Address at the

93rd Science Congress

Focal Theme

Integrated Rural Development – Science & Technology

Inaugural Address by

Shri. Kapil Sibal
Hon'ble Minister of State (I/C)
for
Science & Technology and Ocean Development

on

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at

Acharya N.G. Ranga Agricultural University,
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Dr. Manmohan Singh Ji, Hon'ble Prime Minister of India, His Excellency Shri. Sushil Kumar Shinde, Governor of Andhra Pradesh, Dr. Y. S. Rajasekhara Reddy, Hon'ble Chief Minister of Andhra Pradesh, Dr. S. Raghu Vardhan Reddy, Vice-Chanellor, ANGRAU and Chairman, Organizing Committee, Prof. V. S. Ramamurthy, Secretary, DST, Prof. I.V. Subba Rao, General President, 93rd Indian Science Congress, Prof. C.N.R. Rao, recipient of the Indian Science Award, distinguished members of the scientific community, ladies and gentlemen,

1. I have had the signal honour of participating for the second time in the Science Congress this time held in the beautiful city of Hyderabad. Today is indeed a very special occasion. We not only celebrate the contributions of the scientific community in our nation's onward march to modernity. It is also special in that the Hon'ble Prime Minister of India is conferring the first ever Indian Science Award to a truly great son of India, Prof. C.N.R. Rao.

2. This Congress with its focal theme of integrated rural development through Science & Technology also provides an opportunity for us to take stock of the challenges we face and provide a roadmap for the future. The Hon'ble Prime Minister articulated his vision of how Science & Technology must meet the challenges of the future when in his address as the President of C.S.I.R. Society on 26th July, 2005, he stated "Our S&T system can play a decisive role only when it advances the well being of all sections of society, not just a privileged few. It must play the bigger role of creating wealth for all, not just a selected few. A theme that is close to my heart is on 'making technologies work for the poor and the underprivileged'. In other words, can we

develop technologies, which will ameliorate poverty, create jobs, remove the disease burden of the poor, and improve the overall quality of life?"

It is not just a coincidence that at the Science Congress in January, 1947, at the dawn of independence, "Science in the Service of Nation" was the dominant theme. Our objective is clear. To be of service to the nation science and technology must ameliorate the life of the common man.

3. Thanks to Panditji and his enduring faith in science and technology and the subsequent political patronage that science and technology have enjoyed, from what was only 'small science' of very high quality at the time of Independence and near absence of modern technology, the nation has moved forward over the past six decades. We can today boast of a vast, diversified science and technology infrastructure covering a wide spectrum of disciplines.

4. In space science, India has the capability to design and launch its own satellites and the seven satellites for remote sensing, are the largest such constellation in the world. Our nuclear programme envisioned for peaceful purposes has developed in-house the entire range of technologies from prospecting for raw materials to the design, construction and operation of large reactors to generate electric power. And in defence research, we have the capability to design and build our own combat aircraft and state-of-art missiles. On the agricultural front, from a perennial importer of food grains, we have emerged as an exporter of food grains,

with huge buffer stocks. In Ocean research, we have the distinct honour of being the first nation to be granted 'pioneer investor status' under the UN Convention on Law of Sea and have established two stations in the Antarctica. Our investments in biotechnology in the past three decades are beginning to bear fruit. We are today a major producer of vaccines in the world and in plant biotechnology, we have developed genetically modified cotton. The development of several GM food crops is on the anvil to catapult India towards an evergreen revolution. On the industrial front, the triumph of the Indian pharmaceutical industry is exemplary. The Indian pharmaceutical industry, because of its great strides in Science & Technology, produces 99% of the drugs India needs and exports 40% of its production in a highly competitive global scenario.

But there is another side to this successful story.

5. The models of development that we have propagated globally have given rise to a world of 'excluded' people and an environment of inequality. The income of 1% of the richest population of the world equals that of 75% of the poorest. The picture is no different in India. We live in an India where millions of children suffer from avoidable hunger, disease and pain. The extent of rural poverty is an outrage. And the outrage is not just that of avoidable deprivation; it is also that it coexists with those who are indifferent to the plight of the rural poor. The numbers are mind-boggling and we need to act with speed.

6. But who should act? It is often said that self-help is the best form of help. That the rural poor must help themselves. But often they cannot do so. The initiative in enabling and empowering them lies with us, the elite and the privileged who have much more power, knowledge and resources.

