PROJECT THREE

PRESENTATION OF LEAD PAPER 3 BY DR LEGG AND SUMMARY REPORT OF PLENARY SESSION

Dr Legg introduced his paper, which was divided into four sections, planned to cover the main topics of the Project and to suggest specific solutions rather than concentrating on generalized statements. He illustrated his presentation with slides (of diagrams now appended).

Diagram 2 dealt with industry and its effect on the individual. Dr Legg indicated the dangers of looking at technical education in isolation and affirmed his view that all educational sectors should be integrated in an attempt to balance available provision with the number of qualified school levers.

Diagram 3 highlighted the lack of status of technicians and its consequences in terms of poor career and salary prospects. Dr Legg indicated that an approach to this problem was formulated in the UK through the recognition of technicians as a profession.

Diagram 4 showed that large industries supported technician training, whereas small firms gave poor support at this level, which might reflect on their success or failure as businesses. The employment of technicians by small firms could assist their growth and development into medium-sized firms, with a measure of stability.

Diagram 5 related to training and the possible establishment of industrial training centres as a means of bridging the gap between industry and educational institutions through part-time, block-release and sandwich courses.

Diagram 6 concerned the individual and the benefit he could gain from interdisciplinary centres and their broadening effect on his overall training.

Diagram 7 showed how education and the individual should plan for life rather than in sectors or compartments. Dr Legg stressed the importance of continuing education and re-education.

Diagram 8 was concerned with scholarships and their use for increasing integration of educational staff, students and industry. Dr Legg emphasized that scholars should be selected carefully and in accordance with a plan, and that relevant authorities should include a scholarship cost element in their budgeting.

Diagram 9 made the point that self-generated technology could optimize local resources for the development of industry in developing countries.

Diagram 10 dealt with subject divisions and interdisciplinary units. Dr Legg led the delegates through the various areas of the chart and discussed their inter-relationship.

Diagram 12 related to self-employment and the need for relevant education for the purpose and drew attention to the need for equal opportunities for women and girls in educational institutions.

Diagram 13 advocated a systems approach in a logical fashion.

Diagram 14 illustrated the planned and developing subject areas in the Hong Kong Polytechnic, the main areas being engineering, applied science, commerce and design. Areas where joint departmental activity was occurring were also indicated.

Diagram 15 indicated proposed programmes that could be followed by entrants at different levels. Dr Legg explained that breadth of learning could be facilitated by the use of the credit unitary system; with its adoption, greater co-operation between technical institutes and the Polytechnic could take place, avoiding the duplication of resources in a particular area, for example printing.

Diagram 16 related to the quota system of admissions and output of students, and the need for ensuring the correct level of entry into programmes of study and equating terminal ability with course output level.

Diagrams 17 and 18 illustrated the need for a logical approach to the solution of planning problems which was better undertaken by small teams of specialists who could bring balanced judgement to individual areas as against a larger group which would tend to over-plan. Institutions were often not cost effective and had no way of determining whether they were spending public money wisely.

Diagram 19 compared international undergraduate technology programmes in terms of staff/student ratio and the average departmental recurrent annual costs per student.

The Chairman thanked Dr Legg for presenting his paper and invited questions. He used his prerogative as chairman to ask about the criteria for the establishment of advisory committees and faculties within the Polytechnic, and about interdisciplinary studies.

Dr Legg answered that all the Polytechnic's divisional departments had advisory committees, as had all its schools. Studies in interdisciplinary areas promoted flexibility of thought, which otherwise tended to be restricted to narrow sectors or compartments by the conventional curricula.

After thanking Dr Legg, the Chairman invited preliminary questions and comments, and the following points were made:

Wastage

To a question concerning Hong Kong's approach to the problem of wastage caused partly by insistence on high entry qualifications, Dr Legg replied that there was no real answer; there were more highly educated school leavers than could be absorbed in tertiary education, and the only long-term answer was the development of industry and commerce in general.

Credit Unitary System

One questioner noted that it was not possible to identify the duration of technician courses from Dr Legg's diagram. Dr Legg emphasized that the credit unitary system was self-pacing and that the diagram could therefore not show any particular number of years.

Liberal Studies

Several participants supported the inclusion of such studies in technician programmes, but were in doubt about the proportion they should bear to the whole. Dr Legg's view was that approximately 25% of courses should consist of contrasting or cultural studies, which might appear in a programme or might be done outside academic hours.

Planning and Feed-back

Dr Legg considered that the planning of educational programmes should be carried out by small interdisciplinary teams, who should work out steps in logical progression; such planning, as a discipline of its own, was only just getting off the ground. Although his presentation may not have shown how feed-back should be taken into account in the programme, feed-back was essential, and was usually processed by advisory committees. Concerning where the initiative came from for planning courses in new areas, Dr Legg answered that such developments were usually initiated at board of governors level; if Government were involved, the appropriate advisory bodies were consulted; his staff were encouraged to go out into industry to identify needs.

Technicians as a New Breed

Comment was made on the remarkable way industry in Hong Kong had developed over the years in spite of the fact that no trained technicians has been available, the answer was that craftsmen who had received no formal training as technicians formed the hard core of the technician cadre, and it was now a question of building on that.

Training of Entrepreneurs

In reply to a question about the right education and training for entrepreneurs, Dr Legg replied that this depended on the definition of an entrepreneur; if he could be defined as someone who had flair and success in business but little more, he needed an open type of education, because being confined by an over-full and rigid curriculum discouraged free thinking and inhibited an awareness of wider horizons.

Technician Education for Women and Girls

Dr Legg was asked whether there was any specific provision for females in his Polytechnic's intake quota, and he replied that they were automatically eligible for inclusion, but it was fair to comment that the future of the further education and training of women and girls lay in the schools.

Optimum Utilization of Polytechnic Resources

Dr Legg made the point that Hong Kong could benefit very much from using the Polytechnic staff as consultants.

DIAGRAM 1

TECHNICAL

"TECHNE" - ARTS CRAFTS SKILLS
SCIENCE - ENGINEERING
BUSINESS - COMMERCE
DESIGN - COMPUTING

INDUSTRIALIZING SOCIETY

PRIMITIVE ⟶ SOPHISTICATION INVOLVES PEOPLE
ESSENTIALLY A DYNAMIC PROCESS
(USUALLY IN A CLIMATE OF INADEQUATE RESOURCES)

