

# **Science and Technology Governance in Pakistan:**

## **The Role of Parliament and Other Policy-Makers**

Presentation for  
Regional Forum on  
"Science and Technology Policies for  
Sustainable Development"  
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# Overview

- S&T in Pakistan
- S&T Governance in Pakistan
  - Legislation
  - Policy Formulation
  - Implementation of Policies and Plans
- S&T Vision

# S&T Status at the Time of Independence

- Meager Human and Financial Resources
- Poor Infrastructure\*
  - Only 4 Laboratories
  - One University
  - One Agricultural College

\* Excludes East Pakistan

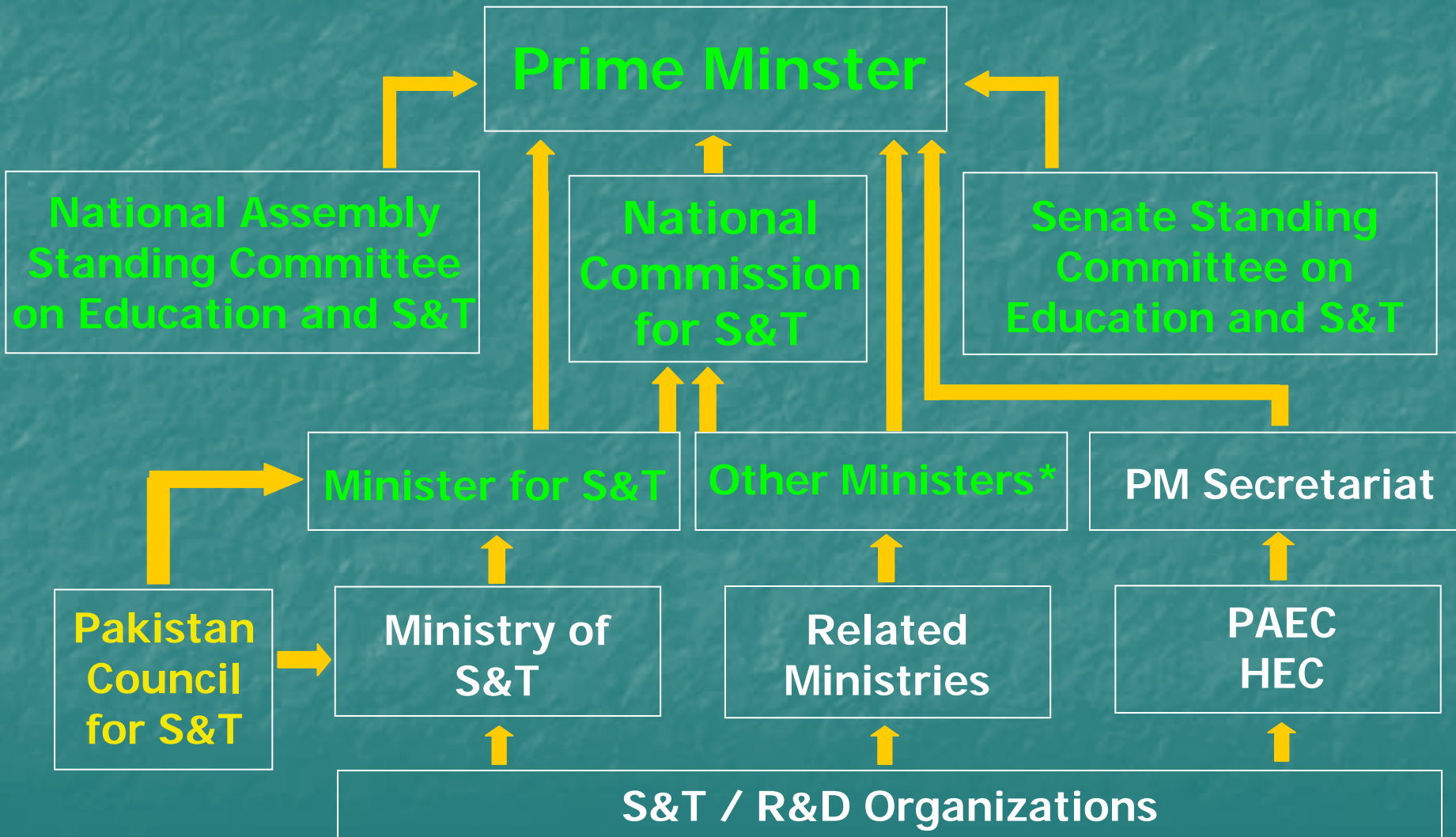
# Current S&T Status

- Independent Ministries for:
  - Science and Technology
  - Information Technology and Telecommunications
  - Higher Education Commission
- 83 Major S&T Organizations with 224 research institutes / centres / labs etc.
- 109 Universities / Degree Awarding Institutes including:
  - 9 Engineering and Technology Universities
  - 5 Agricultural Universities
  - 2 Medical Universities

# Current S&T Status

- S&T Manpower
  - 12,820 degree holder scientists / engineers
  - 88 scientists / engineers per million population
  - 23 PhDs per million population
- S&T Budget
  - Total S&T expenditure: US\$ 351 million
  - Total R&D expenditure: US\$ 166 million
  - S&T expenditure as percent of GDP: 0.51%
  - R&D expenditure as percent of GDP: 0.24%
  - Per capita annual S&T spending: US\$ 2.42
  - Per capita annual R&D spending: US\$ 1.15

# S&T Governance in Pakistan



\* Ministries of IT & Telecom., Agriculture, Industries, Health etc.

# S&T Legislation

- Standing Committees of Senate and National Assembly on Science and Technology
- Ministers for S&T, IT, Education, Agriculture, Industries and Health

# Standing Committees of the Parliament

- Senate Standing Committee comprises 12 members
- National Assembly Standing Committee comprises 18 members
- Minister for S&T is Ex-officio member of both the Committees

# Standing Committees of the Parliament

- Political oversight of the S&T system
- Examine the expenditures, administration, legislation, public petitions and policies of the concerned ministries and its associated organizations
