# A Compendium

## *Addresses by Past Presidents*


**National Academy of Agricultural Sciences**
**NASC, DPS Marg, New Delhi - 110 012, India**

# Change We Must,
# But Change is Difficult

**Dr. R.S. Paroda**

*President*
National Academy of Agricultural Sciences, New Delhi

I would like to speak to you today on an extremely vital yet often unaddressed theme: "**Change we must, but change is difficult**". It is particularly important in view of changing scenario of agricultural research and development in our country. Having accomplished an impressive progress by all count, we are presently faced with numerous challenges to be urgently addressed so as to achieve our ultimate goal of making "**India a developed nation through progress in agriculture**". However, as we move into the next millennium, the immediate task before us is to address the following issues on priority:

- To ensure both economic and ecological access to food and nutrition security, particularly for those living below the poverty line.
- To secure higher productivity combined with profitability through minimum input use and improved efficiency of our production systems.
- To address the second generation problems of our historic Green Revolution followed by other Revolutions such as White, Yellow and Blue.
- To remain competitive and to take full advantage of globalisation of agriculture through advanced preparedness for the new WTO regime.
- To generate of resources in the wake of dwindling donor support for agricultural research and resource development.
- To improve our preparedness to meet effectively the economic and technological sanctions presently imposed or likely to be imposed in future as we demonstrate our scientific excellence and capabilities.

All these would require a strong National Agricultural Research System (NARS) committed to a paradigm shift from the present "**productive and purposeful**" to that of a "**responsive and responsible**" organisation. In order to accomplish this, we shall have to introduce major changes, however difficult they may be to revamp the institutional system for agricultural

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research in India. Our National Agricultural Research System (NARS), despite being one of the largest in the world, has its own strengths and weaknesses which must be clearly understood. As a matter of fact, we are still functioning as a National Agricultural Research Institute (NARI). Hence, we must move fast to become in a true sense, the National Agricultural Research System (NARS) involving besides the ICAR Institutes and State Agricultural Universities (SAUs), all other stakeholders such as traditional Universities and institutions, NGOs, private sector institutions, farmers and agri-business entrepreneurs. Obviously, the change from NARI to NARS is not a simple task it would require appropriate policy initiatives, change of our mindset and above all commitment of all those involved in the process. We have also to guard against the possible danger of complacency creeping into in any of our system. This would require self introspection, reorganization and revamping of the system for its 'Renewal', thus, demanding full involvement of all concerned. Similarly, we need to revisit our 'Land Grant System' of education on which we had built the foundations of our State Agricultural Universities (SAUs) and the ICAR National Institutes having Deemed to be University status. In other words, we have to reinvigorate the system faster and bring in the required 'Change' for the better. A new research agenda will have to be drafted around the competent cadre of our young scientist, trained in the areas of new science such as Biotechnology, Environmental Science, information communication technology (ICT), GIS and crop modelling, agri-business management, post-harvest technology (PHT) etc. Also the Institutional mechanisms for effective governance will have to be put in place through requisite O&M reforms.

The new work culture linked with incentives and accountability would first demand a change in the 'mindset' of senior research managers. This in itself is a major challenge. Those organizations that have changed in time have survived and prospered, whereas those which did not, have lagged behind.

Despite these formidable challenges, Indian agriculture offers tremendous "**uncommon opportunities**" that can be harnessed to take full advantage in the near future. Some of these are:

- Vast institutional and human resource base that can be further strengthened and made more efficient and effective.
- Threshold of low productivity which can be further enhanced substantially through increased input use and production efficiency.
- Reservoir of proven technologies which have yet to reach the farmers/stakeholders.
- Vibrant private sector, whose potential is yet to be tapped for R&D in agriculture.
- Strong network of public and private sector institutions well organised to provide needed technical backstopping for agricultural advancements.
- Opening up of the world markets for the Indian agri-products, particularly the new crops, commodities and value-added products as well as health foods.

- The present low input use efficiency that can be enhanced considerably through adoption of available technological options as well as policy interventions.
- Availability of vast arable land, all kinds of climate, cheap labour and above all the hard working farmers.
- Future possibilities of resource generation by bringing in the new corporate culture into the existing research organizations.

There is no doubt that these "uncommon opportunities" can be harnessed to our advantage provided we bring in the needed "change" despite stiff resistance from within. This paradigm shift is a must now in order to make our NARS both responsive and responsible. Having said this, I would now like to dwell upon the four major areas where the “change” has become imminent and must be accomplished on priority.

