

REPORT OF THE EVALUATION COMMITTEE

FOR THE

ASEAN PLANT QUARANTINE CENTRE AND TRAINING INSTITUTE (PLANTI)

KUALA LUMPUR, MALAYSIA

12-17 FEBRUARY 1985

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Chairman ASEAN-COFAF
Ministry of Agriculture, Room 410,
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Dear Mr. Salmon Padmanagara

EVALUATION COMMITTEE FOR THE PLANT QUARANTINE
CENTER AND TRAINING INSTITUTE (PLANTI)

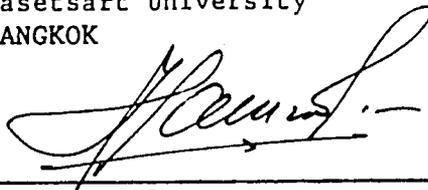
It is a great pleasure to submit to you the report of the Evaluation Committee on Plant Quarantine Center and Training Institute. It is our earnest hope that we as members of the Evaluation Committee have provided the kind of objective overview of PLANTI's programs, activities, and management which the Board of COFAF expected when it requested the evaluation.

We are very positive about the PLANTI and its programs, particularly its potential for making major contributions to plant quarantine in the years to come. We hope that the report will have a beneficial effect on its future development.

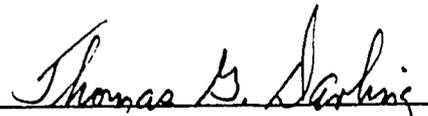
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FOREWORD

Based on the urgent need identified by the 14th ASEAN COFAF Meeting held in Bali, Indonesia, a committee was appointed to evaluate the performance of the Plant Quarantine Center and Training Institute (PLANTI). The evaluation committee is composed of a member representing ASEAN COFAF to act as chairman, and a representative each from USAID and the Board of Directors of PLANTI.

The evaluation took place at PLANTI from February 12-17th, 1985, under the following Terms of Reference.

1. To evaluate the project activities carried out by PLANTI;
2. To recommend proposals for the funding of PLANTI after the completion of the initial phase, 1980-1985.

The evaluation was made through the investigations of physical facilities, publications of PLANTI and its staff, and discussion with the staff members of the Institute. The evaluation dealt with the nature and structure of PLANTI, research, training and extension activities, capabilities and management. The evaluation also includes some comments on the overall assessment of the performance and potential of the

Institute, its long-term plans, and the problems and possible solutions involved.

The following report is presented for the use of the ASEAN COFAF, PLANTI Board of Directors, USAID, and the Plant Quarantine Services of the member-countries.

Nature of ASEAN PLANTI

In order to strengthen ASEAN plant quarantine capabilities, PLANTI was established with the following objectives, as stated in the Project Description:*

1. To complement the plant quarantine activities of the ASEAN member countries with regards to post-entry quarantine, formulation of standardized legislative measures, and advanced training in plant quarantine.
2. To assist ASEAN member countries to export primary agricultural produce.
3. To act as a repository for information and dissemination on plant quarantine and plant protection matters affecting the ASEAN region.
4. To carry out research on suitable treatment schedules for important plant quarantine pests and diseases.

In the context of the above objectives, PLANTI has been assigned responsibilities as follows:

1. Liaison on post-entry quarantine procedures for national institutions of member countries.

*Project Description, ASEAN Plant Quarantine Project. ANNEX I.

2. Formulating standard diagnostic procedures for identifying and controlling pests of plant quarantine importance.
3. Screening imported germplasm for presence of exotic diseases and pests.
4. Formulating threshold values for movement of seed carrying seed-borne diseases.
5. Formulating guidelines for the movement of planting material within the region.
6. Developing and devising suitable treatment schedules for import and export of planting material.
7. Providing information on diseases, pests, weeds of economic importance to the ASEAN region.
8. Formulating programmes for eradication or control of economic plant quarantine pests.
9. Developing fumigation methods and exposure dosages for plant quarantine purposes so as to facilitate export of agricultural produce of ASEAN member countries.
10. Providing advisory service to member countries on quarantine status of specified diseases and pests.
11. Providing in-service and post-graduate training on plant protection with special emphasis on plant quarantine.

A general observation should be made concerning the third listed Responsibility of PLANTI - "Screening imported germ plasm for presence of exotic diseases and pests." This is the responsibility of a national plant quarantine service, in this case that of Malaysia. If PLANTI is to operate as a post-entry quarantine station or a seed health inspection

station, it must be authorized by or function in cooperation with the host country. If at a later date plans are made to establish it as a Regional Quarantine Station for the entry of certain plant groups, the concept must be accepted by the national plant quarantine services of the member countries, and again with special consideration of Malaysian views. At any rate, a close and mutually agreed-upon working relationship between PLANTI and GOM plant quarantine is urgently needed, both for training and quarantine purposes.

ASEAN PLANTI Organization

PLANTI is governed by a Board of Directors which is composed of one member from each country, plus the Director of the ASEAN Plant Quarantine Center and Institute (PLANTI). The Board has been authorized to control PLANTI as follows:

a) Administrative Matters

1. To oversee and approve the creation, grading, and salary scales of posts for all categories of staff.
2. To approve the appointment of seconded officers from one grade to another.
3. To determine the number of increments that will be offered to experienced staff from the public services who are going to be seconded to PLANTI.
4. To approve the appointment of Board of Interviewers and Disciplinary Board for all categories of staff.
5. To approve the covering of vacant posts within PLANTI.
6. To determine the service conditions for the seconded and non-seconded staff of PLANTI.

b. Financial Matters

1. To determine the rates of per diem allowances payable for trainees/experts from ASEAN countries attending the diploma and short-term courses, seminars, conferences, workshops, and meetings in Malaysia.

2. To determine the medical benefits and other allowances payable to the seconded staff.
3. Other expenditures related directly to the project as approved by the Board of Directors of PLANTI.

c. Training Matters

1. To provide guidance in terms of the curricula development for PLANTI.
2. To oversee the selection and final approval of students who would be enrolled at the Institute.
3. To determine other training matters related directly to the project.

PLANTI is, therefore, a regional Institute which has a status similar to that of two other previously established ASEAN organizations, i.e. ASEAN ADPC and AFRS. (Figure 1) However, because PLANTI's main financial support has been borne by the Government of Malaysia and USAID, financial control is subject to their respective requirements. On this basis, its autonomy is limited by regulations of both agencies. At the same time, PLANTI is subject to certain administrative control by the Department of Agriculture, Government of Malaysia. (Figure 2)

