continents (or paper signs with pins) - optional
Long loaf of French or Italian bread, unsliced
Bread knife
For variation: Hershey's chocolate kisses and 1 pound of peanuts in the shell

Before Presentation:

1. Arrange yarn for continents in random shapes on the floor and tape down. (Choose an out-of-the-way space to avoid people's tripping over yarn.)

2. Mark off bread as shown below with knife (i.e., partially slice). You might wish to label name of each continent on appropriate segment with a felt tip pen. (If so, be sure to warn participants not to eat that part!)

3. Estimate number of participants. The following script is designed to use a total of 25, 30, or 50 "citizens" in the continents. Of course, one can adapt the game for other numbers. "Extra" people can form a United Nations International Advisory Board. Ask these advisers to observe this game keenly and at the end of the game (or for homework!) to recommend at least three policies to help deal with population/food/income inequalities among nations. They might consider, for example, whether or not these inequalities are problems, and might contemplate such questions as: 1) Should food aid be given to countries which have not yet come to grips with their "population problems?" 2) On the other hand, have donor nations the right to link food aid to certain policies? 3) Should rich countries reduce their consumption levels? How could this be encouraged or enforced? (The teacher might write these or similar questions on index cards to give to the advisory board.)

---

* Developed by Marge Dahlin and Elaine Murphy as Assistant Director and Director of the Population Education Project at Zero Population Growth, Washington, D.C.

How to Divide Bread:

1/12 1/12 1/12 1/12 2/12 6/12 or 1/2

Script:

I'd like to show you a simulation called "Food For Thought" which helps students gain an appreciation for world population distribution among continents as well as urban/rural dwelling patterns, arable or farmable land, and protein consumption.

First, I'm going to need 6 volunteers to be ambassadors from these continents. (If no one volunteers, quickly appoint; give each ambassador his/her ambassador's card.)

Would the ambassadors please choose some citizens to help populate their continents? The ambassador from North America will need to pick ____ citizens (see diagram, last page, for correct number of citizens based on number of participants). The ambassador from Latin America, ____ citizens; from U.S.S.R., ____ citizens; from Africa, ____ citizens; and from Europe, ____ citizens; all the rest of you can go populate Asia. Give sign (pin it on) or placard (labeled with name of continent) to ambassador.

Ambassadors, would you please tell us something about your country by reading the little card you've been given? First, let's hear from the North American ambassador (then ask to hear from the Latin American, Soviet, African, European, and Asian ambassadors. Then, if possible, use overhead transparencies, slides, or posters to compare and illustrate differences between continents on variables such as infant mortality rate, birth rate, growth rate, doubling time, life expectancy, etc. For example, students might make one poster to illustrate each variable.)

(The following information is also given on the Continent Diagram, last page, and can replace the script.)

Land Areas:

Next, let's look at land areas and how they're used. How many people are there compared to the amount of land in each continent? How many people live in cities? How much agricultural land is there per person?

North America has 16 percent of the world's land area but has 6 percent of the world's population. In North America, 3/4 of the population lives in urban areas.* So, North American ambassador, would you please have 3/4 of your people stand on the border of the continent, away from the countryside. The remaining 1/4 can spread out over the countryside. Now, unfortunately, not all of the land in the countryside is arable, or capable of being farmed. So farmers, you're going to have to compress yourselves into parts of your continents. In North America, only 1/4 of the continent is arable, so farmers, would you move into 1/4 of the total space?**

Latin America has 15 percent of the world's land area but has 8 percent of the world's population. In Latin America, 1/2 of the population is urban. So Latin American ambassador, would you have 1/2 of your people stand on the border, and the rest spread over the countryside. In Latin America, only 1/3 of the land is arable, so would the farmers please move into 1/3 of the space?

Africa has 22 percent of the world's land area but has 10 percent of the world's population. In Africa, 1/4 of the people live in cities; so would the African ambassador have 1/4 of the citizens move to the border? In Africa, 1/3 of the land is farmable, so farmers, would you move into 1/3 of the space?

Europe has 4 percent of the world's land area but has 11 percent of the world's population. In Europe, 2/3 of the population is urban, so Mr. (Ms.) European ambassador, would you have 2/3 of your people stand on the border? But, in Europe, only 1/2 of the land is agricultural, so farmers, please move into 1/2 of the remaining space. (For Asia and USSR, turn to diagrams, last page. Continue as above.)

Let's summarize what we've seen so far. We've shown the distribution of the world's population by continent. We've looked at the urban-rural distributions of each continent's population. And we've also seen the proportion of arable land in each continent. This demonstration provides an answer to people who say, "With all that land to farm, how can there be a food scarcity?" We see that there is much less agricultural land per continent than most people think.

---

* See Diagram for proportions of urban dwellers in each continent.

** See Diagram for proportions of arable land in each continent.

Protein Consumption in Each Continent:

Finally, let's look at the protein consumption in these continents. This loaf of bread (hold up) represents protein consumption per day in the world. I have marked it off to show the difference in consumption among continents.