## I. Institutional Change

Institutions are the foundations of required social change and advancement of any society. Most of our research institutions have become 40-50 years old. Also, the equipments have become old and obsolete. They need immediate renovation and replacements. The process of mushrooming of institutions and empire building needs to be curbed. Rather than horizontal expansion, we now need to consolidate and revamp the existing institutions and bring in inter-institutional partnership in order to maximize the returns from our investments in agricultural research. The support for "one time catch up grant" of Rs. 4000 million during the IX Plan period, as agreed to by the Planning Commission, is indeed a timely step in the right direction.

Another area of institutional concern is to remove the imbalance from the difficult agro-ecologies, especially the remote and difficult eco-regions. This change is warranted as a concern for equity and the required institutional support to those areas, which have been denied the benefits of new technologies in the past. Recent directive of the Government to spend 10 percent of the allocations of each department for activities in the north-eastern region reinforces this concern. Support of this kind is critical for the faster growth of the hitherto bypassed regions as well as social sector of our country. This obviously calls for a major change in our policies and programmes.

## II. Organizational Change

As stated earlier, there is an urgent need to move from NARI to NARS through an effective involvement of all the stakeholders. The need for organization and management (O&M) reforms in areas of human resource development, incentives and rewards for the performers, impact assessment and evaluation (IAE) with inbuilt transparency, project-based budgeting, and decentralization linked with accountability are some of the critical elements associated with the future growth of the system. Hence, the enforcement of required change in the O&M system is fully justified now than ever before. Public-Private sector linkages are also

to be built and institutionalized faster. Similarly, institutional collaboration with the advanced research institutions (ARIs) and International Agricultural Research Centres (IARCs) will have to be strengthened for required excellence in science as well as for human resource development. The Information Communication Technology (ICT) networking at the global level will provide access to value-added information and knowledge, so critical for the advancement of science. This would demand a massive change in the existing IT culture in the system.

Globally, the donor support for agricultural research and training is declining. At tile same time, we have to have the human resource, which is globally competitive. To obviate this paradox, the best option is to generate resources internally and to build the required facilities for excellence in science. Fortunate in the past, our scientists did not face this challenge mainly on account of unstinted support from the Government and the policy makers. However, as this pressure is now building up, it is critical that our scientists and the system start responding favourably to this paradigm shift and start mobilizing internal resources fast. Many international organizations are already adjusting to this change. In future, a system's sustainability will have to be addressed more seriously. We must, therefore, respond favourably to this wake-up call. Areas of contract research, consultancy, training, generation of technology linked inputs in institutional laboratories/farms/workshops, patenting and corporatization are some of the options that need to be explored through appropriate change in our policies and procedures.

## III. Change in Research Portfolio

Radical changes are also called for in our method of conducting research. We have to continuously prioritize as well as re-prioritize our research portfolio, to be in tune with the fast-changing global, regional and national needs. The 'top-down' approach adopted in the past will have to be changed to make it a 'bottom-up' approach. A shift from project to programme mode and also from commodity/crop to a system's approach is now warranted. This would require a matrix mode of research management necessitating an inter-disciplinary teamwork among scientists. We can no longer afford individual-scientist-oriented research agenda. Research must address institutional priorities in future and open-ended research will have to be made time bound and targeted in a 'Mission Mode'. Matrix mode of management would demand effective partnership between both the divisional head and the programme leader, besides sharing of responsibilities among scientists involved. This is a change, which is most critical for the future success of our system and would demand a complete commitment and positive mindset of all the partners involved.

Excellence in science will have to be recognised through needed change in our incentive and reward system. In future, centres of excellence will have to be built around scientists and not around institutions. These centres of excellence will have to take added responsibilities for human resource development in their field of expertise. Also institutions will have to undertake an ambitious programme for HRD through careful planning and separate allocation of resources. As stated earlier, the research portfolio will have to be carefully balanced to meet

the concern of different ecologies, conservation of natural resources and the protection of our environment. Globalization would also demand preparedness in areas of ITC, IPR, Sanitary and Phytosanitary Systems (SPS), possible impact of removal of quantitative restrictions, likely imposition of non-tariff barriers, etc. Those NARS prepared to change fast to address these concerns would obviously be ahead of others. Hence, the need for urgency cannot be over emphasized.

