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Science And Technology In Brazil, Russia, India, China And South Africa

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Introduction:

It is essential to include basic science Education from the beginning of the Educational process, making investment in Scientific Education a Priority. This approach decisively contributes to encouraging young people to take up careers in Science and Technology. Nevertheless, the Most important consequence is the contribution it makes to improving education, which is a subject that has mobilized several segments of society because of its importance. UNESCO acts as a catalyst for these themes and offers the country support to stabilize policies, as well as promoting technical cooperation at National and International levels in the field of natural Sciences. Scientific education and development of sustainable practices are themes of great interest to UNESCO, taking into consideration the continuous support offered to Science and Technology Policy.

BRAZIL

Brazilian Science and Technology

Brazilian Science and Technology have achieved a significant position in the international arena in the last Decades. The Central agency for Science and Technology in Brazil is the Ministry of Science and Technology which includes the CNPq and Finep. This ministry also has direct supervision over the National Institute for Space Research (Institute National de Pesquisas Espaciais - INPE), the National Institute of Amazonian Research (Institute National de Pesquisas da Amazonia - INPA), and the National Institute of Technology Institute National de Tecnologia- INT) The Ministry is also responsible for the Secretariat for Computer and Automation Policy (Secretaria de Politica de Informatica e Automacao - SPIA), which is the successor of the SEI. The Ministry of Science and Technology which the Sarvey government created in March 1985, was headed initially by a person associated with the nationalist ideologies of the past. Although the new minister was able to raise the Budget for the Science and Technology sector, he remained isolated within the Government and had no influence on policy making for the economy.

With the new Ministry, the Science and Technology agencies increased in size but lost some of their former Independence and flexibility, and they became more susceptible to patronage politics. Most of the resources of the CNPq were channeled to fellowship programs that had no clear procedures for quality control and no mechanisms to make the fellows active in the country's Science and Technology institutions. New Groups competed for resources and control of the country's agencies of Science, Technology and higher education. These groups included Political parties, Unionized University Professors and employees, Scientific Societies and special interest Groups within the Scientific and Technological Community. The SBPC (Brazilian Society for Scientific Development) shed its image as a Semi autonomous association of Scientist to Brazil.

Science and Technology In Russia

Science and Technology in Russia developed rapidly since the Age of Enlightenment, when Peter the Great founded the Russian Academy of Science and Saint Petersburg State University and Polymath Mikhail Lomonosov founded the Moscow State University, establishing a strong Native Tradition in Learning and Innovation.

In 19th and 20th Centuries, the Country produced a large number of notable Scientists, making important constructions into Physics, Astronomy, Mathematics, Computing, Chemistry, Biology, Geology, and Geography. Russian inventors and engineers excelled in such areas as electrical engineering, shipbuilding, aerospace, Weaponry, communications, IT, nuclear Technology and Space Technology.

Recently, the crisis of the 1990s led to the drastic reduction of the state support for Science and Technology. Many Russian scientists and University graduates went to Europe or United States in the so called brain drain Migration.

In the 2000s, On the wave of a new economic boom, the situation has improved, and the government launched a campaign aimed into modernisation and innovation. Current priorities for the country's Technological development include energy efficiency, IT (including both common products and the products obtained with space technology. Science and education.

Main Articles

- Russian Academy of Sciences,
- Education in Russia,
- List of Russian Scientists

List of Russian Physicists:

The Russian Physics school began to develop after Lomonosov who proposed the law of conservation of matter proceeding the energy conservation Law. During the period of origin of Electrodynamics vasily Peetrov discovered the Electric arc effect in 1802 and Heinrich Lenz discovered an important Law named in his honor. Nikolay Umov discovered a fundamental concept of Umor Poynting Vector and was the first scientist to indicate interrelation between Mass and Energy proposing the formula as early as in 1873. Alexander Popov was among the inventors of radio.