North America gets 1/12 of this loaf. Would the North American ambassador please come up to get his/her continent's share of the world's protein and distribute it among the population as you see fit.

Latin America also gets 1/12 of this loaf. Would the Latin American ambassador....

(Proceed similarly. USSR: 1/12; Africa: 1/12; Europe: 2/12; and Asia: 6/12.)

At this stage of the exercise, interesting things might happen. For example, how do the people feel if the ambassador keeps too much food for himself or doesn't distribute it fairly among the citizens? Will there be a revolution? Will some citizens steal food from each other? Will there be (legal/illegal) immigration to a country which has mo e food?)

Collect ambassadors' cards.

Variations:

There are several variations or "spin-offs" of this simulation:

1. Per Capita GNP. This variation uses Hershey's chocolate kisses to represent per capita GNP in each continent. You can get this information on each continent from the World Data Sheet in your teachers' resource kits. Or better yet, you can have the students look it up. Let each candy represent $100 per capita GNP. For example, North America has a per capita GNP (1980 statistics) of $9650. Thus, it would get 96 or 97 candies, contained in a plastic bag. Distribute to ambassadors as before.

2. Distribution of World Protein Per Capita. Peanuts (in the shell) may be distributed to the ambassadors of the various continents according to both "ideal" and "real" world situations.

Before class, measure out peanuts onto paper plates according to the table below. Jot down the figures below on the edge of each plate for easy reference during the demonstration.

Distribution of Per Capita Protein by Continent

Continent	Participants	Number of Peanuts (Ideal World)*	Number of Peanuts (Real World)
N. America	3	9	9
U.S.S.R.	3	9	9
Europe	6	18	18
L. America	4	12	8
Asia	29	87	58
Africa	5	15	10

* This figure is based on an optimum protein standard of 100 grams per person. Each peanut represents 33 1/3 grams, so the well-fed person should receive 3 peanuts.

To demonstrate: Hold up paper plate with the "ideal quantity" to show citizens of each continent how much they "should" be getting. Then remove a portion of the peanuts in order to portray the correct quantity for the "real" world. For example, teacher might say: "Would the Asian ambassador please come up and get the protein supply for Asia? If Asia were a well-fed region, all 29 of you would get 3 peanuts each, totaling 87 peanuts. Unfortunately, you only get 58 peanuts (sweep off 29 peanuts, perhaps pre-divided on the plate, using a cardboard strip or plastic bag). Now, Mr./Ms. Ambassador, would you please distribute these peanuts as you see fit, or according to the political realities of your region? Asian citizens, if your ambassador distributes the protein equitably, each of you would get only 2 peanuts." (Repeat for other continents.)

3. Dinner. One teacher who used this game asked students' parents to prepare a dinner. Students sold tickets to the dinner. Each person had 1/3 of a chance to get a complete chicken dinner, 1/3 of a chance to get an English muffin with butter, and 1/3 of a chance for plain rice. Each person was seated between those who had the other dinners.

Some people tried to steal their neighbor's food; some people shared. Some people ate in silence, feeling powerless, "just settling" for what they could get, or feeling no necessity to share with others.

After the dinner, in class, students talked about different ways people can react to inequities and to what extent we as a country have reacted in those ways.

Ambassador's Cards*

The African Ambassador - green

I am the African ambassador. Our population is estimated at 472 million; our birth rate is 46 per thousand, and our death rate is 17 per thousand. Our population is growing at an annual rate of 2.9 percent. At this rate, our population will double in 24 years. By the year 2000 we are projected to have 832 million people. Our infant mortality rate is 140 per thousand, and our life expectancy at birth is 49 years. For every person there is approximately 1¼ acres of arable land.

The Soviet Ambassador - pink

I am the Soviet ambassador. Our population is estimated at 266 million; our birth rate is 18 per thousand, and our death rate is 10 per thousand. Our population is growing at an annual rate of 0.8 percent. At this rate our population will double in 82 years. By the year 2000 we are projected to have 311 million people. Our infant mortality rate is 31 per thousand, and our our life expectancy at birth is 70 years. For every person there are approximately 2¼ acres of arable land.

The European Ambassador - white

I am the European ambassador. Our population is estimated at 484 million people; our birth rate is 14 per thousand, and our death rate is 10 per thousand. Our population is growing at an annual rate of 0.4 percent. At this rate we will double in 176 years. By the year 2000 we are projected to have 521 million people. Our infant mortality rate is 19 per thousand, and our life expectancy at birth is 72 years. For every person there is approximately 3/4 acre of arable land.

The Latin American Ambassador - yellow

I am the Ambassador from Latin America. Our population is estimated today at 360 million. Our birth rate is 34 per thousand, and our death rate is 8 per thousand. Our population is growing at an annual rate of 2.6 percent. At this rate we will double in 26 years. By the year 2000 we are projected to have 595 million people. Our infant mortality is 85 per thousand, and our life expectancy at birth is 64 years. For every person there is approximately one acre of arable land.

