

Institut Pertanian Bogor • University of Wisconsin

GRADUATE EDUCATION PROJECT



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Report No. 12

KENNEDY

August 1982

REPORT

for

THE INSTITUT PERTANIAN BOGOR

James R. Kennedy, Architect

The University of Wisconsin - Madison

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Both personally and on behalf of the Department of Planning and Construction, University of Wisconsin-Madison, I would like to express my sincere thanks and appreciation to Dr. E. Clayton Seeley, Education and Human Resources Division, USAID - Jakarta, and to Dr. Wayne R. Kussow, Director, International Agricultural Programs, University of Wisconsin, for the opportunity to assist in such a unique and challenging assignment.

I would also like to express my thanks and gratitude to the I.P.B. Planning Board and its chairman, Ikin Mansjoer, and to the deans and the faculty of the I.P.B. administration who were instrumental in making my brief visit to the I.P.B. campus a valuable and rewarding experience. Their generosity of time and gracious assistance was received with unbounded admiration and appreciation.

To Mr. James V. Edsall, Director, Department of Planning and Construction, University of Wisconsin-Madison, I am deeply indebted for his assistance in arranging my schedule to allow me the opportunity to visit Indonesia and for his confidence in me to accomplish this important on-site work program.

Madison August 1982

James R. Kennedy

REPORT

for

THE INSTITUT PERTANIAN BOGOR

Statement of Purpose:

In order to assist in the planning for the physical facilities for the Institut Pertanian Bogor; and, in particular, the development of the IPB Darmaga Campus, an on-site work program agenda was proposed consisting of the following four primary objectives:

1. Familiarization with existing conditions - a general overview.
2. Evaluate the current status of the Information Resources Center, and the Environmental Studies Center.
3. Extend assistance in Campus Planning efforts towards accomplishing the approved Institut Pertanian Bogor Master Plan - Darmaga Campus.
4. To anticipate and/or respond to other requests for assistance related to facility planning as they might present themselves during the on-site visit.

A. General Overview:

This was the first visit by the author to the country of Indonesia, and to the Institut Pertanian Bogor. It was deemed of the highest order and absolutely essential to familiarize myself, to the fullest extent possible, with the country, its people, the Institut Pertanian Bogor, its administration and faculties; and to discuss, observe and evaluate the current status and future direction the IPB has charted.

This attempt to learn and familiarize myself through my visits to the facilities, ensuing discussions and an extensive review of recent reports and documents related to Academic Planning and Physical Facility Project Proposals has been invaluable in providing insight and understanding of the problems, opportunities and challenges facing the IPB and higher education in Indonesia.

During my brief visit, a tentative schedule of activities and participation was agreed upon including the following events:

1. Visits to the existing IPB - Bogor Campus and the Darmaga Campus site;
2. Extensive meetings with the IPB administration and with the IPB planning team participating in the physical facility planning process to gain an understanding of the existing policies, assumptions, decisions, opportunities and potential of the planning effort; and additionally, discuss budgets, schedules, human resources - staffing support, the Master Plan Concept timing, and the efforts to maintain cooperation and coordination of the total planning effort.
3. Visit to USAID, Jakarta, for briefing and interpretation of the agency's perspective, anticipated scheduling, expectations and continuing interest in the development of the approved Master Plan - Darmaga Campus.

4. A thorough review of the Contract Document Plans and Specifications for the Information Resource Center and the Environmental Studies Center to be constructed as the first phase of the Master Plan for IPB's Darmaga Campus; review of the tentative timetable and Prequalification Documents and the Technical and Financial Capacity Requirements (Prequalification of Future Contractors); verification that the "integrity of intent" of the preliminary program design and concept was maintained and translated to the tender document stage; visit with Sangkuriang LTD personnel in Bandung to transmit information regarding equipment, verify and clarify items identified during document review, and discuss project schedule, management and budget.
5. Proposal for a combined IPB Administration Building and Agricultural Communications Education Center project as the next major priority building to be programmed and built.
6. Identification of two (2) major planning and program development packages consistent with the Academic Phasing Plan and the Building and Land-Use Plan.
7. Discussion of basic policy and planning questions regarding the relationship between the Diploma Program and IPB Faculties.
8. Provide assistance in defining the planning process; formulate Academic Program justification statements; and outline methods of translating same into Building Program documents.
9. Appraisal of existing planning organization and recommendations toward focusing resources and minimizing duplication of efforts.
10. Provide remodeling alternatives for the Fisheries Laboratory, Ancol, Jakarta.

11. Discussion of proposed temporary facilities and future-use potential.
12. Proposal for the development of the Leuwikopo property in conjunction with the development of the Darmaga campus.
13. General recommendations for future development of the Jonggol Animal Husbandry Facility - respecting existing and on-going site development.
14. General recommendations for future development of the Gunung Walat Forestry and Wildlife training Facility - respecting existing and on-going site development.
15. Visit to Kebun Raya, Puncak Pass, Cibodas, Taman Mini Indonesia, and other places of political significance, cultural heritage, and scenic beauty.

A brief summary of planned and on-going Physical Construction 1982/83 is as follows:

Bogor Campus:

Teaching laboratories and classrooms (common 1st yr. - modular construction on existing soccerfield.)
Classrooms for 240 students

Semi-dry laboratories (100 students) for Biology/Chemistry.

Animal Husbandry: General Laboratory

Classroom

Meat Science Laboratory (completed)

Animal dipping facility.

Darmaga Campus:

Construction of the Information Resource Center and Environmental Studies Center

Remodeling and Adaptive re-use of several older existing structures.

Development of the Leuwikopo property for the Diploma Program.

IPB is a leading institution in higher agricultural education in Indonesia. During my visit, it was evident that the IPB faculty are dedicated to the tridharma function of teaching, research and public service and that the teaching and research programs and facilities envisioned for the future are directed towards continuing to meet the challenges of Agricultural development in Indonesia.

Because the on-site work program agenda focused on several multi-faceted aspects of the IPB total planning effort, this report is divided into specific task/assistance sections. Although each section is interrelated to the others, it is treated herein with singular importance so that specific challenges and opportunities can be emphasized. The findings, recommendations, alternatives and comments were presented to the IPB Planning Board on June 11, 1982 and are included in the body of this report.

B. Review and Verification of the Information Resource Center and the Environmental Studies Center Contract Documents:

The purpose of the review of the IRC/ESC documents was to assure that the "integrity of intent" (implied by the concept) had been maintained from the preliminary conceptual planning stage through to completion of the contract documents prepared for tendering.

Several days were spent in a page by page review of the IRC/ESC plans and specifications; and a floor by floor, room by room review to assure that the appropriate functional space for each planned activity within the facilities had been maintained; and that the environmental requirements, mechanical and electrical systems, fixed equipment and related services, circulation within the building, building security, and site development had been accomplished as implied and anticipated by the preliminary program and concept plans.

At the outset, I deem it appropriate to praise the quality of the IRC/ESC contract documents. It should be noted that the combine of Perkins and Will, International and Sangkuriang, Ltd. have performed their work to date with accuracy, thoroughness and sensitivity to program in the highest standards of the architectural and engineering professions.

As a matter of record, the following items received specific attention:

- a.) Adjustments made to the planning of the ESC were verified; changes to some laboratory spaces (without significant cost implications) were made but not reflected in the contract documents - anticipated to be accomplished by change order during construction.
- b.) Review of the provisions made to meet the general and specific environmental requirements, i.e. air-conditioning; acceptable sound levels and vibration isolation; provision of individual air-handling

systems for specific spaces and/or areas; routing of signal and communication cable, power distribution and appropriate transformers and circuit breakers; and ability to adequately naturally ventilate all or parts of the facilities if equipment failure occurs.

- c.) Recommendation for careful concern for the natural shoreline - when once again the lake is filled - encouraged to leave the existing shoreline in its natural state to minimize erosion and maintain the natural beauty, except where the new construction will engage the proposed shoreline.
- d.) Additional discussions regarding fixed equipment within specific areas of the IRC/ESC and additional information regarding movable equipment was transmitted to appropriate persons.
- e.) Verification of pedestrian movement throughout the building, including handicapped persons; loading dock features, entrances at building and site drainage; size of passenger and freight lift; number and placement of counters with sinks, etc.; anticipated locations of stacks and carrels; treatment and finishes of floors, walls, ceilings; and both utility and accent lighting placement.
- f.) Discussions with the IPB Planning Board related to the ordering, receiving and installation of equipment; problems anticipated in moving into the facilities upon completion; maintenance of the facility and equipment; the proposed service to the IRC/ESC by utilities and road system; an awareness of shape and relationships of spaces within the facilities and the special qualities and functional aspects of the element spaces;- emphasizing that the IRC represents a complete "merging" of formerly diverse informational activities - discussion and definition of the imperative benefits of administering and staffing through knowledge of the facility and equipment during the

construction phase - to gain an understanding of the potential of "interaction of elements" comprising the "ONE" whole Center.

- g.) Discussion with personnel from Sangkuriang Ltd., Bandung related to document review, project schedule, project budget, responsibilities of project management, project timetable, the Prequalification Documents and Technical and Financial Capacity Requirements, and the continuing need for the IPB Project Implementation Unit, Sangkuriang, LTD, and USAID to work closely together to insure correct communications as a unified decision-making and project implementation team of participants.

C. Priority Project: IPB Administration Building and Agricultural Communications and Education Center:

It is proposed that a concentrated effort be immediately undertaken to develop a building program for a combined IPB Administration Building and Agricultural Communications Education Center facility as the next priority building to be designed, bid and constructed on the Darmaga Campus.