7. Democracy and freedom entail an egalitarian participation in production, access, absorption and social use of knowledge. Owing to different degrees of development in India, most rural areas do not have enough capacity to participate in this process. And it is even more difficult when knowledge is used as an instrument of domination and not to “close the gap”. The owners of knowledge are in a minority and most of those ‘excluded’ and in majority live in the rural areas, excluded from the benefits of knowledge.

8. Rural development has traditionally been associated with agriculture. But over the years, there is a significant decrease in the contribution of agriculture to the national economy – from a high of around 55% of GDP at the time of Independence to around 20% at present. The relationship between rural communities and agriculture is in transition – from a situation where agriculture was the major driving force – to a new state where increasingly non-agricultural factors influence the nature of rural development. Integrated rural development thus reflects a new understanding of the development policy framework – that involves complex, multidimensional interaction of different actors,

of which science and technology is one such element. What is needed is the formation of new and creative policies, strategies and models of participating through a national innovation system which strategically allows rural communities to be integrated into India's onward march to prosperity.

9. In this scenario, the role of the Government is not merely to grant public funds and to formulate policies and implement them in a vertical manner, but more important to promote the participation of all actors for the coordinated construction of policies, planning, and their implementation. It is a much more active role that requires institutional strengths to promote, negotiate and monitor rural strategies and evaluate and manage results.

10. In the development and implementation of these strategies and for the execution of projects we find another obstacle to innovation: the inadequacy of our publicly funded R&D institutions and their low capacity to execute and implement policies and to respond to the requirements of rural concerns. Thus the need of the hour is for a paradigm shift in the models of public management of these institutions so as to respond to this demand in an effective and efficient manner.

11. Also, professional conditioning of our scientists and technologists tends to build biases of perception and skewed priorities. Such a mindset gives attention to whatever is urban, industrial, 'high'

technology, capital-intensive, appropriate for temperate climates, and marketed and exported; to the neglect of what is rural, agricultural, 'low' technology, labour-intensive, appropriate for tropical climates, retained by the household and locally consumed. The national and international system of knowledge and prestige, with their rewards and incentives, draws professionals away from rural areas and up through the hierarchy of urban and international centers, is all pervasive.

12. A syndrome reflective of our bias is the allocation of resources to research and development. It is, in some sense, a measure of the importance the system accords to the field. Overwhelmingly, research and development expenditure is concentrated on industrial and strategic activities. Over 50 per cent of the Central government R&D budget directly and indirectly is earmarked for strategic sectors. A small incremental diversion of these national R&D resources to mitigate the misery of millions of rural people would be of great benefit to the nation.

13. Another feature that is affecting our rural brethren is globalization. It is an effort of big economic powers to eliminate national barriers to impose themselves and to expand freely with their interests. The new global paradigms respond to the hegemonic interests of the big transnationals in their quest to control world markets. As a result of WTO, Indian farmers are unable to get remunerative prices on exports of their agricultural produce and products on account of depressed global prices. The near self-sufficiency

achieved by us in oilseeds production on account of the efforts of the Technology Mission was upset by dependence on cheap vegetable oil imports. Between 1996-97 and 2003-04 agriculture imports into India have increased by a whopping 375% in volume and 300% in value terms. It is important to note that the value of imports as proportion to agricultural GDP has also increased from less than 3% to 4.34% during the same period. But we are doing our best to get a fair deal for our farmers, as reflected by the just concluded WTO Ministerial Conference at Hong Kong. India's leadership role at the Conference helped secure mechanisms to ensure 'food security' and protect our farmers from the vagaries of global agricultural markets.

14. Government is doing its best to safeguard the interests of the rural poor. It has many schemes and programmes to address and improve the conditions of our rural folk. We have already made in-roads to empower our farmers. One such small step is the Farmers' Call Center Programme initiated in January 2004 by the Agriculture Ministry. It seeks to reach out to the farming population using a mix of basic telecom and Information Technology. Young graduates from our agricultural universities have been drafted to man call centers located in 11 cities across the country, to provide information in 8 languages on crop-production, crop-protection, horticulture, animal-husbandry, agriculture and marketing to illiterate and semi-literate farmers calling up on a toll-free number from across the country. I must say our farmers have shown remarkable 'learning' to benefit by this program.