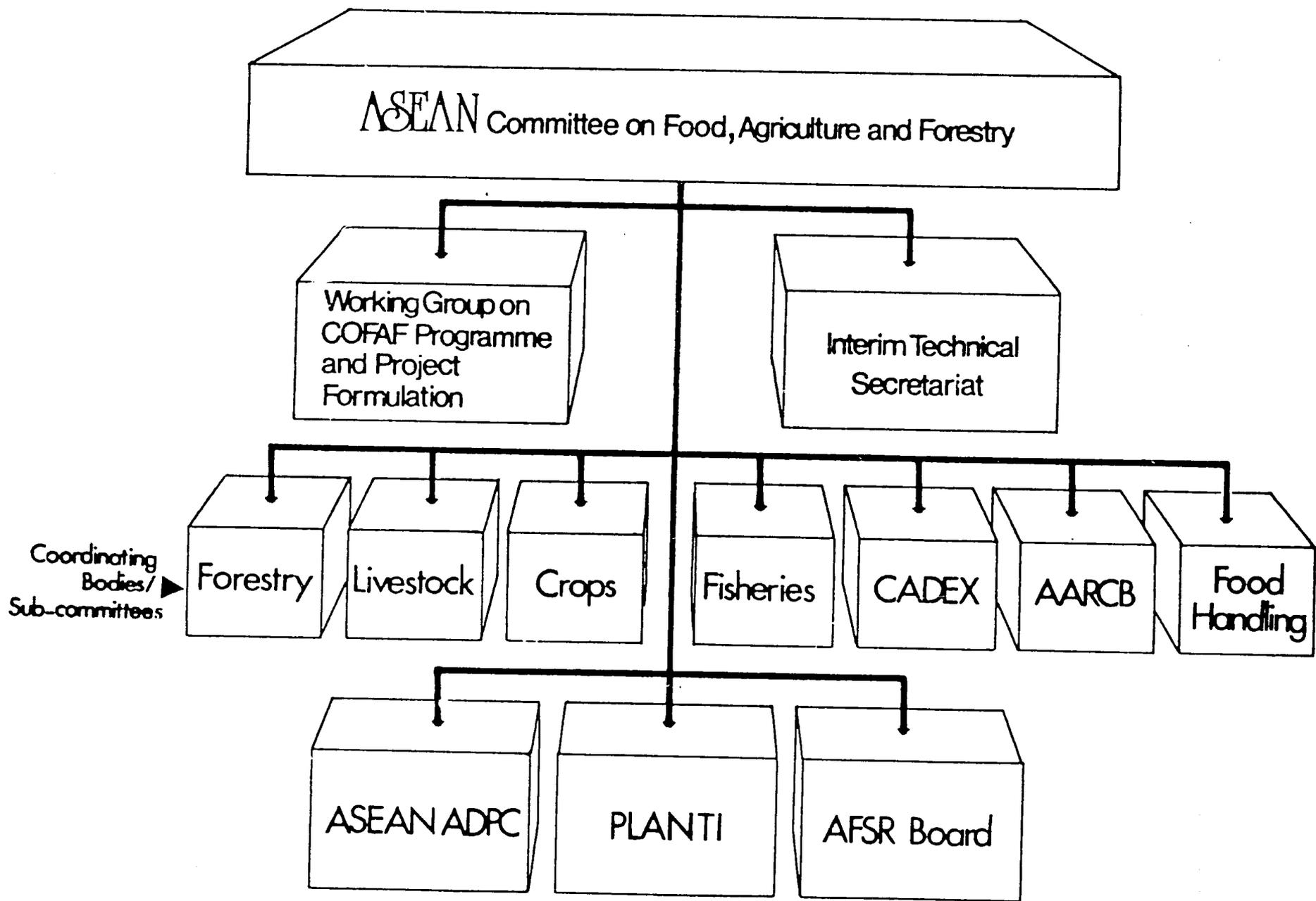
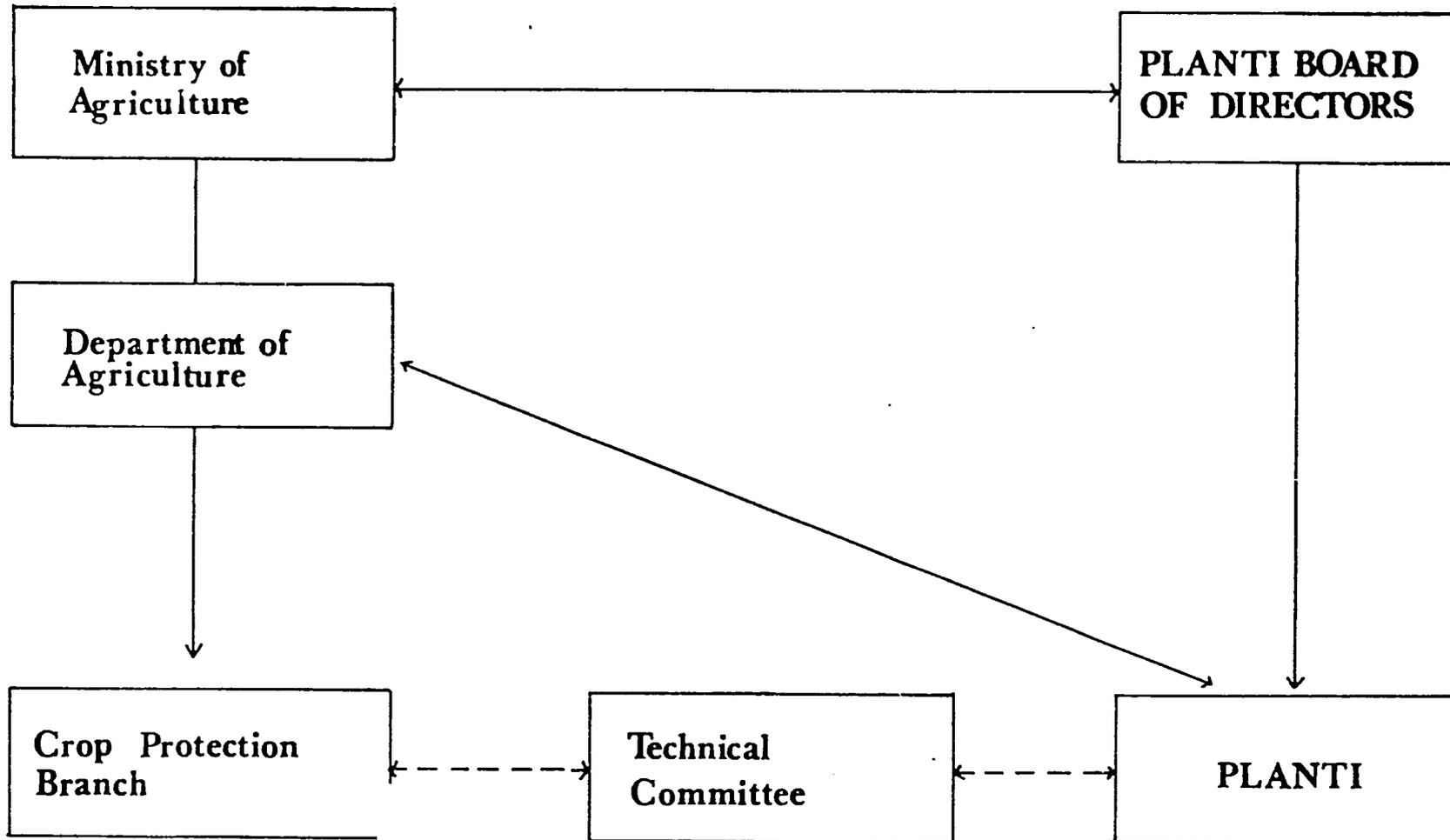


FIGURE 1 ASEAN PLANTI ORGANIZATION

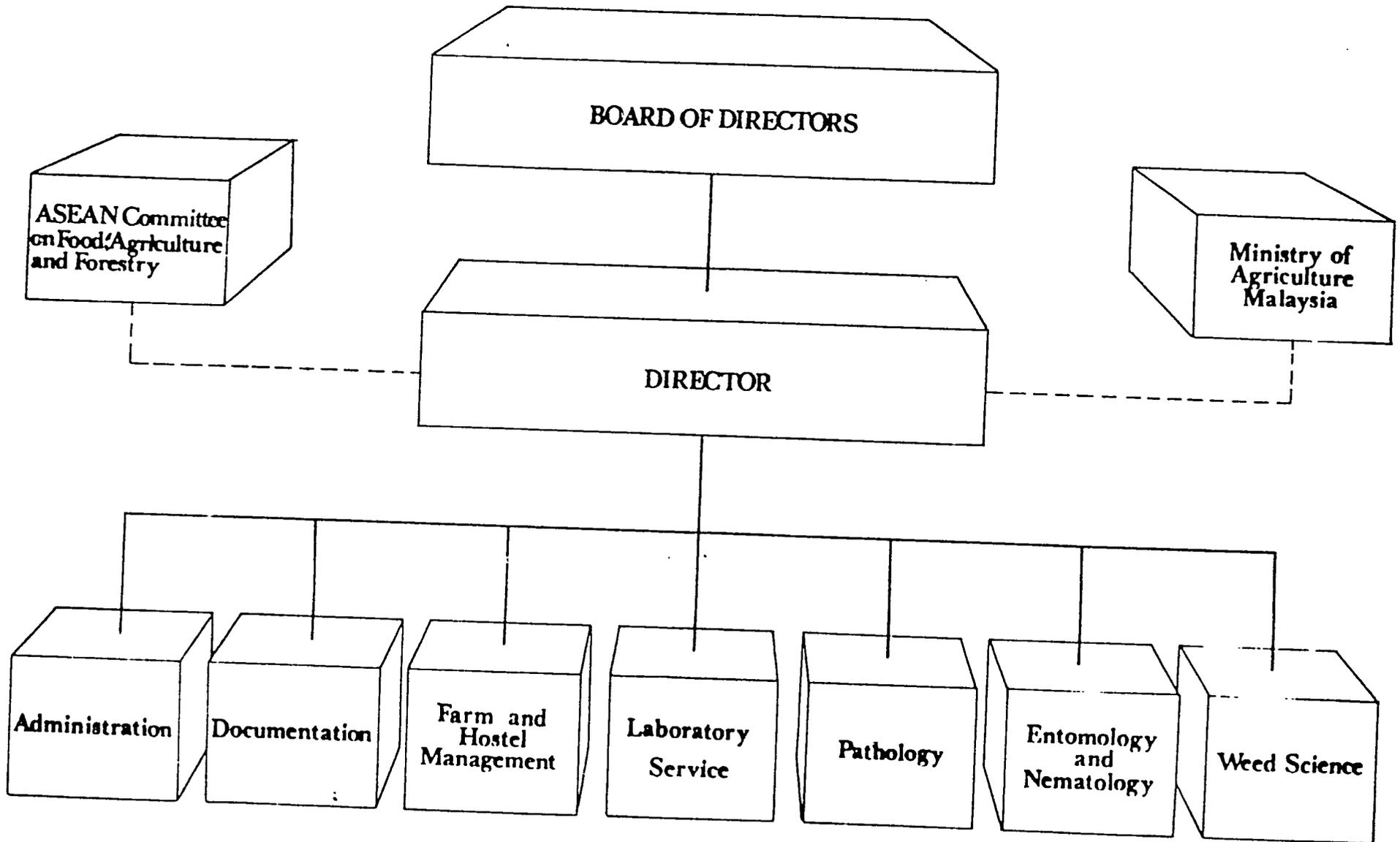
FIGURE 2 **PLANTI-DOA LIAISON COMMITTEE for PQ**



To date, the PLANTI organization consists of seven sections which include administrative, laboratory services, pathology, entomology-nematology, weed science, documentation-library, and farm and hostel management. (Figure 3) It should be noted here that all sections are under the guidance of the Director. No deputy director post is established, nor is one recommended if delegations of authority to senior staff members are effected by the Director.

