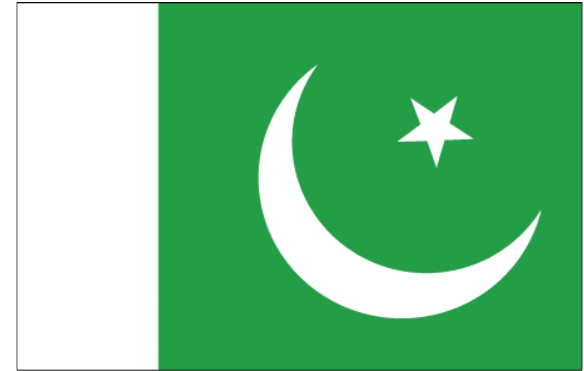




Science Education in Pakistan (14-21 November, 2018)



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Pakistan

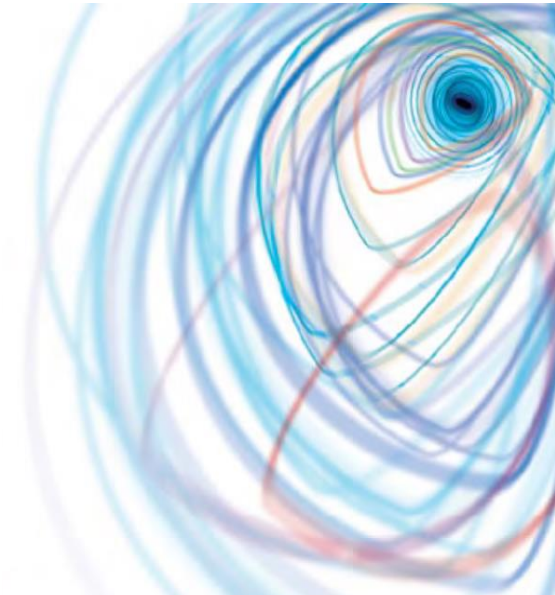
1.1 OVERVIEW

- Pakistan officially the Islamic Republic of Pakistan is a country in South Asia. It is the sixth-most populous country.
- Pakistan has a 1,046-kilometre (650-mile) coastline along the Arabian Sea and its Gulf of Oman in the south and is bordered by India to the east, Afghanistan to the west, Iran to the southwest, and China in the far northeast, respectively. It is separated from Tajikistan by Afghanistan's narrow Wakhan Corridor in the north, and also shares a maritime border with Oman.



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INTRODUCTION

SCIENCE, A HUMAN RIGHT

- Science education is a key area of activity internationally. Science education is a major field of practice, with science (and individual science disciplines) being taught and learnt at various levels, both formally (for example in schools) and through more informal approaches (such as the learning that takes place when people visit science museums) all around the world.
- In most countries, science is seen as a key component of schooling, and higher education in science subjects is usually considered of major importance for meeting societal needs such as ensuring the ‘supply’ of scientists, engineers and other professionals working in scientific fields and for ensuring sustainable economic development.

AIMS OF SCIENCE EDUCATION IN PAKISTAN

- Develop citizens able to participate fully in economic, political and social choices in technology led environments.
- Provide appropriate preparations for modern work, innovation and competition.
- Stimulate intellectual and moral growth to help students develop into rational autonomous individuals.
- Train specialists in science, research and technology development.

(Modified from the Science Council of Canada 1989)

FACTORS AFFECTING SCIENCE TEACHING & LEARNING IN PAKISTAN

- Opposing imperatives of science teaching
- Science deserves focused attention
- Idiosyncrasies affecting science
 - ❖ Low levels of appreciation and support
 - ❖ Academic freedom – a motivator
 - ❖ Poor communication
 - ❖ Vertical arrangements
 - ❖ Links with needs of society
 - ❖ Self correction
- Outdated curricula
- Appreciation of philosophy, history, pervasiveness, limitations and social importance

REASONS FOR TEACHING SCIENCE IN PAKISTAN

- **Personal Needs**

Utilize sciences for improving lives and for coping with an increasingly technological world.

