Research-Training-Development: Perspective from an international scientific cooperation on Agricultural Research for Development (ARD) [1]

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Some global trends…

The last 20 years saw the dramatic changes in agriculture caused by a number of critical events such as increasing demand for higher-value agricultural products due to urbanization and income growth; increased export demand for fruits, vegetables, and a variety of niche products (e.g., organic produce), particularly within evolving multinational food market chains; aging farm population and the impact of HIV/AIDS on farming, especially in Africa; and growing scarcity and degradation of land and water resources[3].

In the 1970s and 1980s, considerable investments were diverted towards building state organizations to manage agricultural development programs. Starting often with very limited capacity, Ministries of Agriculture expanded and attempted to provide inputs, credit, and services directly to producers, and to purchase and market agricultural products. While some of these public sector investments had high social payoffs, economic returns were low, and they were accompanied by a number of interventions such as subsidies which were costly and had some distorting effects on domestic markets[4]. These observations led to a rethinking of public sector involvement in the sector. Institutional and policy reforms at country level were then initiated, many of which are yet to be completed, including building capacity to effectively implement introduced reforms, particularly in the context of globalization and rapid technological changes. As a result, investments in the sector are made not only to increase production and world food supplies but also to boost competitiveness and profitability along the commodity chain from farmer to consumer while at the same time, enhancing environmental and natural resource sustainability, and promoting people empowerment particularly in the countryside.

This struggle to reach agriculture's potential is symptomatic of several factors including the various paradigm shifts and adjustments that were made over the last several decades – from the concept of food self-sufficiency which, although desirable, proved to be unattainable, to the food security paradigm, i.e., there being adequate food availability, access and utilization[5]. This is further made difficult by balancing it with environmental integrity and contributing to poverty alleviation, through on and/or off -farm income generating and employment opportunities. It thus appears that the role of agricultural/rural development is not clearly defined in the development policies of many countries resulting in unfavorable policy environments for rural development, especially for addressing the issues of rural poverty, food security and sustainable development.

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[3] Agriculture Investment Sourcebook (AIS), The World Bank. Washington D.C. 2003.

[4] Ibid.

[5] Ibid. and Food and Agriculture Organization of the United Nations (FAO), as cited by Ola Smith. *Strategic Partnership in Agricultural Research for Development: the Global Forum on Agricultural Research Model.* Paper presented at the Conference of the Association of Applied Biologist. London, February 2004.

Another significant event is the observed increase, over the last several years, of total investment in agricultural research for development (ARD) at the global level while public investment in ARD has tended to be stagnant, or even falling.[6] On the aggregate, however, public sector spending on agricultural research in developing countries over the past 20 years has been more rapid but is unable to tap scientific personnel in the private sector. At the same time, civil society organizations (CSOs) emerged, filling the vacuum by trying to provide social services to their communities as a result of governments cutting back investments in the provision of public goods including health, agricultural research for development activities and others. They also contribute to maintaining and/or are developing livelihood systems of such communities, often, through the promotion of ecologically oriented agriculture which they carry out themselves and/or in collaboration with research institutions.

Clearly, the rapid process of institutional diversification that is taking place in agricultural research, the increasingly important role played by non-traditional actors such as CSOs and the private sector, as well as the increasing complexity and costs of agricultural research as a consequence of the very rapid development in the new areas of science, are leading to significant changes in the organizational structure of agricultural research.

On Research-Training-Development…

These changes and the evolving concept of agriculture and rural development obviously have bearing on agricultural education and training as well as the relevance of programs offered by training various institutions. Previously, priority on agricultural education was to support agricultural development for food production and national food security. With all the changes taking place, there is a need to respond to demands and focus on knowledge-intensive, market-oriented and natural resource conservation agriculture. As well as education and training should be revisited in order to respond to such changes.

But the landscape in never simple. On one hand, the agricultural system primarily has the national agricultural research institutes (NARIs), the advanced research institutions (ARIs) as well as the international agricultural research centers (IARCs) as its main actors. On the other hand, the education system caters primarily to universities, training centers and other institutes of higher learning. Both cater to the need of the society (from local to national to global level) and its people (as producers, consumers, or as business entities). But this is not an exclusive "system-actors" relationship for, as we all know, they overlap. Universities are good sources and providers of research while research institutions are good breeding ground for future scientists and researchers. Universities would often have linkages with such institutions where students can pursue their internship and conduct their research activities.

Notwithstanding such close relationship, the paradox, as it appears to me, is the lack of coordination and /or integration of both systems. Whereas the society calls for more integrated approaches, the current education and research regime appears to be mainly driven by science. The current situation is such that emphasis is on theoretical and quantitative aspects. There is lack of emphasis accorded to social skills development in training, including disregard of the importance of emotional intelligence[7]. Inter-disciplinary and systems-thinking approaches are , likewise, wanting.

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[6] NARS Secretariat. *Strengthening Regional/Sub-Regional Organizations of Agricultural Research for Development.* Rome, Italy. 1999.

[7] International Fund for Agricultural Development (IFAD): *Strategy and experiences in research for transforming higher education.*

Implications and challenge to education, training and research…

With these as the background, one may pose the question "What then are the implications of all these to research, training and development?" For research and training to be more relevant (to development, that is), there is, first and foremost, a need for these to have a commitment to social impact. Research, education and training should foster a culture of facilitation with emphasis on experiential and reciprocal learning. "Reflexivity" should be fostered and encourage self-observation of knowledge, attitude and values in the process of professional transformation.[8] Likewise, social skills and non-disciplinary competencies which are often not thought in universities should be developed among students[9]. Mediation, facilitation, working in a team, and communication are essential skills that future agriculture professional must possess.

As such, the new agricultural professionals[10] need to be open to learning and are adapting, who are committed and interested in their organizations and communities. They must possess strong leadership skills and are able to listen as well as communicate. The agricultural professional of the 21st century should also be innovative and should be able to creatively solve problems. He/she is someone with market-orientation and possess strong inter-personal as well as entrepreneurial skills.

Other challenges in fostering a better research-training-development nexus include fostering closer interdependence between higher education, professional, personal and institutional linkages (i.e., being more problem-solving oriented), facilitating multi-stakeholder representation in various decision-making mechanisms related to agricultural education, ensuring a balance between new learning modes and consolidated teaching practices, combining scientific rigor and social relevance and promoting research co-validation where local communities and research "beneficiaries" and "end-users" participate in the elaboration of assessment criteria and the whole evaluation process.

Likewise, there is a need to put up incentive structures for scientists and researchers to work on development issues, more than just having a promotion and evaluation system that is highly biased on scientific publication. There is also a need to look at investments in pedagogical research and in higher education as well as to address the current trend where enrollment in agricultural universities is declining. Its impact in the future of agriculture should be studied and addressed.

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[8] Idem.

[9] Daane, Jon. *Integration Receherche-Formation-Developpement: La strategie de l'ICRA.* IXeme Journées d'Études Ingénierie des Dispositifs de Formation à l'International. Decembre 2005. Montpellier, France.

[10] Anthony Youdeowei. *Reorienting Agricultural Education and Support Systems: A GFAR 2006 Conference Discussion Paper*. 3rd GFAR 2006 Triennial Conference. 9-11 November 2006. New Delhi, India.