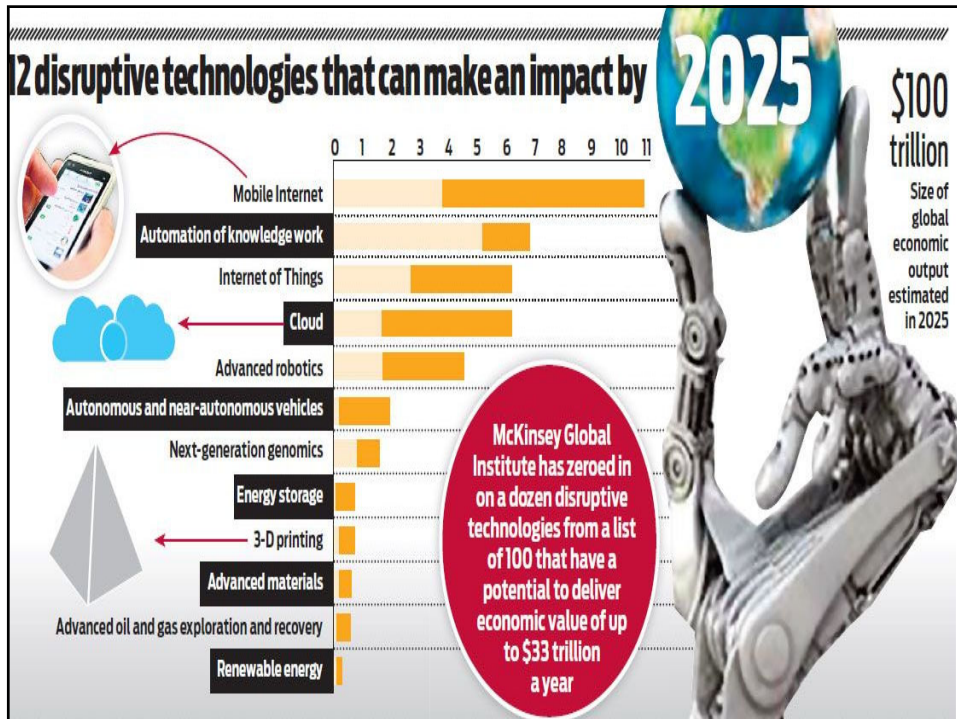


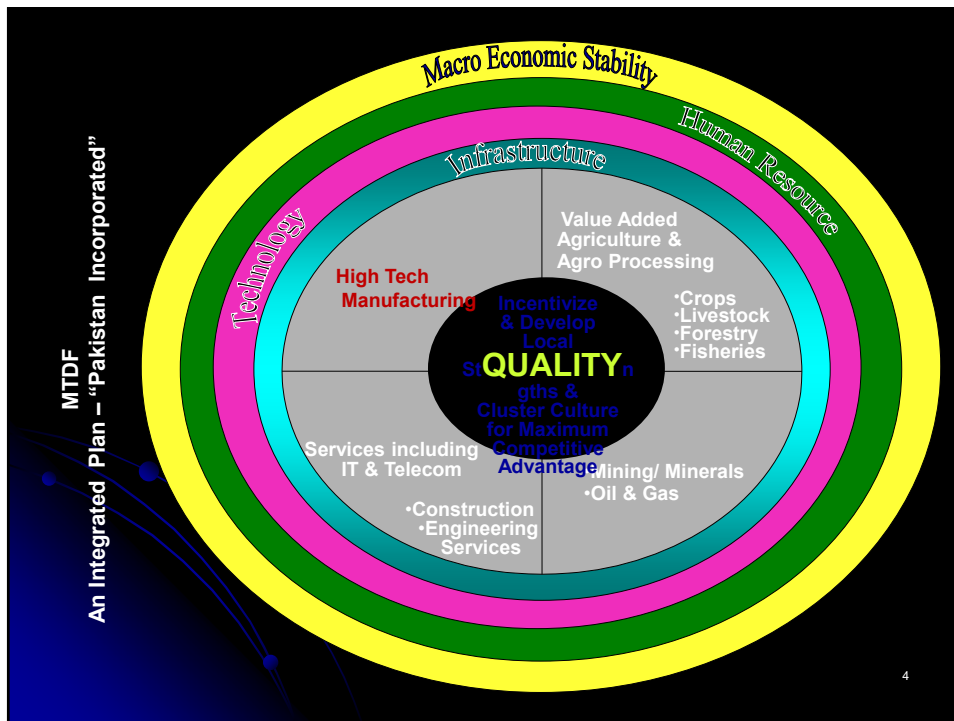
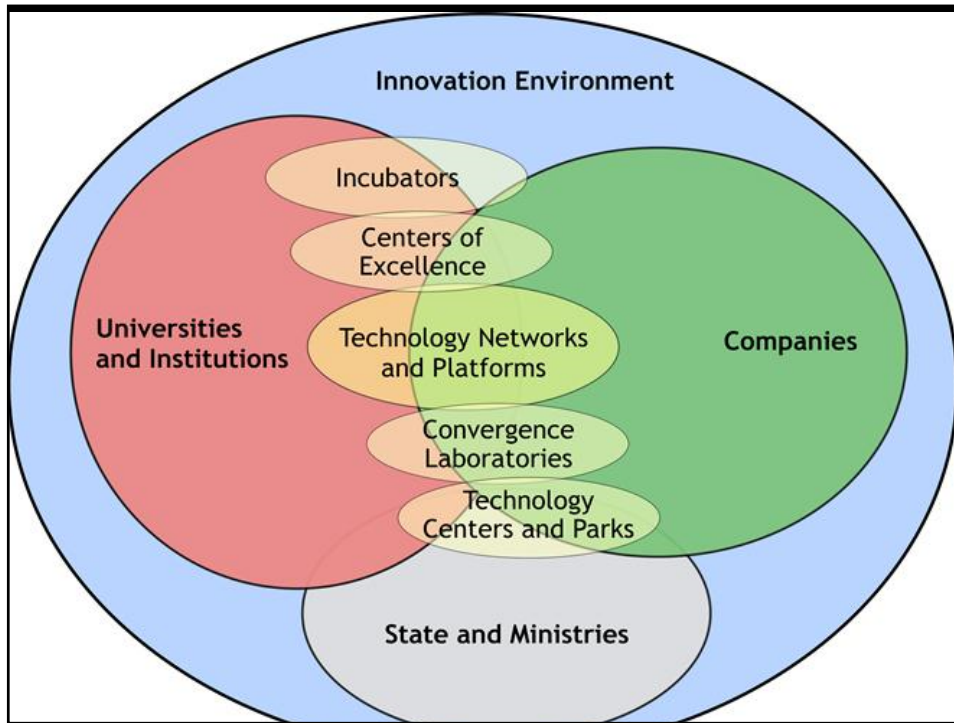
Developing a Knowledge Economy

Atta-ur-Rahman FRS

N.I., H.I., S.I., T.I.

UNESCO SCIENCE LAUREATE





Innovation Determines Progress

Socio-economic development is no longer dependent on natural resources (eg. Japan, European countries)