Additionally, it is proposed that this combined facility be similar in size and architectural character to the IRC, and connected to the ESC to complement and complete the geographic and symbolic center of the academic campus. This proposal underscores the design advocacy to the basic strong concept of the approved Master Plan.

Design Concept Criteria:

- 1.) The Priority Buildings Schematic Design Report of 15 October, 1981 describes the planning and design criteria for the IRC/ESC and the important and logical link to the Administration Building.
- 2.) The proposed combined facility, IPB Administration Building and Agricultural Communication Center, will compliment and complete the "heart of the campus" and is envisioned as a building with dignity, graciousness, friendliness - not fussy or flamboyant - with a prominent "sense of arrival" and sophistication.
- 3.) A building of approximately 10,000 gross square meters is proposed. The initial need for both the physical location and visibility of the IPB administrative functions at the center of campus at the outset of construction is recognized and, I believe, supported. However, the programming of a facility with several "flexible programs" that require space of similar environmental qualities will achieve effective use

through space reassignment as adjustments are required to respond to administrative needs and policy directives, as the Master Plan develops. The proposed Agricultural Communication project, the Institute's of Public Service and Research, and the Graduate School are examples of functions to be considered as compatible elements to fill out a viable and justifiable total building project. (See schematic diagrams pages C4-8)

4.) It is proposed that this facility be a reversed-mirror image to the IRC structure, - with a grand entrance; with the Administration areas "stepping down" four levels to the north with imposing views of the stream and campus. It is envisioned that portions of construction would be withheld at the main courtyard and circulation level to allow the development of a large formal courtyard and an openness to experience the natural campus beauty; - a reflection pool with flags and/or sculpture and an auto rotary at the major visitor arrival junctions - formal planted areas similar to the proposed planting at the IRC auditorium; that the building be engaged/connected to the south end of the ESC bridge and dam, - not constructed as a separated and isolated structure, but "visually experienced" as an integral part of the master plan development concept.

This location and the suggested site developments offer the greatest potential to successfully achieve - architecturally - the prominence and quiet dignity worthy of this facility. Within this proposed concept the approach and entrance to the Darmaga Campus will be "welcoming" and "visually exciting". Additionally, a minor benefit in comparison to maintaining the integrity of the Master Plan Concept, will be the option to keep and protect the existing experimental fields and agronomy field station south of the ravine as a continuing teaching resource and agricultural show-case for the foreseeable future.

5.) A draft building program should be initially developed using the following approximate areas:

Total Facility:	10,000 gross square meters
	7,000 net square meters
Administration:	<u>+ 3,500 NSM (approximate)</u>

Suggested Elements:

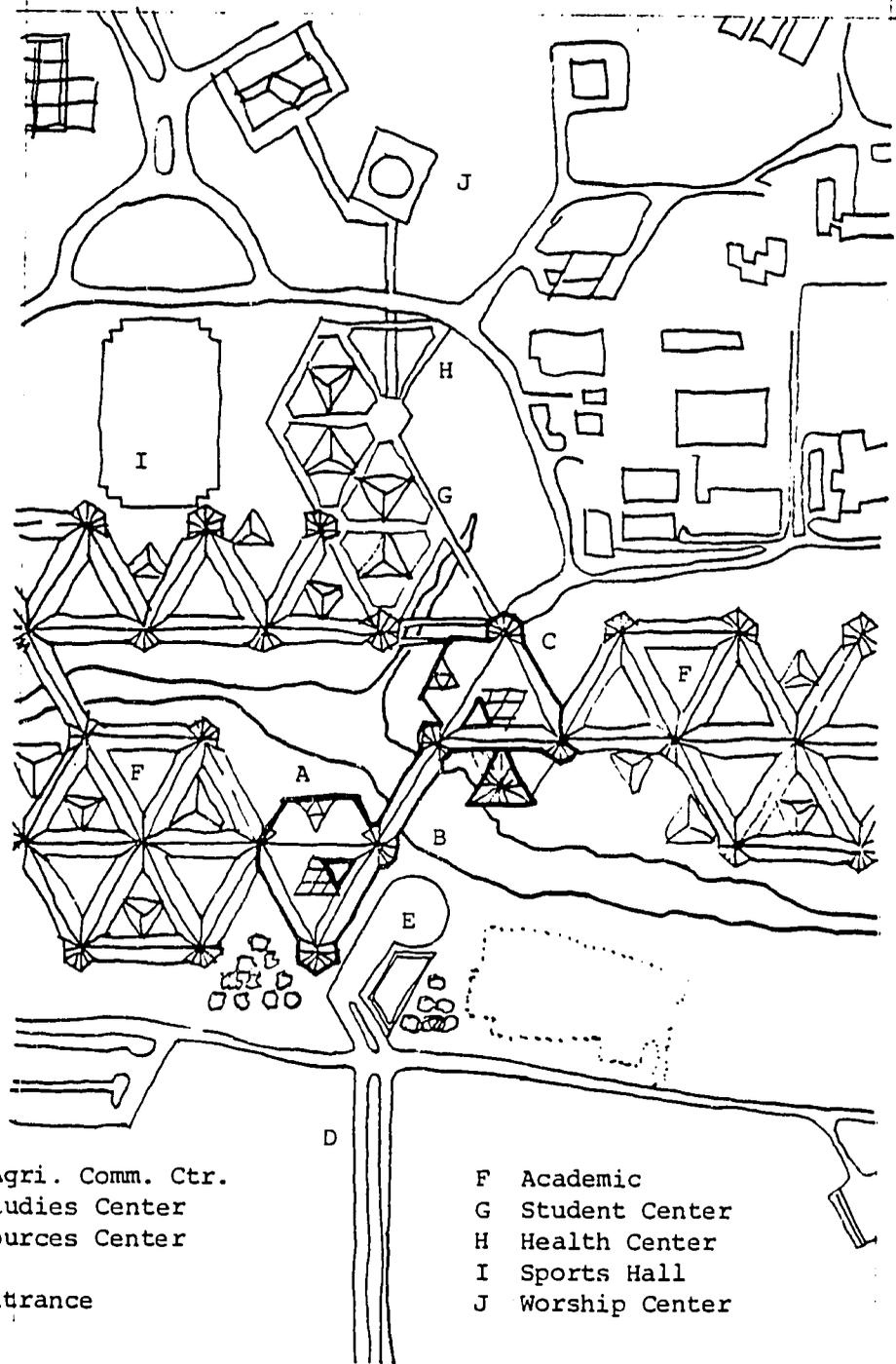
(Administrative offices, staff offices, secretarial functions, records, conference room suite, planning centre, administration support areas, reception/dining facilities, information and control centre, security room, work rooms, public communal areas, communications room, etc.)

Communication Education Center + 3,500 NSM (approximate)

Suggested Elements:

Offices, seminar rooms, research office suites, defined areas for programs for Rural, Educational and Research Communications, - offices for temporary assignment to visiting staff of cooperating agencies, secretarial functions, support space, etc.

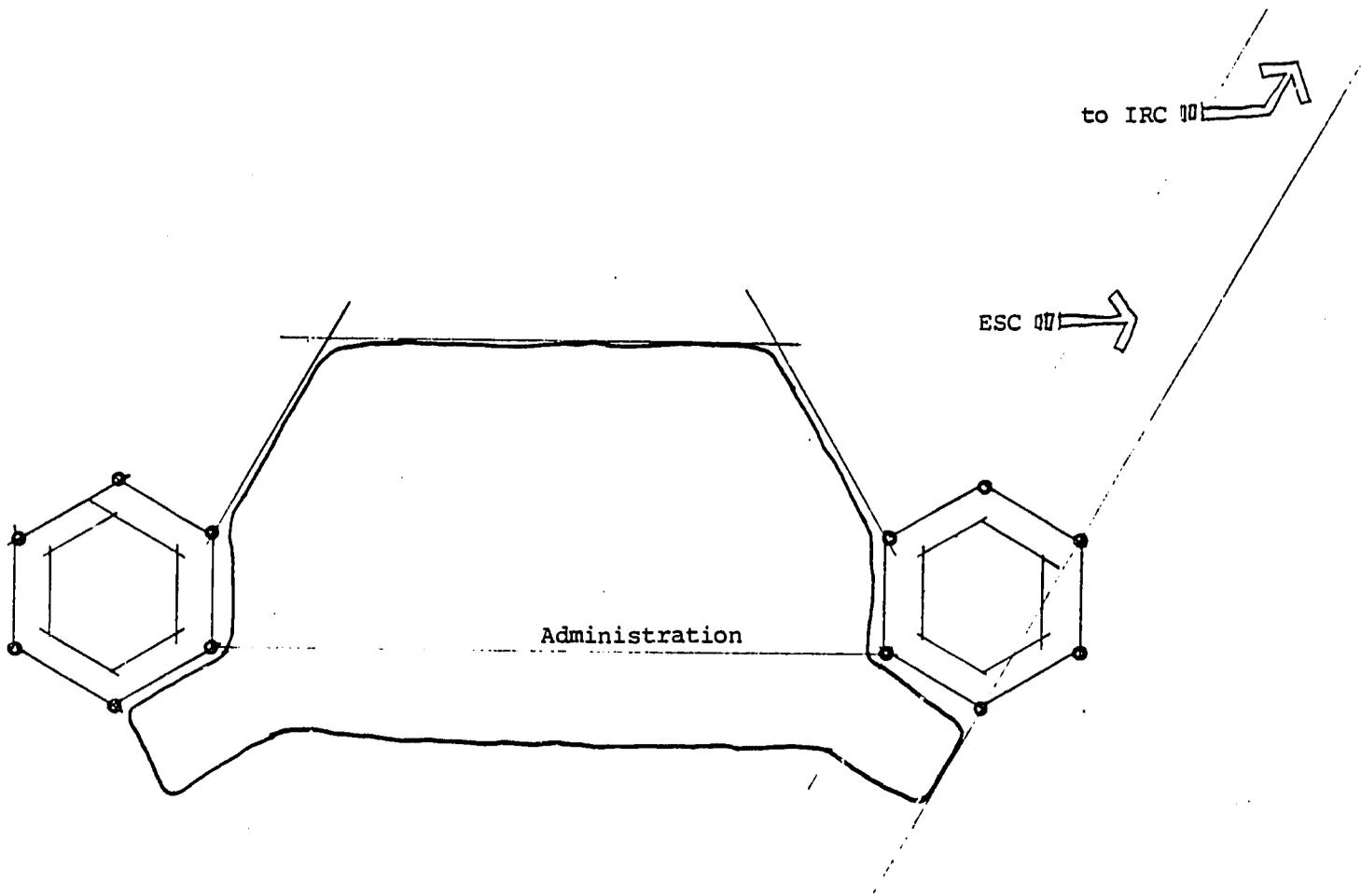
6.) It should be the desire of the Planning Board to encourage continuation of the Perkins and Will International/Sangkuriang Ltd. combine to assure continuity and validity of this proposal as related to the Master Plan development concept. Additionally, the advice, planning expertise, and continuing support of AID, Jakarta should be sought. This project should be scheduled so that the documents for tendering are complete and construction can begin no later than the occupancy date of the IRC/ESC.