FIGURE 3

PLANTI ORGANIZATIONAL STRUCTURE



Staff Development

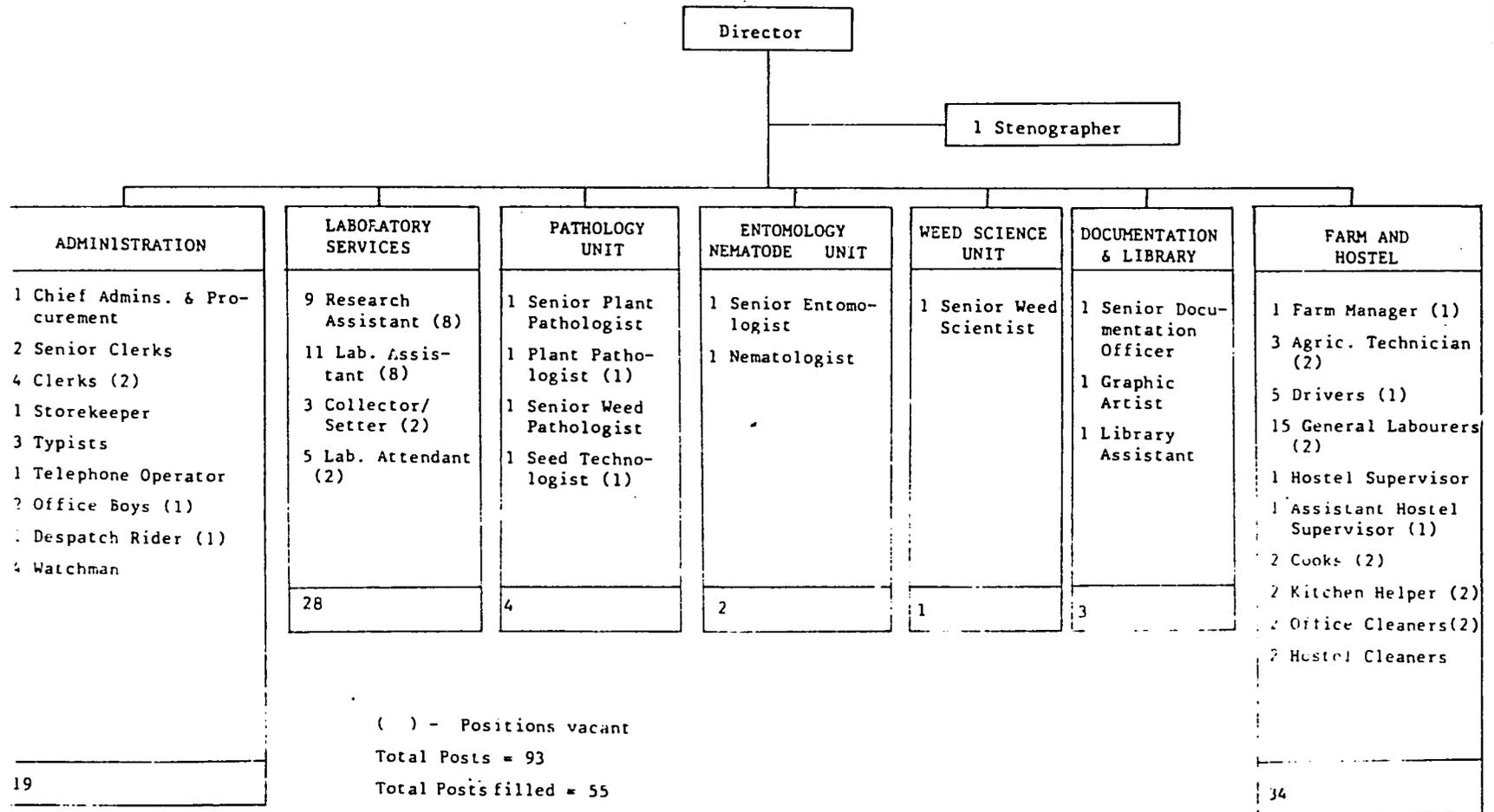
PLANTI has employed staff and grouped them in the following categories: Group A - Professional, B-Sub-Professional, C-Clerical and Technicians, and D-Typists, Telephone Operator, Drivers, Security Guards, General Laborers, Lab Assistants, etc.

The salary scale has been based on the official employment schedule of the Government of Malaysia which, when compared with other salary scales defining various positions within the ASEAN system, is very low. This comparison is demonstrated in Table 1.

The final decision on personnel to be employed by PLANTI must be approved by the Board of Directors. Scientific staff members have been recruited from countries in the ASEAN Region. Most of them are under contract for a two-year term. At present, PLANTI has 53 employees divided by group as follows: A-8, B-2, C-12 and D-31. Of the last group, 14 are engaged in administrative work, 8 in laboratory services, 2 in the pathology unit, 2 in the entomology-nematology unit, 1 in the weed science unit, 3 in the documentation and library unit and 21 in the farm and hostel unit. The number does not include the Director and his secretary-stenographer, which brings the overall total to 55. The Board of Directors has approved a total of 93 positions for PLANTI which means that 4, 20, 2, 0, 0, 0, and 13 vacancies remain in the respective units. (Figure 4). From the foregoing, it is seen that the high number of vacancies are in laboratory services and farm units which require personnel well-trained and qualified in scientific and technical

FIGURE 4 ASEA PLANTI STAFF UP TO FEBRUARY 1985

TABLE 1



know-how. It should be noted here that high turnover has been occurring in PLANTI, with most of it in the same categories (Table 2.)

Low salary scales and the short-term status of employment account for the high number of vacancies and for turnover. The present salary, based on the Government of Malaysia scale, cannot compete with other government organizations and private firms, so that whenever choices are made, PLANTI will lose. The turnover will be continued unless the salary structure is changed to be more attractive than at present.

The lack of key personnel in certain areas, such as seed scientist, farm manager and agricultural technician, will affect the progress of PLANTI's works and urgently needs to be resolved.

Although with some shortcomings due to shortage of manpower, the present management of the administrative, research, training, and services, under the guidance of the Director, Dr. K. G. Singh, are high in efficiency. With equipment and financial support supplied by the donor, he can maneuver the works rapidly with impressive results. This is demonstrated by the rapid development of PLANTI and the volume of work his team has produced. Most of the scientific staff have excellent academic backgrounds. They are provided with working space and equipment sufficient to their needs. However, it was noted that while they are quite young and enthusiastic, they have little experience in the wide scope of plant quarantine enforcement. They will be able to contribute to a greater extent to the progress of PLANTI if they are trained specifically in plant quarantine in appropriate institutions. A number

of qualified technicians also were observed. They produce many fine pieces of scientific works such as insect, disease and plant specimens. Supporting staff in skilled fields, such as printing and art works for publications also are well qualified.

Because of the lack of scientific staff in certain areas and with the need to accelerate the progress of PLANTI, a number of consultants have been employed in the past. Their areas of work are identified in Table 3. The requisition of the consultants was not borne only by PLANTI, but by other ASEAN countries as well. This being the case, some were stationed outside Malaysia, depending on the terms of reference of their specific jobs. However, those consultants who worked in PLANTI helped extensively in the development of research and training programs. PLANTI, in general, has taken recommendations which are appropriate to advance its works. For these reasons, PLANTI's need for consultants will be continued, and the areas in which consultants are required, as listed in Table 4, are justified.

Additional information on PLANTI's current staffing status, staff training, and future requirements for upgrading are shown in Tables 5, 6 and 7.

Buildings and Facilities

Construction of the PLANTI Complex was started on March 22, 1982 which was about 18 months after the signing of the Project Grant Agreement for ASEAN Plant Quarantine between the Government of Malaysia and the United States of America. Within three years of its completion, PLANTI has developed very rapidly and become a remarkable institution for plant quarantine research and training in the ASEAN region. At present, PLANTI owns 20 acres of land. The PLANTI Complex consists of administrative and laboratory buildings, farm buildings, hostel and guesthouses. The main administrative and laboratory buildings, each having a total floor areas of 34,000 sq. ft., consist of administrative offices, lecture halls, audio-visual room, library, and separate laboratories for plant pathology, entomology, microbiology, virology, and nematology, as well as research rooms. PLANTI's supporting facilities include farm buildings, which consists of a farm office, storage spaces, three insectaries, three glasshouses and a soil sterilization building, all with the total floor area of 2,719 sq. ft. There also are six hostels with a central dining block to accommodate 60 students or trainees. A guesthouse also is provided to accommodate visiting guests or lecturers. (Table 8).

The structures are sufficiently supplied with equipment for carrying out the assigned programs. Photocopiers, for example, are installed in the administrative unit to facilitate paper work. It can be said that PLANTI has been sufficiently equipped to fulfill its present jobs, covering administrative, research, training and supporting scientific

works. Under the present circumstances, with many posts unfilled, PLANTI seems to have adequate working space. However, projected expansion into new areas of work such as a seed health testing laboratory, coupled with the new recruitment of staff to fill vacancies, will require the construction of new space in the near future. (Table 9).

The principal items of equipment used in training, research and the extension function are listed in Table 10.

Training Capability

"Development of PLANTI as an ASEAN institution will provide a focal point and coordinating mechanism for improving plant quarantine activities in the ASEAN through training, research, and information exchange." This statement from the Project Description (Annex I) may or may not have ranked the three activities in order of importance. The Project Objectives seem to follow the same order, however, with the first objective calling for advanced training in plant quarantine, so let us assign first priority to training, at least for purposes of this discussion. The listing of Responsibilities of PLANTI, from a) through k), makes no direct reference to training until the last item - "k) Providing in-service and post-graduate training on plant protection with special emphasis on plant quarantine."

There is no questioning the training capability and training record of PLANTI. In the short space of less than four years, 26 participants have received training in 3 long-term, post-graduate diploma courses; 37 in 3-short term, certificate courses; 209 in 15 short-course programs; and 28 through 4 Study Tour/On-the-Job Training programs. Additionally, 3 post graduates have been sent for training at the MS level in the United States; and applications currently are being accepted for an MS program in ASEAN Universities. A summary of training offered to date is shown in Tables 11, 12 and 13 and of future requirement for PLANTI staff training in Table 13a.