## IV. Change in Technology Dissemination

We have run out of soft options in the area of technology dissemination. Also it is recognised more now than ever before that with available technologies, significant advancements in agriculture can be made provided these are effectively disseminated to the farmers. Training and visit (T&V) system has outlived its utility. It had mainly relied on "technology generation - technology transfer" model and presumed that all technologies would have wider acceptance and adoption, whereas it is well understood now that a continuum between "technology generation-assessment and refinement-transfer" is critical for the success on new technologies. Hence, there is need to change the front-line extension approach for the assessment and refinement of research information by establishing linkages between scientists and farmers and between institutions and villages. The ensure suitability of new technologies, scientists will have to adopt now the farmers' participatory approach and move out to use farmers' field for revalidation and refinement of technologies. Also, the existing gap between the scientists and the farmers will have to be bridged. The recent ICAR model of 'Institution-Village Linkage Programme (IVLP) is a 'bottom up' initiative in this direction focussing on farmer's specific needs rather than providing input related package technology which has been found to be unsustainable in the long run. Scientist-farmer linkages also ensure reduction in technology dissemination losses, so critical for the success of any new technology.

In an 'information age' the role of appropriate information package and its dissemination is equally important. It is not enough to generate information but also to see that the required information is delivered to the end-users at the earliest and with least dissemination loss. Thus there is a need to have a single window system of delivery for the farmer/end-users at the institute gate instead of expecting them to run from pillar to post. Establishment of Agricultural Technology Information Centre (ATIC) will provide such a mechanism in contributing towards dissemination of information. This will serve as a single window system with the objective to help farmers and other stakeholders to provide solutions to their problems and make available all technological information alongwith technological product for their testing and use.

To meet the changing needs, it is essential to create a cadre of 'Technology Agents' from among the unemployed youth who are better trained, equipped and committed to serve our farming community, while generating self-employment for themselves. Also, it is being felt that public supported system for technology transfer may not be the best model in future. We may, therefore, have to generate a new breed of competent technology agents, who are well

trained and committed to provide specialized services on custom hire basis. In this process, not only the technology dissemination losses are avoided but also appropriate technologies are disseminated faster. Another advantage of this approach would be that these technology agents will become job creators and not the job seekers. Obviously, this would demand the Institutions and the SAUs to undertake greater responsibility in future for the vocational training programmes, thus, requiring a change from existing formal degree to an informal education system in different areas of agriculture.

An effective TOT approach would also demand quick delivery of technology related inputs through a mission mode approach. For this purpose, provisions of a revolving fund to the institutes/scientists to generate more of the technology related inputs for an effective dissemination is a welcome development and would put pressure on our system to be more accountable in future.

The Krishi Vigyan Kendra is emerging as an effective institutional mechanism at the rural district level for technology assessment, refinement and dissemination of latest technologies. Their growing utility and demand has raised their number to almost 300 now and it is proposed eventually to open one each in approximately 500 rural districts of the country. Such a vast network of KVKs raises the questions of their performance, financial sustainability as well as their effective governance. The make them more effective and useful, the joint ownership of these institutions, besides the ICAR, by the Department of Agriculture of the Centre and the State Government, Panchayati Raj institutions, the NGOs, farmer's etc. has become necessary. All the stakeholders involved as well as the line departments will have to own these KVKs and provide required backstopping. Such an approach would provide appropriate reinforcement of the programmes as well as required interface at the grassroot level, which is so critical for reaping the benefits from available new technologies. These KVKs would also have to serve as ATIC in future and also as information centres for distance education and public awareness programmes using mass media and better communication mechanisms. Also these institutions will have to have a paradigm shift from farmer's training at individual level to that of a group or community training approach so that a larger section of our society is benefited.

All these initiative will require a strong interface between the research organizations and developments at the centre, state and regional levels to bear the fruit. While the 'DAC-ICAR' interface provides such an opportunity at the centre, a mechanism needs to be worked out and institutionalized at the state and district levels.

## Epilogue

Change is a sign of growth. No organization that shows resistance to change can grow. Change is also a difficult process and requires commitment of not only the leader, but of entire organization and the system. Often the process of 'change of mindset' meets with stiff internal resistance. Yet the dynamic institutions have grown through needed periodic reforms in order to meet the new challenges over time. The ICAR, as an apex organization for research and education in the field of agriculture, has grown with time.

In the process, the ICAR got recognition and required visibility as evidenced by various revolutions (green, white, yellow and blue) - which many developing countries are still unable to replicate.

Today, the National Agricultural Research System (NARS) comprising of ICAR and SAUs, has emerged as a strong organization through timely policy and structural reforms. The system must now gear itself to meet the future challenges that are indeed daunting. Obviously, this would demand yet another critical self-introspection coupled with a paramount 'change' in the system. Change for the better must always be welcome despite difficulties encountered. Any dynamic change will indeed require commitment of the entire scientific community and all those associated with the system. We have done this in the past to make our agriculture strong and resilient, and while we enter into the next millennium, we shall do so collectively again in order to realize the dream of making "**India a developed nation through progress in agriculture**".