- Make recommendations for S&T policy formulation and improvement of functions of ministries
- Bills and matters relevant to S&T are referred to the Standing Committees

# Ministers Related to S&T Issues

- Ministers for S&T, IT & Telcom, Agriculture, Industries etc.
- Presentation of bills / acts in the Parliament regarding their ministries
- Ensuring appropriate legal frame-work for organizations working under their ministries

# S&T Policy Formulation

- Policy Formulation at the national level
  - National Commission for Science and Technology
    - Executive Committee of National Commission for Science and Technology
    - Pakistan Council for Science and Technology
  - Ministry of Science and Technology
- Policy Formulation at the sectoral level
  - Ministries of S&T, IT&Telcom, Agriculture, Industries, HEC, PAEC

# National Commission for Science and Technology (NCST)

- Constituted in 1984
- Apex Policy-laying body in the field of S&T
- Headed by the Prime Minister
- 27 members
- 6 members of national parliament
- 4 members of provincial parliaments
- Executive Committee of National Commission for Science and Technology
- Pakistan Council for Science and Technology is designated secretariat of NCST

# Composition of NCST

Chairman	Prime Minister of Pakistan
Vice Chairman	Minister for S&T
Member/Secretary	Chairman, PCST

## Other Members

- Minister for Finance
- Minister for Agriculture
- Minister for Industries
- Minister for Education
- Provincial Ministers for S&T (4)
- Deputy Chairman, Planning Commission
- Secretary, S&TR Division
- Secretary, IT&Telecom Division
- Secretary, Ministry of Education
- President, Pakistan Academy of Sciences
- Chairman, Pakistan Engineering Council
- Chairman, Higher Education Commission
- Chairman, Pakistan Atomic Energy Commission
- Chairman, Pakistan Council for Scientific and Industrial Research
- Chairman, Pakistan Agricultural Research Council
- President, Federation of Pakistan Chambers of Commerce & Industry
- Scientists/Technologists nominated by Prime Minister (3)
- Industrialists nominated by Prime Minister (2)