In September 1984, a post-Evaluation of PLANTI Long-Term and Short-Term Courses, 1981, 1982 and 1983, was conducted by Margaret Ho Poh

Yeok, PLANTI Chief Administrative Officer. The study was designed to determine the effectiveness of training in fulfilling the needs of the participants, to analyze the impact of PLANTI training on its clientele, and to assist PLANTI in planning and improving future training programs. Responses from 45 ex-trainees selected at random from among 147 participants at PLANTI between 1981-1983, and from 22 respondents who are supervisors of ex-trainees, were tallied with the results shown in Summary of the Post Evaluation, Annex II. These results indicate a highly favorable response to the survey on PLANTI training and to its impact on the plant quarantine services of member countries. .

The evaluation Committee also reviewed written comments and recommendations of both ex-trainees and supervisors (Annex III). Both groups commented on the need for courses to be more job-oriented, with less emphasis on theory; to make greater use of visual aids and live specimens; and to provide more opportunity for practical application of procedures and skills.

Some of the suggestions were even more explicit in recommending that courses be more specific to problems confronting ASEAN plant quarantine and directed toward improvement of the quality of work of the Quarantine Inspector.

One suggestion which appears to have great merit, since it addresses almost all of the shortcomings alluded to, is (vi) of the Supervisors' list, "that PQ staff in member-countries should be invited as resource personnel for some courses which require experience and skills in PQ

activities since some of the staff at PLANTI lack working knowledge of plant quarantine at ground level." The Plant Quarantine staff in Malaysia would seem to be an obvious resource for injecting the elements of working knowledge and practically into training for inspectors. It also seems that greater use of field visits and on-the-job experience would be a natural by-product of a closer working relationship with Government of Malaysia Plant Quarantine.

At the inspector level, training in the biological disciplines should emphasize the recognition of principal pest group and species; a knowledge of the plants and plant products commonly imported and exported by ASEAN, and of the pests that one might expect to find with each; an appreciation of the more important quarantine plant diseases and of the symptoms by which they might be recognized; knowledge of the more important plant-parasitic nematodes, especially those associated with products commonly encountered in ASEAN, and the techniques for recovering and identifying the cyst and free-living forms.

As an example of the practical vs. academic approach, plant quarantine entomology contemplates the identification of exotic pests based upon a combination of (1) taxonomic characteristics, (2) host, and (3) origin. Thus, recognition of a pest to genus, or even to family, often will suffice, when linked to a given host from a known point of origin, and will result in an identification which is a sufficiently valid basis for quarantine action. The more accurate an inspector's identifications are, the better, and review of all interceptions will reinforce early training.

Research Capability

The responsibilities of PLANTI as listed in the Project Description, Annex I, to the Grant Agreement, include several tasks identified as "formulating", "developing," and "devising" various procedures, values, guidelines, schedules, program methods, etc. All of these responsibilities require the collection of available information, the generation of data not otherwise available and the application of all such knowledge to the plant quarantine situation. Some of these activities are largely a search of the world literature for information useful to plant quarantine in ASEAN. Others are properly classed as basic research in many scientific disciplines. The end products, however, are generated through applied research and methods development.

In filling the professional staff positions of PLANTI, the research element has been the over-riding consideration. There are strengths and weaknesses in this approach, the former represented by the creation of a skilled, highly-qualified group of individuals researchers. The principal weakness is the general lack of background knowledge and experience in plant quarantine. This has been overcome, to a degree, by staff training and exposure of individuals researchers to PQ programs, procedures, and needs. The result has been quite effective, but not enough so to avoid some feeling, on the part of course participants, that theory is stressed at the expense of practical application; or that individual staff members may be lacking in basic plant quarantine knowledge.

Results of the Post-Evaluation Report on the Training Courses

indicate a high level of satisfaction with the training received and with its impact upon the member-country plant quarantine organizations. Thus, no major change of direction is indicated, but it appears that a shift of emphasis toward applied research and training will have a highly beneficial effect.

Research projects must be selected and carried out to fill specific needs of ASEAN plant quarantine. When basic research is required to supply baseline data on pest-related problems, commodity treatment, etc., there should be a stated objective calling for an application of the results as a quarantine method, procedure, guideline or some other direct tie-in to plant quarantine. This will take the researcher from basic to applied research or methods development, and involve him more intimately in the quarantine process.

The importance of theory cannot be discounted, especially inasmuch as one of the basic principles of plant quarantine is that all requirements, actions, decisions and procedures shall be based upon the best available biological knowledge. Thus, the plant quarantine inspector must have enough biological training to appreciate the basis for the requirements and actions involved in his work. The further he can be trained beyond that point, the better -- up to a point. The plant related sciences include too many disciplines to expect an individual to become expert in all. At some point beyond the level of basic inspector training, it becomes necessary to specialize and provide advanced training in such

specialized fields as entomology, plant pathology nematology, treatments, etc.

The discussion of research has led back to training, as it should. The point to be made is that in an Institute such as PLANTI, research is authorized and performed to support training needs and operational needs of the ASEAN Plant Quarantine Organizations, and is primarily applied rather than basic in nature.

Research publications by PLANTI staff from 1981-1985 are listed in Table 14, and a listing of research programs projected in Table. 15. Participants in the diploma course are required to complete a thesis covering an individual investigation or research project. A listing of published students theses to date is given in Table 16.

Extension Function

Project Objective c) of the Project Description (Annex 1) calls upon PLANTI "to act as a repository for information and dissemination on plant quarantine and plant protection matters affecting the ASEAN region." Under this broad authorization, PLANTI has undertaken a program more characteristic of an Extension Service than of either a Research or Regulatory agency.

Publications issue to date are included in Table 17, List of PLANTI's publications up to February 1985. The headliner is the 333-page book "Exotic Plant Quarantine Pests and Procedures for Introduction of Plant Materials," published in 1984. The tri-annual PLANTI News, issued in April, August and December, carries news of PLANTI training and other activities, and is used to disseminate current information on quarantine pests, crops, regulations, treatments, outbreaks, quarantine forms, and new publications available. It is distributed to member countries in sufficient numbers for distribution to all PQ officers.

Technical papers issued to date include 12 Pest Data Sheets, 2-Leaflets, 7 Technical Reports, 8 Reports of PLANTI Board Meetings and a comprehensive Post-Evaluation Report on the Training Courses of the ASEAN Plant Quarantine Centre and Training Institute, 1981, 1982, 1983.

In the audio-visual field, the PLANTI story has been produced for public relations and briefing purposes. It is available in 2 versions,

as a Tape-slide synchronization and as a Video production. A video on Fumigation also has been produced, and posters on Plant Quarantine subjects are in production for the current year.

In addition to the production and dissemination of the above types of materials, PLANTI also seeks and disseminates information from other sources, such as FAO and other countries. Outbreak information, significant changes in regulations or in pesticide usage, as they impact upon plant quarantine in ASEAN are transmitted electronically or by the fastest available means.

Relationship and Linkage with Other Organizations

The progress and success of PLANTI must rely heavily on the close relationship and linkages with other organizations within and outside the ASEAN countries. As is shown in PLANTI organization charts, the organizations which have direct relationship with PLANTI internally are the Department of Agriculture, Ministry of Agriculture, Malaysia, and externally, ASEAN Committee on Food, Agriculture and Forestry, (COFAF). While the Department of Agriculture takes the responsibility to process the release of funds to PLANTI, as well as day-to-day administrative procedures, the Board of Directors under ASEAN take the responsibility for approvals of administrative, financial, and training matters. Because the nature of PLANTI's work involves academic careers, and dealing with organizations outside the country which have a wide range of systems and nature, the country system which has been adopted for use in PLANTI may not be entirely relevant to its needs. This has been shown to be the case in incidents which cause project delay, the turnover of staff members, etc. as has been stated earlier. It may be quite important then that the system of operations of PLANTI should be reviewed and a more suitable system be developed to apply specifically to PLANTI. This has been done in the case of other similar regional or international institutes, such as ASEAN, ADPC, and AVRDC.

Since PLANTI is located in the same area as the University Pertanian Malaysia and MARDI, which are well developed institutions of higher learning and research, much cooperation can be developed in terms of

staff interchange and facility utilization. However, assistance given by such institutes may be limited by their own works and limited resources. In order to avoid some problems which may arise due to the possibility of misunderstanding or misinterpretation, some form of agreement or contract might be considered between PLANTI and each of these institutes. In this way, PLANTI could identify the capabilities of the institutes, and fill the gaps, which will help to promote PLANTI's efficiency. This type of relationship also may be desirable with other institutions within the countries.

The linkage which PLANTI has attempted to establish with plant quarantine institutes in ASEAN countries and with other scientific institutes can be summarized as follows:

1. Through the acceptance of trainee, consultants, and staff members from outside countries.
2. Through the active participation of staff members in seminars and conference (Table 8).
3. Through the provision of consultants assigned to cover other countries (Table 3).
4. Through the exchange of publications and other materials.

PLANTI is now moving to strengthen its linkage through the following new approaches:

1. Through the provision of equipment to ASEAN institute within PLANTI programs which will enable them to tackle some common problems facing plant quarantine organizations.
2. Through the credit transfer which will help their trainees to upgrade their education within each contry.

The new approaches will certainly help to strengthen and broaden its relationships and linkage with other institutions within the ASEAN Quarantine ring.