- A Administration/Agri. Comm. Ctr.
- B Environmental Studies Center
- C Information Resources Center
- D Entrance Road
- E Main Building Entrance

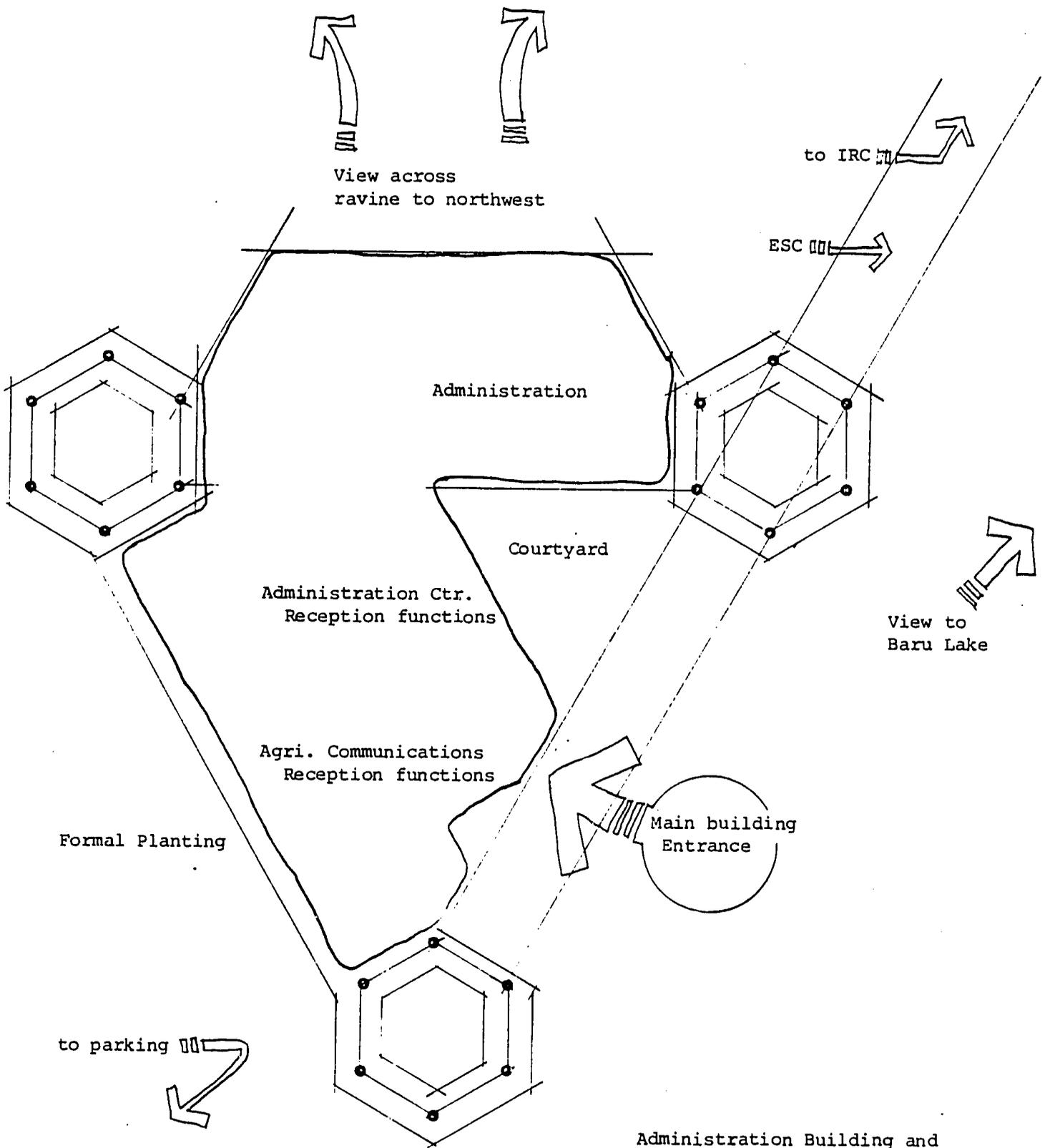
- F Academic
- G Student Center
- H Health Center
- I Sports Hall
- J Worship Center

MASTER PLAN
 SOCIAL SPINE: CONCEPT



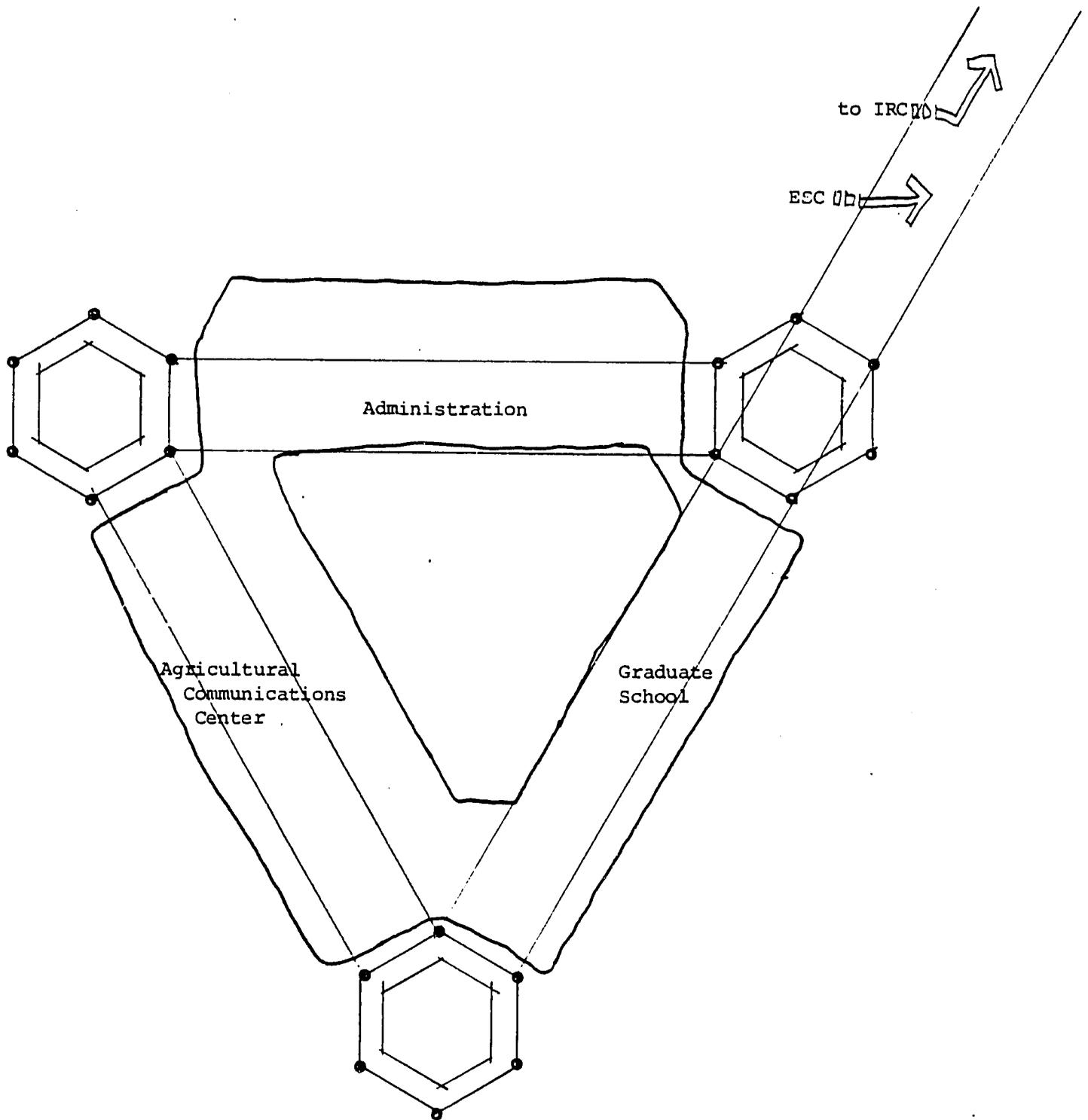
Administration Building and
Agricultural Communications Center