DIAGRAM 2

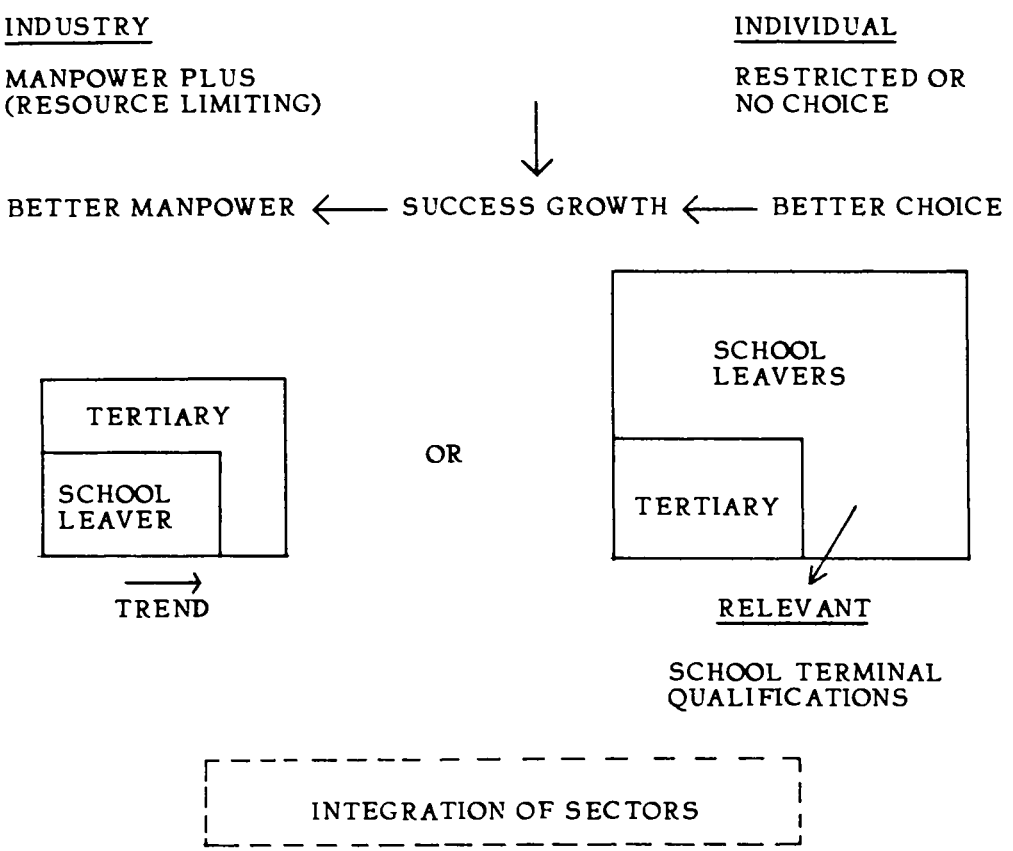


DIAGRAM 3

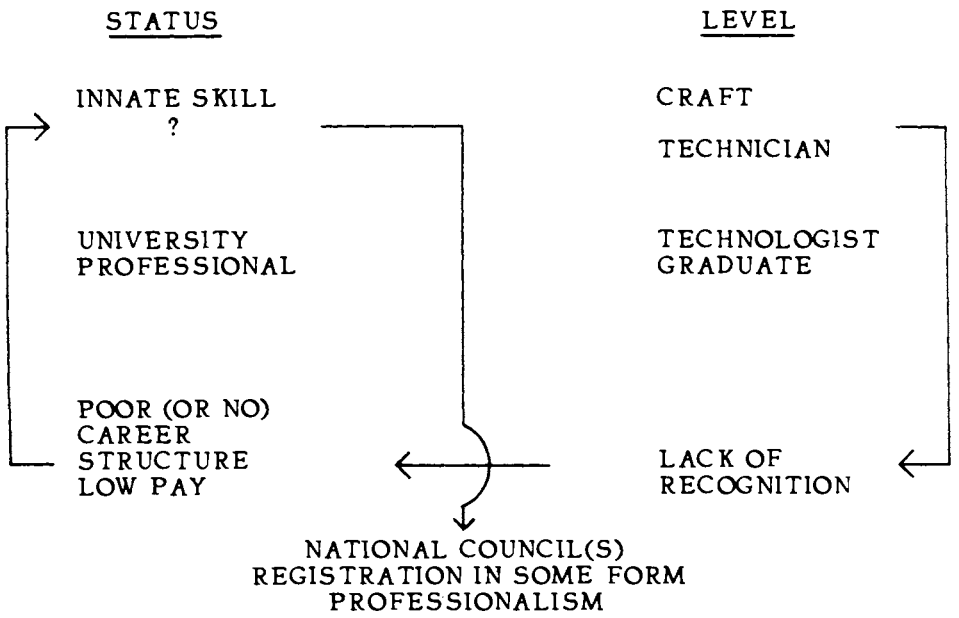


DIAGRAM 4

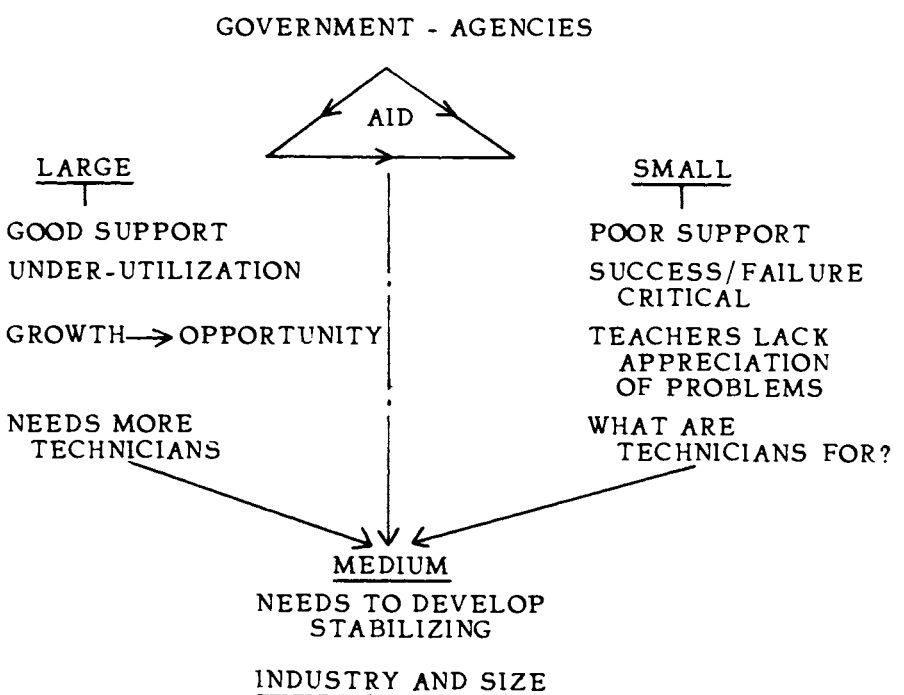


DIAGRAM 5

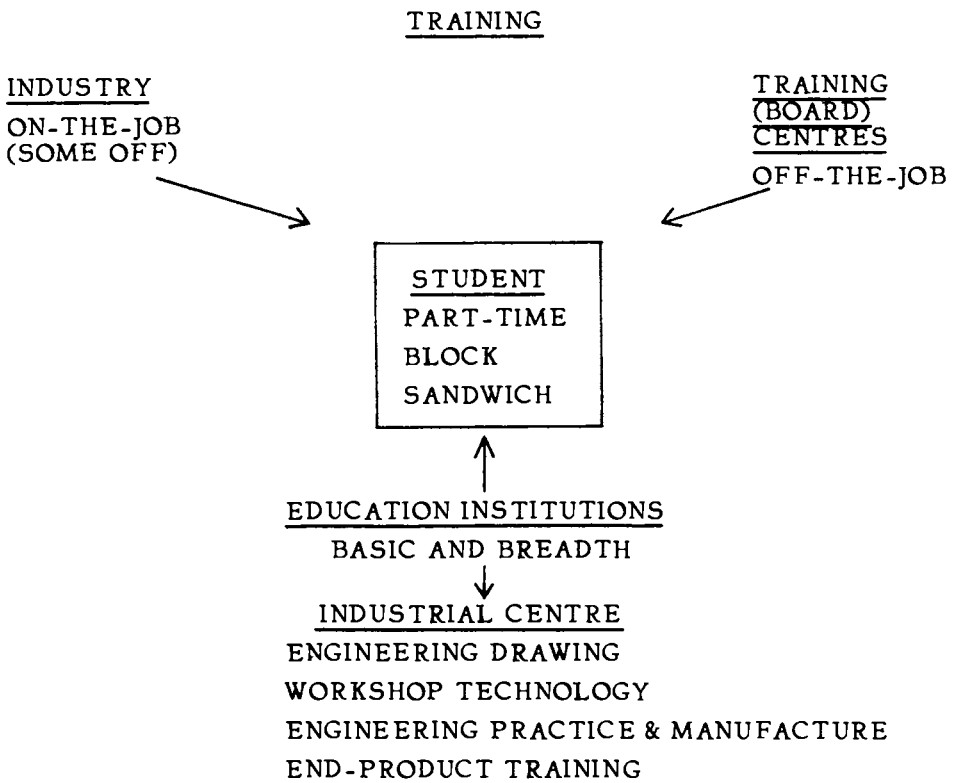


DIAGRAM 6

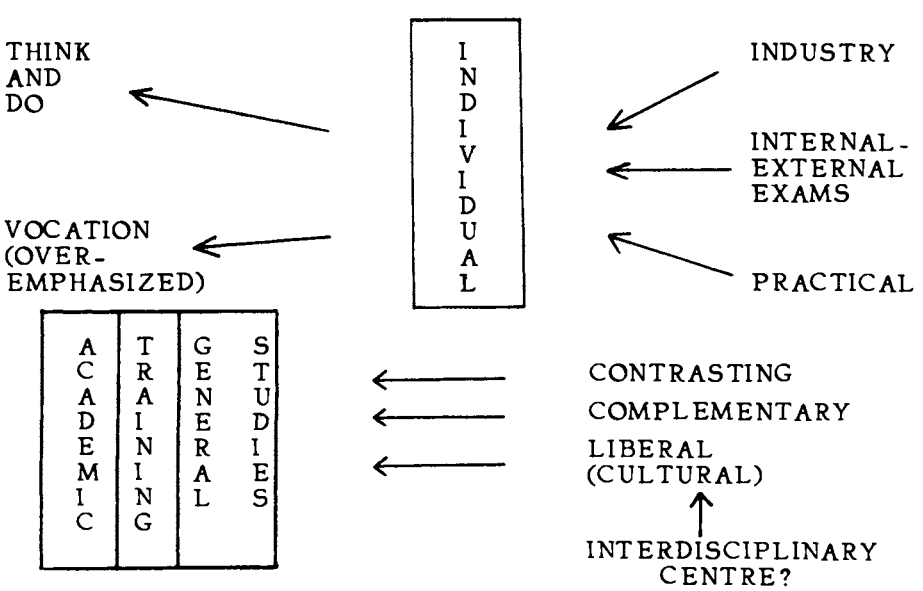


