AGREEMENT BETWEEN THE REPUBLIC OF THE PHILIPPINES AND UNICEF/UNESCO ON THE PLAN OF OPERATIONS FOR A SCIENCE EDUCATION PROJECT

Note; The Agreement entered into force, September 23, 1969.

Reference: This Agreement is also published in VIII DFA TS No. 2, p. 128.

THE GOVERNMENT OF THE REPUBLIC OF THE PHILIPPINES (hereinafter referred to as "the GOVERNMENT"), the UNITED NATIONS EDUCATIONAL, SCIENTIFIC, AND CULTURAL ORGANIZATION (hereinafter referred to as "UNESCO"), and the UNITED NATIONS CHILDREN'S FUND (hereinafter referred to as "UNICEF);

BEING DESIROUS of obtaining mutual agreement concerning assistance to a project in science education in the Philippines particularly with reference to the objectives of the project and the responsibilities which shall be assumed by each of the parties.

DECLARING that these responsibilities will be fulfilled in a spirit of friendly co-operation;

HAVE AGREED as follows:

ARTICLE I

BASIS OF RELATIONSHIPS

The Basic Agreement concluded on 20 November 1948 between the Government and UNICEF and the Revised Standard Agreement concluded between the Government and the Specified Organizations, including UNESCO, participating in the Expanded Programme of Technical Assistance, signed on 27 October 1954; provide the basis for relationships between the Government and the co-operating agencies in the project. The programme and this Plan of Operations shall be governed by those Agreements.

ARTICLE II

BACKGROUND INFORMATION

1. Science subjects form part of the programme of education in all elementary and high schools in the Philippines. The science courses (Elementary Science, General Science, Biology, Physics, and Chemistry) offered are designed to:

a. instill and develop in the learner the scientific attitudes of inquiry and experimentation.

b. provide opportunities for a practical understanding of the methods for a scientist which give the learner the confidence to attempt to solve problems which they have to face in their individual and social lives.

c. develop an interest and enthusiasm in science so that:

i. those with scientific aptitudes might be drawn to scientific career to supply the country with scientists and technologists.

ii. the non-science minded might realize the role of science in the satisfaction of their hearts and interest.

d. provide sufficient understanding of science concepts to enable the learners to become worthy members of society.

e. develop literacy in science so that the learners will understand what they have read about on science, based on the concepted schemes studied.

f. develop manipulative skills in purposeful experimentation as a means of finding solutions to problem situations involving science in everyday living.

2. The concern of the Government to make improvements in the field of science education is shown by the work of the Department of Education (Bureaus of Public Schools, Private Schools, and Vocational Education), the National Science Development Board, the University of the Philippines, as well as other organizations. Since 1958 the National Science Development Board, in co-operation with the Department of Education, have organized and supplied summer training programmes for school teachers and (more recently) teacher-educators. In 1964 a Science Education Centre was set up with assistance from Ford Foundation as an independent unit in the University of the Philippines, and this is producing and testing up-to-date curriculum materials for all science courses in elementary and high schools. To update par ticularly the science curriculum materials for Elementary Science and Gen eral Science, a Science Curriculum Development Study is also organized in the Bureau of Public Schools.

3. Studies of the existing conditions in schools throughout the country bring to light a number of serious problems, but the following are particularly relevant to science teaching:

- a. Lack of adequate science laboratories in many schools.
- b. Insufficient science equipment.

c. Insufficient books and reference materials, particularly with regard to students' books and teachers' guides on up-to-date courses on science teaching.

d. Shortage of teachers with adequate background in science and familiarity with modern science teaching methods and the effective use of science equipment.

4. The key to science teaching improvement lies in teacher training, and the need is particularly felt for improving the quality of preservice as well as in-service training courses for science teachers, familiarizing teachers and teacher-educators with the latest curriculum materials developed in the Philippines, and making these materials more widely available throughout the country. In addition there is a need to provide teachers with a basic minimum of science equipment, which they and their students can use with confidence in carrying out meaningful experiments.

5. As a first step towards satisfying these needs, the College of Education of the University of the Philippines, in co-operation with the Science Education Centre and with financial support from the Ford Foundation, will offer a series of graduate courses (Master of Arts in Teaching) covering the sciences and mathematics for a limited number of teacher-educators for the period 1969-1974. Each course will last for three semesters and one summer period (approximately 1½% years) and will include work on subject matter, the methods and specific skills of teaching science and mathematics, and the special problems and strategies of teacher training. The courses will deal mainly with the use of the new curriculum materials produced by the Science Education Centre, and they will be taught by the staff of the Science Education Centre who have developed these materials, together with the faculty of the College of Education, University of the Philippines. However, the courses will also acquaint the participants with other new curriculum materials and teaching aids. The University of the Philippines, College of Education, already has its own "Model High School Laboratories" for Physics and Chemistry, and plans are being made to expand these and to provide a Model High School Biology Laboratory.