CONCLUSIONS AND RECOMMENDATIONS

1. The Government of Malaysia (GOM) has exceeded its contract obligation with respect to provision of land and construction of the Center. The Grant Agreement called for GOM input of not less than US\$2,640,000. Actual input of GOM to date is US\$3,460,000.
2. The Committee has been greatly impressed by the productivity and efficiency of the research, training and extension service operations conducted by PLANTI within a short time, in spite of some limitations imposed by administrative restrictions and other factors. PLANTI has achieved significant success to date and has met the overall Project Objectives.
3. The Committee urges that PLANTI should be recognized as a regional institute with status similar to that of other international institutes. There is a need to strengthen ties of PLANTI with institutions of higher learning so that its training will be recognized and transfer of credits accepted by other national and international institutes.
4. The Committee noted that certain administrative constraints which affect the efficiency of PLANTI still exist. There should be an overall review of the relationships, responsibilities and lines of communication among PLANTI, COFAF, and the ASEAN Plant Quarantine Services.
5. The Committee recommend that COFAF explore the improvement of staff salary, perhaps by an ASEAN-supplied salary incentive, or by other

means, in order to enable PLANTI to recruit and retain highly qualified personnel.

6. The Committee recommends that research policy guidelines be developed by the Board of Directors to insure that research which is authorized and performed by PLANTI supports the training and operational needs of the ASEAN Plant Quarantine services.
7. The Committee recommends that members of the Board of Directors of PLANTI, if not drawn from the Plant Quarantine Services of member countries, be supported by direct participation of officials of such Services in deliberations of the board. Should this result in too many individuals at Board meetings, a list of agenda items for such meeting should be circulated sufficiently in advance for the preparation of briefing materials for the Board members. This will enable the Board to identify the program and training needs of ASEAN and to so guide PLANTI.
8. The Committee recommends that inspector training courses be more job-oriented and practical to meet the current needs of member-country Plant Quarantine Services. There also is a continuing need and demand for advanced courses and specialized training which must be met. In order to extend the capability to meet both needs, PLANTI should draw upon PQ staff of member-countries to serve as subject-matter specialists. Such personnel might be assigned for short tours when needed to present or reinforce the presentation of a specific subject or work area in the training schedule. They would not have to meet the criteria for appointment required of full-time professional staff, but should be qualified in specific subject areas

and have more than adequate skills in training others. Ex-trainees of PLANTI could provide a pool of such individuals, as they might have demonstrated some of the necessary qualities to the professional staff during their periods as participants.

9. The Committee supports the extension of PLANTI's programs through a broad linkage and relationship with ASEAN Plant Quarantine Services, and the provision of training and program support for the resolution of common problems. Extension of basic inspector training to in-country programs, conducted by PLANTI with participation of host-country personnel, is urged to meet the current need for such training. The provision of training packages, training aids and trained instructors will speed the development of basic skills and pave the way for future specialized and higher level training at PLANTI. In time, the training of new personnel may be handled in-country for the most part, with re-training, new developments and concepts, etc., being handled by PLANTI.
10. The Committee supports strongly an adequate extension of the project so that PLANTI is enabled to continue its works to benefit not only ASEAN but also countries in other regions. Both now and during the period of extension, PLANTI should explore other sources of future funding. It is suggested that ASEAN, the Government of Malaysia, USAID and assistance programs of other donors be pursued.

General

The following individual comments are not a part of the Committee Report, but are submitted by Mr. Darling as a matter that he feels should be brought to the attention of COFAF.

During their meeting in Manila, 4th-5th October 1984, the Ministers of Agriculture of ASEAN signed a Memorandum of Understanding (MOU) on the Declaration of Pest Free Zones. There is a sensitive concept embodied in this MOU, as there seems to have been insufficient definitive survey in the Region to permit designating areas as pest free because pests "are not known to occur." If it were possible, with any degree of certainty, to identify areas in which specified pests are known not to occur, such areas could be considered pest free.

General acceptance of the limited distribution of a pest within a country as a valid plant quarantine concept traditionally is dependent upon the existence of adequate internal or domestic quarantine to prevent spread, and of an active program of control, suppression or eradication.

There thus is some risk that countries outside ASEAN may take note of and be concerned about the unrestricted internal movement of commodities which might carry the designated pests. This in turn, could harm accomplishment of the objective of assisting ASEAN member countries to export primary agricultural produce.

PROJECT DESCRIPTION

ASEAN PLANT QUARANTINE PROJECT

This project consists of the establishment of an ASEAN Plant Quarantine Center and Institute (PLANTI) in Malaysia. Development of PLANTI as an ASEAN institution will provide a focal point and coordinating mechanism for improving plant quarantine activities in the ASEAN through training, research, and information exchange.

The AID project contribution of \$5.4 million (\$1.06 million in 1980) will finance commodities, salaries, technical assistance for curricula and program design, and participant training.

The Government of Malaysia will provide the land and build the major PLANTI facilities, and bear the costs of lower-level clerical and maintenance salaries for the new Institute.

I. Project Objectives

- a) To complement the plant quarantine activities of the ASEAN member countries with regards to post-entry quarantine, formulation of standardized legislative measures and advanced training in plant quarantine.
- b) To assist ASEAN member countries to export primary agricultural produce.
- c) To act as a repository for information and dissemination on plant quarantine and plant protection matters affecting the ASEAN region.
- d) To carry out research on suitable treatment schedules for other important plant quarantine pests and diseases.

II. Responsibilities of PLANTI

- a) Liaison on post-entry quarantine procedures for national institutions of member countries.
- b) Formulating standard diagnostic procedures for identifying and controlling pests of plant quarantine importance.
- c) Screening imported germplasm for presence of exotic diseases and pests.
- d) Formulating threshold values for movement of seed carrying seed-borne diseases.
- e) Formulating guidelines for the movement of planting material within the region.
- f) Developing and devising suitable treatment schedules for import and export of planting material.
- g) Providing information on diseases, pests, weeds of economic importance to the ASEAN region.
- h) Formulating programs for eradication or control of economic plant quarantine pests.
- i) Developing fumigation methods and exposure dosages for plant quarantine purpose so as to facilitate export of agricultural produce of ASEAN member countries.
- j) Providing advisory service to member countries on quarantine status of specific diseases and pests.

- k) Providing in-service and post-graduate training on plant protection with special emphasis on plant quarantine.

III. Construction and Operations

PLANTI will be constructed on a tract belonging to the Crop Production Station, Serdang, Department of Agriculture. This site will serve as a training center for short-term courses and as a documentation center to provide information for the national agencies on pest conditions, and technical and quarantine questions. This will also evolve into a regional pest management data bank. The staff will teach short-term courses, as well as prepare seminars and conferences for higher level plant quarantine officials to consider intra-regional legislative coordination and to bring together expertise on technical subjects such as fumigation, pest detection, etc.

Construction plans and engineering specifications for the main building are being prepared by the Government of Malaysia. This design will include several lecture rooms, basic laboratory facilities and document center and library. The target date for completion is late 1981 or early 1982. Staff quarters for professional level employees will be located on the grounds. The Government of Malaysia will have responsibility for design and construction of the building phase. Necessary support buildings include a soil preparation room and six glass/screen

houses, available as pre-fabricated assembly units locally. Student quarters to house about fifty students, will also be assembled from pre-fabricated units. AID support will finance procurement of pre-fabricated, the Government of Malaysia designed glass houses and about one-half of the dormitory units. The Government of Malaysia will lay foundations and assemble units, using specifications stated.

Equipment

AID will finance procurement of equipment for the Institute. This includes the following categories: 1) office equipment, 2) standard laboratory equipment and supplies, 3) three vehicles, 4) light farm equipment, 5) audio-visual training equipment, 6) equipment for the cafeteria.

Training

The Institute training will be on three levels: 1) one-year diploma course for field staff; 2) short-term courses for field staff; 3) seminars on technical topics or on legislation/policy coordination for inspection, supervisory and management staffs. The participant degree training would be available to senior line officers and to upper level policy-oriented staff. Breakdown is as follows:

- five M.S. level students in the U.S. ;
- 81 students in one-year courses at PLANTI;
- 190 students in short-term courses at PLANTI;
- 30 short-term study courses in the U.S. or other countries.

The one-year course is especially important to ASEAN agencies and will prepare high school and agricultural vocational school graduates for line positions. Recommended courses include basic plant pathology, entomology, inspection procedures and quarantine enforcement practices.

Training courses could begin before construction of Institute facilities is completed, using facilities at MARDI. Arrangements for appropriate staff and curricula for these first courses or conferences would be handled in the interim by the Director and office staff of the Institute, by using consultants on MARDI staff or consultants under the project.

Conferences and Seminars

Conferences or seminars will provide a forum for ASEAN senior-level officials to review the implementation of national plant quarantine legislation, especially the development of sound rules and regulations. In addition, there are other regional-level needs that might be conference topics, such as: (a) standardizing the screening methods and diagnostic procedures for detecting exotic pests in important plant propagating material, (b) proper certification procedures for ASEAN agricultural exports, and (c) standardizing treatment schedules for ASEAN exports and imports. The project calls for ten conferences of this nature.

Curricula Development and Seminar Planning

The development of curricula for the Institute and basic planning for seminars will be undertaken by a U.S. Regional Training Officer, in coordination with the Institute staff.

The project budget also includes up to 27 man-months for technical assistance for the regional training courses, seminars or for country-specific requests.

Staff Salaries

Staff salaries will be financed for the life of the project by AID. The staff includes seven professionals, headed by a Malaysian Institute director. In addition a Regional Training Advisor will provide technical assistance during the Institute start-up period on curricula development, training schedules and on all participant training arrangements. This individual is expected to be contracted through a PASA with the USDA/APHIS.