DIAGRAM 7

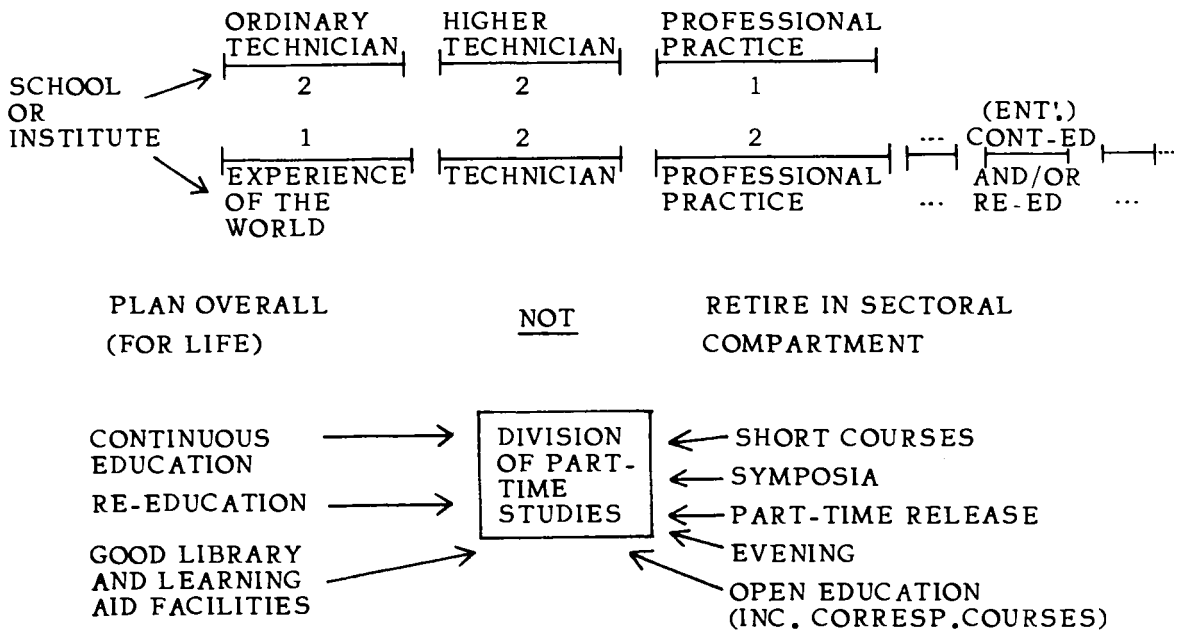


DIAGRAM 8

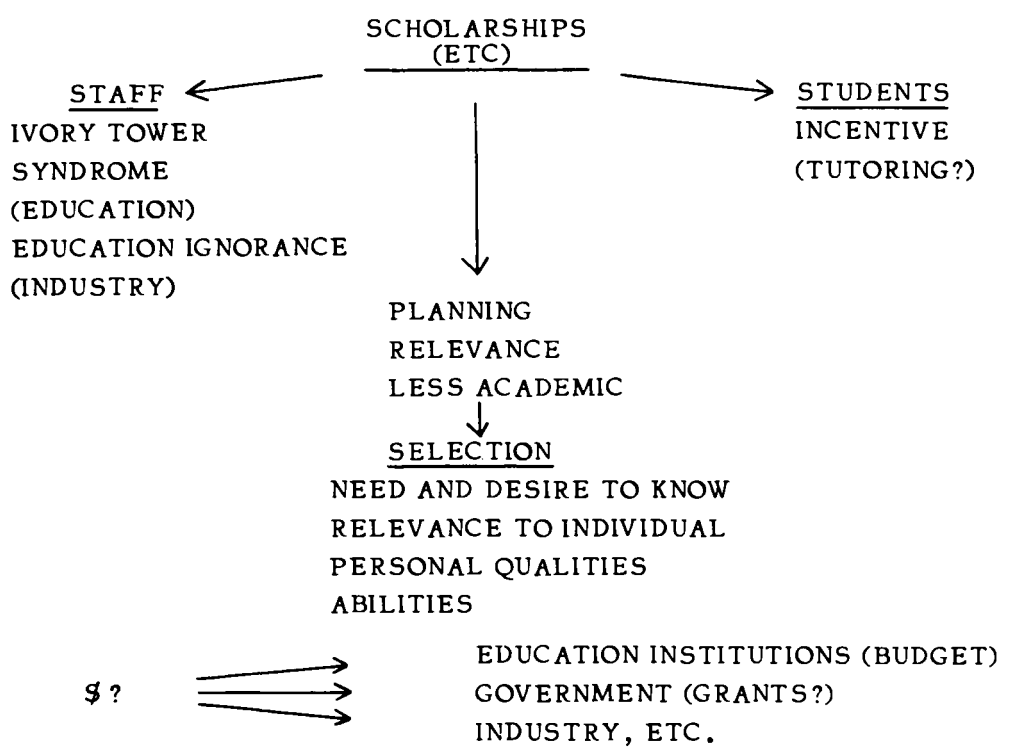


DIAGRAM 9

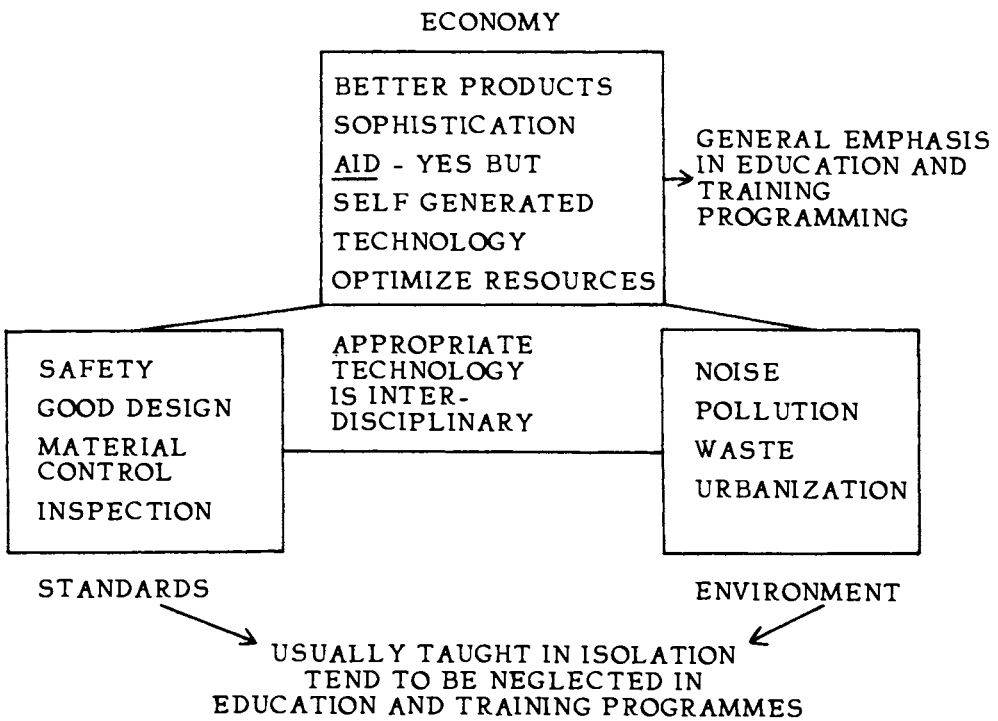

ECONOMY
BETTER PRODUCTS
SOPHISTICATION
AID - YES BUT
SELF GENERATED
TECHNOLOGY
OPTIMIZE RESOURCES
GENERAL EMPHASIS IN EDUCATION AND TRAINING PROGRAMMING
SAFETY
GOOD DESIGN
MATERIAL CONTROL
INSPECTION
APPROPRIATE TECHNOLOGY IS INTER-DISCIPLINARY
NOISE
POLLUTION
WASTE
URBANIZATION
STANDARDS
ENVIRONMENT
USUALLY TAUGHT IN ISOLATION
TEND TO BE NEGLECTED IN
EDUCATION AND TRAINING PROGRAMMES

