S&T capabilities and the problem of development

- Issues of scientific growth and literacy / education
- What do numbers mean: why is the higher education GER different?
- Develop on the base of practical knowledge?
- Adapting, coping, devising new solutions
- What are the qualities of successful borrowers and innovators?
- Why inadequate impact of higher education on the use of technology?
- Knowledge superpower: issues of quality – knowledge and information
- Brain drain or brain circulation

The problem of Big Science

Derek J de Solla Price : Little Science, Big Science

Alvin Weinberg: Reflections on Bog Science

- War and science: Big Science as a Disease
- Vast increase in scientific activity and output
- Financing science: large scale character of modern science
- Large scale character of modern S&T
    - Financial implications; human resources; infrastructure; networks
- Glamour subjects
- Differential reward systems: social status, recognition and financial returns; research grants
- Bureaucratize and politicize S&T
- Internationalization of S&T

- Need to master multiple dimensions: geography, economy, disciplines, multinational
- Invisible colleges and the question of control: rising inequality in S&T; problems of collaboration, networks; exclusion and inclusion
- Creativity becomes rare: no more lone, maverick, non-conformist, not for status or riches ‘little’ scientists
- Giantism and complexity (Schumacher)
- Big science: economic growth and industrialization
- High technology and productivity
- Import of technology and indigenous technology
- Implications for S & T education and Areas of research

Weinberg

Triple diseases of Big Science - journalitis, moneyitis and administratitis

Journalitis - Big Science's great need for public financial support and from proliferation of specialized scientific writings

"serious" scientific writing would be predigested in popular press, "blurring the line between journalism and science."

Moneyitis - the rush to spend dollars instead of thought in devising research strategies, such as "order[ing] a $10 million nuclear reactor instead of devising a crucial experiment with the reactors at hand."

Administratitis - increased number of scientist-administrators permeating the ranks of the scientific enterprise

Large projects are grand, hence superior, hence in national interest!?

Questions of what kind of science, which areas or topics, who will do science, why or for what reasons, and how to do science are all important