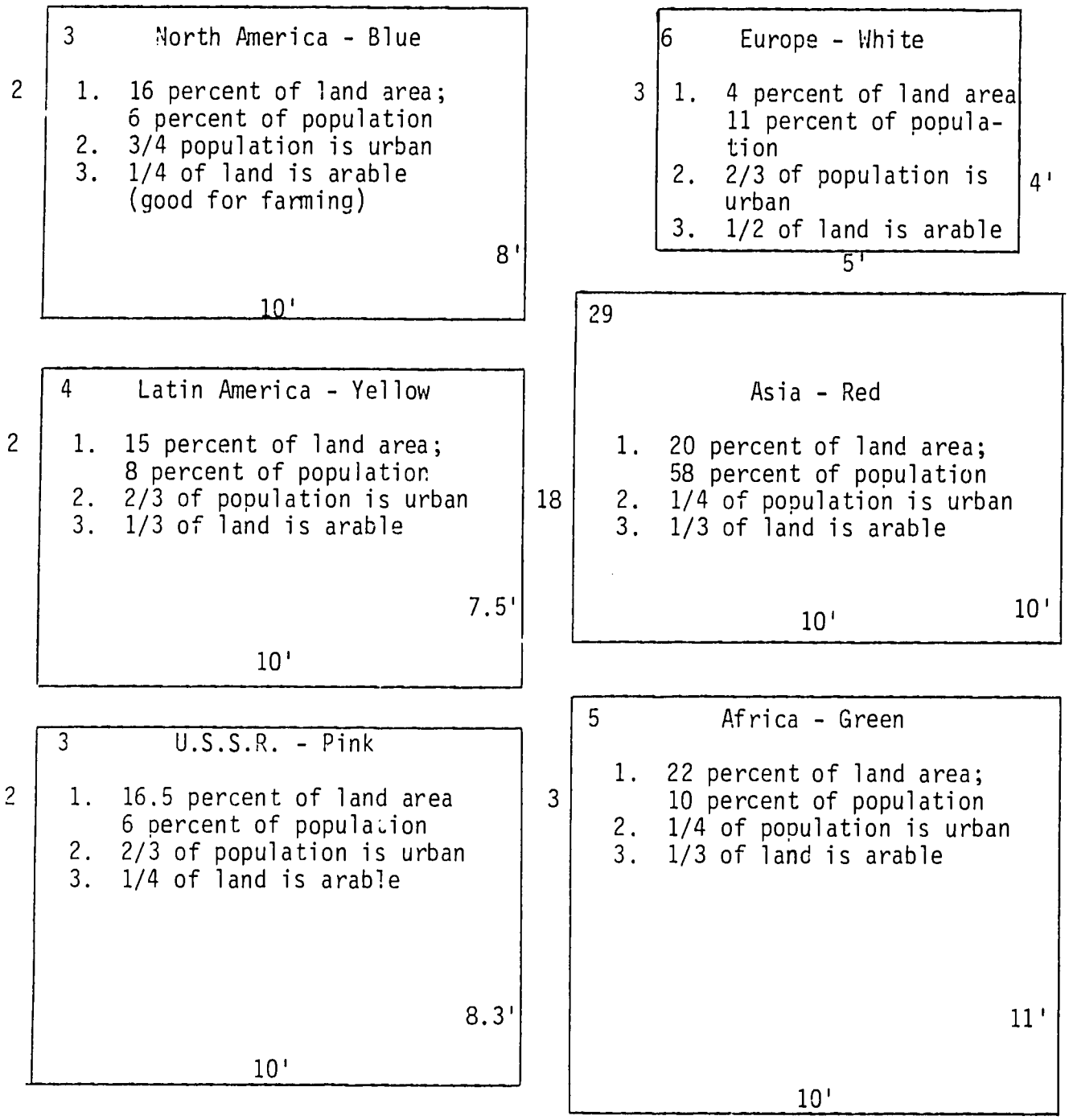
---

* Note: Figures on this page are based on 1980 statistics.

MISSING PAGE

NO. 1-17

Diagram for Continent Game
Sample Floor Plan



Explanation:

Dimensions of "continents" are shown for 50 participants; for 30 or less, simply double over the yarn and make them half the size. Continents need not be arranged in rectangles, but could be free-form if desired.

For 50 participants, use number in left hand top corner to indicate number of citizens from each continent; for 25 participants, use half as many as indicated. For other numbers of participants, reduce accordingly; for example, for 30, use number in margin.

ROLE PLAYING/SHORT ANSWER ACTIVITY

You believe it is important to reduce the birth rate. However, some people do not agree. What would you say?