SCHEMATIC DIAGRAM
FIRST FLOOR LEVEL



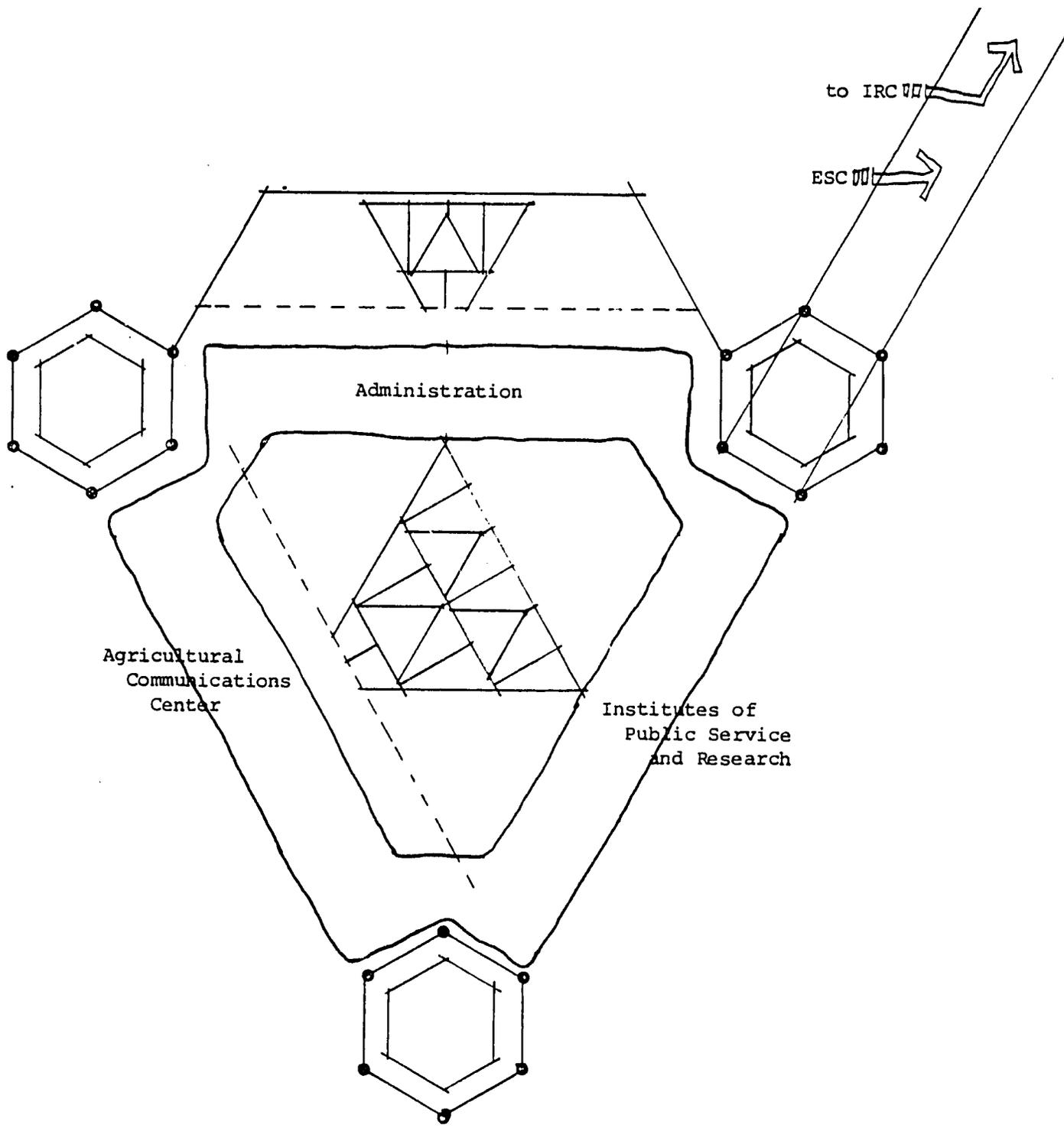
Administration Building and
Agricultural Communications Center

SCHEMATIC DIAGRAM
SECOND FLOOR LEVEL



Administration Building and
Agricultural Communications Center

SCHEMATIC DIAGRAM
THIRD FLOOR LEVEL



Administration Building and
 Agricultural Communications Center
 SCHEMATIC DIAGRAM
 FOURTH FLOOR LEVEL

D. Master Plan/Building Program Development/Phasing:

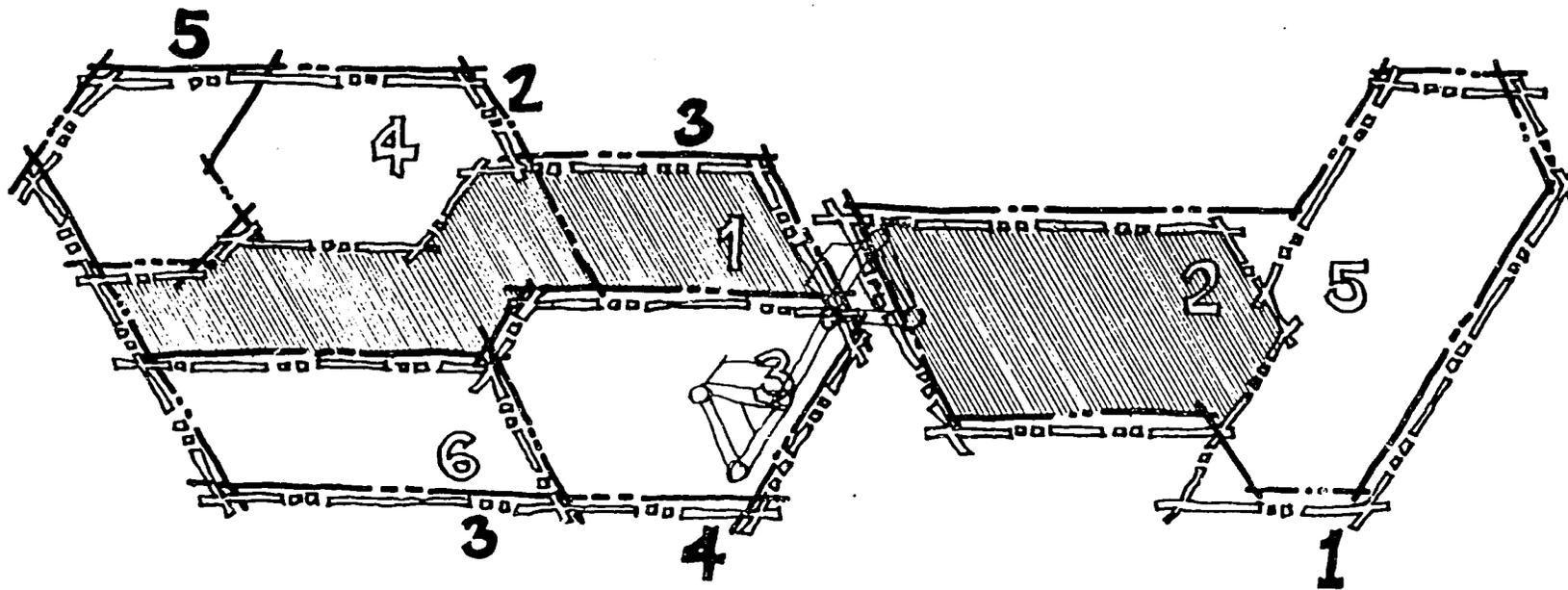
The IPB Planning Board and the deans and the faculty of the IPB administration are presently involved in the preparation, definition and refinement of updated Academic Program Statements for the Faculties of IPB. These Academic Program Statements will objectively appraise on-going teaching and research efforts; describe how the various Faculties and departments are interrelated; speak to realistic obtainable goals; discuss deficiencies in programs as they presently exist; anticipate modification of present academic programs to improve teaching and research techniques; discuss possible combined programs with emphasis towards minimizing duplication of effort; will address future academic activities required to fulfill present and possible future challenges of higher Agricultural education based on realistic assumptions of student enrollment, human manpower available in terms of teachers, researchers, and related equipment and apparatus required to carry out the programs; underscore the deficiencies of the facilities presently housing the various Academic Programs; and provide a brief history of the development of the Faculty and departments with reference to its growth, development, and objectives for the future.

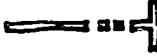
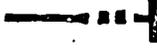
These Academic Program Statements will serve each Faculty well as the IPB administration and Planning Board face the challenges of interpreting Academic Programs into Building Programs and evaluate, prioritize, and sequence the phased construction of the Darmaga Campus. Additionally, these statements will provide a valuable in-hand justification as appropriate and equitable funding commitments are sought.

Planning is a continuing process. Concentration on the correlation of Academic Programs and their development into Building Programs is necessary. The Master Plan Report speaks to the sequence of the next buildings "on line" for construction packages, and to the rationale for the priorities, as established.