KNOWLEDGE is now the main driving force of world economies

China

Singapore

Korea

Taiwan

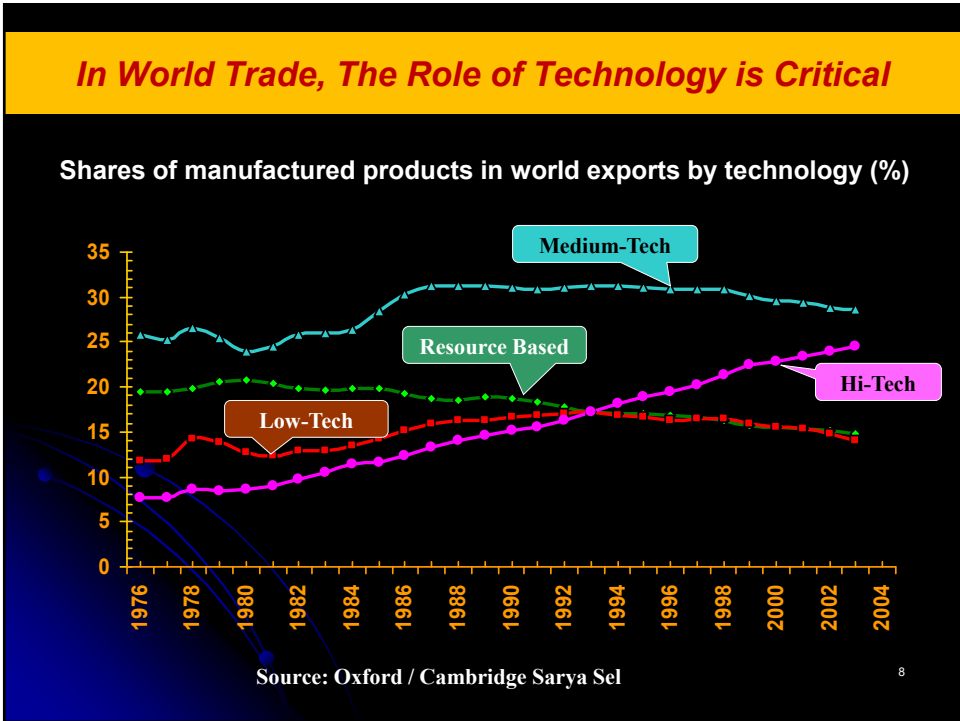
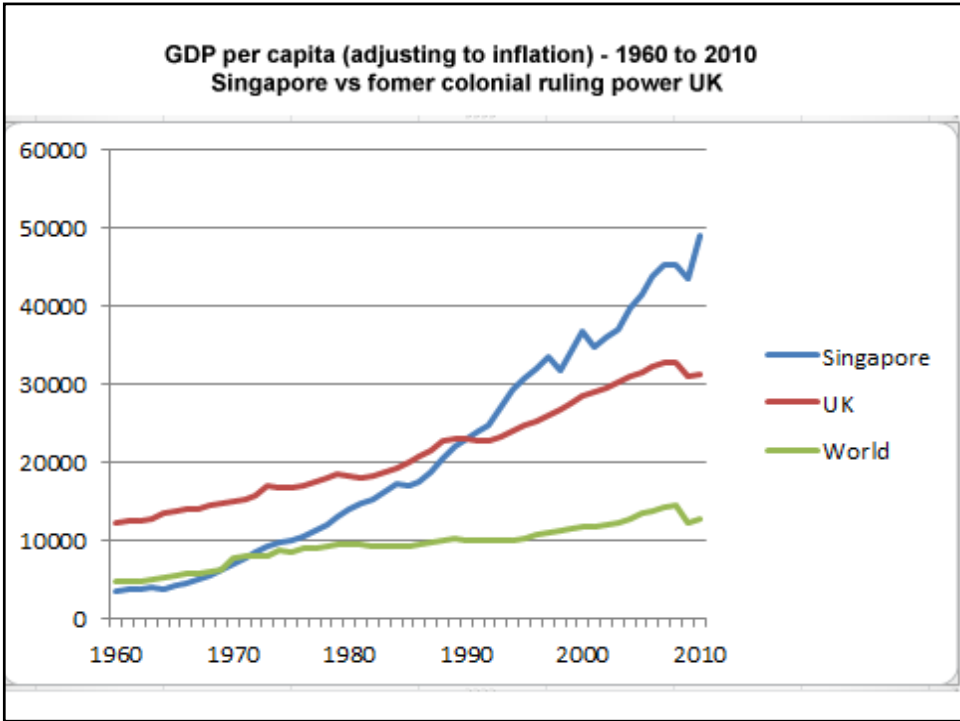
The Triple Helix : Knowledge Economy: Singapore

- Small country ---865 sq km (population 5 million)
- No natural resources: focus ONLY on human resources and high tech manufacturing/exports

● ***Lee Kwan Yew: Leadership !!!!!***

Mobilization of its human capital

- Exports: \$ 400 Bln
- GDP : \$ 467 Billion ***Through extensive growth in its high technology manufacturing industries***



Korean & Austrian Strategies

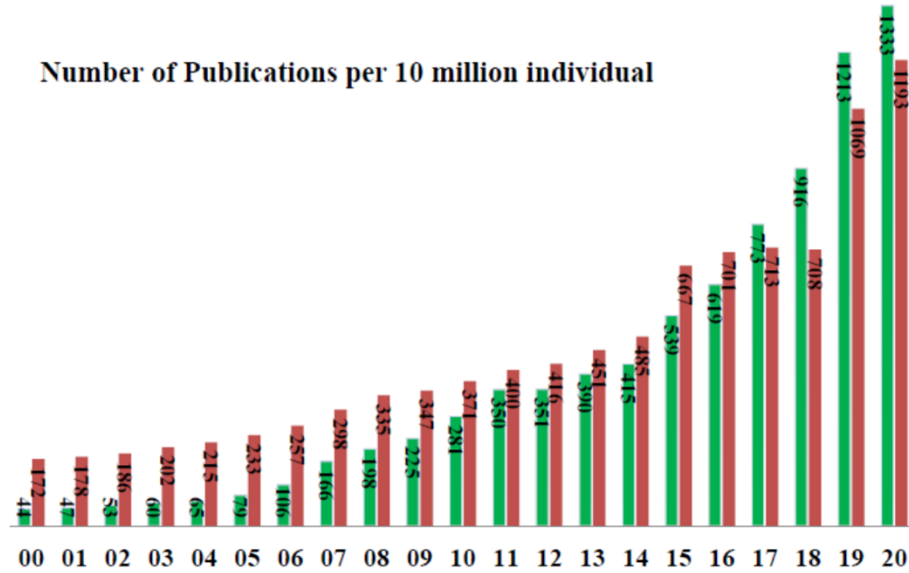
- *Korean Minister of Education/Science is Deputy Prime Minister of Korea*
- *Austrian Minister of Science is also Minister for Economic Affairs as well as Deputy Prime Minister of Austria*