DIAGRAM 10

SUBJECT DIVISIONS AND INTERDISCIPLINARY UNITS

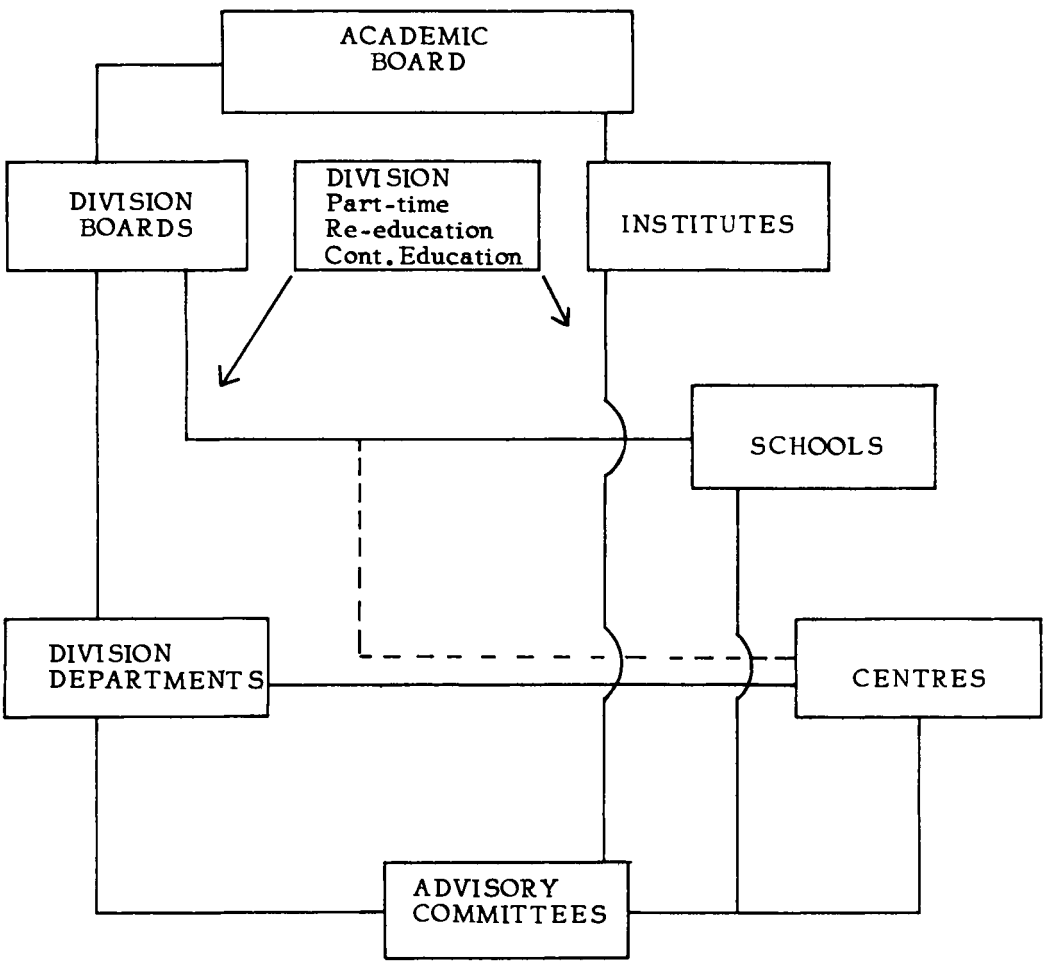


DIAGRAM 11

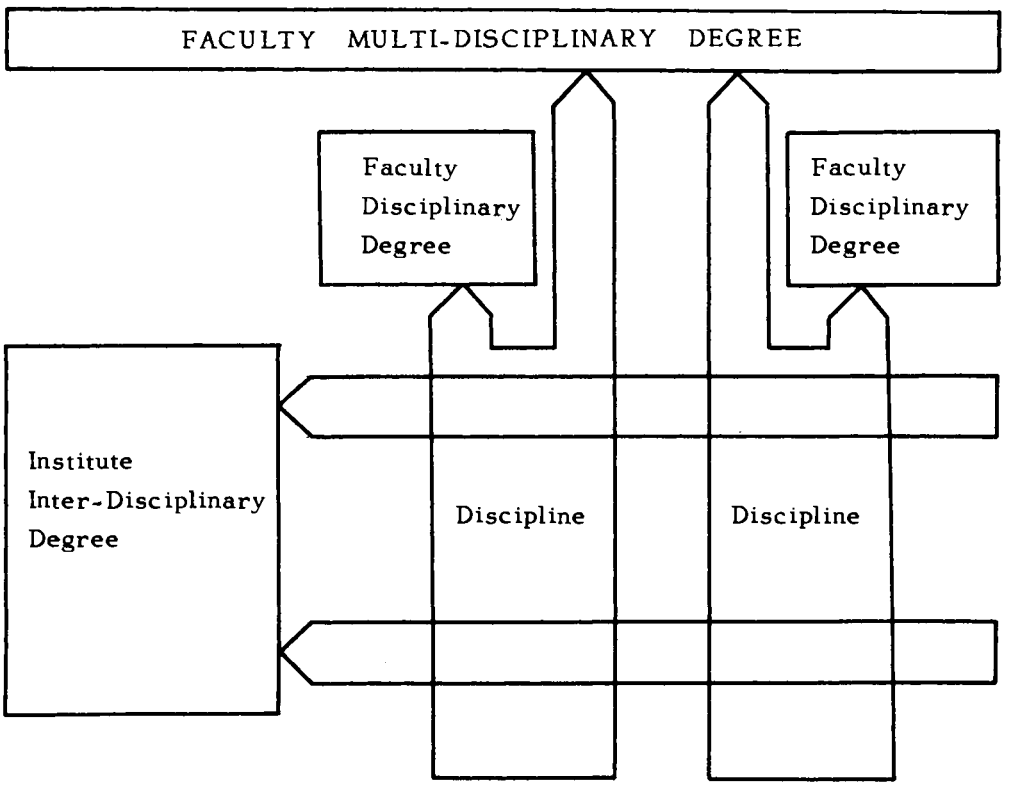

FACULTY MULTI-DISCIPLINARY DEGREE
Faculty Disciplinary Degree
Faculty Disciplinary Degree
Institute Inter-Disciplinary Degree
Discipline
Discipline

DIAGRAM 12

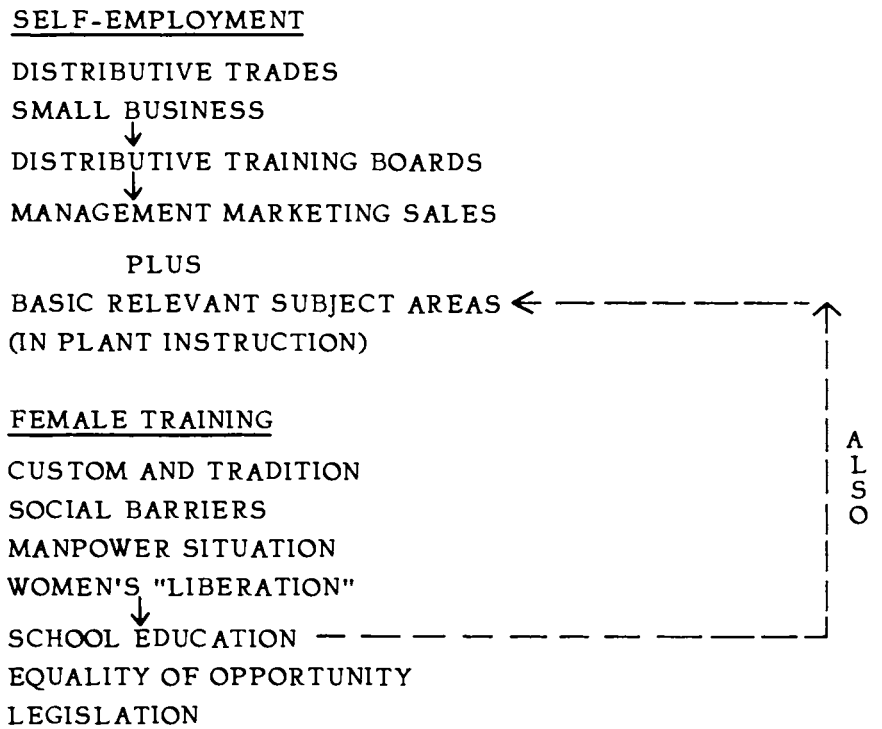


DIAGRAM 13

A SYSTEMS APPROACH

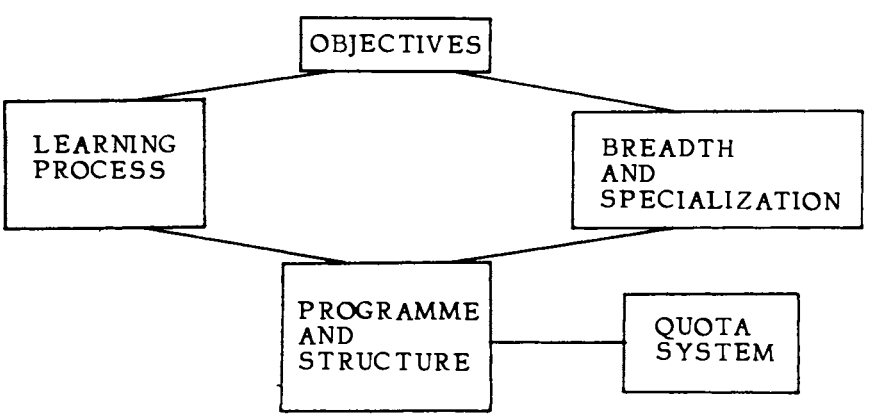


DIAGRAM 14

PLANNED AND DEVELOPING SUBJECT AREAS IN HONG KONG POLYTECHNIC

DIVISIONS

ENGINEERING	APPLIED SCIENCE	COMMERCE & DESIGN
Water resources engineering	Material technology	"In plant" management studies
*Traffic engineering	Polymer technology	Machine shorthand
Rock mechanics	*Packaging technology	Executive sec. with language
Coastal engineering	*Surface protection and finishing	*Textile marketing & management
Marine and power plant automation	*Food technology	Product, garment)
*Transportation	*Health science	Textile, packaging) design
Marine engineering (sea-going)	*Cybernetics	Graphic, environ-) mental illustration)
Press tool	Chemistry & science lab. techniques	Photography and animation
Plastic moulding	*Industrial automation	*Ceramics & jewellery
Work study	Systems analysis	*Japanese language
Inspection	Computer programming	Translation studies
Quality and reliability	Applied statistics	*Fashion and clothing technology
*Operational research	*Engineering mathematics	*Textile chemistry
*Central system engineering	*Business mathematics	*Textile technology
General engineering studies	Naval architecture	Hotel & catering
*Conservation of energy	Shipbuilding (technician)	Supervisory management studies
*Bio-radical engineering	*Radar navigation (Hydrofoil-hovercraft)	Industrial relations
Ocean engineering	*Navigational aids	*Library studies
*Safety	*Town planning	International marketing business
	Surveying & building technology	*Social work (and health)
	*Building services	Media communications
	Chemical technology	Economics
	Industrial chemistry	Social sciences
	Industrial physics	Commercial law
	*(Human) Biological studies	
	*Ergonomics	