It is recommended that "two" initially separate packages or groups of buildings be programmed, - one to the east from the campus center, one to the west from the campus center (IRC/ESC), - with the potential of combining both packages into one project. The approximate areas and magnitude of programmed facilities that would be included are depicted schematically on page D-3 by superimposing the Building and Land-use Area and the Academic Phasing Plan described in the Master Plan Report. This strategy respects the report's encouragement to plan a small number of large projects - rather than a large number of small projects, acknowledges that long-term economics need reconciliation with both IPB priorities and cash flow constraints; - and encourages campus development "packages" that are contiguous to minimize front-end costs for the required infrastructure.

D-3



-  Denotes (2) Building Program Packages
-  Academic Phasing Plan
-  Building and Land Use Plan
(Refer to Master Plan Report, pages 8, and 46)

SCHEMATIC DIAGRAM

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E. Development of the Diploma Program:

At the risk of appearing to state the obvious, it is not intended to question the need for the establishment of the Diploma Program, the essential challenges that it implies, and the capabilities of IPB to meet and fulfill those challenges.

However it should be emphasized that "The Diploma Program", in and of itself, should not be approached within limited planning concepts, but should, out of necessity, be a part of, complement, and serve to help implement the total planning effort which has as its major goal the continued development and completion of the Master Plan Darmaga campus.

Hence, "The Diploma Program" raises basic and important policy questions of the relationship between the program and the IPB Faculties - questions of academic policy and planning policy, - and may be only "one" of several such programs that, may arise for planning consideration in the foreseeable future. The Diploma Program is seen as an example of possible future requests requiring major resource commitments with the potential to either strengthen or weaken the Master Plan development. Thus, specifically, it is recommended that:

1.) Every effort is made to insure that the physical facilities planning for the Diploma Program is not treated in an isolated vacuum of limited concepts but fully complements and serves as a catalyst to maintain the momentum of developing the Darmaga Campus.

2.) That only those facilities required to carry-out the "practical training" applications of the Diploma Program be developed on the Leuwikopo property (+ 12 Ha) south of the Darmaga Campus.

3.) All other programs and activities comprising the Diploma Program be accommodated within facilities to be constructed as a part of the Darmaga Campus.

This planning approach offers flexibility with a premium placed on adaptability to respond to program changes and direction without losing force or momentum of total planning effectiveness.

Additional benefits that would be derived are:

1.) The accommodation of as many activities as possible as an integral part of the Darmaga development with direct focus on planned-use of classrooms, library facilities, lecture halls, teaching aids, Information Resources Center, and dormitory housing, etc.)

2.) Resources, both in funding and manpower, would be more concentrated rather than divided, alleviating future funding competition for construction and operational budgets;

3.) Provide a more total learning environment, without definite lines of distinction - affording Diploma Program students "exposure" to a learning experience otherwise unobtainable;

4.) Faculty members involved with the Diploma Program could more successfully coordinate and cooperate with each other and better respond to specific problems within the curriculum and research goals of IPB;

5.) "Flexibility" would be the planning key-word, both academically and programatically, for anticipation of re-direction and/or increased emphasis and the ability of the facilities to respond to Diploma Program programatic changes.

General concepts and alternatives for the development of the "practical training" aspects of the Diploma Program are addressed under Section J., page J1.

F. Planning Process/Building Programs:

During the on-site visit, several opportunities presented themselves for discussion and focus on the development of Building Programs with members of the Planning Board, the IPB Administration and with various Deans and faculty members of the Facultys and Departments. Most of the information presented and discussed represented a continuation of the recommendations and suggestions included in the planning report by the June 1979 Wisconsin planning team.

As a matter of record, the following general topics received singular attention:

1.) General outline and discussion of methods of establishing the Capital Building Program and associated schedules and planning tasks.

2.) The relationship of the Academic Program statements, assumptions and directions, to Building Program development and the recommendation to include this information as Part I of the Building Program, as the project justification and statement of mission, to aid the design consultant in understanding the history, development and objectives of the intended occupant.

3.) Methods of translating the Academic Program needs into specific space requirements requiring specific environmental considerations, and describing the relationship of an area to other supporting functions.

4.) Collection of data: Priorities, project description and justification, proposed construction budget and anticipated operational budget, space requirements and summary based on projected enrollments and anticipated resources available, individual detail sheets describing each function-element requiring space, general conditions applicable to similar kinds of functions, (i.e. wet laboratories, dry laboratories, support spaces,

offices, classrooms, seminar/study rooms, etc.) respecting the static elements of the conceptual framework of the master plan and the logical extension and development of the mechanical and utility infrastructure.

5.) "Special Conditions" for specialized activities/functions requiring extra-ordinary care and design attention to insure that specific requirements are provided that are vital to a unique space-type.

6.) Specific Building Program statements were discussed, reviewed and transmitted to the IPB Planning Board for reference. It is suggested that these serve as "format examples" only, with the understanding that the procedures and methods of obtaining and compiling the information cannot be adopted intact, but requires modifications and adaptation to accommodate the unique characteristics of IPB and its cultural setting.

7.) The goal is to achieve "appropriate functional space" with the required equipment (both fixed and movable) and environmental requirements.

8.) Direct involvement is necessary by those who will use the facilities, as they have the best knowledge of specific requirements, program potential, and the intent of both instruction and research activities to be carried out.

G. Organization for Planning and Development:

A concentrated effort is required in pursuing the objectives of the IPB total planning effort in defining the goals and policies, developing in detail the programs, and establishing priorities for development.

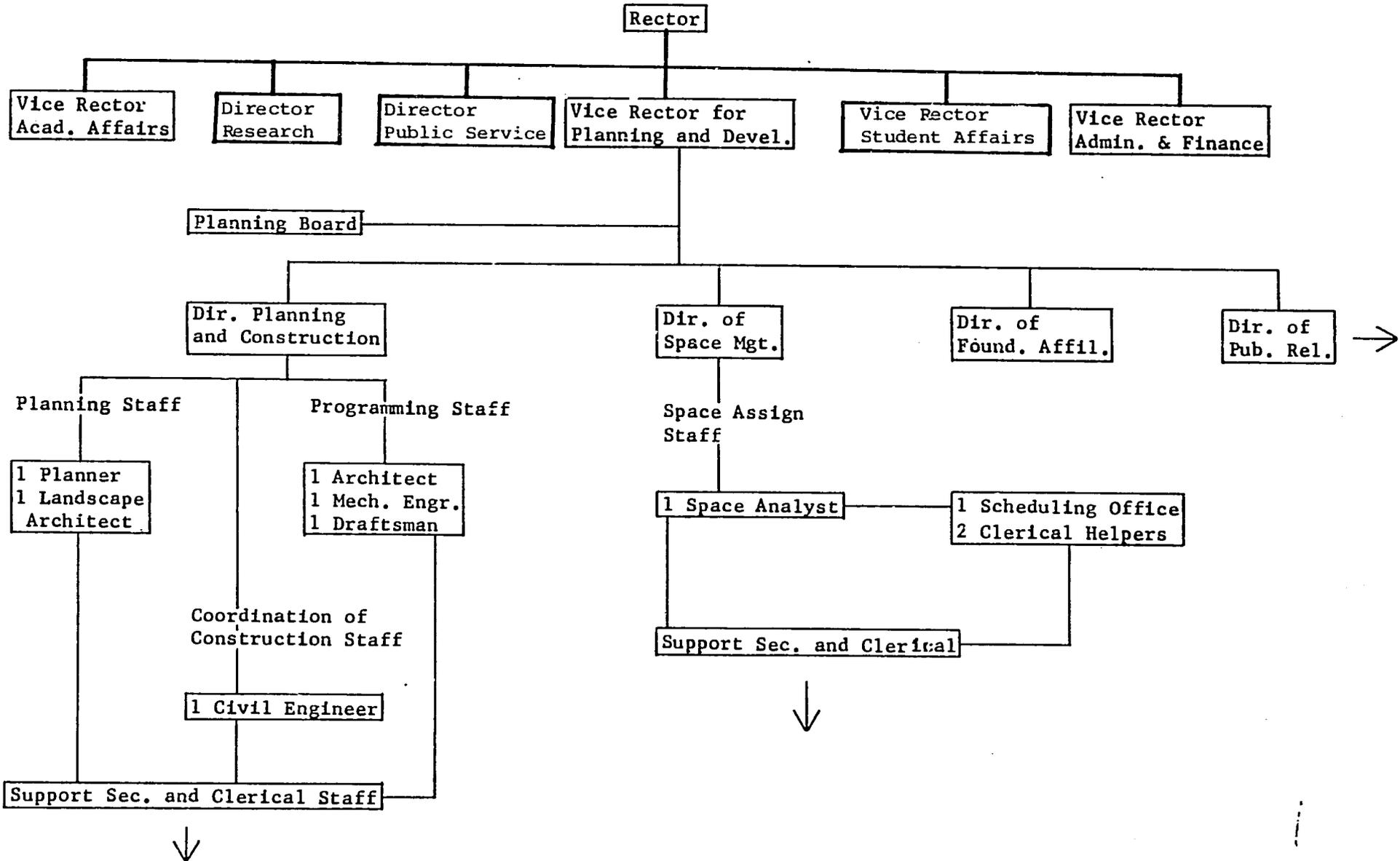
It is, therefore, recommended that a position of Vice-Rector responsible for "Planning and Development" be established; that the existing Planning Board - which presently and commendably represents the interests of the entire faculty and administration - act in response, and serve directly to this position and that a framework comprised of full-time administrative and professional assistance be developed as support staff for the IPB planning function. This proposed organization would effectively improve the present policy and decision-making apparatus, provide a check on diversification of resources and duplication of efforts, and reinforce (as a strong central representative body) the priority planning goals of the IPB administration and the accomplishment of same within a reasonable time-frame.