- **Societal Issues**

Produce informed citizens prepared to deal with science related social and environmental issues.

- **Academic preparation**

Allow students to pursue critical thinking.

- **Career awareness**

Provide the nature and scope of related careers and jobs.

UNESCO 2010-REPORT ON SCIENCE EDUCATION

Highlighted that Science education counts because:

- It helps eradicate poverty and hunger
- It promotes gender equality and empowers women.
- It reduces child mortality.
- It helps improve maternal health.
- It combats HIV and AIDS, malaria and other life – threatening diseases.
- It helps ensure environmental sustainability.
- It is essential to a global partnership for development

THE WORLD BANK (1997)-REPORT

States:

“ The best way to improve access is to improve quality which would make coming to school or staying in school a more attractive option from the perspective of parents as well as children. Moreover, effort to improve quality will tend to increase the efficiency of the public expenditure and will encourage parents to contribute to children education.”

CHALLENGES TO QUALITY SCIENCE EDUCATION IN PAKISTAN

1. Teachers

Teaching Shortfalls in Pakistan

- Teachers are the most important element in the whole educational system of a country.
- Not enough quality teachers are available
 - ❖ with experience in research
 - ❖ knowledge of the area
 - ❖ confidence of context and history
 - ❖ ability to draw on cultural examples

CHALLENGES TO QUALITY SCIENCE EDUCATION IN PAKISTAN (CONT'D)

- Ability to draw on cultural examples
- Graduate science programs divorce from science teaching at primary and secondary levels.
- Flexibility to match science with student requirements
- Low cognizance of unfolding S&T information.
- Outdated fixed curricula

CHALLENGES TO QUALITY SCIENCE EDUCATION IN PAKISTAN (CONT'D)

2. Curriculum

Curriculum of teacher training and curriculum of school education are criticized within Pakistan. It is common perception that curriculum of teacher training is old and does not fulfill the requirements of the technological era.

3. Basic facilities

Basic Facilities like school building, electricity, laboratories drinking water are necessities for education. Without these facilities education is very difficult. For quality education, these facilities are compulsory. Inadequate facilities are one of the challenges in the way of quality education.

EDUCATION SECTOR REFORMS (2002)

Education Sector Reforms (2002) describes the following strategies for quality improvement at all levels:

1. Benchmarking competencies.
2. Continuous improvement of curricula.
3. Staff development, teacher education and training, and professional development of planners, managers and staff at all levels.
4. Establishment of National Educational Assessment System (NEAS).
5. Strengthening the Teacher Training institutions.
6. Setting Academic Audit through linkage of grants/incentives with quality.
7. Increase of non-salary budget for provision of conducive educational environmental.
8. District based educational planning and implementation under the Devolution Plan
9. Public-private partnership and community participation.

PAKISTAN ECONOMIC SURVEY (2008, P.177)

- Documented that government has undertaken a number of reforms to widen access to education and raise its quality in the country.
- This document highlighted the following steps of government taken for imparting quality education to its mass:

STEPS TAKEN BY THE GOVERNMENT OF PAKISTAN AS PER ECONOMIC SURVEY

- **Establishing National Education Assessment System**
Government of Pakistan launched National Education Assessment System (NEAS) to improve and assess the quality of education at elementary level.
- **Formulation of a National Textbook and Learning Materials Policy**
National Textbook and Learning Materials Policy (2007) has been prepared to prop up the quality of education at all levels through better quality textbooks at affordable prices and other learning materials for promoting Pakistan as a knowledge based society.

STEPS TAKEN BY THE GOVERNMENT OF PAKISTAN AS PER ECONOMIC SURVEY (CONT'D)

- **National Commission for Human Development (NCHD)**

NCHD is a public-private partnership aims to improve quality of education through budgetary measures, and eliminate gender disparity at primary and secondary level by 2015.