6. To help satisfy the need for science equipment, a Physics Equipment Pilot Project has been started at the College of Education. This project has already produced prototypes for most of the physics equipment for the Science Education Centre curriculum, and production has started at one trade school for supply to a number of schools. As this project develops, it should be able to provide equipment appropriate to all the science courses designed by the Science Education Centre, Limited quantities of science teaching equipment are made by a private school in Manila (the Don Bosco Technical Institute). It is also possible that the resources of the Fine Instruments Centre at the National Institute of Science teaching equipment and to make the designs available to local manufacturers. The Fine Instruments Centre could advise on quality control.

7. It is felt that the type of training programme for teacher-educators to be offered by the College of Education will have a much greater effect if several grants are awarded for the faculty of each college (offering a teacher-training programme) so that they can develop their strength in all areas of science and mathematics. There are more than 300 colleges offering courses for teacher-educators; the present plan will concentrate on developing the science educa tion faculty of between twenty and thirty colleges, so that some of these become "Regional Science Teaching Centres" located strategically throughout the country. The selection of these colleges will be based on a survey of the services and faculties of departments of education of colleges and universities. It is intended that as far as possible scholarships will be awarded to members of the faculty of institutions which will eventually become regional centres for science teaching. To assist the selected institutions to release their faculty members for the graduate courses to be held at the University of the Philippines, the United States Peace Corps Office in the Philippines will endeavour to provide as many volunteers (science graduates) as possible, who will teach the subject matter in these institutions while the teachers are under training. This would commence in the school year 1970/1971. A formal request for 25 volunteers is being acted upon by the Peace Corps for science teaching in Cotabato and they are expected to arrive in 1969.

8. Although the University of the Philippines is in a strong position to provide up-to-date courses for science teachereducators, because of the previous work in curriculum development carried out by its Science Education Centre, the job of eventually reaching the classroom teachers in the elementary and high schools will necessarily depend on the efforts of all the institutions and organizations concerned with teacher training. While it is desired to encourage local initiative and to preserve local autonomy as far as possible, the need is now felt for some degree of co-ordination and integration of efforts, so that the resources of the University of the Philippines and other agencies (including financing agencies) may be used to the greatest advantage. Consequently, the National Science Development Board, together with the Department of Education and the University of the Philippines, has formulated a long-term plan to set up a limited number (between 10 and 20) "Regional Science Teaching Centre." The functions of each Regional Centre will include:

a. Provision of high quality preservice training programme for school science teachers, making use of modern science curriculum materials, teaching aids and equipment.

b. Organization of in-service training programme for science teachers, including summer institutes and programmes throughout the year.

c. Supervision and visits to science teacher-training programmes in other colleges and schools within its region.

d. Visits to selected classes in schools, by invitation.

e. Conduct of meetings on science teaching improvement for science teacher-educators.

f. Organization of regional conferences for school administrators.

g. Provision of professional advice and information concerned with setting up libraries, development and use of new equipment and teaching aids, etc., to colleges and schools as requested.

9. A Regional Science Teaching Centre, which could become the pro totype for other regional centres in the Philippines, will be established to serve a large area in Mindanao, 650 miles southeast of Manila. Since 1966 Notre Dame College of Marbel at Koronadal, South Cotabato, has served as a centre for summer institutes and seminars on science teaching for the Notre Dame Educational Association (NDEA). The NDEA is a consortium of over 100 colleges and schools located in the provinces of

South Cotabato, Cotabato, and Sulu (see Annex I). The NDEA has received financial and technical assistance from the Ford Foundation and other organizations, and in particular Notre Dame College of Marbel has received assistance from the Ford Foundation for a faculty development programme, equipment and library materials designed to enhance its capability in the field of science education. A building to house the Science Teaching Centre is also being planned, for which the Ford Foundation will contribute 25 per cent of the cost (see Annex V).

10. In line with its development as a Regional Science Teaching Centre, additional laboratories will be built at Notre Dame College of Marbel, further equipment will be provided, and the following posts created:

- a. Director of Science Teaching Centre
- b. Assistant Director
- c. Secretary
- d. Director of Laboratories
- e. Consultant to the Science Teaching Centre

11. With these additional facilities, Notre Dame College of Marbel will develop the first of the Regional Science Teaching Centres covered in the plan of the National Science Development Board and will serve all elementary and high schools (public and private, religious and non-sectarian) in a region covered by the provinces of South Cotabato, Cotabato, and Sulu. This region includes more than 20 colleges, nearly 90 high schools, and over 500 elementary schools.