Board of Directors

A Board of Directors will oversee selection and final approval of the staff as well as provide some guidance in curricula development, student selection and institute administrative matters. The Board will be composed of one member from each country, plus the Malaysian Training Institute Director. The ASEAN Plant Quarantine Committee agreed that the Director will be appointed by the Government of Malaysia immediately after the project is approved.

IV. End of Project Status

By the end of the five-year period, the project is expected to show significant results toward development and application of improved plant quarantine technology in the ASEAN nations. The project outputs will include an adequately organized, highly

trained staff of plant quarantine personnel in each participating country. The following long range benefits should accrue from the intervention of this project:

1. An operational Regional Plant Quarantine Training Center and Institute equipped for training in inspection of plant material and other commodities for import and export, enforcement procedures, recognition of pests of quarantine significance, proper handling of plant material in post-entry quarantine, effective use of treatments to eliminate pest threat in commodities and carriers.
2. Five post graduates trained at the Masters level in the U.S. and a total of 291 quarantine officers trained in courses of one month to one year duration at the Regional Institute, in the U.S. and in other locations.
3. An improved plant quarantine service in each country, capable of supervising and facilitating quarantine procedures to the benefit of commerce, estate crops, small farmers and the public, in general.

V. Financial Plan

After the Government of Malaysia prepares a payment schedule, disbursement will be made by AID/W for foreign exchange items, and by USAID/Manila for local cost items, on presentation of vouchers approved by AID. Advance payment may be needed for salaries, operating costs, travel, conferences and seminars, and will be requested by the

Institute through the Ministry of Agriculture as the implementing agency. The regional advisor would then prepare documentation. Local source purchases will be funded through a direct reimbursement authorization (DRA) to the Comptroller, USAID/Manila; this amount is estimated at U.S.\$2.4 million life of project. As a USDA direct hire, the regional advisor will be delegated authority to administratively approve vouchers in the field. The AID/ASEAN officer will share this authority and can administratively approve vouchers before the arrival of the advisor to Malaysia.

VI. Implementing Plan

As the recipient, the Government of Malaysia, Crop Protection Branch of the Ministry of Agriculture, will be the key organization to implement the project. It will coordinate with the ASEAN Plant Quarantine Standing Committee, represented by the Institute's Board of Directors, to plan and implement the project activities.

SUMMARY OF THE POST-EVALUATION

1. Feedback from the Ex-Trainees (45 respondents)

- 1.1 More than 80% of the long course participants were given more responsibilities after the training at PLANTI.
- 1.2 All the respondents of the long course (100%) felt that the training at PLANTI had improved their job performance.
- 1.3 Over 70% of the participants of the short course found the training at PLANTI relevant to their work duties and over 80% would recommend a similar course to their colleagues.
- 1.4 Over 90% of the long course participants would like to attend future course at PLANTI and over 70% of the short course participants would like to attend future courses at PLANTI.
- 1.5 Over 90% of the respondents for both the long-term and short-term courses agreed that they were more aware of the plant quarantine work in the ASEAN countries through participation in PLANTI's training.
- 1.6 More than 90% of the respondents agreed on the importance of working as a team and indicated that they wanted to learn more about plant quarantine.
- 1.7 The respondents agreed that the courses they attended were effective in providing them with new skills.

1.8 More than 90% of the respondents from the long courses and 70% of the respondents from the short courses felt that they could put into practice what they learned at PLANTI within a year of their return to their organization.

2. Feedback from the Supervisors (22 respondents)

2.1 More than 90% of the respondents felt that PLANTI had been effective in improving the job performance of the ex-trainees.

2.2 Sixty-six percent of the respondents felt that the ex-trainees could contribute significantly to the organization after their training at PLANTI.

2.3 Ninety percent of the respondents found that their staff were more knowledgeable about plant quarantine after the training at PLANTI.

2.4 Ninety percent of the respondents indicated that the ex-trainees could be given more responsibilities after the training.

COMMENTS AND SUGGESTIONS OF EX-TRAINEES

1. The main comments of the participants were as follows:

- (i) PLANTI's facilities have improved since its inception in 1981; however, the hostel facilities need be further improved;
- (ii) The courses tended to place too much emphasis on theory and some courses were too general.
- (iii) Some lecturers were not familiar with the subject they were teaching;
- (iv) PLANTI should have a collection of visual aids to complement the lectures;
- (v) More live specimens should be shown in class;
- (vi) Allowance to participants was insufficient.

2. The main suggestions of the participants were as follows:

- (i) The training courses should be more specific and should relate to problems confronting the ASEAN. Foreign experts should be invited to teach the specialized courses;
- (ii) PLANTI should organize a course on inspection techniques at Ports, Airports and Roads to improve the quality of work of the

Quarantine Inspectors;

- (iii) The courses should have more laboratory practicals and more field trips to collect specimens. The field trips should be longer in duration.
- (iv) Transportation should be provided to the participants to travel to the town as the hostel is far away from the main road.
- (v) More activities should be organized for the participants after office hours.
- (vi) Allowance of participants should be increased.

COMMENTS AND SUGGESTIONS OF SUPERVISORS

PARTICIPATING IN THE POST-EVALUATION

1. The main comments of the Supervisors were as follows:

- (i) The training programme should cover both basic and applied sciences;
- (ii) The courses should be planned for specific levels of quarantine staff, i.e. technical back-up officers, supervisors, inspectors and laboratory staff;
- (iii) The courses for inspectors should be job-oriented without too much emphasis on theoretical background, i.e., more emphasis on procedures, skills development on pest detection techniques, etc.;
- (iv) Transportation should be provided for participants to go to town especially on weekends.

- (v) Evaluation of participants is necessary both before and after the course.
- (vi) Increase the allowance of the participants.

2. The main suggestions were as follows:

- (i) Training for ASEAN Plant Quarantine personnel in PQ Stations outside the ASEAN;
- (ii) Ground training on inspection procedures and treatments;
- (iii) Lectures on principles and philosophy of plant quarantine;
- (iv) Film shows on plant quarantine;
- (v) Inform member-countries well in advance on the content of courses, their objectives and their target clientele so that relevant personnel are nominated for the PLANTI courses;
- (vi) PQ staff in member-countries should be invited as resource personnel for some courses which require experience and skills in PQ activities since some of the staff at PLANTI lack working knowledge of plant quarantine at ground level;
- (vii) PLANTI should design some advance courses for Senior officials, i.e., Training for Trainers;
- (viii) Design a course on Public Relations for inspectors.
- (ix) Offer a variety of food at the hostel.
- (x) Provide more recreational facilities at the hostel.
- (xi) Organize more social activities between the trainees and the trainers.

Table 1 Salary Levels of Selected Institutes and PLANTI

CATEGORY	LEVEL	SALARY GRADE	MINIMUM	CONTROL POINT	MAXIMUM	PRESENT SALARY* SCALE OF PLANTI
Professional and Management	I	6	16500	20600	22300	(10500-18100)
	II	7	18400	23000	24800	
	III	8	20600	25800	27800	
	IV	9	24600	30700	33200	
	v	10	26900	33600	36300	
	VI	11	29300	38100	41000	
Sub-Professionals	I	3	9500	11800	12800	(3720-11700)
	II	5	14300	17900	19300	
	III	7	18400	23000	24800	
	IV	8	20600	25800	27800	
	V	9	24600	30700	33200	
Clerical & Technical & Support Staff	I	1	6700	8300	9100	(1850-6200)
	II	2	8000	10000	11000	
	III	3	9500	11800	12800	
	IV	5	14300	17900	19300	
	V	6	16500	20600	22300	
	VI	8	20600	25800	27800	
	VII	9	24600	30700	33200	
	VIII	10	26900	33600	36300	
Typists, receptionists, telephonist, security other Guards etc.	I	1	6700	8300	9100	(1490-3400)
	II	2	8000	10000	11000	
	III	3	9500	11800	12800	
	IV	4	10900	13700	14700	

In whole figures (US\$)

Table 2 Resignations and Dismissals of PLANTI Staff

No.	Position	Area of Work	Years of Work	Reasons for Leaving
1.	Chief Administration and Procurement Officer (1)	Administration and Finance	9½ months	Transferred to another Gov Department
2.	Stenographer (1)	Stenographer	10 months	Transferred to another Gov Department
3.	Finance Clerk (3)	Clerical	a) 6½ months b) 3 years c) 2 years	Joined another Employer Transferred to another Gov Department Transferred to another Gov Department
4.	Typist (1)	Typing	16 months	Joined another Employer
5.	Senior Plant Pathologist (1)	Mycology	2 years	Joined Oil Palm Research
6.	Storekeeper (1)	Store Supplies	5 months	Joined another Employer (Statutory Body)
7.	Watchman (2)	Office security	a) 1 year b) 8½ months	Joined another Employer Terminated
8.	Research Assistant (1)	Lab. Service	6 months	Joined another Employer
9.	Driver (2)	Driver	a) 8 months b) 7 months	Joined another Employer
10.	Hostel Supervisor (1)	Hostel	7 months	Joined another Employer
11.	Farm Manager (1)	Maintenance & Supervision of PLANTI grounds	1 year	Joined another Employer
12.	Lab Assistant (3)	Lab. Service	a) 2 months b) 9 months c) 9½ months	Resigned to further studie " " " " " " " "
13.	Graphic Artist (1)	Artist	7 months	Joined another Employer

