

Change We Must – But Change is Difficult

Introduction

Change your thoughts and you can change your world. Small changes are hard and big changes are even more difficult. Having made impressive progress by any standards, India is presently faced with numerous challenges to be urgently addressed so as to achieve its ultimate goal of being a 'developed nation through progress in agriculture'. It was emphasized long ago that although change is difficult, we must bring about those needed changes in order to meet the emerging challenges and harness the opportunities for faster and sustainable growth of agriculture (Paroda, 2014). In this endeavour, as we move forward, the immediate task before us is to address the following issues as priorities:

- 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 production systems;
- to address the second-generation problems of the Green Revolution followed by other revolutions in agriculture, such as White, Yellow and Blue;
- to remain competitive and take full advantage of globalization of agriculture through advanced preparedness for the new World Trade Organization regime;
- to generate resources in the wake of dwindling donor support for agricultural research and human resource development;
- to improve 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 require a strong NARS committed to a paradigm shift from the present 'productive and purposeful' to a 'responsive and responsible' organization. In order to accomplish this, we have to introduce major changes, however difficult they may be, to revamp the institutional system for agricultural research in India. Our 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 NARS involving, besides the ICAR institutes and the 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, and it would require appropriate policy initiatives, change of 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 the system.

This will require self-examination, reorganization and revamping of the system for its 'renewal', thus demanding the fullest involvement of all concerned. Similarly, we need to revisit our Land Grant System of education on which India had built the foundations of its SAUs and the Indian Council of Agricultural Research (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 for the competent cadre of our young scientists, around ICT, GIS and crop modelling, agribusiness management, post-harvest technology etc. Also, the institutional mechanisms for effective governance will have to be put in place through requisite organization and management 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 that have 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:

- a vast institutional and human resource base that can be further strengthened and made more efficient and effective;
- a threshold of low productivity that can be further enhanced substantially through increased input use and production efficiency;
- a reservoir of proven technologies that have yet to reach the farmers/stakeholders;
- a vibrant private sector whose potential is yet to be tapped for R&D in agriculture;
- a strong network of public and private sector institutions, well organized to provide needed technical backstopping for agricultural advancement;
- opening up of world markets for Indian agri-products, particularly new crops, commodities and value-added products, as well as health foods;
- the present low-input-use efficiency, which 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, hard-working farmers;

- future possibilities of resource generation by bringing a 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.

The following are the four major areas where change has become imminent and must be accomplished as priority.

Institutional Change

Institutions are the foundations of required social change and advancement of any society. Most of our research institutions are 40–50 years old. Also, their equipment has become old and obsolete. They need immediate renovation and replacements. The process of 'mushrooming' of institutions needs to be curbed. Rather than horizontal expansion, we need to consolidate and revamp existing institutions and bring in inter-institutional partnership in order to maximize the returns from our investments in agricultural research. The doubling of plan allocation from Rs 125 billion to Rs 250 billion during the current 12th plan, as agreed to by the Planning Commission (now NITI Aayog), would indeed be a timely step in the right direction. We hope this justified demand is met by the Government.

Another area of institutional concern is to remove the imbalance from difficult agro-ecologies, especially the remote and difficult ecoregions. This change is warranted out of a concern for equity and the required institutional support for those areas that have been denied the benefits of new technologies in the past. This decision of the government to spend 10% 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 the social sector of the country. This calls for a major change in policies and programmes.

Organizational Change

As stated earlier, there is an urgent need to move from the NARI system 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 with in-built 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 more 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 and international agricultural research centres will have to be strengthened for required excellence in science as well as for human resource development. ICT networking at global level will provide access to value-added information and knowledge, critical for the advancement of science. This demands a massive change in the existing IT culture.

Globally, donor support for agricultural research and training is declining. At the same time, we have to have the human resources that are globally competitive. To obviate this paradox, the best option is to generate resources internally and to build the required facilities for excellence in science. In the past, our scientists did not face this challenge, mainly on account of unstinted support from the government and policy makers. However, as this pressure is now building up, it is critical that our scientists and the system start to respond to this paradigm shift and start to mobilize 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.

Change in the 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 a 'bottom-up' approach. A shift from 'project' to 'programme' mode and also from commodity/crop to a systems approach is now warranted. This would require a matrix mode of research management necessitating interdisciplinary teamwork among scientists. We can no longer afford individual scientist-orientated research agendas. Research must address institutional priorities and open-ended research will have to be made time-bound and targeted. A matrix mode of management would demand effective partnership between both the divisional head and the programme leader, besides sharing of responsibilities among the scientists involved. This change is most critical for the future success of our system and would demand commitment and a positive mindset from all the partners involved.