ARTICLE III

OBJECTIVES

The specific objectives of the programme are:

- a. To establish a graduate course in science and mathematics education at the University of the Philippines.
- b. To establish a prototype Regional Science Teaching Centre at Notre Dame College of Marbel.
- c. To set up other Regional Science Teaching Centres.

ARTICLE IV

AREA

1. The graduate courses in science education will be run at the College of Education with the cooperation of the Science Education Centre, University of the Philippines, Diliman, Quezon City, but in line with improving the quality of school science teaching throughout the country, participants for the courses will be chosen from selected institutions distributed throughout the Philippines. Criteria for the selection of participants will be:

- a. the suitability of the prospective participant.
- b. the resources (present and potential) of the institution from which he or she comes.
- c. the strategic geographical location of the institution.

2. The participating institution (s) shall prepare a contract for the teacher (s) selected to attend the MAT course in which there will be a commitment whereby the teacher will agree to return to his/her institution for a minimum period equalling twice the period of the scholarship.

3. A committee representing the appropriate agencies will be set up to designate the institutions to receive the UNICEF equipment, from which the participants for the graduate courses at the University of the Philippines will be drawn. The institutions which will participate during the first year of the MAT programme are listed in Annex IX.

4. The prototype Regional Science Teaching Centre will be located at Notre Dame College of Marbel, Koronadal, South Cotabato Mindanao. The teachers attending the summer institute courses and the schools' necessary equipment and reference materials will mainly come from the provinces of Cotabato, South Cotabato, and Sulu. Guidelines and criteria will be developed by the committee for the selection of the participating schools for the Regional Science Training Centre at Marbel. The schools which will participate in the first summer institute will be selected by the committee in early 1971.

ARTICLE V

PLAN OF ACTION

1. The programme involves, of necessity, a number of government and non-government organizations, and some degree of co-ordination is essential. Nevertheless, every effort will be made to preserve the local autonomy of the co-operating institutions and to give scope for local initiative. A co-ordinating committee has been set up under the chairmanship of the Chairman of the National Science Development Board, with the Chief of the Division of Development and Assistance, NSDB as secretary. This committee includes representatives from:

- a. Department of Education
- b. University of the Philippines Science Education Centre
- c. University of the Philippines College of Education
- d. Notre Dame Educational Association

- e. Notre Dame College of Marbel
- f. United Nations Agencies (UNESCO and UNICEF) g. Ford Foundation
- h. Other bilateral and local agencies as required.

The co-ordinating committee will establish sub-committees as appropriate.

2. Technical assistance and advice shall be given as requested from the Department of Education, the National Science Development Board, UNESCO and Ford Foundation through their respective professional and advisory personnel.

3. The schedule of the graduate (Master of Arts in Teaching) programmes to be conducted at the University of the Philippines is shown below. The number of participants in each MAT programme is shown in parenthesis. The first course will start in July 1969, and each course will last for three semesters and one summer.

(SEE ORIGINAL DOCUMENT (6 PHIL.TREATY SERIES 338-339)

(See Annex VIII—A grants to participants)

4. Concurrently with the above schedule, a programme for the development of its own staff will be carried out by the University of the Philippines Science Education Centre with assistance from the Ford Foundation. During this period the foundation will also provide equipment, film, books and journals for the Science Education Centre, together with the services of short-term consultants (see Annex VII). The University of the Philippines will improve and enlarge the existing physics and chemistry laboratories in its College of Education and also provide for the establishment of a biology laboratory.

5. Starting with the termination of the first MAT programme, the University of the Philippines Science Education Centre will commence a follow-up programme. This will include:

a. Advising the returned participants on improving their own regular degree programmes (Bachelor of Science in Education, BSE; and Bachelor of Science in Elementary Education, BSEED) and in setting up programmes for summer institutes and seminars.

b. Advising administrators on organizing and implementing new pro grammes and in improving the facilities of their institutions.

c. Survey (by questionnaires and spot observations) of returned par ticipant's activities.

d. Survey (by questionnaires and interviews) of participants' suggestions for improving the University of the Philippines graduate programmes in science education (MAT).

6. The schedule of the follow-up programme will be as follows:

Date	Participants Involved
January/June 1971	Physics Chemistry
January/June 1972	Biology High School math High School science
January/June 1973	Elementary school math Elementary school science
January/June 1974	Biology Chemistry
January/June 1975	Physics High School math High School science

7. Near the completion of the first graduate (MAT) programme in science education at the University of the Philippines, College of Education, with the co-operation of the Science Education Centre, sets of science equipment and reference materials will be delivered to the institutions which have sent the first batch of participants. These materials will be similar to the materials used by the participants in their courses at the University of the Philippines, and each set will be designed to help the participant to teach his own courses (BSE or BSEED) more effectively in line with the experience he (or she) has gained. Throughout the five-year period, further sets will be delivered to the relevant institutions in time for returning participants to set up the equipment in readiness for their own courses.