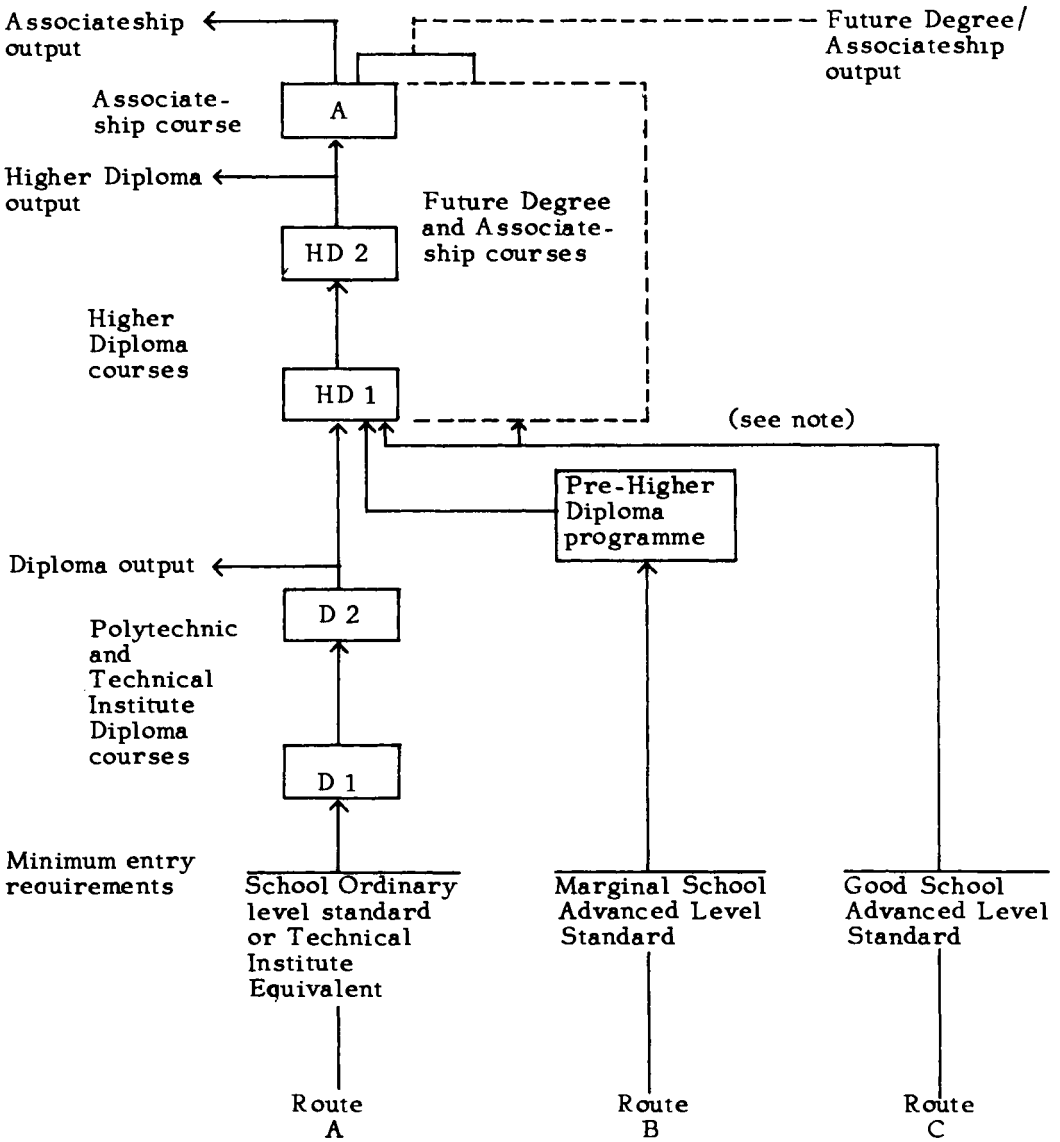
INSTITUTES/SCHOOLS/CENTRES (INTERDISCIPLINARY)

INSTITUTES	SCHOOLS	CENTRES
Medical services and social health	Instrumentation and testing	Materials technology
Education and educational services	Environmental studies	Transport studies
Extension studies	Urban and regional planning	Public service studies
Industrial (initially the industrial centre)		Packaging

*Denotes joint departmental activity

DIAGRAM 15

PROPOSED PROGRAMMES AND AWARDS



Note: Students enrolled via Route C are required to undertake supplementary studies which may occur before, during or after the Higher Diploma Course.