Russian/ Soviet Physics in the 20th Century was one of Leading ones in the world. Alexander Friedmann was the first Scientist to propose an expanding Universe Model (1922) which greatly influenced cosmology in the 20th Century. Dmitrii Franenko was the first to propose the Proton Neutron model of Atomic Nuclei (1932) and Nuclear Shell Model (1932). Georgiy Gamov proposed the Theory of the Alpha decay of a nucleus. Via tunnelling (1928) and was an author of Big Bang Theory. Nikolay Bogolyubov suggested a triplet quark model, introduced a new quantum degree of freedom (later called as color charge) for quarks and formulated a microscopic theory of superconductivity. Lev Landau made fundamental contributions to

many areas of theoretical Physics (Nobel Prize in Physics, 1962). Nikolai Basov and Alexander Prokhorov were co inventors of lasers and masers (Nobel Prize in Physics, 1964), Zhores Alferov greatly contributed to the creation of modern heterostructure Physics and Electronics which find many applications in modern life: from CD & DVD players to fiber optic transceivers (Nobel Prize in Physics, 2000) In 2010, two Russian born and educated Physicists Konstantin Novoselov and Andre Geim were awarded with Nobel Prize in Physics for their work in graphene, a material which may have important applications in electronics, aviation and Medicine. Kunstkamera building, the first headquarters of the Russian Academy of Science in Saint Petersburg.

A number of achievements of Russian/ Soviet Scientist remained unknown to general public due to security considerations or Bureaucratic obstacles.

List of Russian Mathematicians:

In Mathematics Nikolai Lobachevsky, a copernicus of Geometry, founded the non Euclidean geometry playing an important role in modern physics. In the 19th Century the international recognition was also gained by such mathematicians as Mikhail Ostrogradsky and Sofia Kovalevskaya who was the first Major Russian female mathematician, responsible for important original contributions to analysis, differential equations and mechanics, and the first woman appointed to a full professorship in Northern Europe. In the beginning of the 20th Century Nikolai Zhukovsky and Sergei Chaplygin were among founding fathers of the modern aero and hydrodynamics and Vladimir Kotelnikov was a pioneer in information theory by independently proposing the fundamental sampling theorem. Andrei Kolmogorov, a leading mathematician of the 20th Century, developed the foundation of the modern theory of probability and made other key contributions to broadest range of mathematical branches, such as turbulence, mathematical logic, topology, differential equations, set theory, automata theory, information theory, theory of algorithms, dynamical systems, stochastic processes, theory of integration, classical mechanics, mathematical linguistics, Mathematical biology and applied sciences.

List of Russian Inventors and Timing of Russian Inventions

The Sukhoi Superjet 100 is the latest civilian product of the Russian aircraft Industry.

Main Articles

- Aircraft industry of Russia
- United Aircraft corporation
- List of Russian Aerospace Engineers

The History of the Russian aircraft Engineering originated from a Pioneer of aviation Alexander Mozhaysky who made his first attempt to fly by his own design aircraft (monoplane) as early as in 1881.

Famous Russian Airplanes include the first supersonic passenger jet Tupolev Tu 144 by Alexii Poler, Mig fighter aircraft series by Artem Mikoyan and Mikhail Gurerich, and su series by Pavel Khoi and his followers. The Mig 15 is the jet aircraft with the world's highest production in history. While MiG- 21 is the most produced Supersonic aircraft since, World War II Era, Ilyushin II-2 bomber remains the most important produced military aircraft in history. Polikarpov Po-2 Kukuruznik is the world's most produced biplane, and Mil Mi-8 is the most produced helicopter.

Aircraft manufacturing is one of the most science intensive hitech sectors of modern Russian economy and employs the largest number of skilled personnel. In 2009, companies belonging to the United Aircraft corporation delivered 95 new fixed wing aircraft to its customers, including Civilian Models. In addition, the Industry produced over 141 helicopters.

Science And Technology In India

India ranks third among the most attractive investment destinations for technology transactions in the world. India is among the topmost countries in the world in the field of scientific research, positioned as one of the top five nations in the field of space exploration. This is PSLV's 27th consecutive successful mission. India is likely to take a leading role in launching satellites for the SAARC nations, generating revenue by offering its space facilities for use to other countries.

Market size

India is among the world's top 10 nations in the number of scientific publications. Positionwise, it is ranked 17th in the number of citations received and 34th in the number of citations per paper across the field of Science And Technology (among nations publishing 50,000 or more papers). With support from the Government, considerable investment and development has occurred in different sectors such as agriculture, health care, space research and nuclear power through scientific research.

Recent Developments:

- Indian Regional Navigation Satellite system (IRNSS) from the Satish Dhawan Space centre in Sriharikota.
- The Department of Space/ Indian Space research Organisation (DOS/ISRO) and Kuwait Institute of Scientific Research (KISR) have signed a Memorandum of Understanding (MoU) on cooperation in the field of exploration and use of outer space.
- Indian Space Research Organisation (ISRO) plans to build its heaviest rocket, which can increase its satellite carrying capacity by five times to 10 tonnes weight into space and would be powered by a Semi Cryogenic Engine designed and being built by Godrej Aerospace.