COMSATS Actions

- ESTIC (Education, Science, Technology, Innovation & Commercialisation) Policy Formulation
- Selected Priority Areas (Advanced Agriculture, Minerals, Energy, EMERGING TECHNOLOGIES (AI, Robotics, IoT, Genomics, Energy Storage Systems etc
- University Industry Linkages
- Joint Programmes on Commercialisation
- Centers of Excellence

Research Publications 2000-2020 Pakistan-India (Web of Science)

Number of Publications per 10 million individual



- *Excite young minds* about the wonders of science !
- *Select and train the Brightest in top universities abroad*
- *Attract them back---* by creating an enabling environment :
 - *Salaries*
 - *Research Funding*
 - *Access to Literature*
 - *Free Access to Sophisticated Instrumentation*
 - *Jobs on Arrival*

Prof. Michael Rode, Chairman UN CSTD: “In no other country has the higher education sector seen such spectacular positive developments as that in Pakistan during the last six years.”

Thomson Reuters (2016): “Pakistan has emerged as the country with the highest percentage of Highly Cited Papers compared with the BRIC countries (Brazil, Russia, India and China).”

ip-science.interest.thomsonreuters.com/incites-pakistan/

Pak Austrian Fachhochschule at Haripur, Hazara



Disciplines & Partners of PAF-IAST

No.	Disciplines (Fachhochschule)	Austrian Partners
1	Electrical and Computer Engineering	University of Applied Sciences, Joanneum, Graz
2	Computer Science Software Engineering	University of Applied Sciences, Joanneum, Graz
3	Chemical Engineering (Environment, Process and Energy Engineering)	University of Applied Sciences (MCI), Innsbruck
4	Biomedical Sciences	University of Applied Sciences, Joanneum, Graz
5	Information Design	University of Applied Sciences, Joanneum, Graz

No.	Disciplines (Research Centers)	Chinese Partners
1	Artificial Intelligence	Shenzhen Institute of Advanced Technology Guangdong University of Technology Johannes Kepler University (Linz, Austria)
2	Railway Engineering	Beijing Jiao Tong University, Beijing
3	Mineral Resource Engineering	China University of Mining and Technology, Xuzhou
4	Agriculture Food Technologies	Jiangsu University, Jiangsu

ICCBS- International Center for Chemical Sciences

- ❖ Only OIC Center of Excellence in Chemical Sciences
- ❖ UNESCO Center of Excellence
- ❖ WHO Center for Pesticide Analysis for EMRO Region
- ❖ Islamic Development Bank (IsDB) Prize for Best Science Institution (2004 and 2010)
- ❖ TWAS Center of Excellence for training of scholars



