

In the XXIst century it is essentially unthinkable to create jobs, face poverty and strengthen democratic governance without improving science teaching, make extensive use of science, apply the locally most efficient technology and introduce the concept of innovation at all the levels of society.

In a world moving rapidly towards the knowledge-based economies of the 21st century capacity building in science and technology (S&T) is necessary everywhere. But the need is greatest for the developing countries.

In reaching out to small and medium-sized enterprises each country should make an effort to build, from a locally based S&T&I platform, adequate science-based technologies that are applicable to local conditions. Without these considerations the dilemma between underdevelopment with employment or modernization without employment may never be broken.

In our time, science, technology, engineering and innovation play a fundamental role in the creation of wealth, economic development and in the improvement of the quality of life for all citizens of the Americas. These areas are engines of integral development. They generate employment and well-being through innovation and the commercialization of new products and services; they help reduce poverty, improve education, health, nutrition and trade; and are essential for building new capacities that are essential in the 21st. century. They are also needed for sustainable development.

Social understanding of the essentiality of Science, Technology, Innovation and Science Education (STISE) requires science teaching from the very early stage. Values such as tolerance, critical analysis of dogmas and intellectual rigor will then be part of the culture of all citizens. Science Education, from the elementary to the pos-secondary level, is critical and must be integrated with local values. Differentiation in the nature of the organizations engaged in post-secondary education, (e.g. research universities, universities, colleges, community colleges, etc) including vocational training in two year colleges, is an important component for enlarging the percentage of youth (17 to 24 year old bracket) receiving education after high school. The contribution of the local communities, learned societies, the private or public industrial (or services) sectors in setting the nature of vocational training is essential.

Cutting edge science can be produced under economically disadvantaged circumstances; scientific development, job creation and fight against poverty are interrelated. The introduction of science, technology, engineering and innovation in our local and specific conditions, as has happened elsewhere, can determine equitable development. Information of success cases where STISE have impacted the fight against poverty, helped to create jobs and strengthened democratic governance is essential. Information and understanding of the international frameworks related to intellectual property rights and patents in all levels of society is essential, to protect local ethnic culture and to make local inventions economically and socially useful to society.

Society as a whole should be able to participate in the creation, and understand the uses and benefits of STISE. Limited social participation guarantees that STISE broadens, rather than decreases the social, economic and knowledge divides in our society. The capacity for investment of both public and private sectors in Latin America and the Caribbean is limited. Public support for STISE requires social understanding of its impacts on health, poverty, creation of jobs, security and democratic governance. Private investment demands information on the return on investment of the production of local science, technology and innovation.

The devastation of our natural resources can only be counteracted through scientific management to provide sustainable development. Environmental policies should be a central theme in the discussion of STISE applications.

Competitiveness for local business is now of global scale, therefore technology and innovation should be incorporated in small and medium-sized enterprises. Education and Information Technology are essential for the incorporation of minorities and Indigenous peoples in the open market economy.

PROPOSALS.-

1.- Science Education should be incorporated to primary school teaching in a large scale in the Americas.

Background. The hands on science teaching for children Programs, known as Inquiry Based Science, already being implemented have demonstrated cost effectiveness and results in changing the culture of primary school teachers and the capacity of children to grasp contemporary scientific concepts, increase their independence and contact with evidence based analysis of their local situation. It is clear that the rate of return to investment in human capital is greatest at this stage.

2.- Public financing for Science, Technology and Innovation should be part of National policies and be Coordinated at the highest governmental levels.

Background. Policies for public investment in Science, Tecnology and Innovation (STI) in Latin America are seldom part of National policies and are usually connected to individual policies of a number of uncoordinated support agencies. It is seldom possible, with this mechanism to reach national goals relating the results of investment in STI with creation of jobs, relief of poverty and job creation. Building Capacity for Science and Innovation Policy decision making in governments is an essential part of this effort.

3.- Private investment in STI in Latin America has to be higher than public investment at the end of the next decade.

Background. Even in countries of Latin America where the total investment in STI reaches 1% of GNP, the contribution of the private sector rarely exceeds 30% of the total. It is essential that legislation makes local investment in STI attractive for local firms.

4.- Latin America should count on a selected number of world class universities and a diversified ensemble of post-secondary training centers to universalize access to higher learning and build human capacity for a knowledge based competitive economy.

Background. The % of youth in the 17 to 25 year old bracket obtaining higher education training in Latin America and the Caribbean region is well below developed world standards. However higher education reforms in the region tend to be focused exclusively on university training.