## Main Functions of NCST

- Promotion of S&T in the country including funding for R&D and science infrastructure
- Acceleration of scientific and technological capacity building for rapid and sustainable economic growth
- Consideration of major programmes of S&T sector and establish guidelines
- Coordination of inter-ministerial and inter-provincial S&T programmes

# Executive Committee of National Commission for Science and Technology (ECNCST)

- Constituted in 1989
- To coordinate, oversee and review the S&T policies and R&D programmes
- To implement policy decisions taken by NCST
- Headed by the Minister for S&T
- 29 members
- Chairman, PCST is the Secretary of ECNCST

# Pakistan Council for Science and Technology

- Secretariat of NCST
- Expert Advice to Government on S&T Policy
- Strategic Planning for R&D
- Evaluation of Scientific Research
- Promotion of Scientific Research
- Cooperation and Coordination in S&T

# Ministry of Science and Technology

- S&TR division was established in 1964 and placed under Ministry of Education
- Established as independent Ministry of Science and Technology (MoST) in 1972
- IT&T Division established in 2000 and placed under MoST
- IT&T Division established as separate Ministry in the year 2002

# Pakistan Atomic Energy Commission

- Policies and Programmes to generate nuclear energy and fuel-cycle facilities
- Promotion of use of radiation and radio-isotopes in agriculture, medicine and industry
- Research, development and training of manpower

# Implementation of Policies and Plans

- Concerned Ministries  
(S&T, IT & Telecom, Agriculture, Industries)
- Organizations under PM Secretariat-  
HEC, PAEC
- Autonomous organizations under  
Federal Ministries
- Provincial Departments

## S&T Organizations under Federal Ministries

- Most of the S&T organizations working under the Federal Government are Autonomous bodies
- Heads of these organizations are responsible for the governance at the local level
- Most of these organizations work under:
  - Ministry of Science and Technology
  - Ministry of Food, Agriculture and Livestock
  - Ministry of Health
  - Prime Minister's Secretariat

## S&T Organizations under Provincial Government

- Provincial S&T organizations work under the administrative control of concerned Provincial Departments
- Secretaries of concerned Provincial Departments make policy decisions in line with federal government policy guidelines
- Most of the S&T organizations work under Departments of Agriculture, livestock and Fisheries

# S&T Vision

- Acquire world class capabilities in Scientific & Technological Research
- Use S&T as an Engine for Economic Development
- Improve Quality and Productivity in Industrial processes
- Absorb proven technologies to meet national needs