ICCBS – D z dugv#dqg#K rgruv

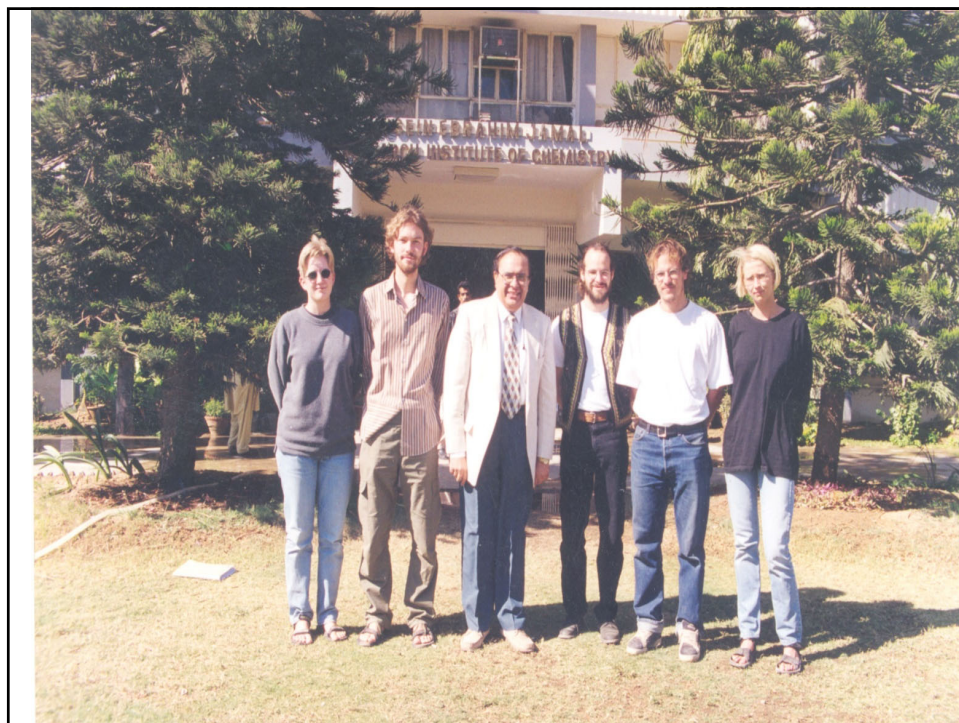
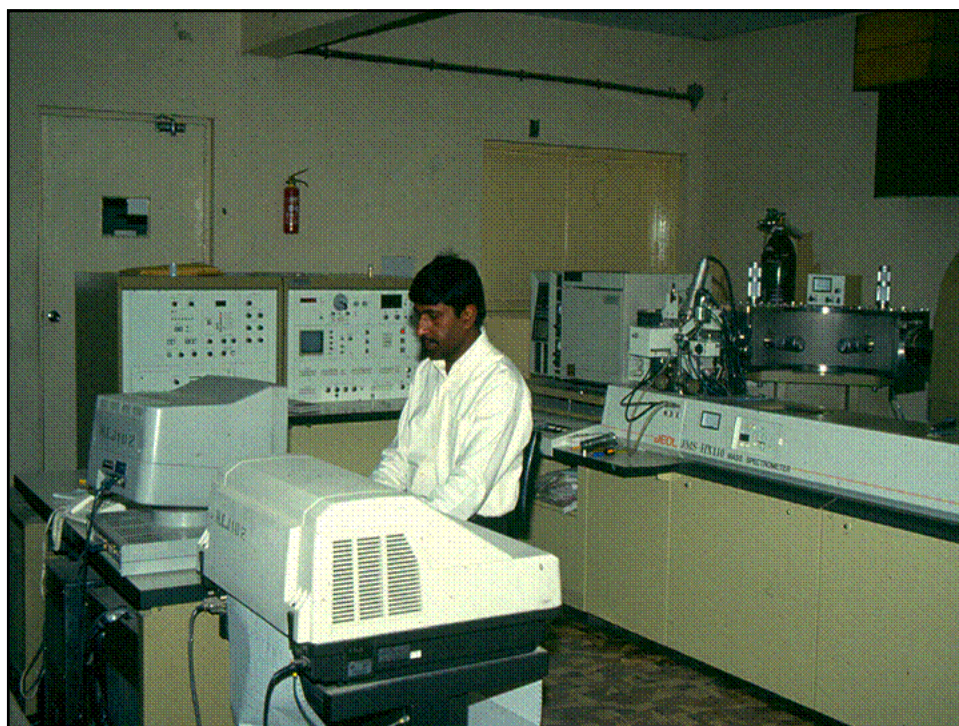
- Fellow of Royal Society (*FRS*) 2
- Mustafa (PBUH) Prize 2021 1
- UNESCO Science Prize 1
- Friendship Award of the Peoples Republic of China 2
- Fellow of the Chinese and Korean Academies of Science 1

32 CIVIL AWARDS :

- Nishan-e-Imtiaz 1
- Hilal-e-Imtiaz 5
- Sitara-e-Imtiaz 13
- Tamgha-e-Imtiaz/Pride of Performance 13
- D. Sc. 10
- Khwarizmi International Award 5
- ECO Award and Prize 3
- IDB Prizes for Best Science Institution 2
- COMSTECH Award 1
- International Scientific Corporation Award 1
- The World Academy of Sciences Fellowships 8
- China International Science and Technology Cooperation Award 1
- Guangxi Silk Ball Award and Prize (China) 1



800 MHz Nuclear Magnetic Resonance (NMR) Spectrometer



Darkness of Ignorance

- *121 Nobel Prizes have been awarded to faculty members/affiliates of University of Cambridge --- 34 Nobel Prizes awarded to just one college (Trinity) of that University (2 Nobel Prizes to Sanger at Kings College)*
- *We live, alas, in the Darkness of Superstition and Ignorance*

Thanks !