- Indian Space Research Organisation (ISRO) is taking steps towards developing its own reusable rocket using a winged Reusable Launch Vehicle Technology Demonstrator (RLV - TD) whose tech demo is expected to be conducted in February 2016.
- Some of the global space agencies of USA, Canada, France, Republic of Korea and Turkey to enable them to utilise the Geosynchronous Satellite Launch Vehicle (GSLV) Services for the foreign customer Satellites.

Investment Scenario

- Sustained increase in plan allocations for scientific departments.
- setting up of new institutions for science education and research
- Launch of new science, Technology and Innovation Policy 2013.
- Establishment of new and attractive fellowships
- Strengthening infrastructure for R & D Partnerships
- Encouraging Public Private R & D Partnerships
- Recognition of R & D Units
- Several Recent Developments indicate the progress made in R & D.

Science And Technology in China

In recent decades Science And Technology have developed rapidly in China. The Chinese government has placed emphasis through funding, reform, and societal status on Science And Technology as a fundamental part of the socio economic development of the country as well as for national prestige. China has made rapid advance in areas such as education, infrastructure, high tech manufacturing, Academic Publishing, Patents and commercial applications and is now in some areas and by some measures a world leader. China is now increasingly targeting indigenous innovation and aims to reform remaining weaknesses.

Economic and Technological Development Zones:

Based on the success of the special Economic Zones of the People's Republic of China, China has created Economic and Technological Development Zones. They have the purposes of building up high tech industries, attracting foreign investment, increasing exports and improve of the regional economy. They are considered to have been very successful and have been expanded from an initial fourteen to fifty four.

Education:

Technology Transfer And R & D By Multinational Corporations:

In the early 1980s foreign companies began transferring technology by Licensing agreements and sales of equipment. Later in the 1980s, many multinational

corporations started transferring technology by entering into Joint Ventures with Chinese Companies in order to expand in China. China in the 1990s introduced increasingly sophisticated regulations of foreign Investment by which access to the Chinese Market was traded for Technology transfer. The entry of China into the World Trade Organization in 2001 required this Practice stop but critics argue that it continues. China has increasingly encouraged multinational corporations to create R&D centres in China. In 2010 there were 1,200 such R & D centres and 400 out of the Fortune 500 corporations had created such R & D centres. China is now ranked first when multinational corporations are asked in which nation future R & D centres are most likely to be located.

Science And Technology In South Africa

The first significant work in astronomy South Africa was performed by Nicolas Louis De Lacaille between 1751 and 1753, culminating in the measurement of the arc of the southern meridian and a catalog of almost 10,000 southern stars, later published as *Coelum Australe Stelliferum*. The Royal Observatory was established at the Cape of Good Hope in 1820 and opened in 1829. Today, with the main observing site having moved from the Cape of Good Hope to a higher site at Sutherland, it is host to the southern African Large Telescope as well as numerous other South African and international telescopes. Notable astronomers who have worked in the country include John Herschel who published *Results of Astronomical Observations made during the year 1834*, 5, 6, 7, 8 at the Cape of Good Hope in 1847 and David Gill whose work includes the Cape of Photographic Durchmusterung. The Karoo Array Telescope (or MeerKAT) is under construction as a Pathfinder for the \$2 Billion Square Kilometer Array (SKA) Project, which will be split between sites in South Africa, Australia and New Zealand.

Department of Science and Technology (South Africa)

- The Department of Science and Technology (DST) is the South African Government department responsible for scientific research, including space programmes. The current Minister is Naledi Pandor, who previously held the post from 2009 - 2012.

Much of the Department's work is ultimately carried out through various quasi-independent agencies (although still usually government bodies) including:

- The National Research Foundation of South Africa, which receives a substantial proportion of the DST budget to carry out various research support tasks, including supporting key national research infrastructure, (National Research Foundation Facilities) scientific research grant administration and a student grant scheme;

The Council for Scientific and Industrial Research, which acts as a quasi-privatised research and development agency with a specific focus on research of application to industry;

- * The Technology Innovation Agency, which serves to provide funding to turn innovative research into commercial products.
- * The South African National Space Agency, which covers space-related research and development initiatives;
- * The Human Sciences Research Council (South Africa) which focuses its research on human health and disease.

Conclusion:

In this essay about the BRICS members of Science and Technology it means, Science and Technology in Brazil, Russia, India, China and South Africa. In this essay List of Russian Scientists, Economic and Technological Development Zones, Market size, Recent development and Investment Scenario.

Thank you for this opportunity.....