1. To a man who says it is important to have many children so everyone will know he is really a man?

2. To a woman who says that having a child is a sure way to keep a husband?

3. To a young soldier who says that the population must grow even more so that there can be a stronger army?

4. To a mother who says that one must have many children because all do not survive?

5. To a grandmother who says that big families make sure that an old person is taken care of?

6. To a religious person who says that one should not plan one's family because children are a gift from God?

7. To a farmer who says that many children are needed to help on the farm?

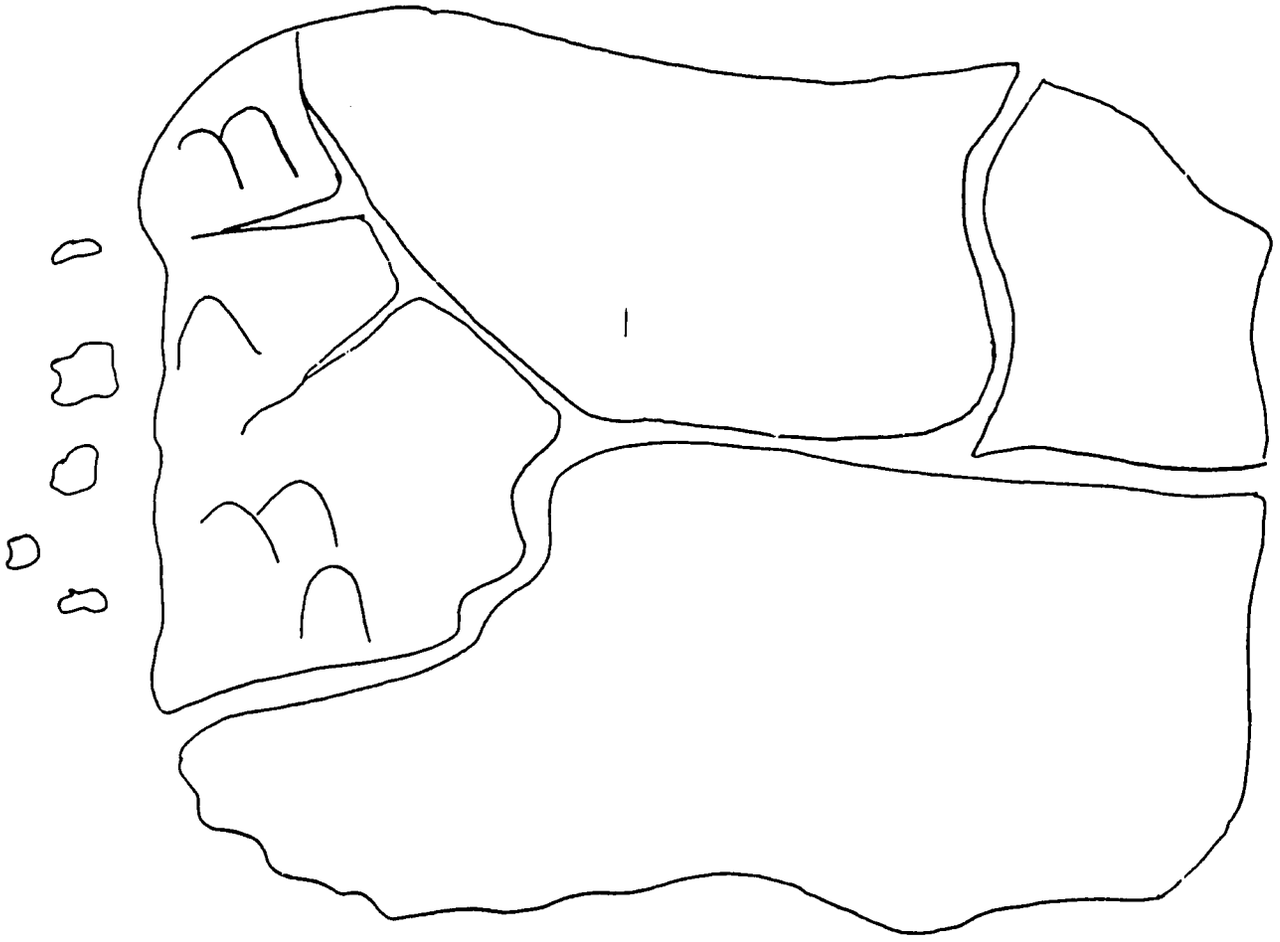
8. To a citizen who wants his country to be the most populous in the world?

9. To a student who believes population growth is necessary for a sound economy.

10. To a young woman who would like to have a large family because she loves children.

The Island Simulation

I. Some 200 years ago 100 men, women, and children were shipwrecked on an island which had abundant natural resources. Some domestic animals and tools also survived the wreck. Draw your idea of how the island looked 200 years after the shipwreck. What are your assumptions about population change, technology, and government on this island?

