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International Atomic Energy Agency

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**Statement by Dr. S. Banerjee, Chairman of the Atomic Energy
Commission**

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Leader of the Indian delegation

Mr. President,

It gives me great pleasure to congratulate you on your election as the President of the 54th General Conference. Under your able leadership and with support from the Agency's Secretariat, we are certain that the current General Conference will be able to accomplish all the tasks before it.

This is the first General Conference after H.E. Mr. Yukiya Amano has taken over as Director General of the International Atomic Energy Agency (IAEA). I take this opportunity to convey our deep appreciation of his leadership of the Agency at a time when the world is looking towards nuclear energy with great expectations.

I welcome the entry of the Kingdom of Swaziland to the Membership of the IAEA. I take this opportunity to congratulate the Kingdom of Swaziland on this occasion of its joining the IAEA family.

Mr. President,

Limited fossil fuel reserves, environmental concerns and economic reasons have led to a resurgence in global interest in nuclear energy. Several countries are in various stages of taking decisions on setting up their first nuclear power plants. Other countries are engaged in expanding their existing nuclear power programmes or extending the life of their ageing plants.

On the basis of conservative projections, global nuclear power generation is expected to reach about 500 GWe by 2030. For large scale deployment of nuclear power generation, it is essential to develop technological solutions as well as institutional approaches to address issues of economics, safety, environment, waste management, infrastructure, proliferation resistance and sustainability. IAEA's activities are significantly contributing to addressing these issues.

INPRO is one such high impact programme associated with future generation reactors and their fuel cycles. India strongly feels that INPRO activities should become an integral part of the IAEA regular programme, and therefore, needs to be fully supported through the

Agency's regular budget. I am happy to reiterate that India will continue to support this programme.

The global nuclear renaissance has been, to a large extent, the result of major investments made by industry over the decades to enhance the safety aspects of nuclear energy. Recently the Indian Parliament has passed the Civil Liability for Nuclear Damage Bill, 2010 after extensive debate. This legislation will go a long way in increasing public confidence and in creating a predictable environment in which leading vendors can participate in India's nuclear programme.

We are happy to note that the International Nuclear Radiological Event Scale (INES) is celebrating its 20th anniversary this year. INES is a very useful tool for communication of safety significance of different nuclear and radiological events to the general public in a consistent and simple manner. India has adopted INES, right from its inception and has participated very actively in its evolution.

Mr. President,

Nuclear power is important for a country like India where availability of electricity will act as an instrument of inclusive economic growth. A recent study has estimated that nuclear power must contribute about half of the Indian electricity generation capacity so as to nearly eliminate the dependence of our country on import of energy resources while achieving a developed status.

We remain committed to the 3-stage nuclear programme formulated under the visionary leadership of Dr. Homi Bhabha, founder of India's nuclear programme. India attaches a high priority for adopting a closed fuel cycle and Thorium utilization on account of relatively limited domestic Uranium reserves while having large Thorium deposits. Water cooled reactors, fast breeder reactors and thorium based power generation remain the key elements of our sustainable nuclear programme.

The Indian nuclear power programme lays strong emphasis on safe and reliable operation of its power plants, reduction of gestation period of new projects and capacity addition. During the year the nuclear power sector has achieved over 322 reactor years of safe operation.

The total installed nuclear power capacity in the country is now 4560 MWe. The total number of operating reactors is 19 including the two new 220 MWe units at Rajasthan that were connected to the grid in the last year. En-masse replacement of coolant channels and feeders were completed in PHWRs at Kakrapar and Narora. Construction of the KAIGA – 4 PHWR has been completed and the unit is ready for fuel loading. Three of our reactors have registered uninterrupted runs of more than 400 days.

Construction of two 1,000 MWe light water reactors at Kudankulam in cooperation with the Russian Federation, is nearing completion. Work on two indigenous 700 MWe units each at Rawatbhata,

Rajasthan and Kakrapar, Gujarat has started and the first pour of concrete is planned later this year.

The 500 MWe Prototype Fast Breeder Reactor (PFBR) is at an advanced stage of construction. The spent mixed carbide fuel from the Fast Breeder Test Reactor (FBTR) with a burn-up of 155 GWd/t was reprocessed in the Compact Reprocessing facility for Advanced fuels in Lead cells (CORAL). Thereafter, the fissile material was re-fabricated as fuel and loaded back into the reactor, thus 'closing' the fast reactor fuel cycle.