At present, a somewhat indirect and inefficient system exists to respond to requests for planning information from the Government, Ministry of Education and other agencies outside of IPB. The reorganization and strengthening of the IPB planning effort would provide a more efficient and direct response, improve the accuracy and quality of statistical, policy, projections, and budget related information. It cannot be expected that the data required and asked for by others, and IPB's present methods of providing the appropriate responses, be the most viable basis to collect data needed by IPB to assess "its" present condition and give the needed direction to future planning for both Academic programs and building programs. Therefore, it is

essential for IPB to have a singularly strong self-contained framework to keep the planning effort and momentum going, - to achieve the goals of the approved Master Plan, and to keep the Darmaga Campus development on schedule.

The next few months and years will be the most demanding and decisive ones in the total development period of I.P.B. The Planning Board is comprised of members who additionally have regular administrative, teaching, research, faculty duties and are involved in various interdisciplinary efforts in carrying out the Triharma. Their time and efforts related to planning and development will be effectively improved through simplifying organization and communication, as well as providing motivation to create, dedication to negotiate, opportunity to anticipate, and resources to activate. (Refer to schematic diagram page G-3)

PROPOSED PLANNING AND DEVELOPMENT ORGANIZATION



G-3

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H. Fisheries Laboratory/Ancol, Jakarta:

The observations, alternatives, and inclusion of general environmental requirements within this section are a result of a brief on-site visit to the Faculty of Fisheries Marine Laboratory at Ancol, Jakarta with the IPB Administration.

In its present design and condition the facility is not appropriately suited for teaching and/or research use. The most obvious deficiencies contributing to the inability of the facility to function in its present state are: lack of air conditioning and adequate ventilation; insufficient power service and lighting levels; absence of floor drains; deteriorated water lines and plumbing fixtures; laboratory benches designed at inappropriate heights without over-head storage or base cabinets and too few sinks; and an absence of mechanical lift to upper level, built-in fish tanks, and specimen display cases, and other general laboratory services such as gas, compressed air, cold and hot domestic water, distilled water and sinks at end of lab benches with troughs for aspirator drains.

The purpose of the Faculty of Fisheries Marine Laboratory, Ancol Jakarta, is to carry-out scientific teaching and research studies of fresh and salt water marine life including physical, chemical and biological conditions.

Presented herewith are two alternatives directed towards upgrading the facility:

- 1.) Remodel the facility - as it exists - and continue to use the interior spaces as originally designated, i.e., wet laboratory areas as lab areas, offices as offices, etc.

2.) Provide a two-story addition housing only the wet laboratory functions required adjacent and connected to the existing building - and adaptively re-use the existing building for dry teaching and research functions such as: classrooms, demonstration areas, administrative areas, study/seminar space, data collecting and processing, library and contained specimen storage.

The first alternative would present the least total expenditure, would negate the total use of the facility during construction, and would be limited in the size of laboratory and classroom area to accommodate large numbers of students. The second alternative would allow continued use of parts of the facility during construction, provide new wet laboratory and aquaria, and would accommodate larger class enrollments and provide more appropriate support space for existing and anticipated programs.

General environmental requirements necessary to upgrade the facility would be provision and correction of all items listed as deficiencies in paragraph two.

The following is a supplementary general requirement guideline:

Provide communication outlets.

Illumination: 60 to 75 fc.

120 volt distributed over benches and on lab walls in "Wiremold" 3000 with duplex outlets on 3 ft. centers, minimum two duplex outlets on one 20 amp circuit. In "Wiremold" locate one 208 volt, 30 amp outlet as directed plus all 208 volt circuits for centrifuges, drying ovens, and "Pyrex" stills.

Emergency power: 20 amp duplex outlet located as directed.

Floor - ceramic tile

Base - ceramic tile

Wall - standard (sealed)

Ceiling - standard (sealed)

Air conditioning: 100% exhaust minimum 10 air changes for labs.

For each lab bench station provide natural gas, compressed air 15 psig, cold and soft hot domestic water, distilled water, waste in-sink at end of bench with trough for aspirator drain.

Equipment:

1 per 2 research stations; one double sink and dish washing area; double lab bench units with base cabinets, with sinks and shelving and with 1 desk unit with file drawer per research station; wall cabinets (overhead); storage cabinets (floor to ceiling); single low bench with base cabinets; chalk board; tack board; coat rack; floor sink; Unistrut frames with utilities.

Lab stools and desk chairs: waste baskets; refrigerator; freezer; balance table; miscellaneous equipment such as centrifuges, freeze-dry apparatus, fraction collectors, etc.

Provide rooms to maintain aquatic animals, fresh and sea water, within two temperature ranges. Storage area for related supplies. Media (sea water) preparing area. Provide rooms with racks for two banks of fiberglass aquaria, 5, 10, and 25 gallon sizes, totaling 300 gallon, plus 2 cylindrical fiberglass or plastic open topped tanks each 6' diameter by 2' - 9" deep. Provide low pressure (adjustable 3-10 PSI) filtered compressed air available on walls. 12" deep single shelving 5' above floor. Service area for rooms either in larger room or adjacent, with cupboard storage, sink, S.W. mixing tank, mop sink. Door sills to contain spilled water. Temperature warning devices with outside (corridor) indicator lights and bells.

I. Future Use for Temporary Facilities:

During the meetings with the Planning Board, various "temporary facilities" were discussed that are being considered to house activities on, or near both the Bogor campus and the Darmaga campus. While the consideration for these "temporary facilities" is important in understanding and assessing the total planning needs of I.P.B., no specific recommendations on the development of temporary facilities are included in this report. However, the following general observations should be made related to the potential of, the absolute necessity for an inter-disciplinary approach to a more flexible intended and future use, and the magnitude of funding resources to build these facilities:

a.) Temporary facilities often become permanent facilities, initially housing an activity in minimum or below standard space.

b.) "Temporary Facilities" should not be considered to be built within the defined and approved Master Plan Area, Darmaga Campus.

c.) Identification and planning for future use of proposed temporary facilities could possibly include the following: Adaptation/minor remodeling to provide "flexible" space for equipment storage, physical plant and utility operations, maintenance and shop activities, supply-stores facilities, some academic functions requiring basic functional space, or continuation as a temporary facility providing "surge" space for various functions during the planning/construction phasing of major projects.

d.) These basic questions need to be asked at the outset of planning "temporary facilities": How temporary? - Absolutely required? - Worth the investment? - What are the other alternatives? - Could the activities be accommodated better and more quickly in planned permanent facilities if funding resources are singularly directed and major campus development is maintained on schedule?

J. Concept/Alternatives Regarding Leuwikopo Property:

The Diploma Program is intended to provide the education and training of technical and professional manpower in Agriculture needed on a National level by expanding IPB capabilities and mission to link S_1 , undergraduate programs and teaching techniques to high school graduate training programs. These endeavors are combined under an "umbrella system" composed of three areas as follows:

Umbrella:

1. Biological: Plant
Animal
2. Physical: Agricultural equipment
Welding, wood working, lathes, etc.
3. Managerial: Cooperative managers
Extension agents in villages

Section E of this report speaks to the development of the Diploma Program and recommends that only those facilities required to carry-out the "practical training" applications of the Diploma Program be developed on the Leuwikopo property (+ 12 Ha) south of the Darmaga Campus. Therefore, the facilities considered to comprise the Leuwikopo property development, perhaps not all inclusive, would be: a small administration and office building; (2) practical training chemical laboratories; seed nursery, sorting and measuring facility; woodshop; machine shop; welding shop; small pilot processing plant; small warehouse; equipment storage facility; nurseries; experimental field plots; field laboratory and gardens.

General suggestions and comments regarding the Leuwoikopo property development are as follows:

1. As much open-land as possible should be kept available for nurseries, gardens, machinery demonstration and practice operation area, experimental field plots, and outside instruction areas.

2. Avoid building on natural slopes and water-sheds.

3. Build required facilities near existing roadway to provide direct access of people, material, vehicles, and direct utility servicing of water, power, drive and walkways, and waste systems.

4. Construct floor slabs well above proposed finish grading to prevent building drainage problems observed at several existing buildings.