15. Indian business also has been quick to 'reach out and empower' our people in the rural areas. We have HLL's I-Shakti Kiosks initially undertaken with Rajiv Gandhi Internet Village Programme of the AP Govt. These help create income generating capabilities and provide health information for underprivileged women in rural areas. The programme today extends to 20,000 villages in 11 states. We also have ITCs, e-chaupal, with the objective to empower our farmers, with agri and business information that today extends to 20,000 villages in six states with 4000 chaupals. But much more needs to be done.

16. I would thus like to submit for your consideration and wider discussion the ways and means by which we can bring the benefits of science and technology to bear in greater measure for integrated rural development. I believe we could consider how to -

- encourage and enhance the demand for science and technology in and from the rural sector;
- strengthen the capacity of the productive and public sectors of rural society for absorption and use of knowledge, science and technology;
- organize networks of social and productive sectors of rural society with science and technology;
- motivate and excite scientists and technologists to address the problem of rural society;

- modify the priorities and programmes of publicly funded S&T institutions to address the problems of rural development; and

- enlarge the resource base for S&T that addresses the issues of rural society.

17. I cannot help, but hark'en back to the Indian Science Congress of January, 1947 when the best minds of the nation embraced politics for social good, I know why Dr. Manmohan Singh, a professional economist leads our nation today. Perhaps unwittingly he thinks the way Pandit Nehru thought and I quote "*Many of you are aware of what has been happening in India during the last quarter of a century and much more recently. A person like me who is not exactly a man of politics has to take an intimate part in political activity. I have often asked myself the question why this is so. Why should I go into politics? It is so because it is not possible to progress in any field, more particularly in the field of science, until you remove the vast number of fetters which prevent people from functioning as they ought to".*

18. I would like to conclude by recalling the advice that Pandit Ji gave to the scientists at the Science Congress of 1947,

"I hope that the Science Congress will devote itself to this task and not wait merely for the Government to take action. Governments may be good and may be bad, but governments normally are very slow and the only thing that moves them is

some immediate public outcry which affects their future indirectly. Therefore, I should discourage among the scientists a reliance always on what Government may or may not do".

19. What we need is a partnership between Government, the scientific community, civil society and the entrepreneurs of India. A partnership that will serve India and in that process each Indian. India is young. More than half of our population, which exceeds the combined population of the USA and the European Union, is below the age of twenty-five. With the vast expansion of our educational system, over 10 million students are enrolled in universities. This has given rise to a burgeoning pool of highly qualified, skilled and talented young people. The challenge is to give to our young the freedom of choice, light their eyes with hope for the future and create for them an environment to realize their genius. I am sure that the deliberations during the course of this congress will go a long way in realizing their dreams.

20. For our part in our drive to serve the common man, we commit to do the following in the year 2006 :

    i. To install a one million litre per day plant for conversion of sea water into drinking water off the coast of Tamil Nadu by mid 2006 and install another 10 million litre per day plant to help provide clean drinking water along the Indian coast by the end of this year. It is envisaged that the cost of drinking water obtained will be lower than that provided by any other technology in the world.

ii. To form an Earth Commission and Earth System Science Organization to integrate our efforts in our land, ocean and atmosphere programmes to help provide to our rural folk inputs of global quality on issues relating to climate, environment, land use and ocean resources.

iii. To transform C.S.I.R. in a manner as to allow it greater autonomy for bolder initiatives for public – private partnerships and investing knowledge as equity. This transformation will be completed in 2006 and will make C.S.I.R. a nimble, accountable and performance oriented organization, serving the nation better.

iv. To put in place and give effect to a national biotechnology development strategy. This will allow us to create 50 centers of excellence, a national pool of 500 research positions in next five years, exclusively for life sciences and biotechnology and set-up institutions of animal biotechnology, seri-biotechnology and for translational research for technology relating to public health.

v. To Bring forth legislation, to make IPR Central in the functioning of our research establishments. It will assure inventors and organizations where research is carried out, a return for their innovative efforts.

vi. To Setup an autonomous board of science and engineering research with enhanced level of funding and create an initial pool of over 1000 scientific positions available for young

researchers in India and abroad at different laboratories and universities for high quality scientific research.

vii. To establish regional clusters for developing linkages between Industry and research. The first such international cluster will be setup in Chandigarh, with a focus on nano-biology within a national nano-technology institute.