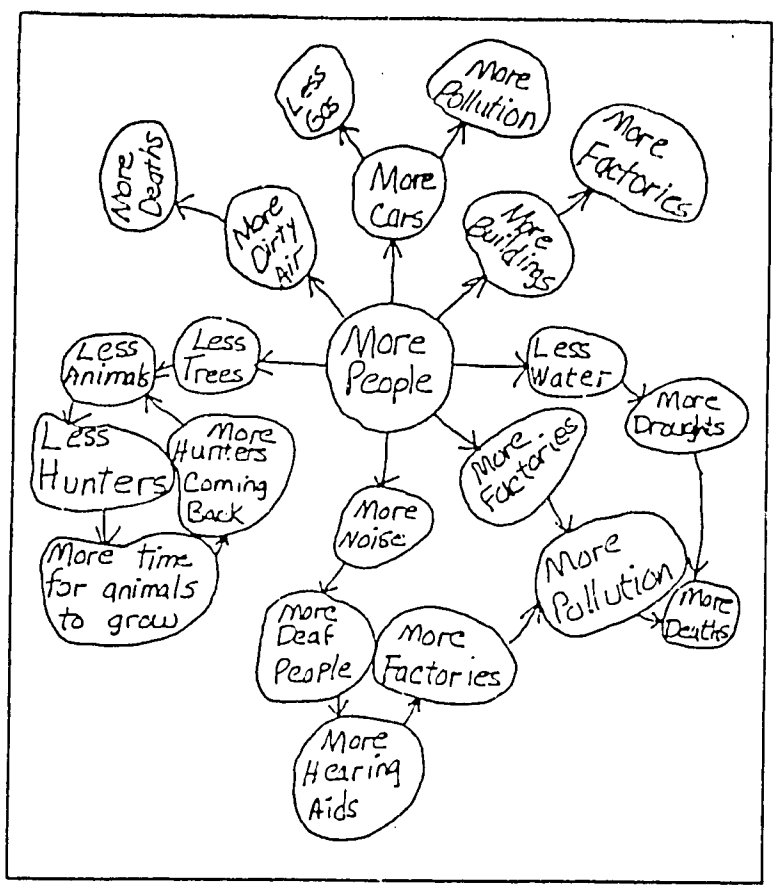


Taken from Unit IV (BP923) of Man and Nature, Biological Sciences Curriculum Study, available from Crystal Productions, Airport Business Center, Box II480, Aspen, CO 81611, (303) 925-8160; $40.00.

THE FUTURE WHEEL

A Systems Approach

"Everything is connected to everything else" is sometimes called the First Law of Ecology. Construct a Future Wheel* by placing a concept such as "more people" in the central circle, as shown below, and then connecting to it possible results of that central factor and subsequent results. The more you know about population the greater the number of interrelated factors. Note that even when we use technology, ultimately we depend on natural systems of air, water, soil, and other resources of the Earth.



---

* Created by futurists Jerry Glenn and Cyndy Guy. Illustration from Growth Implications and the Earth's Future, Education Development Center, 55 Chapel Street, Newton, Massachusetts 02160.

Other Activities on Egypt's Population Trends

A. Using beans or similar inexpensive material

1. Develop a model or diagram of Egypt's family size over four generations, showing direct descendants only. Begin with two parents, then five children, each of whom has five children, and so forth.

2. Develop a model of Egypt's increasing population density over time, using these approximate figures: 1800 - 2.5 million; 1900 - 10 million; 1950 - 20 million; 1981 - 43.5 million; year 2000 projection - 70 million. Remember that currently, only the Nile Valley and Delta are habitable, less than 4 percent of the land.

B. Population Policy Boards (Role-playing)

Each small group will represent a local, regional, or national board whose task it is to determine a set of policies to reduce population growth and/or redistribute population. Each group must generate a set of policies and practical ways to implement them.

C. Food and Population in Egypt (Small Group/Problemsolving)

Using the data given (from the R.A.P.I.D. handbook), select a problem, such as "Will Egypt be self-sufficient in food production in the year 2025 given current fertility trends?" Select appropriate data (much will not be useful to your question) to help answer your question, tabulate it, and display it in a graph or table. Finally, generate solutions to the problem identified.

D. Illustrated Storytelling

In small groups, examine the set of population and family planning picture cards. Use one or more of the cards or an entirely independent idea to create a population story or fable about the future. Illustrate this story on flip chart paper. Then display the picture and tell your population fable to the group.

E. On Changing Roles of Women: "Letter to A Daughter"

You have just become the parent of a baby girl, your first child. You are moved to write her a letter. Write this letter, describing your hopes and dreams for her. Do you think they will come true? Will her future differ from that of most Egyptian girls? Will fertility control be important in realizing these hopes? If you wish, share your letter with the group.

Appendix J

WORKSHOP AGENDA

Tuesday, August 11, 1981

9:00 - 10:30	Speeches by: Dr. Zahia Marzouk Mrs. Salha Awad Mr. Shafik Atta Dr. Elaine Murphy
10:30 - 11:00	Pretest (Appendix G)
11:30 - 1:00	"The Six Domains of Population Education" (Lecture, Mr. Mohamed Gamil)
1:00 - 2:00	"Population Education Methods and Materials: The Nontraditional, the Available, the Inexpensive, the Enjoyable" (Appendix H) (Comments by Dr. Elaine Murphy)
2:00 - 3:00	"Steps the Ministry of Education Has Taken in the Field of Population Education" (Lecture, Mr. Shafik Atta)

Wednesday, August 12, 1981

8:00 - 9:00	"The First Domain of Population Education--Population Concepts and Their Major Components--and How to Integrate It into Disciplines" (Lecture, Mr. Gamil)
9:00 - 11:00	Small group discussions by disciplines on places where the first domain fits into the syllabus
11:00 - 12:00	Population Quiz on World and Egyptian Population Trends. World Population film shown; springboard to group discussion led by Dr. Murphy. (See Appendix I for selected activities.)

