The following is the text of the inaugural speech by the Prime Minister, Shri P.V. Narasimha Rao, at the Mid-Term Meeting 1994 of the Consultative Group on International Agricultural Research, here today:

"I am happy to be present on the occasion of the inauguration of the week-long Mid-Term Meeting of the Consultative Group on International Agricultural Research. I understand that delegates representing the sponsors and members of the Consultative Group on International Agricultural Research (CGIAR), the Technical Advisory Committee, Regional Representatives and the Chairman of the Boards of Trustees and Directors of the 18 research institutions functioning under the aegis of the CGIAR are meeting to discuss their policies and programmes at this juncture when the role of such a supra-national organisation supporting international agricultural research is under review. It is indeed an appropriate occasion for us to host the Mid-Term Meeting in India for the first time.

It is also appropriate that the meeting is being held in India which has been one of the early users and beneficiaries of the international agricultural research system, as also a contributor to ...2/-
a contributor to the strength of this system. While the CGIAR came into existence in 1971, institutions like the International Rice Research Institute and the international Centre for Maize and Wheat Improvement were in existence even earlier. The collaboration of Indian scientists with scientists of these institutes led to the introduction of high yielding dwarf varieties of wheat and rice which became the foundation of the Green Revolution in India. No one can forget the contribution of Dr. Norman Borlaug to making available wheat varieties with dwarf characteristics and the ability to respond with high yields to the use of high doses of inputs.

At the same time, Indian agricultural scientists have been contributing to the work of the CGIAR research institutes and other scientific establishments throughout the world. Science has always been a two-way traffic. Agricultural scientists of this country have made a name for providing us the basis of progress in agricultural research and new technology in diverse areas. From a situation where we were importing about 10% of our foodgrains requirement in the mid 60s we are now producing adequate foodgrains and other agricultural crops. Production of fruits and vegetables, milk and livestock products, and marine production have gone up dramatically. India has become a regular exporter of rice and its presence in the international agricultural commodities market is bound to increase. We welcome the collaboration between the institutes of the CGIAR system and the Indian Council of Agricultural Research and Agricultural Universities in...3/-
Universities in India which has also contributed to this satisfactory state of affairs.

Indian expertise in agricultural research has led to certain patterns of organisation of research which have been adopted in many developing countries. The crop-based or discipline-based coordinated research projects are the model of choice for organising a network of research through a multiplicity of agencies. The extension system based on national demonstrations and lab-to-land programme providing for scientist-user interface has also been adopted as ideal extension methodology. However, there is scope for evolution of more efficient and effective systems for management of agricultural research.

The problems faced by world agriculture are essentially the issues of providing sufficient food, fibre and other raw material needs of the rapidly expanding world population. In addition to the population factor, we are confronted with the issue of urbanization which takes away valuable agricultural land for non-agricultural uses, the state of the environment and fears about the sustainability of the present agricultural system. If today many countries of Asia, Latin America and Africa are growing more food for meeting the requirements of their people, the credit goes to the Green Revolution. The criticism that the Green Revolution benefited only some categories and not others is not entirely true. For, without the food produced by the Green Revolution, large populations would have been facing hunger. It is also not entirely ..4/-
also not entirely correct to say that the Green Revolution technology is harmful to the environment. When these technologies were introduced, the paramount need was to produce more food. No doubt, there are issues of excessive use of chemical fertilizers and pesticides and their impact on the environment. It is these issues which are being addressed by scientists now. Without the additional food produced by the Green Revolution, the pressure on our limited land resources in India and other developing countries would have been acute, leading to situations like further clearing of forest land which is not good for the environment.

If you take only one country - India - you will come to some very interesting conclusions. But I am sure this conference is not concentrating only on one country. You are presumably talking about many other countries; and, the food shortage and food requirements of the people of the world in general is perhaps what you are concentrating on. Even so, a very populous country like India where the population is growing rapidly is a case in point and perhaps it points the way to what are the real problems we are faced with.