5. Employ "twin-roof" concept where applicable to improve natural ventilation techniques.

6. Employ windmills for mechanical irrigation as a pilot demonstration project.

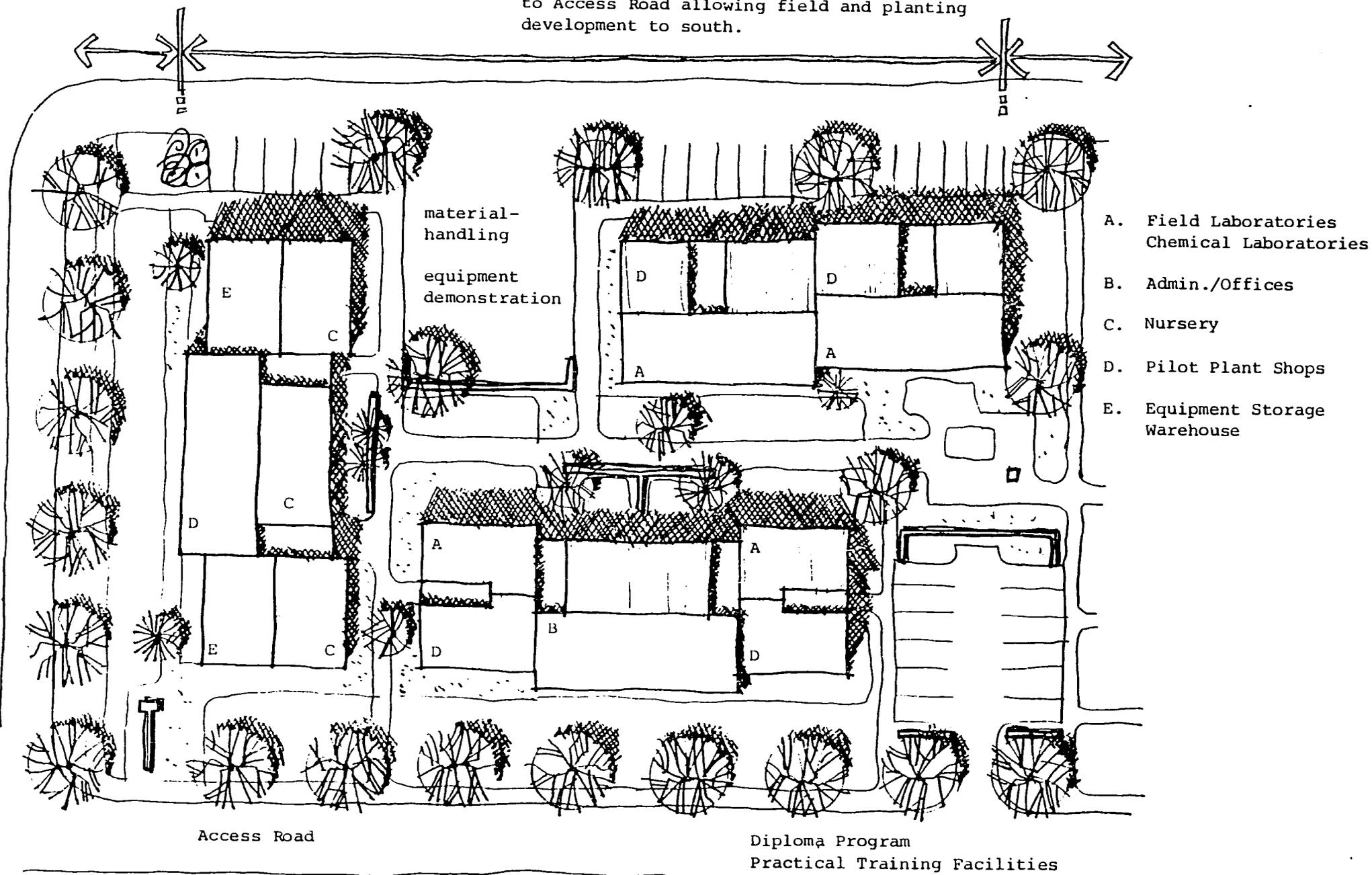
7. Planning should include the concept of shared facilities for various activities through appropriate scheduling of training.

8. "Flexibility" should be the key-work for all facilities in anticipation of re-direction or increased emphasis of any one program component and the ability of the physical facilities to respond.

A facility comprised of office space connected with other rooms, a teaching laboratory, and a small library are nearing completion of construction in Bogor Baru. This fine, but relatively small facility is intended to house a small component of the Diploma Program but the activities will rely strongly on the resources planned for the Leuwikopo property and the remaining development of the program as a part of the Darmaga Campus in close proximity to the Information Resources Center and other instructional resources vital in complimenting the Diploma Program mission.

The schematic diagrams (not to scale) attached with this section are intended for planning discussion and building program development, not as a proposed concept design. (See schematic diagram page J-4)

Practical Training Facilities: Repeat required Building groups parallel to Access Road allowing field and planting development to south.



SCHMATIC DIAGRAM
LEUWIKOPO PROPERTY DEVELOPMENT

J-4

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K. Jonggol/Animal Husbandry Facility:

The dryland experimental farm at Jonggol is a fine facility as it exists and the plans, as outlined, for continuing site development are necessary and appropriate.

Discussions centered upon construction of agricultural farm buildings and specifically animal handling, feeding and housing structures. Several booklets and other planning aids will be transmitted with this report, under separate cover, for the consideration of the Dean and staff of Animal Science. It is hoped that this planning and technical information will assist the future efforts at Jonggol.

Several general comments are offered herewith for consideration:

1. The animal handling yard (corral) and dipping facility should be located on the hill, central to the property, and at the approximate location visited. The handling yard should be constructed in a manner permitting expansion, with appropriate loading chutes and head and cutting gates. Careful attention should be given to construction of the dipping facility so that the water supply is not contaminated.
2. An entrance road and service road connecting existing buildings should be of high priority with location of an animal holding and isolation facility near the main entrance.
3. Provision of two (2) additional dams at existing water sheds should be constructed to provide adequate water supply for livestock. Employment of windmills for mechanical movement of water should be considered.
4. Increase tree planting to provide natural shading for livestock.
5. Installation of radio transmission capability with IPB, Bogor, would greatly improve communication problems and aid administration of the on-going programs and construction at Jonggol.

L. Gunung Walat/Forestry and Wildlife Training Facility:

The Gunung Walat/Forestry and Wildlife Training Facility is a sensitively planned and designed facility. The development of the site and buildings offer a "scale" and "spirit" creating an exciting environment in which to learn.

As future buildings are programmed and built, careful attention should be given to minimizing rather than exaggerate the existing grade changes. This will minimize retaining wall construction and improve natural drainage at the buildings.

It is encouraged that some future construction be considered as loft-type treated-wood structures.

Under separate cover, some planning aids related to the design of wood trusses, pole-type construction, etc. are being transmitted with this report. As requested, additional information regarding landscaping, site development and building techniques compatible with a forest environment will be assembled and forwarded at a future date to the IPB Planning Board.

Postscript:

There is no appropriate place within the generally accepted format of a report to insert insights of a personal and humanistic nature --- so I have created such a place.

Planning is a dynamic and continuing process --- based on the reality of human aspirations and needs --- rather than a series of segmented episodes. This process must embody an idea --- a spirit --- to be learned, understood, and lived with and experienced by both the observer and the participant --- by those who through choice or circumstance live in the environment created for them, as well as those who conceive, plan and create the reality itself.

I feel very grateful and humble for having the opportunity to both observe and participate in a small way - in the "embodiment of an idea." My reflections on this visit to Indonesia will always include the kindness shown towards me, the beauty of a country, and the graciousness of its people.

Appendices

- a.) Itinerary
- b.) Proposed Time-Table for IRC/ESC Project
- c.) General Considerations for IRC/ESC Environmental Systems
- d.) Composition of IPB Administration/Planning Board
- e.) Planning Aids Transmitted Under Separate Cover
- f.) Biographical Data

a. Itinerary:

<u>Date</u>	<u>Day</u>	<u>Activity</u>
May 15, 1982	Saturday	Arrival at Jakarta airport
May 16	Sunday	Free
May 17	Monday	Meeting with IPB administrators and familiarizing with IPB development plans and problems associated with planning and construction of facilities
May 18	Tuesday	Visit to USAID Jakarta (Dr. Seeley)
May 19	Wednesday	Review IRC and ESC building plans
May 20	Thursday	HOLIDAY. Continue review
May 21	Friday	HOLIDAY. Continue review
May 23	Sunday	Free
May 24	Monday	Attend meeting with IPB administration. Continue review of IRC/ESC plans
May 25	Tuesday	Discussion of prequalification and tender documents, procedures and evaluation with Project Implementation Unit.
May 26	Wednesday	Meeting with Dean and Staff of Diploma program to discuss campus master plan
May 27	Thursday	Visit Sangkuriang in Bandung to review IRC/ESC plans
May 28	Friday	Return to Bogor
May 29	Saturday	Meeting with Planning Board
May 30	Sunday	Free
May 31	Monday	Meeting with Planning Board
June 1	Tuesday	Trip to Jonggol with IPB administrators and Dean of Animal Science Faculty
June 2	Wednesday	Meeting with Planning Board

<u>Date</u>	<u>Day</u>	<u>Activity</u>
June 3, 1982	Thursday	Visit to Gunung Walat with Surjono
June 4	Friday	Meeting with Planning Board
June 5	Saturday	Preparation of final report
June 6	Sunday	Free -
June 7	Monday	Visit to Kebun Raya, Puncak pass and Cibodas
June 8	Tuesday	Preparation of final report
June 9	Wednesday	Visit to Taman Mini Indonesia and other places in Jakarta
June 10	Thursday	Meeting with Planning Board
June 11	Friday	Report presentation to IPB Administration/ Planning Board
June 12	Saturday	Visit to West Java Coast
June 13	Sunday	Leave for Denpasar, Bali

b. Proposed Time Table for IRC/ESC Project:

- | | |
|--|-----------------------------------|
| 1. Publication of Prequalification Notice in Commerce Business Daily and main Indonesian Newspapers | 24-29 May, 1982 |
| 2. Closing date for Submission of Prequalification data of firms | 30 June, 1982 |
| 3. Selection of qualified firms and invitations to firms to pick up documents for tender | 1-15 July, 1982 |
| 4. Pick-up of tender documents | 20-21 July, 1982 |
| 5. Pre-bid conference and site visit | 2 August, 1982 |
| 6. Closing date for submission of bids | 31 August, 1982 |
| 7. Opening and evaluation of bids by IPB/GOI and USAID | 31 August -
10 September, 1982 |
| 8. Submission of lowest bid to proper authorities for approval | 11 September, 1982 |
| 9. Earliest expected date of signing of contract after approval of bid by authorities | mid November, 1982 |
| 10. Earliest expected date of groundbreaking by contractor | early December,
1982 |
| 11. Expiration date of bid bonds: 4 months after 31 August 1982, to be extended by 1 month if necessary. | |
| 12. Expiration date of loan (for budgetary purposes) | 31 July, 1984 |
| 13. Expiration date of project | 30 April, 1985 |

c. General Considerations for IRC/ESC Environmental Systems:
(Submitted September 1981 for Preliminary Design Consideration)

An air-conditioned environment should be provided for the entire facility considering summer-winter exterior environment. The interior should be maintained at the required dry-bulb temperature and relative humidity summer and winter. The cooling tower should be selected on the area wet-bulb design temperature for the design capacity of the cooling system using appropriate diversity factors. Sound generating output of the cooling tower should never exceed 50 db_A at a distance of 50 feet.