8. The sets of equipment and reference materials to be supplied are as follows:

- a. Physics (for high schools)
- b. Chemistry (for high schools)
- c. Biology (for high schools)
- d. General Science (for high schools)

- e. Mathematics (for high schools)
- f. Elementary Science (for elementary schools) g. Mathematics (for elementary schools)

9. To assist in the development of a prototype Regional Science Teaching Centre at Notre Dame College of Marbel, grants will be provided, through the National Science Development Board, to high school and elementary school teachers in the region served by the Centre at Marbel to enable them to attend the summer institute courses on science teaching. The grant for each teacher will cover the cost of living and tuition fees for a six-week course and the expenses (variable) for travel from his (or her) home to Marbel and back. During the five-year period, grants for 250 teachers from the region will be provided. This will be at the rate of 50 teachers per year, but to create maximum impact on the participants' return from the course, two-to-three teachers per school will be selected where possible so that normally 20 schools per year will be represented (see Annex VII-B for the grants).

10. Before the commencement of each summer institute, basic sets of appropriate equipment and reference materials will be delivered to the prototype Regional Science Teaching Centre at Marbel. (See Annex X for the schedule of courses and supply delivery dates.) At the end of each summer institute, the appropriate sets will be taken by the teachers to their own schools for use in their classroom teaching. Basic sets (packed insofar as pos sible in individual boxes) for schools will be supplied as follows:

- a. For high schools (Physics, Chemistry, Biology, General Science and Mathematics).
- b. For elementary schools (Elementary Science and Mathematics).

ARTICLE VI

ADMINISTRATION AND ASSIGNMENT OF RESPONSIBILITY

1. The programme will be conducted under the responsibility of the National Science Development Board (in particular, its Division of Development and Assistance). The NSDB shall co-operate with the agencies and organizations listed in Article V, para. 1 and shall convene and keep minutes of the Co-ordinating Committee meetings, as required for the effective implementation of the programme. This Committee shall review the programme at regular intervals and recommend such modifications as appear necessary.

2. The National Science Development Board (Division of Development and Assistance) shall also be responsible for the timely distribution of the equipment and supplies provided by UNICEF and for collecting the information needed for evaluation of the programme and preparation of regular reports.

ARTICLE VII

COMMITMENT OF THE GOVERNMENT

1. The National Science Development Board (Division of Development and Assistance) shall undertake to see that all premises, facilities, personnel, supplies and equipment (except those provided directly by UNICEF and the Ford Foundation) are available as needed for the successful implementation of the programme.

2. Specifically, the National Science Development Board shall provide for the following:

a. The NSDB shall convene the Co-ordinating Committee and record its minutes. To facilitate this work, the NSDB shall appoint a senior official (from die Division of Development and Assistance) as Executive Secretary of the Co-ordinating Committee and the programme.

b. In addition to the Executive Secretary of the programme (who will normally have other duties), the NSDB shall appoint another responsible official as full-time Technical Adviser to the programme. The Technical Adviser shall be familiar with the needs and problems concerning science education in the Philippines and should preferably have a background in both science and education.

c. The NSDB shall provide for the Executive Secretary and Technical Adviser to have transport and sufficient funds for internal travel and per diem when away from Manila, so that they can visit the various institutions concerned with the programme and act as effective liaison between the various international bilateral, and government and non-government agencies.

d. The NSDB shall be responsible for the reception, storage, and internal transportation and distribution of the equipment and supplies provided by UNICEF for the programme. The estimated cost for such services is the equivalent of \$21,000 over the five-year period.

e. The NSDB shall provide the cost of necessary telephone, telegraph, postal and other public communication in connection with the programme.

3. The National Science Development Board shall provide facilities for the continuous evaluation of the programme. In particular, the NSDB (through the Division of Development and Assistance) shall collate the relevant information, and prepare quarterly progress reports, copies of which shall be made available to the assisting agencies.

4. The Government, through the National Science Development Board, the Department of Education, and the University of the Philippines, and in co-operation with other national and local organizations, will continue the programme within the scope of available resources after financial assistance from UNICEF and other co-operating international and bilateral agencies has ended. In particular, efforts will be made to continue the MAT courses at the University of the Philippines, to arrange local funds for school teachers to attend summer institutes on science teaching at Notre Dame College of Marbel and other colleges subsequently designated as Regional Science Teaching Centres and to develop the local manufacture of school science equipment to supplement and extend the supplies provided by UNICEF.