I understand from our demographers in India that the population of India is going to rise though the rate is coming down very slowly, but the aggregate base being very big, the most optimistic projections place India's population at a figure which is not very definite, they are not very definite about it because no one is definite about human behaviour, they place it between 1.2 billion to 1.8 billion. This is within a period of...5/-
period of 40 to 50 years, that is, say, middle of the 21st century. Now, these are the figures which I have just been able to collect in some other connection. This gives us an idea of what we are in for in India itself. In the last 40-50 years we have done well. The population has gone up from 350 or 360 million to 900 million and the food production has gone up from 50 to 180 million tonnes, which is more or less the same as the increase in population.

We are faced with the task of doubling the food output because if you take the maximum figure at which India's population is likely to be stabilised according to demographers, it is 1.8 billion which is exactly the double of what we have today and you have to double the food output. You have to allow for rise in consumption levels. Thirdly, you also have to allow for the fact that any country which just feeds its population does no favour to anybody else. You are only feeding your population. Unless you are able to feed some more, in other countries, similarly placed or even placed in worse conditions and in greater need of food, if you are able to help them, then India as a large country, as an important agricultural country can vindicate its position as not only self-sufficient but to be able to help others to some extent. Where does that take you? That takes you to an approximate figure of 400 million tonnes. But from 180 million tonnes today you have to reach 400 million or even more within 50 years. This is the task. I don't say the task is impossible but ..6/-
is impossible but it is attended with so much of hard work that needs to be done and you have to be running and running all the time in order to remain where you are. This is the position in India itself. This is a very rough calculation that I have made.

Look at our land. You cannot produce by the use of chemical fertilisers more and more of them, particularly with the environmentalists breathing down your necks and my neck, you cannot produce at this rate. You cannot increase the per acre yields because in Punjab, Haryana, coastal Andhra, etc. they have reached something like a plateau, they have reached something like the maximum that they are capable of. After all by putting bigger inputs you just can’t take bigger outputs. It is not that simple in agriculture, as you all know. Therefore, your conventional methods, - I don’t even call them conventional, I call them the Green Revolution methods - the Green Revolution methods are going to be found inadequate hereafter.

Look at the water-logging problems in the coastal areas. No one seems to have even thought about them, leave alone doing something about it. There are some drainage programmes aided by the World Bank and so on but they are just a drop in the ocean. They are not adequate at all. On the one hand you have Rajasthan where every drop of water needs to be conserved, and on the other, you have enormous quantities of water being wasted and you cannot do anything about stopping the wastage because it is all water-logging. What do you do? Now, these are some of the scientific challenges that we have. A very big...
A very big percentage of our land is alkaline. Go to any village in India, at least I know, thousands of villages I have visited, in the very vicinity of the village you will find big stretches of alkaline land. Nothing grows in them. To be able to grow foodgrains or any crop in an alkaline land is again one of the challenges to the agricultural scientific community. Then you have areas where we have small tanks, lots of tank areas as you know. Apart from the deltas, all the other areas are tank areas, there are small ponds and tanks which are to be filled three or four times before they give you one crop. In the rainy season the tank gets full once, twice; but the drainage is so much that before the crop is out, the water is drained out from the tank, not necessarily through the sluice, but through the land itself, ground itself. At the end of the crop you will find that the tank is empty; and if you don't get that third shower or the fourth shower, then what all the farmer has spent by way of investment on the crops is all waste. He doesn't even get enough hay, enough grass. So, this is the position.

So, the specific problems from place to place, area to area, village to village if you wish, need a good deal of micro-planning, good deal of love of detail. You will have to categorise what kind of problems there could be. I mean I can categorise, just reel off ten types of problems standing here, but if in this country if you have more thorough look, closer look, you will find there will be hundreds of kinds of problems.
Have we gone into all those hundreds of problems, categorizing them? We have only tried to produce what we need by hook or crook — all right, get hold of the best land, best farmers, everything best. Naturally, they have delivered the goods. But what about the man who is not the best, his land is not the best. He may be very good, his land is not the best. So, land improvement is a very important factor in countries like India where the land, after all is said and done, is scarce. The average per capita availability of land in America is three times or four times that of in India. Then there are about two or three per cent of people living on land there, there are 60 per cent living on land here. So, where do you compare, where do you find yourself when compared to other countries? We have a long way to go and these small specific — area-specific, even plot-specific problems have to be gone into.