Also, the cooled space and all cooling components should be designed to provide an acceptable sound level (including compressors, fans, pumps, cooling tower, piping, etc.). Unless the consultant possesses a sound knowledge of acoustics and vibrations, a special consultant must be retained for the sound and vibration isolation. A normal minimum vibration isolation efficiency of at least 95% is considered the standard goal. The spaces and mechanical equipment should be coordinated to produce a sound level normally acceptable for the specific use of the space. Particular care should be given to the TV and radio studios.

Each studio should be provided with its own air handling system for heating and cooling and be designed for the control of load from peak to minimum stand-by operation. Individual room temperature control should be provided for each space within the facility. Chilled water is to be the heat transfer fluid for each air handling unit for the facility.

Lighting and Power Circuits and Communication:

A separate major room is to be provided for signal and communication other than for the switch gear room and the transformer room. Space for this signal

room will house the telephone system panel, fire alarm system, clock system, classbell system and other auxiliary signal and communication requirements. The minimal requirements for such a room is 66 sq. ft. with a minimum short wall of 6 feet. It is desirable to have a long room for maximum wall space.

For the routing of signal and communication cable, cable is to be run exposed in cable trays or large conduit, 4" minimal diameter or 12" x 4" tray. Cable trays are to be run horizontally on each floor throughout the building feeding either the floor on which they are located from the ceiling space or the floor above through sleeved, 4" or 3/4" signal conduits whichever is applicable (main or lateral respectively). Cable will be run exposed in the cable trays and the support members for them should be strategically located so that one side of the cable tray is free for stuffing wires into it. The vertical axis for the facility is to be provided by stacking the secondary signal and communication rooms on each floor in each node with vertical conduits from signal room to signal room to provide the vertical axis for signal and communication wire. These signal rooms are in addition to the major room in the facility. It would be desirable to stack the secondary signal and communication rooms on each floor over the major signal and communication room so that there will be a vertical axis without the use of conduits or cable tray from the major signal and communication room to each secondary room. Terminal boards are to be furnished at each signal and communication room. The terminal boards are to be at minimum, 3/4" plywood, 4' by 8'. The terminal boards are to be painted white and a single 120 volt duplex outlet is to be furnished to each signal and communication room from its own individual 20 amp circuit. Provide a cable tray below the floor in the library under the location for carrells as well as in corridors and/or the periphery of the facility.

For each room in the facility provide two connection boxes, one in each wall that is perpendicular to the outside wall. These connection boxes are normally 2 1/4 x 4", 2 1/2" deep and are connected to the ceiling space above with a 3/4" conduit or to the cable tray below the floor with a 3/4" conduit. Provide full openings to the boxes, no plaster covers for these signal and communication system boxes.

For power, dependent upon the quality of electrical equipment (300 to 500 KVA), a dual voltage distribution system is desired. Normally a 4 wire 208 volt/120 volt, 3 phase lighting system is required and a 480 volt/277 volt, 3 phase, 3 wire (grounded neutral) system is required. Automatic forced air (fan cooled) transformers are to be considered if dry type transformers are employed.

Circuit breakers on the main feeders are required (no disconnect switches).

Provide for two incoming high voltage feeders to the transformer vault with appropriate switches. Provide lightning arresters on dry type transformers to protect them from switching surges. Employ the arresters at the terminals of the transformer. (Employ rotating machinery type arresters.)

All transformer vaults must be mechanically ventilated employing outside air. The supply fan must be operated automatically by a room temperature control and must be sized to provide a minimum of 3% of the transformer capacity heat removal based on a 10°F temperature difference.

For power distribution to each space use refer to the program for the capacities necessary. The TV and radio studios are large loads and should be specially considered as programmed.

d. Composition of IPB Administration/Planning Board:

Administration:

Andi Hakim Nasoetion	Rector
Edi Guhardja	Vice Rector - Academic Affairs
Oetomo	Vice Rector - Finances and Business Administration
Norman	Vice Rector - Student Affairs
Tommy Ungerer	Director of Research
Juju Wahyu	Director of Public Service
Ikin Mansjoer	Chairman, Planning Board

Planning Board:

Ikin Mansjoer	Chairman Planning Board/Secretary, Project Implementation Unit
Sarsidi	Secretary Planning Board
Bambang	Member/Chairman, Project Implementation Unit
Surjono	Member/Chairman, Prequalification Committee
Zahrial	Member
Baihagi	Member
Suhadi Hardjo	Member

e. Planning Aids Transmitted Under Separate Cover:

1. Midwest Plan Service Catalog.
2. Beef Housing and Equipment Handbook.
3. Designs for Glued trusses.
4. Handbook of Building Plans.
5. Midwest Plan Service Structures and Environment Handbook.

f. Biographical Data:

Name: James P. Kennedy
Address: Department of Planning and Construction
University of Wisconsin
Madison, WI 53706
Telephone: (608) 263-3013
Birth Date: June 21, 1940
Marital Status: Married

Domestic Experience:

Specialist, Dept. of Planning & Construction	Univ. of Wisconsin	1/72 - Present
Architect	Private Practice	6/71 - 1/72
Architect	Marshall Erdman	7/68 - 6/71
Proj. Mgr./Designer	Davermann Assoc.	1/67 - 3/68
Proj. Mgr./Designer	Cashin-Goodwin Assoc.	5/65 - 12/66
Arch. Designer	John Flad & Assoc.	11/63 - 5/65
Arch. Draftsman	John Flad & Assoc.	5/62 - 5/65
Arch. Draftsman	Bur. of Engr., State of Wis.	5/61 - 8/61
Arch. Draftsman	Gauseqitz & Cashin	5/60 - 3/60
		5/59 - 8/59

Registered and authorized to practice in the State of Wisconsin by the Wisconsin Registration Board of Architects and Professional Engineers.

Currently holds an Architect's License.

Education:

University of Illinois	1959 - 1962/1963-1964
Andrews University, Michigan	1958 - 1959

Current Responsibilities:

Project Programming: Work closely with the project building committee and faculty to evaluate goals and requirements; collect all data and ideas and formulate them into a program document; develop detailed program information as it relates to appropriate functional spaces and their supporting mechanical systems; address specific problems and offer alternatives for consideration; develop relationship diagrams, project budget, and timetable.

Project Administration: Schedule and arrange meetings for the project building committee, personnel within the Division of State Facilities Management who are assigned to the project, the consulting Architect/Engineer, and contractors as related to project development, disputes and/or other problems; review and manage development of project concept, preliminaries, working drawings and specifications; implement University policies, guidelines, and procedures in accordance with Codes, Laws, Regulations, and Rules; manage project to assure design and construction in accordance with approvals of the Madison Campus Administration, University System Central Administration, and Wisconsin Building Commission.

Special Project Assignments: The staff architect is frequently directed to work on special projects for a variety of purposes. Most of these assignments require conceptualization of a problem, gathering of technical data, and presentation of schematic proposals within a restricted time frame. Recent examples of this type of involvement are as follows:

- the meshing of two separate project programs with one UW Stores/Extension Services Facility and preparing alternative site solutions for a UW Service Complex to aid and respond to University/City Committee planning and deliberating.
- developing information and preliminary concepts necessary for grant proposals for accelerator activities such as the Aladdin, the Tantalus 2.5, and the Submicron Center for Nuclear Engineering.
- participating as a campus team member in preparing a program statement, schematic concepts, and detail requirements for a Food Research Facility and Pilot Food Plant for a University Campus in Bogor, Indonesia.
- Capital Building Program Development and Support: Help to develop long-range facility planning for the University; become familiar with the total campus building program so that individual projects and priorities can be coordinated as a part of the complete campus program regardless of source of design, nature of the project, or size of the project; provide support documentation to Department Director, Campus Planning Committee, building committees, and Department of Administration Project Evaluation Section; draft projects request documents, and agency request for Regent and Wisconsin Building Commission action.

General Job Administration, Procedure Implementation, and Responsibility to Increase Management Capabilities and Professional Development: the staff architect maintains project files, record of correspondence, schedules, and monitors contract awards and project construction; participates in the consultant selection process and final review of contract documents; attends meetings, seminars, and classes to increase management capabilities and professional development; strives to keep updated on new developments in the areas of energy conservation, environmental impact, zoning, designs for handicapped, and life cycle cost analysis.