Table 3 Consultants Engaged in PLANTI'S works till February, 1985

NO.	NAME OF CONSULTANT	FIELD OF WORK	DURATION OF WORK	NO. OF COUNTR. COVERED
1.	JOSEPH MESSINEO	Consultant on container inspection and clearance	Jan. 15th - Apr.2nd. 1982	Philippines & Indonesia
2.	MR. LEMAR CHILSON	Consultant on Malaysian Plant Quarantine	Jan. 15th - Feb.28th 1982	ASEAN (Malaysia)
3.	ROBERT R. HASHIMOTO	Consultant on Fumigation	Oct. 3rd - Nov.30th 1983	ASEAN
4.	WALTER J. KAISER	Consultant on Post-Entry Plant Quarantine in the Asean Countries	Jan.22nd - Mar.14th 1983	ASEAN
5.	DAVID MCULLOUGH	Consultant on container Inspection And Clearance	Mar.22nd - Apr.28th 1983	ASEAN (Thailand, Singapore & Malaysia)
6.	PROF. N.V. SCHAAD	Consultant on Quarantine of Seed Borne Bacteria in the Asean	May. 7th - Jun.13th 1984	ASEAN
7.	DR. K. BURDITT	Consultant on Toxicology	Jan. 6th - Feb.14th 1985	ASEAN

Table 4 Expected consultants needed to engage in PLANTI's works up to 1990

Field of Work	Number	Duration of Work	Number of countries to cover
1. Plant Quarantine Legislations	1	6 weeks	ASEAN & PLANTI
2. Fumigation	1	6 weeks	ASEAN & PLANTI
3. Nematology	1	6 weeks	ASEAN & PLANTI
4. Virologist	1	12 weeks	ASEAN & PLANTI
5. Serology	1	6 weeks	PLANTI
6. Weed Seeds	1	4 weeks	PLANTI
7. Entomologist	1	6 weeks	PLANTI
8. Curriculum development	1	6 weeks	PLANTI
9. Toxicology	1	6 weeks	ASEAN & PLANTI

Table 5 Summary of PLANTI'S staff status up to February, 1985

<u>Post</u>	<u>Area of work</u>	<u>Yrs.of Work</u>	<u>Present Status</u>
1. Senior Plant Pathologist	Mycology/Bacteriology	1 yr. 9 mths.	On going
2. Senior Seed Pathologist	Seed Health Testing	10 months	On going
3. Senior Entomologist	Entomology	3 yrs. 5 mths.	On secondment till October, 1985
4. Senior Weed Specialist	Weeds	3 yrs. 2 mths	On going
5. Plant Pathology	Virology	1 month	Appointed Feb.1985
6. Seed Technologist	Seed Technology	1 month	Appointed Feb.1985
7. Senior Nematologist	Nematology/ Fumigation	2 yrs. 11 mths	On going
<u>Technicians</u>			
1. Research Assistant (2)	Laboratory Service	a) 1 yr	On going
		b) 5½ mths	On going
2. Lab Assistant (1)		a) 2 yrs. 3 mth	On going
3. Junior Lab Assistant (4)		a) 2 yrs. 2 mths	On going
		b) 2 yrs. 2 mths	On going
		c) 2 yrs. 2 mths	On going
		d) 2 yrs. 1 mth	On going
<u>Farm and Hostel</u>			
1. Farm Manager		1½ mth	On going
2. Agric. Tech.		1 yr 1 mth	On going
3. Hostel Supervisor		10 months	On going

<u>Post</u>	<u>Area of Work</u>	<u>Yrs. of work</u>	<u>Present Status</u>
<u>Documentation</u>			
1. Senior Documentation Officer		2 yrs. 4 mth	On secondment till October, 1986
2. Graphic Artist		1 yr. 2 mth	On going
3. Library Assistant		9 mths	On going
<u>Administration</u>			
1. Director		4 yrs. 2 mths	On secondment till December, 1985 or 1
2. Stenographer		1 yr. 7½ mths	On secondment till July, 1985
3. Senior Administration & procurement Officer		2 yrs. 7½ mths	On secondment till July, 1985
4. Clerks (3)		a) 2 yrs. 2½mths b) 2 yrs. 2½mths c) 7½ months	On going On going On going
5. Storekeeper		1 yr. 2 mths	On going
6. Typist (3)		a) 3 yrs 2½ mths b) 3 yrs 2 mths c) 2 yrs 6 mths	On going On going On going
7. Telephone Operator		2 yrs. 3 mth	On going
8. Office Boys (2)		a) 3 yrs 3½ mths b) 8½ mths	On going On going
9. Drivers (2)		a) 3 yrs 3½ mths b) 8½ mths	On going On going

<u>Post</u>	<u>Area of work</u>	<u>Yrs. of work</u>	<u>Present Status</u>
10. Watchman (4)		a) 2 yrs. 10mths b) 2 yrs. 9 mths c) 1 yrs 3 mths	On going On going On going
11. Office Cleaners (3)		a) 3 yrs. 1 mths b) 1 yrs. 3 mths c) 2 yrs. 8 mths	On going On going On going
12. Hostel Cleaners (2)		a) 3 yrs. 5 mths b) 1 yrs. 3 mths	On going On going
13. General Labourers (15)		Fr. 1 to 3 yrs	On going

Table 6 Summary of PLANTI's Staff Training up to February 1985

TYPE OF TRAINING	NUMBER	VENUE	DURATION	PRESENT STATUS
<u>NON-DEGREE</u>				
Record Management	1	National Archives of Malaysia	6 days (15-20 Oct 84)	Completed
Computer	2	IBM, Malaysia,	3 days (14-16 Feb 84)	Completed
Library	1	University Pertanian Malaysia	1 days (16 Nov 83)	Completed
Binding Books & Documents	1	National Archives of Malaysia	2 weeks (12-24 Nov 84)	Completed
Micrography	1	National Archives of Malaysia	2 weeks (8-20 Aug 83)	Completed
Telephone Operations	1	Telecoms Department	1 weeks (16-21 Apr 84)	Completed
Herbarium	4	University Pertanian Malaysia	3 days (22-24 Sept 82)	Completed
<u>DEGREE</u>				
Container Inspection and Clearance Training	1	APHIS-USA	5 weeks (12 April-18 May 84)	Completed
On the Job Training for ASEAN Plant Quarantine Official	1	APHIS-USA	6 weeks (19 June-31 July 83)	Completed
Security Course	1	Prime Minister Department, K.L.	6 days (26 Nov-1 Dec 84)	Completed
Workshop on Negotiation Techniques for Manager	1	INTAN, K.L.	3 days (29 Nov-1 Dec 83)	Completed

Table 7 Future requirements for PLANTI's staff upgrading to 1990

Type of training	Number	Place	Year	Duration
Degree level training				
Immuno flourescent techniques		US/England	1986	4 weeks
Serological techniques		England	1987	4 weeks
Seed technology		New Zealand	1988	4 weeks
Special bacteriological techniques		US	1989	4

Table 8 PLANTI's Building Facilities up to February, 1985

Kind of Facility	Number of Rooms	Space sq. feet
Office Block A	10	16,634
Office Block B	18	16,634
Hostel Blocks	30	28,215
Dining Block	1	6,170
Farm Office	3	<u>2,719</u>
TOTAL		<u><u>70,372</u></u>

Table 9 Space Requirement for PLANTI 1986-1990

Kind of Facility	Number of Rooms	Space sq. feet
1. Virus and Seed Health Testing laboratory	1	1,440
2. Auditorium (80 persons)	1	2,520
3. Printing Room	1	720
4. Officer's Room	1	<u>360</u>
TOTAL		5,040

Table 10 List of PLANTI's main equipment used for research, training and extension works

Kind of Equipment	Number
Microscopes (compound)	46
Stereozooms	45
Faxitron (X-ray unit)	3
Incubator	6
Fumigation Chamber	1
Autoclave	2
Distiller	3
Laminar flow	2
Weighing balances	15
Ph meters	2
Centrifuge	1
Oven	6
Soil sieves (Nematodes)	12
Room for Near-UV lights set-up	1
Moisture determining scales	3
Flourescent light set-up for seedlings	1
Refrigerators	5
Freezers	2
Water baths	4
Water heaters	3
Offset printing machine	1
Platemaker	1
Photocopiers	2
Binding equipment	2
Darkroom	1

Kind of Equipment	Number
Camera units	2
Slide projectors	6
Overhead projectors	2
Slide dissolve unit	1
Teac playback equipment	1
Microphones	2
Projection screens	2
16 mm film projectors	2
Lettering machine	1
Plastic laminating machine	1
Photo copying stand	1
Photomicography unit	1
Slide duplicator	1
Polaroid slide processing unit	1
Open reel tape recorder	1
Video player	1
TV set	1

Table 11 Summary of PLANTI's Short Course Programmes up to February 1985

No.	Title of the course	Number of Day	P A R T I C I P A N T S						Total
			Indonesia	Malaysia	Philippines	Singapore	Thailand	Other	
1.	General Plant Quarantine 12-27/5/81	25	5	7	5	1	5	-	23
2.	Fumigation Treatment 6-22/10/82	11	5	2	5	1	5	-	18
3.	Pest Detection 4-21/8/82	18	3	3	3	2	3	-	14
4.	Khapra Beetle Identification 1-6/8/83	6	-	12	-	-	-	-	12
5.	Bacteriological Techniques 8-27/8/83	19	3	5	3	2	3	1	17
6.	Nematode Identification 19-26/9/83	7	3	5	3	-	3	1	15
7.	Weed In Quarantine 17-30/10/83	13	3	5	-	2	3	1	14
8.	Procedures for Information & Introduction Germplasm 4-18/1/84	14	2	7	1	1	1	1	13
9.	Workshop In Plant Quarantine Publicity 14-28/2/84	14	2	1	2	-	2	-	7
10.	Identification of Fruit Flies & Symptoms of damage 5-25/3/84	20	2	4	1	-	2	-	9
11.	Seed Borne Diseases 7-29/5/84	22	4	4	4	-	4	-	16
12.	Stored Product Post and Treatment Training 1-29/8/84	29	3	4	4	-	3	-	14
13.	Containerized Cargo Inspection and Treatment 1-21/10/84	31	3	4	3	-	3	-	13
14.	Nematode of Plant Quarantine Importance 19/11 - 16/12/84	27	2	3	4	-	2	-	11
15.	Fumigation for Private Sector 22-24/1/85	3	-	13	-	-	-	-	13
TOTALS			40	79	38	9	39	4	209

