

RESEARCH DEVELOPMENT
- MEDICAL HEALTH AND
BIOTECHNOLOGY

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BASIC AND CLINICAL RESEARCH

- 1900 - Establishment of Institute of Medical Research.
Sir Frank Swettenham – Resident General of British Malaya.
- Raison d'être
 - 'to improve the standards of the native population'.



FOCUS OF RESEARCH

4a - Tropical Disease.

❖ Malaria

- ❑ Discovery of mosquito species 'Anopheles maculatus'.
- ❑ Diagnostic staining technique of malaria parasite 'Field stain'.
- ❑ New species of malaria parasite in addition to plasmodium falciparum, zoonotic species.



FOCUS OF RESEARCH

4b -

❖ Scrub typhus.

- clinical trials, used
chloramphenicol.

❖ Filariasis.



COLLABORATIONS WITH INTERNATIONAL AGENCIES

- ❖ U.S. Army Medical Research Unit (USAMRU).
- ❖ Hooper Foundation.
- ❖ Japan International Cooperation Agency (JICA).

Continue..



COLLABORATIONS WITH INTERNATIONAL AGENCIES

- ❖ Seameo Tropmed.
- ❖ Canadian International Development Agency (CIDA).
- ❖ W.H.O.



NATIONAL INSTITUTES OF HEALTH

- Network of Clinical Research Centres.
 - Seamless continuum of research activities.



MINISTRY OF HEALTH

❖ APPLIED RESEARCH

1987 - Establishment of Health System Research Programme in Public Health Institute.

- Focal point for development and implementation.

Continue..



MINISTRY OF HEALTH

1988 - Recognised as WHO Collaborating
Centre for Health System
Research.



MAIN CHARACTERISTICS OF HEALTH SYSTEM RESEARCH

- Focus on Priority Problems in Health.
- Participatory Nature.
- Action orientation.
- Integrated Multi disciplinary approach.
- Multisectoral nature.
- Emphasis on cost effectiveness.
- Focus on practical timely solutions.
- Iterative nature.



INVOLVEMENT OF UNIVERSITIES

- ❑ Objective is to integrate the concepts of Health System Research.
- ❑ Sanctuary of knowledge, wisdom and inequity.
- ❑ Credibility as depositories of knowledge.

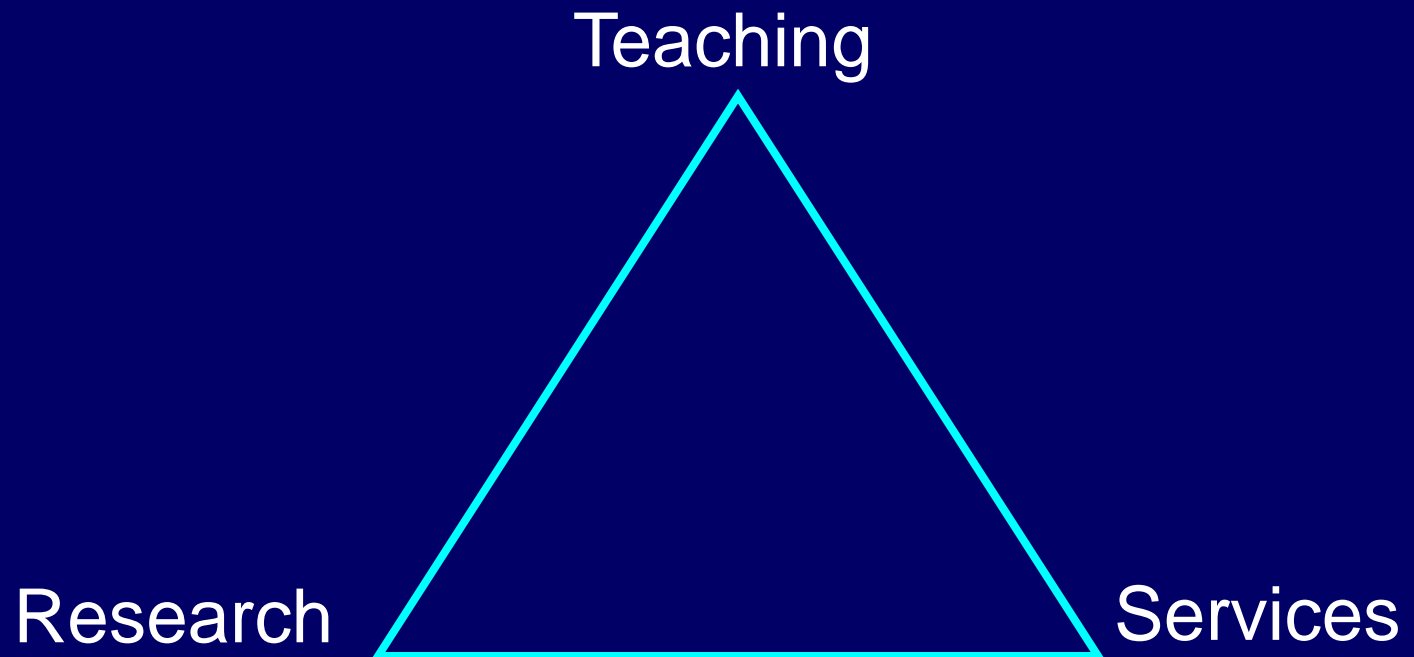


INVOLVEMENT OF UNIVERSITIES

- Leaders in search for truth and judgment.
- ? Impact of these institutions on socio economic development.
- ? Taxpayers and policy makers are expecting better return for funds invested in higher education and research.