12:00 - 3:00 Nontraditional methods of teaching the first domain of population education: Six activities demonstrated by Elaine Murphy and Patricia Cancellier,* with audience participation:

"Water Game," simulation illustrating carrying capacity and natural increase

"What Is A Billion?" riddle illustrating the magnitude of a billion

"Calendar Riddle," illustrating exponential growth

"World Population Growth," simulation illustrating world population growth through history and the recent population explosion

"Two- Versus Three-Child Family," simulation using participants to illustrate the effect of family size on the population over four generations

"Human Beans," simulation illustrating age structure

Thursday, August 13, 1981

8:00 - 10:00 Nontraditional methods of teaching the first domain of population education (continued):

"Egypt's Average Family Size" (Hands-on activity using beans)

"Egypt's Population Density" (Participants are asked to develop a demonstration using data provided to them, and beans)

"Constructing a Population Pyramid" (Graphing activity carried out by each small group using family data)

---

* All activities were led by Dr. Murphy or Ms. Cancellier unless otherwise indicated.

10:00 - 11:00	"The Second Domain of Population Education: Elements Which Affect Population Growth," (Short Lecture, Mr. Gamil) Small group discussions on how to integrate the second domain in the different disciplines
11:00 - 1:00	Nontraditional methods of teaching the second domain "Observing and Comparing," a table interpretation activity "Reasons for Large Families" and "Reasons for Migrating" (brainstorming activities)
1:00 - 3:00	"Reproductive Physiology" (Lecture, Dr. Haviz)

Friday, August 14, 1981

Holiday

Saturday, August 15, 1981

8:00 - 10:00	Objective Test on Correspondence Course
10:00 - 10:30	"Values" (Lecture, Mr. Gamil)
10:30 - 12:00	Egyptian folk sayings on children and families; values classification activity in small groups
12:00 - 1:00	"What Would You Say?" Values clarification activity
5:00 - 7:00	"Developing Human Resources and the Effect on Solving Egypt's Population Problem" (Lecture, Mr. Sameer Hagrassy, Director of Training and Population Education, Family Planning Board)

Sunday, August 16, 1981

8:00 - 8:15	16-mm film, "More," followed by group discussion
8:15 - 9:30	Introduction of tasks involved in developing instructional materials Discussion of the use of local resources and case studies as teaching methods

9:30 - 9:45	Introduction of the Third Domain - The Effects of Rapid Population Growth on the World and Egypt
9:45 - 11:00	"Food For Thought" World Population and Food Simulation
11:30 - 1:30	Egypt's population and food situation - a problem-solving activity
1:30 - 2:30	Discussions of local research carried out by participants during their correspondence course by Mr. Gamil

Monday, August 17, 1981

8:00 - 8:15	16-mm film, "For Your Pleasure," followed by group discussion
8:15 - 9:30	"Future Wheel" - illustrating the systems approach to analysis of population effects - small group activity
9:30 - 10:30	Graphing Egypt's population growth over time
10:30 - 12:00	Slide presentation using R.A.P.I.D. slides in Egypt's population, labor force, and agriculture
12:00 - 2:00	"The Population Explosion in Egypt and Its Effects on Education" (Lecture, Mr. Mansur Hussein, Deputy Minister of Education)

Tuesday, August 18, 1981

8:00 - 8:30	The Fifth and Sixth Domains of Population Education: Population Policy and Planning the Future Discussion of domains by Mr. Gamil
8:00 - 10:30	Nontraditional methods of teaching the Fifth Domain: "Regional Population Policy Planning Boards" Small group role-playing activity Discussion of Egypt's Nine Point Population Policy by Mr. Gamil

11:00 - 1:00	Nontraditional methods of teaching the Sixth Domain "The Island Game," a land-use simulation "City Planning" exercise (large group discussion) "Letter to Your Daughter" (Women's roles in Egypt's future) Population Poster and Story Development, illustrating Egypt's future
1:00 - 1:30	Introduction of lesson planning exercise and discussion of specific objectives for the lesson
1:30 - 2:00	Posttest