DIAGRAM 16

SAMPLE DISTRIBUTION OF STUDENT NUMBERS RELATED TO A QUOTA SYSTEM OF ADMISSIONS AND OUTPUT

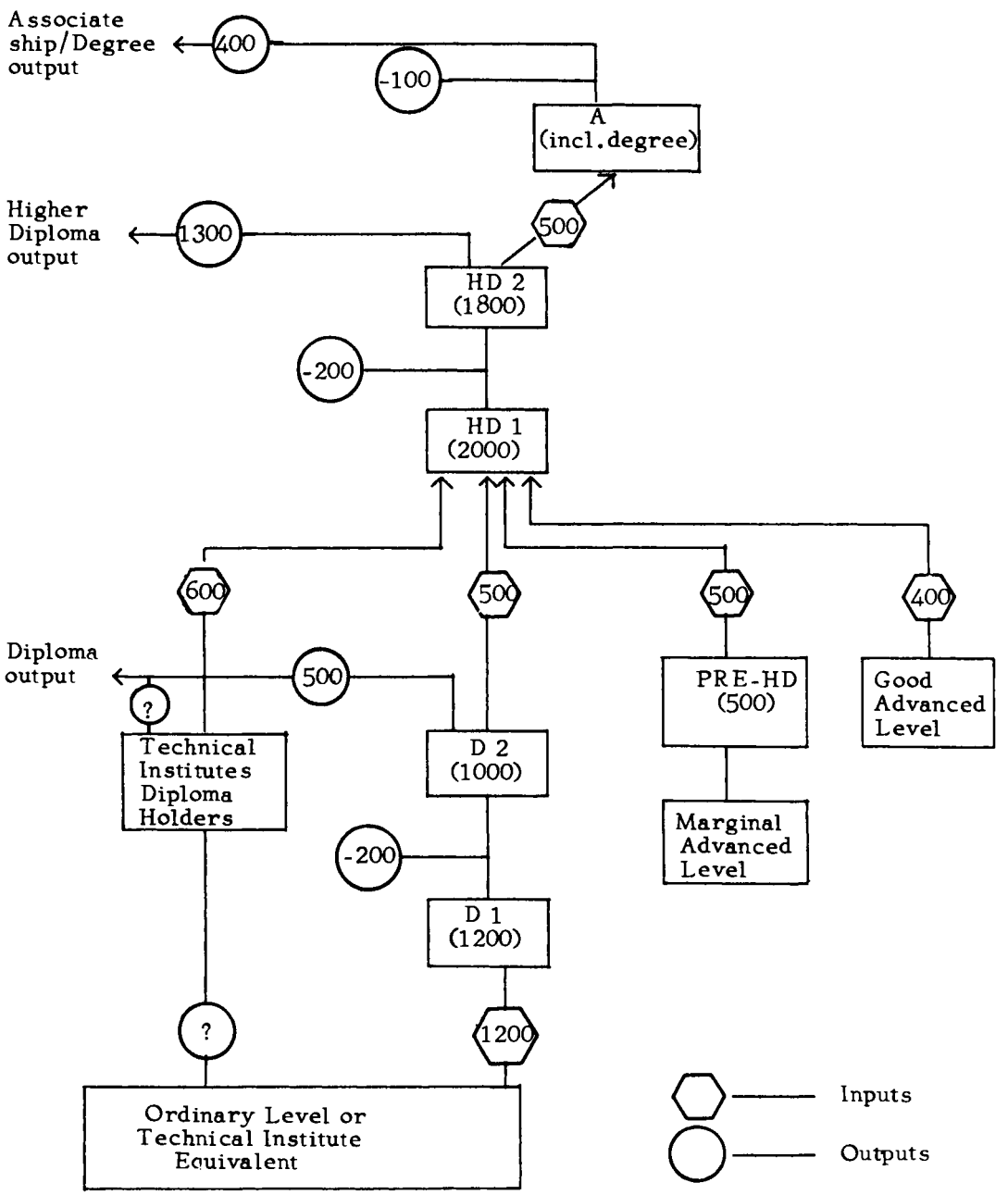
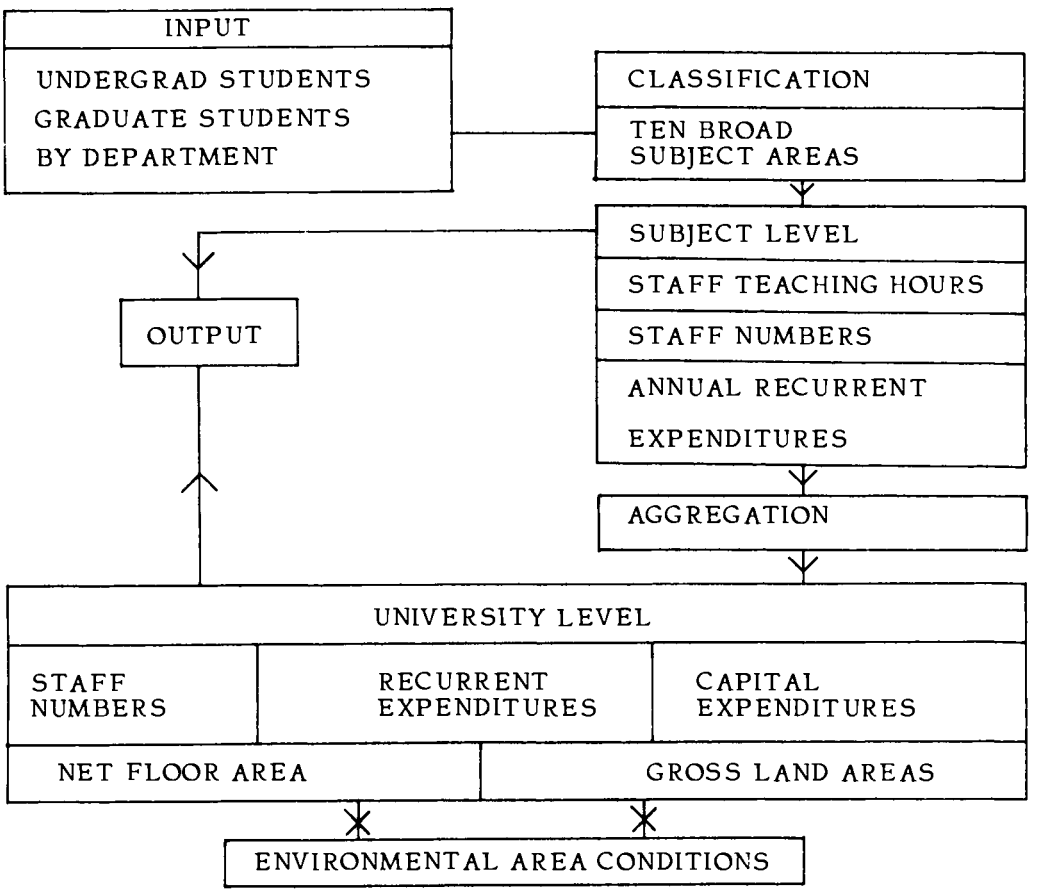
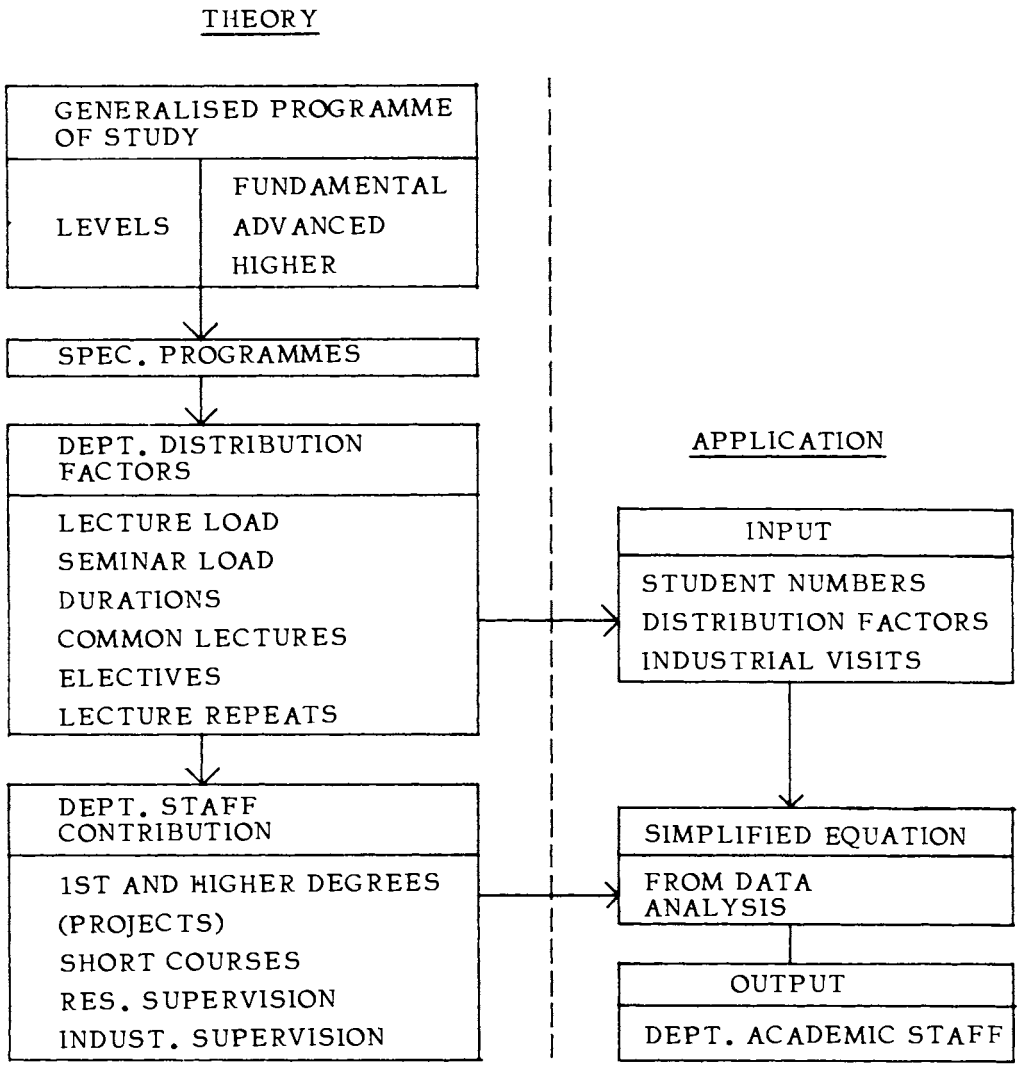