Based on the already established indigenous technology, India is expanding its uranium enrichment capacity which will meet a part of the requirements of light water reactors. Setting up adequate reprocessing capability has been an important element of our closed fuel cycle based programme. Recently, India has commenced engineering activities for setting up of an Integrated Nuclear Recycle Plant with facilities for both reprocessing of spent fuel and waste management.

In-principle approval has been accorded for energy parks at five coastal sites. Each park will be populated with a number of water cooled reactors to be constructed through international cooperation. Thus India is poised to expand its installed nuclear power capacity to about 60 GWe by 2032. International cooperation will not only provide an additionality to our own programme in meeting immediate

requirements but also fill up the energy deficit in the coming decades through the operation of the closed fuel cycle.

Mr. President,

India is self-sufficient with regard to heavy water, zirconium alloy components and other related materials and supplies for PHWRs. A new zirconium complex has been commissioned for production of reactor grade zirconium sponge. The Nuclear Fuel Complex at Hyderabad manufactures fuel assemblies of different types of reactors, viz. PHWRs, boiling water reactors and fast breeder reactor. India has wide-ranging capabilities in uranium mining and mineral processing facilities. The Uranium deposit at Tumallapalle, where a new mine is recently opened, has a promise to yield about three times of what was originally estimated. In this context, I would like to inform that India is pursuing aggressively uranium prospecting using modern geo-physical techniques, some of which have been indigenously developed. India is also interested in joining with international partners in developing uranium mining opportunities abroad.

Indian PHWRs offer a basket of options for countries that are looking for cost competitive and proven technologies in the small and medium size reactors. Therefore today Nuclear Power Corporation of India is ready to offer Indian PHWRs of 220 MWe or 540 MWe capacity for export. Indian industry is not only poised to play a bigger contribution to India's own nuclear programme but also is on the way to becoming a competitive supplier in the global market with regard to

special steels, large size forgings, control instruments, software, other nuclear components and services.

It is important for me to mention to you that our country is in the process of setting up the Global Centre for Nuclear Energy Partnership which will provide a forum for joint work with our international partners in areas of topical interest.

Mr. President,

Non-power applications of nuclear energy, particularly in the areas of health care, agriculture and water-desalination and purification are rapidly expanding globally.

We are happy that the theme of the Scientific Forum of this General Conference is related to cancer and its mitigation. The application of nuclear techniques has an important role in both the detection and treatment of cancer. The Tata Memorial Centre at Mumbai which has a leading position in cancer treatment and research, conducts several training programmes in collaboration with the IAEA - RCA for various countries in the Asia Pacific region. A national cancer grid is being set up by connecting several hospitals with the Tata Memorial Centre. In addition, about 30 webcasts on continuing medical education are relayed every year.

The IAEA's Programme on Action for Cancer Therapy (PACT) enables the channeling of the resources and expertise to the needy

and developing countries. An indigenously developed BHABHATRON Teletherapy unit donated by India to Vietnam under the PACT has been inaugurated in April this year. As part of our continuing support to this programme, I am happy to announce that India has taken the decision to donate two Bhabhatron Teletherapy machines, including one to Sri Lanka.

Our hybrid Nuclear Desalination Demonstration Plant (NDDP) at Kalpakkam, based on multistage flash evaporation and reverse osmosis processes, producing 6.3 million litres per day, is one of the largest such units in the world.

India continues to use nuclear science to achieve higher agricultural productivity. This year two new mutant lentil varieties (“Paury mung” and “Trombay Jawahar Tur”) were notified for commercial cultivation, taking the total number of mutant crop varieties developed by Bhabha Atomic Research (BARC), using nuclear techniques to 39.

Mr. President,

India’s nuclear programme attaches importance to R&D work and some recent achievements are as follows:

- Installation of Indian Real Time Online Decision Support (IROS) system at Narora Atomic Power Station for providing guidance to the emergency managers for

making quick decisions based on projected impact of accidental releases from the plant.

- The synchrotron radiation source at Indore is now fully functional and several beam-lines have been set up for experiments.
- India's first industrial scale production facility for enriched boron based on exchange distillation has been commissioned at Talcher and a similar facility based on ion exchange chromatography is commissioned at Manuguru.

Mr. President,

While we reap the benefits today of the nuclear technology developed several decades ago, there is an urgent need to give a renewed thrust to take nuclear technology to greater heights for spreading its benefits to the entire humanity. In order to satisfy the growing energy needs of the world while caring for the environment, the Agency will need to further enhance its efforts towards new innovations and appropriate technology solutions.

Thank you.