Wednesday, August 19, 1981

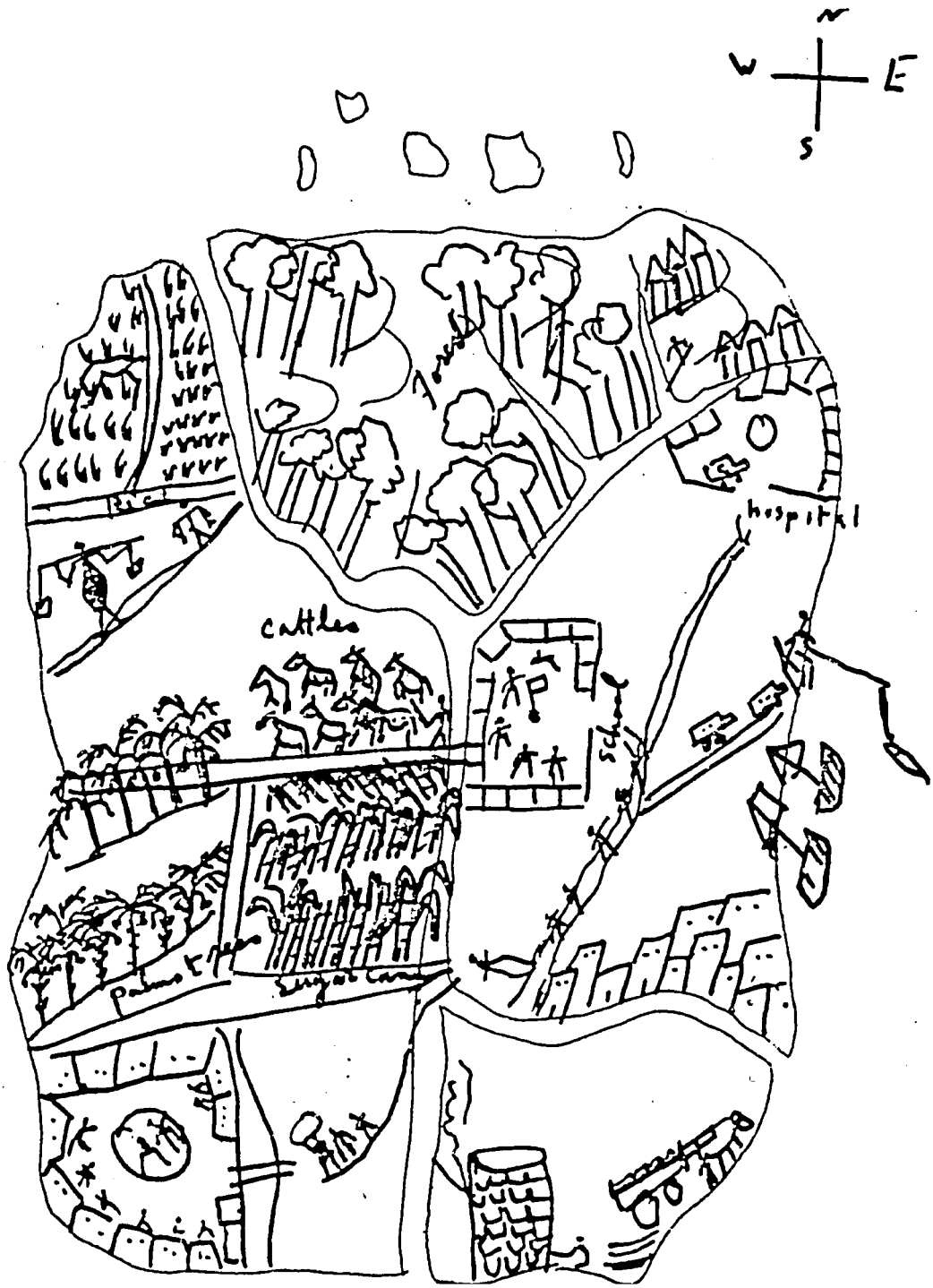
8:00 - 12:00	Presentation and evaluation of lesson plans developed by workshop participants
12:00 - 1:00	"How to Plan a Workshop at the Local Level" (Talk by Elaine Murphy)
1:00 - 1:30	Discussion of participants' workshop plans
7:00 - 10:30	Closing ceremonies

Appendix K

EXAMPLES OF PARTICIPANTS' WORK

The Island Game

II. Draw your idea of how the island will look 200 years from today. What could change your prediction?



"Letter to My Daughter"