Table 12 Summary of PLANTI's Long-term Course Programmes up to February 1985

No.	Title of the course	Number of Days	PARTICIPANTS						
			Indonesia	Malaysia	Philippines	Singapore	Thailand	Other	Total
1.	Post Graduate Diploma 1/2-20/11/82	42 weeks	4	1	4	-	4	-	13
2.	Plant Quarantine Certificate 1/2-7/7/83	20 weeks	6	2	1	-	4	-	13
3.	Post Graduate Diploma 1/2-26/11/83	42 weeks	-	-	6	-	-	-	6
4.	MS Course (univ. of Delaware) 1982-1984	2 years	-	1	1	-	1	-	3
5.	Plant Quarantine Certificate 1/2-31/7/84	24 weeks	5	2	2	-	1	-	10
6.	Post Graduate Diploma 1/2-20/11/84	42 weeks	-	2	2	-	2	1	7
7.	Plant Quarantine Certificate 1/2- 5/7/85	21 weeks	<u>2</u>	<u>5</u>	<u>3</u>	<u>-</u>	<u>3</u>	<u>1</u>	<u>14</u>
TOTALS			17	13	19	0	15	2	66

able 13 Summary of PLANTI's Study Tour/On The Job Training Programmes up to February 1985

No.	Title of the course	Number of D a y s	PARTICIPANTS						Tota
			Indonesia	Malaysia	Philippines	Singapore	Thailand	Other	
1.	Container Inspection and Clearance In The USA 12/4 - 16/5/84	34	1	2	1	1	1	-	6
2.	Plant Quarantine Facilities In USA 15/6 - 13/7/82	28	1	1	1	-	1	-	4
3.	Study Tour On The Job Training 20/6 - 28/7/83	8	1	2	1	1	1	-	6
4.	Study Tour of ASEAN 15-28/1/84.	13	<u>2</u>	<u>5</u>	<u>2</u>	<u>-</u>	<u>2</u>	<u>1</u>	<u>12</u>
TOTALS			5	10	5	2	5	1	28

Table 13a Future requirements for PLANTI's staff training to 1990

Type of training	Number	Place	Year	Duration
<u>Degree level training</u>				
Immuno flourescent techniques	1	US/England	1986	4 weeks
Serological techniques	1	England	1987	4 weeks
Seed technology	1	New Zealand	1988	4 weeks
Special bacteriological techniques	1	US	1989	4 weeks

Table 14 Research Publications by PLANTI Staff - 1981 - February 1985

Publications by Staff

1. CHAN, K.C. and R.E. Gaunt. (1982). Seed treatment and foliar spray control strategies for disease control in winter wheat cv. Kopara. Proceedings of the 35th New Zealand Weed and Pest Control Conference: 208-211.
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Table 15 Expected research program required for PLANTI's works up to 1990

No.	Scope of Research	Expected Date of Initiation	Duration of work
1.	Weed seed contaminants of consignments	On-going	Till 1990
2.	Weeds of economic importance and control	July 1985	Till 1990
3.	Seed borne diseases of vegetables and cover crops	July 1985	Till 1990
4.	Treatment schedules & efficacy (MB, PH ₃ and others) for vegetable seeds & tropical fruits	July 1985	Till 1986
5.	Mites on some economic plants	On-going	Till 1986
6.	Nematodes on imported plant products	July 1985	1987
7.	Virus diseases in orchids	1986	Till 1990
8.	Methods for indexing and detecting viruses	1985	Till 1990
9.	Post-entry quarantine on cocoa and other plant materials	1986	1987
10.	Seed treatments	1985	Till 1990
11.	Storage pests of imported crops	1986	Till 1990
12.	Post-harvest diseases of fruits and treatment	1985	Till 1990
13.	Wood borers and other introduced pests	On-going	Till 1990

Table 16 List of PLANTI's publications up to February 1985

Title	Date Completed
<u>Student Theses</u>	
1. A study of noxious weeds of quarantine importance to the ASEAN Region	Nov. 1983
2. A comparative study of different levels of methyl bromide and phostoxin concentration on some stored product insects found in Selangor, West Malaysia	Nov. 1983
3. Transfer of <u>Hevea</u> seed germplasm in aseptic culture	Nov. 1983
4. A study on the distribution of stored product pests found in mills and godown in the state of Selangor, West Malaysia	Nov. 1983
5. A study of seedborne <u>Xanthomonas campestris</u> on Crucifer seeds	Nov. 1983
6. Survey of fruit flies associated with fruits in Selangor, West Malaysia	Nov. 1983
7. Survey of virus diseases of orchids found in Malaysia	Nov. 1984
8. Nematodes occurring in orchid nurseries	Nov. 1984
9. Weed contaminants in cover seed consignments	Nov. 1984
10. Survey of mites on orchids	Nov. 1984
11. The effect of different levels of methyl bromide on the growth of some ornamentals	Nov. 1984
12. Survey of economically important timber insects	Nov. 1984
13. Isolation of fungi from barley and fungicide testing against <u>Drechslera sorokiniana</u> under laboratory conditions	Nov. 1984

Table 17 Extension Publications of PLANTI To Date

Title	Date completed
<u>Extension publications</u>	
1. A 333-page book on "Exotic Plant Quarantine Pest and Procedures for Introduction of Plant Materials", M\$45.00 per copy.	1984
2. PLANTI News (Tri-annual newsletter)	On-going
3. Training in Plant Quarantine (Leaflet)	1982
4. PLANTI Brochure	1982
<u>Technical Papers</u>	
1. Pest Data Sheets on:	
a. South American Leaf Blight of Rubber	1984-1985
b. Cadang-cadang Disease	
c. Socorro Wilt of Coconut Palms	
d. Golden Cyst Nematode	
e. Cassava Mosaic Virus	
f. Fusarium Wilt of Oil Pal	
g. Cocoa Witches' Broom	
h. Cocoa Swollen Shoot Viru	
i. Rice Gall Midge	
j. <u>Mimosa pigra</u>	
k. Red Ring Nematode	
l. Root Lesion Nematodes	
2. <u>Leaflets</u>	
a. Rice Water Weevil	1982
b. Khapra Beetle	1983

Title	Date completed
3. Technical Reports	
a) Standardisation of Plant Quarantine Treatments for Export and Import of Planting Materials	July 1981
b) Standardisation of Plant Quarantine Documents	April 1982
c) Standardisation of Plant Quarantine Legislations	August 1982
d) Implementation Procedures for Plant Quarantine	May 1983
e) Emergency Action Programme of Some Crops	July 1984
f) Plant Quarantine Treatments	July 1984
g) Weeds of Plant Quarantine Importance to ASEAN	September 1984
4. Reports of Board Meetings (Nos. 1-8, 1981-1984)	
5. Post-evaluation Report on the Training Courses of the ASEAN Plant Quarantine Centre and Training Institute, 1981, 1982, 1983	1984
<u>Audiovisual</u>	
1. The PLANTI Story in two versions (PR material for briefing purposes)	1982
a) Tape-slide synchronisation	
b) Video production	
2. Video on Fumigation	1984
3. Posters (in production)	1985

Table 18 List of seminars and conferences attended by PLANTI's staff up to February, 1985

No.	Title	Number of persons attended	Period (Days)	Date
1.	International Conference on Oil Palm in Agriculture in the Eighties	1	4	17-20/6/81
2.	Seminar on Review of Cocoa Breeding and Forward Thinking	1	1	2/9/81
3.	Fourth ASEAN Orchid Congress	1		
4.	International Symposium on Seed Borne Diseases	1	6	11-16/10/82
5.	International Conference on Plant Protection in the Tropics	4	4	1-4/3/83
6.	13th Meeting of the Asian-Pacific Plant Protection Commission	1	5	18-23/4/83
7.	Symposium on Weed Science in the Tropics	1	2	4-5/10/83
8.	Impact of Microbiology in Tropical Agriculture	1	3	24-26/10/83
9.	Workshop on Negotiation Techniques	1	3	29/11-1/12/83
10.	Recent International Development in Chemical Weed Control	1	1	28/7/84
11.	Fifth ASEAN Orchid Congress	1	3	1-3/8/84
12.	Seminar on Japan Plant Quarantine System	1	1	9/8/84
13.	ASEAN Technical Seminar on Health and Ecology in Grains and Post Harvest Technology	2	4	21-24/8/84
14.	First Regional Symposium on Biological Control	1	3	4-6/9/84
15.	Seminar on Communication of Scientific Information for Development	1	4	8-10/10/84
16.	International Conference on Cocoa and Coconut	2	3	15-17/10/84

No.	Title	Number of persons attended	Period (Days)	Date
17.	Course on Security	1	6	26/11-1/12/84.
18.	Advances in Pesticide Application Techniques	3	1	21/1/85.
19.	Workshop on Postharvest Loss Assessment of Horticultural Produce	2	3	11-13/2/85