Then take the rainfall. The kind of unpredictability of rain, number one; and even predictably the kind of variety in rainfall; in one area you will have to have a particular kind of seed which will be of no use in another area. Therefore, the seed also has to be area-specific, climate-specific, condition-specific, everything specific. Now, we have only been working on agriculture at the general level. From the general to specific is a very long journey and that is still to be taken.

So, number one, our per acre yields where they are highest today are likely to fall. Then you have to think of new areas where the land has not been subjected to too much input and yet it is ....9/
yet it is fertile like the Gangetic plain, like Bihar, like so many other areas. There are areas, but they have to be first given whatever facelift they need. And finally, 400 million tonnes. That is a real daunting problem even for our own population.

So, this is the measure of challenge, the magnitude of the challenge that we have to face. And, we would certainly like to spare something for other countries if we can. We would like to. In fact, we have tried to do it. Even in our difficult condition sometimes we have been helping others. I know when Mrs. Gandhi was the Prime Minister, there was some SOS from some country - I don't want to name country. From the high seas, ships were diverted. She said don't come here, go to such and country, they need the foodgrains more. We had some imports coming from some other country. So, we have done that. Right now whatever is possible we are doing. We would like to do more.

So, these are the problems cumulatively. Even in one country like India I can imagine in other countries, problems immensely more complex because there the tradition is lacking. In many countries the traditions lacking. I have seen in some countries tractors, tractors everywhere but no oil. Tractors are rusting away because they don't have the idea of what a bullock 'riven plough is. Now, the people have been laughing at the bullocks in India but they have been feeding us for thousands of years. The tractors in other countries brought by the notes written by foreign.
written by foreign educated bureaucrats maybe are lying there, there is no oil in that country. How can a country which has no oil of its own think of agriculture by tractors? This is just commonsense to me but then they do it. They do it and come to grief. So, there is a lot of mismatch, lot of wrong thinking, lot of inappropriate thinking, at the expert level also. There are some experts who are good everywhere except the country they are working. These are facts of life and you cannot make the poor farmer poor as he is, indigent as he is, take the risk of your risks. You may be experimenting with a land with a country but please don't experiment with poor people there. Go to some place where people can also think of running some risks. We cannot run risks in India any more.

Therefore, I would like you to think of the whole world, think of all the variety that God has given to this globe, and at the same time think of the need to find differentiated and properly considered prescriptions for each of these varieties other than tarring everything with one kind of brush. That is not going to work in agriculture. Every plot of land is like a human being. It has to be tended like a child and that is what we, the farmers, think about our land. Ask me and I can tell you the characteristics of each survey number which I own in my village because I have seen it, I have seen it yield, I have seen it fail to yield, I have seen it how under what conditions it yields, under what conditions it refuses to yield. So, it is not just one stretch of land and you can do anything and it will grow. It is not...11/-
grow. It is not like that. It is not like a factory production in fact. Therefore, it is something much more living, much more life than factory production. Agriculture has to be tended like that, like a child and like a mother we have to do it.

So, please go into all these varieties - varieties of circumstances, varieties of problems, varieties of challenges for the whole world - and only then the food problem or the problem of taking something from mother earth and giving it back so that there is ample opportunity for earth to replenish itself, nature to replenish itself, that is what we are now calling it sustainable, having forgotten about it for hundreds of years. Now we have to at least return to that concept of sustainability. I hope the scientists today will be the first to change to this. If they change, everything else changes. After all the people who are billionaires and millionaires, whatever, they have become what they are because of the scientists. Now, if you change the course of science, the course of progress in the world can change. If you don't change, nothing else changes. Our speeches will not change anything. It is your work in the laboratories and in the very outlook with which you change the progress of mankind that will change the course of progress of mankind. I am not just praising you or flattering you, I am telling you the facts of life. Science and scientists are a fact of life. Science and Scientists are a need of life. We just cannot wish you away. You are there for good and human progress...
progress is something completely bound up with you and your thinking and your approach and your enlightenment.

So, I would like to welcome you once again to this meeting and I hope that we will have some tangible, actionable results from your deliberations. We have really tough problems to face in the coming years. There is no room for any complacency anywhere, more so in India where we are running against time, racing against time all the time."