Excellence in science will have to be recognized 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 human resource development 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 ICT, intellectual property rights, sanitary and phytosanitary systems, possible impact of removal of quantitative restrictions and likely imposition of non-tariff barriers. Those NARS prepared to change fast to address these concerns would be ahead of others. Hence, the need for urgency cannot be over-emphasized.

Change in Technology Dissemination

We have run out of soft options in the area of technology dissemination. Also, it is recognized more now than ever before that with available technologies, significant advancements

in agriculture can be made provided they are effectively disseminated to farmers. The training-and-visit system has outlived its usefulness. It had mainly relied on the 'technology generation, technology transfer' model and presumed that all technologies would have wide acceptance and adoption, whereas it is well understood now that a continuum between 'technology generation-assessment-refinement and transfer' is critical for the success of new technologies. Hence, there is a need to change the front-line extension approach for the assessment and refinement of research information by establishing links between scientists and farmers and between institutions and laboratories. To ensure suitability of new technologies, scientists will have to adopt now the farmers' participatory approach and move out to use farmers' fields for revalidation and refinement of technologies. Also, the existing gap between the scientists and the farmers will have to be bridged. The tested ICAR model of Institute Village Linkage Programme (IVLP) is a bottom-up initiative in this direction focusing on farmers' specific needs rather than providing input-related package technology that has been found to be unsustainable in the long run. Scientist-farmer linkages also ensure a reduction in technology dissemination losses, critical for the success of any new technology.

In an information age, the role of appropriate information packages and their dissemination is equally important. It is not enough just to generate information; we must see that the required information is delivered to the end-user at the earliest opportunity and with the least dissemination loss. Thus, there is a need to have a single-window system of delivery for the farmers/end-users at the institute level. The establishment of an Agricultural Technology Information Centre (ATIC) would provide such a mechanism and contribute towards dissemination of information with the objective of helping farmers and other stakeholders to provide solutions to their problems and make available all technological information along with technological products 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

employment for themselves. Also, it is being felt that a publicly supported system of technology transfer may not be the best model in the 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 a custom-hire basis. In this process, not only are technology dissemination losses avoided but also appropriate technologies are disseminated faster. Another advantage of this approach is that these technology agents will become job creators not job seekers. Obviously, this would demand the institutions and the SAUs to undertake greater responsibility in future for vocational training programmes, thus requiring a change from the existing formal degree system to a more informal education system catering to different areas of agriculture.

An effective transfer of technology approach would demand quick delivery of technology-related inputs. For this purpose, provision of a revolving fund to the institutes/scientists to generate more of the technology-related inputs for effective dissemination would be a welcome development and would put pressure on the system to be more accountable in future.

The Krishi Vigyan Kendras are emerging as an effective institutional mechanism at rural district level for technology assessment, refinement and dissemination of the latest technologies. Their growing utility and demand has raised their number to almost 700, thus ensuring at least one KVK in each of the districts of the country. Such a vast network of KVKs raises the question of their performance and financial sustainability as well as their effective governance. To make them more effective and useful, joint ownership of these institutions, besides the ICAR, by the departments of agriculture of the central and the state governments, Panchayati Raj institutions, NGOs, farmers etc. has become necessary. All the stakeholders involved will have to own these KVKs and provide required backstopping. Such an approach would provide appropriate reinforcement of the programmes as well as the required interface at grassroots level, so critical for reaping the benefits from available new technologies. These KVKs would also have to serve as agricultural technology information centres 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 make a paradigm shift from farmers' training at individual level to that of a group- or community-training approach, so that a larger section of society is benefitted.

All these initiatives require a strong interface between the research organizations and development departments at central, state and regional levels. While the Department of Agriculture and Cooperation (DAC)-ICAR interface provides such an opportunity at the centre, a mechanism needs to be worked out and institutionalized at 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 leaders but also the entire organization and system. Often the process of change

in mindset meets with stiff internal resistance; yet the most dynamic institutions have grown through needed reforms to meet new challenges. The ICAR, as an apex organization for research and education in the field of agriculture, has grown with time. In the process, it achieved recognition and visibility, as evidenced by various revolutions (Green, White, Yellow and Blue), which many developing countries are still unable to achieve.

Today, the NARS, comprising the ICAR and the SAUs, has emerged as a strong organization through timely policy and structural reforms. The system must now gear to meet future challenges that are daunting. This will demand yet another critical self-examination coupled with mandatory change in the system. Change must always be welcomed despite difficulties that may be encountered. Dynamic change will require the commitment of the entire scientific community and all those associated with the system to make India's agriculture strong and resilient as we move through the new millennium.

Reference

- Paroda, R.S. (2014) Change we must, but change is difficult. *A Compendium of Addresses by Past Presidents*. National Academy of Agricultural Sciences, NASC Complex, New Delhi.