DIAGRAM 17



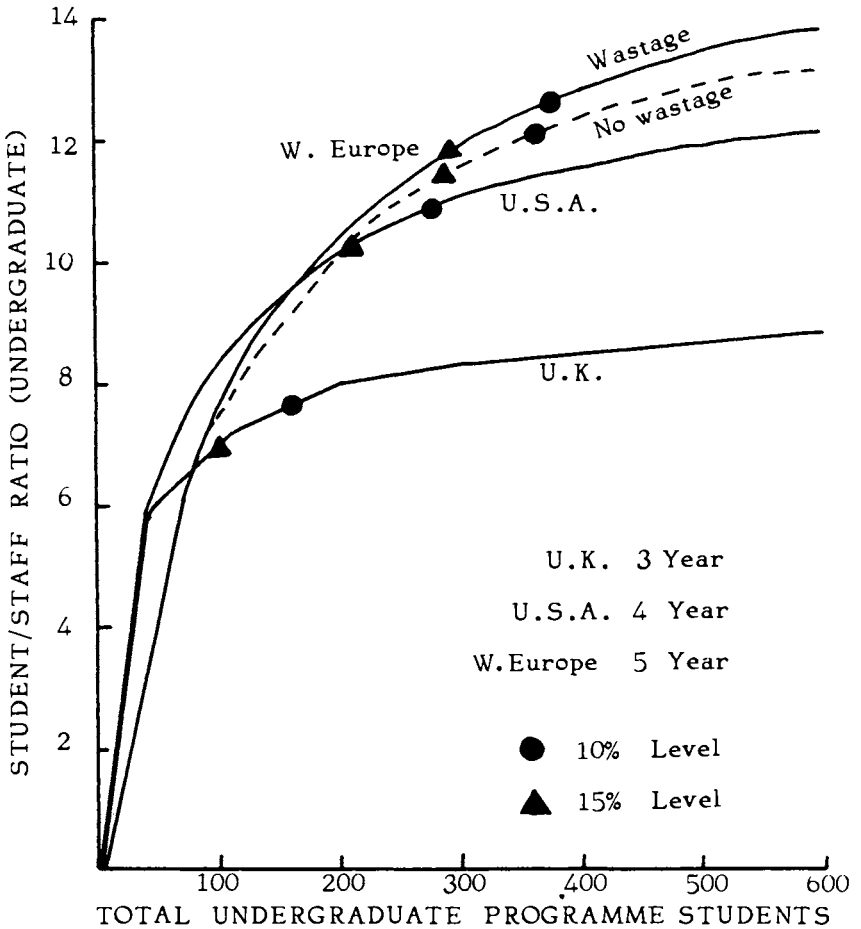
OUTLINE APPROXIMATE OVERALL DATA BASED UNIVERSITY MODEL

DIAGRAM 18



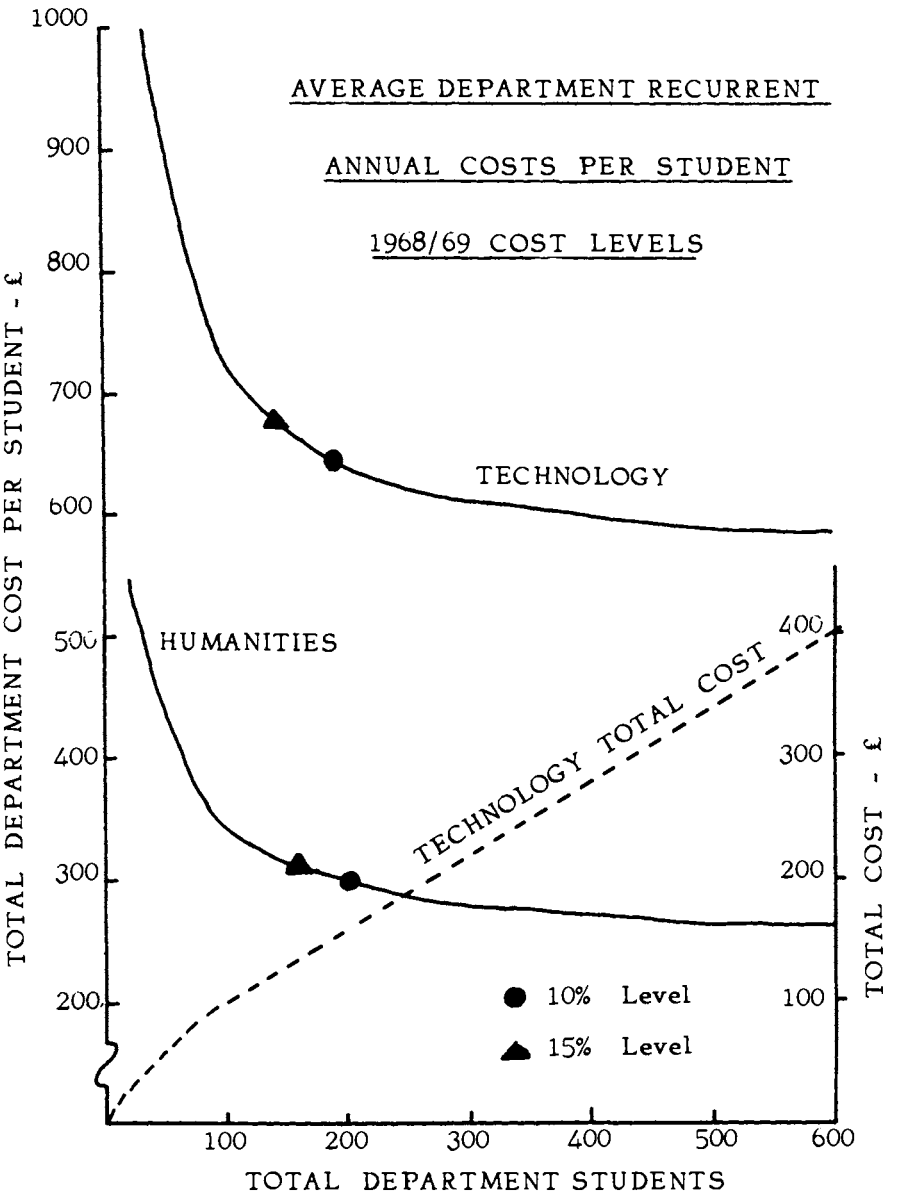
DEPARTMENTAL ACADEMIC STAFF MODEL

DIAGRAM 19



INTERNATIONAL COMPARISON OF UNDERGRADUATE TECHNOLOGY PROGRAMMES

DIAGRAM 20


AVERAGE DEPARTMENT RECURRENT
ANNUAL COSTS PER STUDENT
1968/69 COST LEVELS
TOTAL DEPARTMENT COST PER STUDENT - £
1000
900
800
700
600
500
400
300
200
TECHNOLOGY
HUMANITIES
TECHNOLOGY TOTAL COST
400
300
200
100
TOTAL COST - £
10% Level
15% Level
100
200
300
400
500
600
TOTAL DEPARTMENT STUDENTS