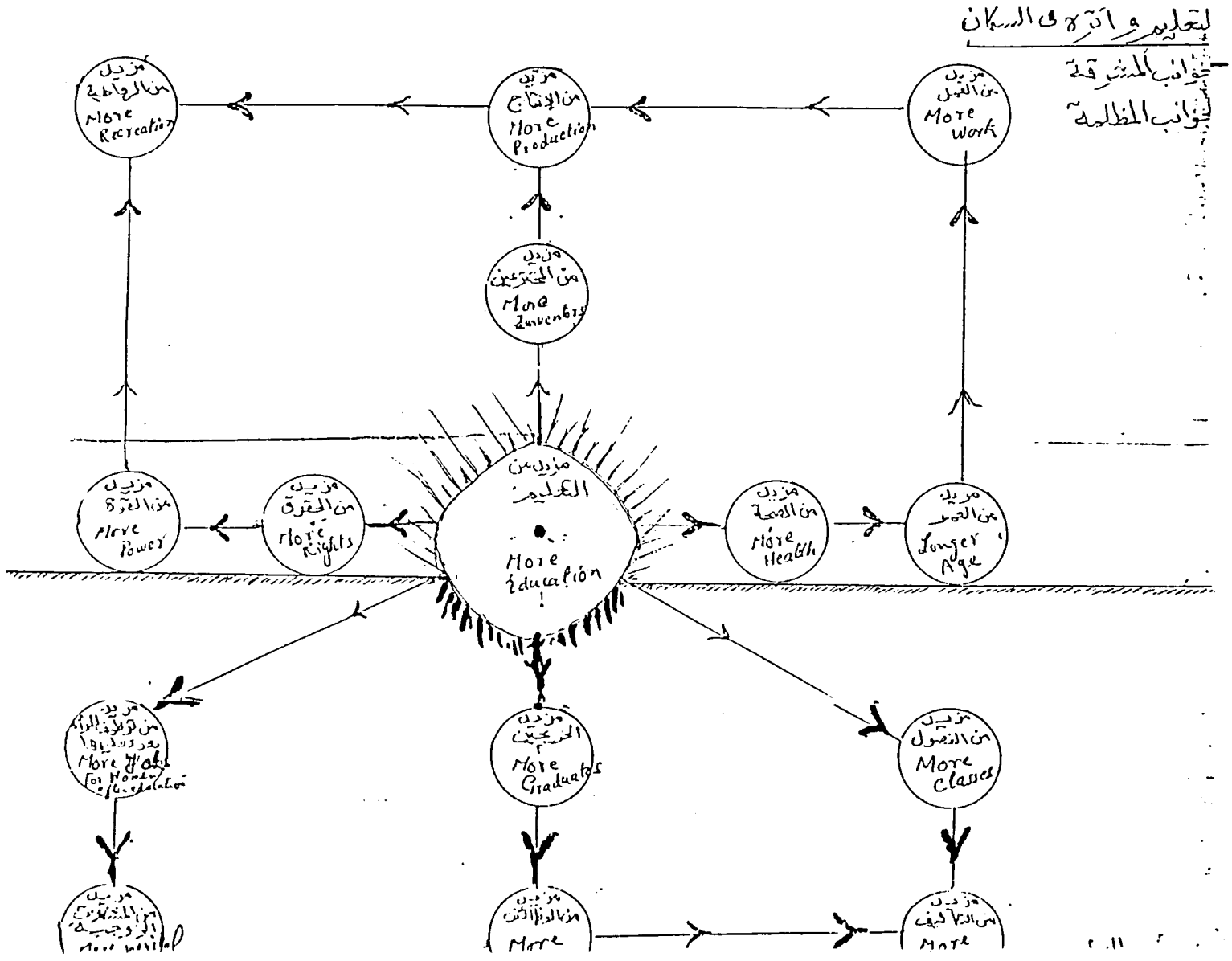
Dear Mary

Whenever the year of your birth is mentioned the most delightful occasion is associated with.

I hope, I pray to God to help to make you a good Woman for the future. to chalk your opportunity ~~for~~ of learning, culture, religion, principle, good ideals - to ~~and~~ choose with great care your husband whom you will build a ~~go~~ the happy family you want

Dorrows

A Future Wheel



Appendix L

SELECTED OBSERVATIONS OF SUBJECT MATTER SUPERVISORS ON HOW POPULATION TOPICS FIT INTO THE CURRICULUM

Science Supervisors

There is nothing in the syllabus that specifically concerns human populations at present. The chapter on reproduction is very dry and factual and does not relate to population growth, contraception, the status of women, etc. (Mr. Gamil remarked that a new syllabus is being prepared for elementary and preparatory grades which will include population concepts more directly.)

Social Studies Supervisors

The current syllabus includes some population concepts in primary grades five and six and preparatory grade one. The main concept covered in these grades is the idea of small families. Demographic measures are not included, but easily could be. "Civics," the study of Egypt, could include population concepts and measures. (Mr. Gamil remarked that next year students in the preparatory stage will be exposed to the population problems of Egypt, including the dependency ratio.)

Philosophy Supervisors

Second-year philosophy includes a section on the responsibilities of the family. The terms are there but they are not clearly defined. The following should be added: the mental, emotional, and sexual development of the teenager; the responsibilities of the family; the stages of growth; emotional growth; how to choose a spouse on a sound basis; and the population explosion. Second-year sociology should add birth, death, migration, and natural increase rates.

Arabic Language Supervisors

The concept of family roles is dealt with from first year primary through third year preparatory. However, demographic concepts are not covered. It was recommended that more population concepts be included in Arabic language studies.

Mathematics Supervisors

Population dynamics is not covered in the current syllabus. However, it is being revised to include population topics. The family should be discussed through pictures in the primary grades counting family members and neighboring families. Older students can collect population statistics, such as a village or neighborhood population or the number of large families vs. small families.

Home Economics Supervisors

Population concepts are not covered in the current syllabus. A new syllabus is being developed and population concepts can be integrated in the food and clothing topics. In first grade preparatory there is an area called families and neighbors, and in third grade preparatory the family and its functions are covered. Both of these areas are appropriate for population.