- **Strengthening of Teacher Training**

The government has taken several substantial initiatives for teacher's education and professional development.

- **Technical and Vocational Education**

Realizing the role of skilled and technically educated manpower for the economy, the government has established the National Technical and Vocational Education Commission (NAVTEC) in November 2006.

STEPS TAKEN BY THE GOVERNMENT OF PAKISTAN AS PER ECONOMIC SURVEY (CONT'D)

- **Curriculum and Medium of Instruction**
 - ❖ A new cycle of curriculum development will be initiated
 - ❖ The curricula shall encourage enquiry, creativity and progressive thinking through project-oriented education.
 - ❖ The professional base of institutions involved in curriculum development shall be enlarged.
 - ❖ All vocational curricula shall be related to employment market.
 - ❖ The linkage among curriculum development, textbooks writing, teacher training and examination will be reinforced.
 - ❖ Science curricula will be revised and made compatible with the demands of new knowledge.

STEPS TAKEN BY THE GOVERNMENT OF PAKISTAN AS PER ECONOMIC SURVEY (CONT'D)

- **Textbooks**

- ❖ Textbooks shall be revised and updated
- ❖ Curriculum development and book development shall be coordinated.
- ❖ Incentives shall be provided to teachers for producing new and attractive learning materials
- ❖ Multiple textbooks may be approved and the institutions may be allowed to select any one of these texts.
- ❖ Use of library materials will be encouraged by teachers

STEPS TAKEN BY THE GOVERNMENT OF PAKISTAN AS PER ECONOMIC SURVEY (CONT'D)

- **Teachers**
 - ❖ A separate unit for teacher training will be established .
 - ❖ Mobile trainings units will be formed.
 - ❖ Teacher training institutions will be equipped and strengthened
 - ❖ A regular in-service training programme will be launched
 - ❖ Teacher training curricula will be updated.
- **Physical Facilities**
 - ❖ Science laboratories and Science kits shall be provided in all middle schools.
 - ❖ Arrangements will be made for computer education at all levels .
- **Evaluation**
 - ❖ A system of continuous internal evaluation culminating in the annual examination will be used to evaluate the performance of students.

JUSTIFICATIONS FOR TEACHING SCIENCE TO EVERYONE

- Science brings news for us:
 - ❖ unexpected things about ourselves, the world and the universe.
 - ❖ provides knowledge for everyday actions, for example, to cure and prevent diseases, keep order, shop wisely etc.
 - ❖ confirms as fact what appears counter intuitive to common sense.
Has to be taught not routinely acquired.
 - ❖ Allow an intellectual base for communication.

SCIENCE EDUCATION IS A CONTINUING SUCCESS STORY

There are limits to science but science works:

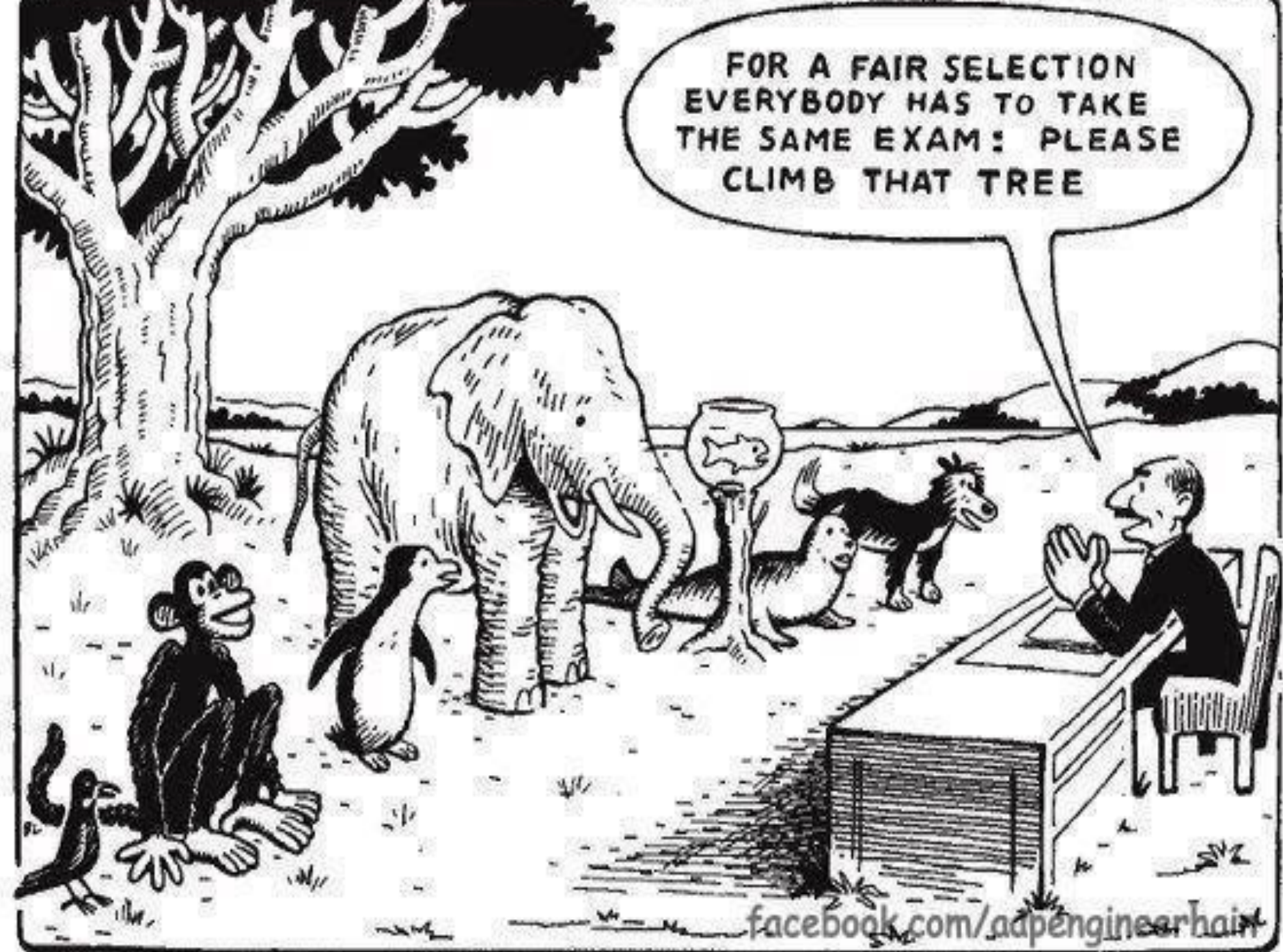
- ❖ helps to judge between expert advice and misinformation.
- ❖ science affect lives – no middle ground.
- ❖ scientific knowledge although universal has to have local components and renewed.
- ❖ Every person and country has responsibility and must be given opportunity
- ❖ Success must be followed and applied.

CONCLUSION

- In the technological era, development depends on education.
- Quality Science education depends upon teachers, learning materials and basic facilities. Quality can not be attained if one of these elements is missing.
- Government of Pakistan is trying its best to provide quality education to its mass. For this, government is utilizing its local resources as well as international funds and human resources are also utilizing.
- Still, there are some problems, to overcome these problems, government of Pakistan welcomes the international cooperation.
- Teacher training, development of textbooks and curriculum of international level are the prioririorities of government of Pakistan.
- In this regards, many steps have been taken and there is a lot to be done in future.



FOR A FAIR SELECTION
EVERYBODY HAS TO TAKE
THE SAME EXAM: PLEASE
CLIMB THAT TREE





THANK YOU