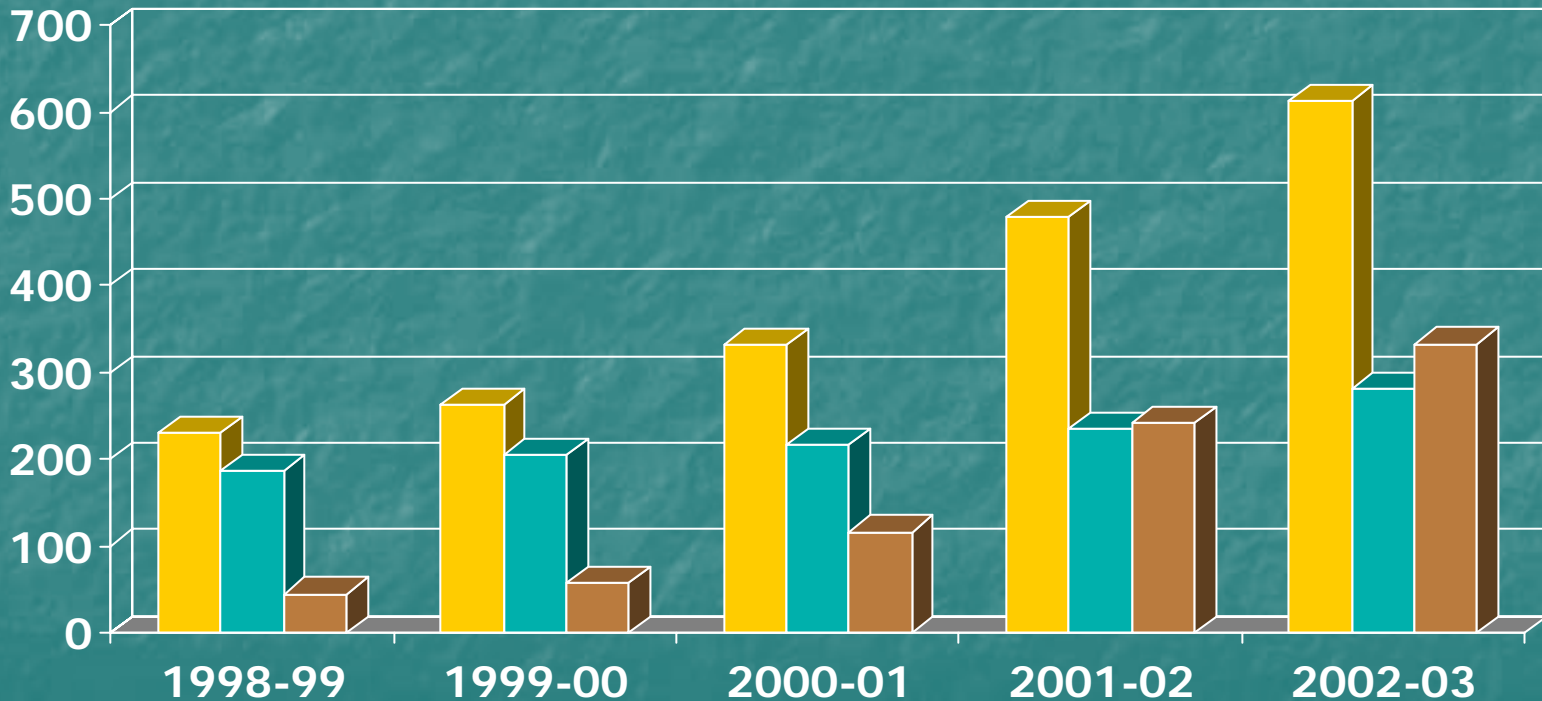
# Main Areas of New S&T Initiatives

- Human Resource Development
- Up-gradation of R&D Infrastructure & Launching of R&D Programmes
- Technology Development & Industrialization
- Strengthening of Policy, Coordination and Management Structure
- Information Technology

# Allocation of Financial Resources for Achieving the Vision

■ Total S&T Budget   ■ Non-Development   ■ Development

PPP\$ Million



PPP\$: Purchasing Power Parity

# Human Resource Development

- Post-doctoral Fellowship Scheme (1200 fellowship for 4 years)
- Foreign Faculty Hiring Programme (300 foreign faculty members each year for 5 years)
- Local Scholarships for PhD
  - Indigenous PhD Scheme (5000 scholarships in various batches; 800 enrolled)
  - Merit Scholarships Scheme (200 scholarships)
- Split PhD scheme (2 years in a local university + 2 years in a foreign university)

# Up-gradation of R&D Infrastructure & Launching of R&D Programmes

- Peer Review of R&D Organizations
- Establishment of National Science Libraries
- Strengthening Science Faculties in Universities
- Funding of Scientific and Technological Research in Universities and R&D Organizations
- Up-gradation of Lab. Facilities

# Technology Development and Industrialization

- Technology Development Board
- Technology Cluster Centres (plans to establish cluster centres for industries such as Fan, Bed Sheet, Surgical Instruments, Industrial Electronics, Leather)
- Strengthening of MSTQ Infrastructure
  - Standards Development Centre (Pakistan Standards and Quality Control Authority)
  - Technical Services Centre (Pakistan Standards and Quality Control Authority)
- Establishment of Pakistan National Accreditation Council
  - Crash awareness raising and training programme in quality management
- Establishment of Industrial Analytical Centres

Thank You