UNIVERSITIES – MEDICAL AND ALLIED HEALTH

□ Major Roles :





CONSTRAINTS IN RESPONDING TO CHALLENGES

- Vertical Structure of Universities.
- Career development.
- Funding for Research.
- Nature of clinical and Biomedical Research.
- Focus of Social Sciences on conceptual and theoretical Issues.



CONSTRAINTS IN RESPONDING TO CHALLENGES

- Focus on publication rather than on utilisation of results.
- Lack of communication with health managers and community.
- Competition- institutional rivalry.



SKILLS REQUIRED

- Research skills.
- Skills working with health managers and the community.
- Teaching skills.
- Skills in Research management.



UNIVERSITY RESEARCH IN BIOTECHNOLOGY AND LOCAL ECONOMIC DEVELOPEMENT

❖ Possible Impacts

- ✓ Attraction of Industrial Laboratories
- ✓ Start up of new high-tech business.



STIMULUS FOR IMPACT OF RESEARCH

- Difficult to separate research from Education especially Graduate education.
- Need to develop active working relationships with scientists because intellectual capital is with scientists especially in discoveries with revolutionary Commercial capital .i.e. Nanotechnology, recombinant DNA.



LOCAL ECONOMIC DEVELOPMENT EXAMPLES IN U.S

- Electronic Clusters in Silicon Valley with ties to Stanford University.
- Route 128 near Boston with ties to Massachusetts of Technologies.
- Common denominator – Biotechnology.

LESSON FROM USA : BIOTECHNOLOGY BOOMED DURING 1980S IN USA AS A RESULT OF CONFLUENT FORCES

Technology Breakthroughs in Biosciences

- 1973 : First DNA genetic engineering techniques.
- 1975 : First monoclonal antibody
- 1977 : First expression of human gene in bacteria
- 1982 : First biotech product in the market (humulin)

Capital Market Appetite for Biotechnology

- Booming of Venture Capital.
- Changes in pension fund regulations allowing more speculative investments

Biotechnology



Cultural Shift Towards Entrepreneurial Business Model

- The sometimes bureaucratic nature of pharmaceutical R&D.
- “Open-door” practice allowing academics to dedicate a portion of their work to outside activities

Favourable Government Policies

- Increased government funding for medical research.
- Technology transfer policies.



DEVELOPMENT OF INDUSTRIES FROM RESEARCH FINDING

- Pharmaceuticals.
- Semiconductors.
- Medical Instruments.

Academic research in applied fields (engineering, computer science and materials science) more likely to be of direct use to industry R&D, compared to basic science (physics, chemistry and mathematics).



ROLE OF UNIVERSITIES (U.S.A) IN INVENTIVE ACTIVITIES

“Surveys of Industrial R&D managers indicate that industry interest in most academics departments is focused primarily in the ability of professor to train students in basic theory and research methods”.

[Nelson, 1986]



THE IMPLEMENTATION AND
DEVELOPMENT OF THE BIO VALLEY
INITIATIVE MALAYSIA WAS
PROPOSED TO SEEK TO

- Capitalise on our biotechnology assets;
- Achieve sustainable growth for establish and new industry sectors.
- Establish and strengthen coordination and collaborations among the various local and international universities, agencies and institutes within the Industry;



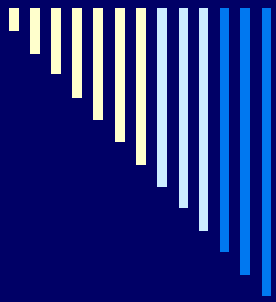
THE IMPLEMENTATION AND DEVELOPMENT OF THE BIO VALLEY INITIATIVE MALAYSIA WAS PROPOSED TO SEEK TO

- Build on industry commitment and active participation by both public and private sectors;
- Develop a catalytic role for the Government;
- Provide a basis for ongoing consultation and strategy development.



INNOBIOLOGICS AND RELATIONSHIPS WITH UNIVERSITIES

- ❖ Innobiologics -
Company in Nilai, contract manufacturer for Bio pharmaceuticals.
- ❖ Relationship with U.K.M
 - Collaboration with 'Pusat Terapi Sel' UKM in Stem cell research Grant of 2 million.
 - Genome Institute, development Grant of RM 0.5 million.
 - Chemical Engineering Department to develop Media for cell development.



Thank you