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**Section D  
Chapter 10**

**Reinforcing Human Capital: Rural Diversity and Education for Pro-Poor Growth**

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Acronyms

DAC  
EFA  
ILO  
IPM  
IT  
MDG  
NGO  
NRM  
OECD  
S&T  
SAP  
UPE

## **1. Introduction**

This chapter forms part of Section D that focuses on revitalizing investments in and access to the fundamentals needed to improve pro-poor agricultural growth, i.e., human capital (Chapter 10), infrastructure (Chapter 11), science and technology (Chapter 12), and access to the productive resource base (Chapter 13). Aimed at senior decision makers in OECD countries and recipient developing countries, this chapter will focus on reinforcing or boosting human capital through education broadly defined, formal and nonformal, childhood and lifelong learning, and is inclusive of both public and private sector approaches.

Other papers in this series point to various reasons for poverty, e.g., poor governance, geographic barriers, high rates of diseases, decaying infrastructure, etc. and suggest numerous options for countries and individuals in those countries to get out of poverty through pro-poor growth choices and mechanisms including formulation of new policies. Only occasionally is mention made of the role of education and improved human capital in alleviating poverty. Education is often considered, along with health, as social welfare rather than as a key promoter of economic growth.

This paper will examine the role of education and the opportunities provided by a mix of educational strategies and programs - broadly defined - for the promotion of pro-poor growth. We argue that broad educational and training approaches – involving public and private sector players - that meet the needs of a diverse group of rural stakeholders are needed for real economic growth to occur amongst the persistently poor. We also note that the responsibility for pro-poor educational policies cannot rest solely on ministries of education. As Bill Gates, chairman of Microsoft, noted at a conference in 2000, “Do people have a clear view of what it means to live on \$1 a day.....about 99% of the benefits of having a PC come when you’ve provided reasonable health and literacy to the person who is going to sit down and use it” (Economist, 2005).

## **2. Education and Pro Poor Growth: Linking Education to Economic Growth**

Education is an investment in human capital and is essential to economic growth. Rapid economic growth supports the expansion of education. Therefore, improving education for rural areas has to go along with and be embedded into the expansion of the economy and not be considered only from a social welfare standpoint. In addition, the education-economic growth relationship runs in both directions and investments need to be mindful of that dynamic.

For example, various strategies are employed to increase the number of teachers in rural areas. However, the evidence about providing incentives to teachers in the form of reduced class size or monetary rewards is non-conclusive. On the other hand, ease of access to and from rural to urban areas makes teaching in rural areas more attractive.

Thus, while building roads and other infrastructure is perhaps the single, most relevant action that can be taken to open up rural areas to the rest of the country's economy and to the world, it also supports efforts to improve rural education. Better roads allow teachers to move more freely into the rural areas (and out, on holidays, for example), a significant factor in attracting teachers to these regions.

Better roads also improve food security and rural incomes as more markets are opened up, transactions costs decline, and the ease of movement is improved. There is strong evidence, too, that with an increase in income, parents or families incomes is strongly and positively correlated with children attending school.

Looking at the educational side of the relationship, we know that quality education provides opportunities for children, youth and adults to transition from one level to another by accumulating human capital and skills that enables them to move from purely subsistence strategies to strategies that have a higher rate of return. The biggest caveat here is the emphasis on quality – most educational services in poor, rural areas are woefully inadequate to enable learners to transition out of their current situations. It is also important to look beyond school-based solutions and to broaden the definition of agriculture. In the past, “rural” was synonymous with agriculture and agriculture was the most important economic sector (Atchoarena and Gasperini, 2003). Donors now agree that pro-poor growth, focused on rural development, has to encompass the rural space and not simply focus on agricultural development (ibid, 2003).

In rural spaces, communities are involved in a multitude of non-agricultural trades and professions. Their education and information needs are different from those of farmers yet both are occupying the same spaces. Rural dwellers can no longer be considered to be homogeneous and strategies for rural education have to include different types of basic, secondary and tertiary education.

Given this situation, at least three questions are critical. What are the educational dynamics that are preventing progress? What are the implications of diverse rural spaces? What are the fundamental competences that need to be taught, how will these be taught, and by whom?

### **3. Rural Education for Pro-Poor Growth – Challenges and Opportunities**

The problems of education for economic growth particularly as it pertains to poor populations located in rural areas and highly dependent on agriculture for their income are multi-scalar and multifaceted. It is the interdependencies between these scales and facets that must be dealt with and not just each of them alone.

First, multi-scalar education processes, at the micro-, meso- and macro-levels prevent progress. At the micro-level, families keep children out of school (lack of assets) or take them out of school (shock) (Barrett and Swallow, 2003; Vorley, 2002) for numerous reasons. Despite significant gains through EFA in the enrollment of girls,

there is still considerable bias against female education and schooling. Even when sent to school, girls are more likely to be taken out of school during family crises. National policies around educational attainment are often weak and unsupported at the local level. International focus has been on government production of schooling at the primary level (e.g., UPE, EFA) and tends to ignore the wide array in provision of basic schooling outside the traditional public sector model. There is no best way to supply basic education; all models need to be considered but for under-capacitated, under-resourced ministries of education, this is almost impossible.

At the meso-level, poor education services to rural areas are the norm. Decentralization has mostly meant devolution of services but not transfer of the financial resources or decision-making authority to local school districts. This is coupled with low levels of financial support from the center and minimal levels of accountability, at the district level or back to the center. The lack of understanding of complexities of rural space contributes to teachers, teacher trainers, and higher education faculty being improperly prepared or using outdated materials especially with respect to agricultural curricula but also generally around relevant workforce skills training. Certainly, there is lack of access to information technologies (IT) although cell phone and wireless capacities are leapfrogging over these problems in a few areas. Poverty still holds back effective use of digital technologies, both at the country and personal levels. Finally, there are few incentives to create performance-oriented management and the government systems do not produce such incentives, therefore, neither budget increases nor new knowledge will be used effectively (Pritchett, 2004).

At the macro-level, the best teachers and schools are found in the urban areas; more resources flow to urban schools; there is positive discrimination towards urban students; and most higher education institutions are in urban areas. Vocational education, by and large, is of poor quality – outdated, narrowly conceived, poor teachers, no linkages with business, programs take too long and are not relevant, and always under-resourced. HIV/AIDS is having significant impacts on employees as well as employers. Employers' dissatisfaction with skills and knowledge of "graduates", whether primary, secondary, tertiary, or other, is high. Systemic reform of the entire system – public and non-public – is required. The very essence of the debate is not about the determinants of learning or the policy actions required or whether the public sector is capable of producing high quality schooling. In some cases, under certain conditions, it does. The key question is whether, in any given country, the current institutional conditions lead to a public sector that is motivated to and capable of implementing the required actions (Pritchett, 2004).

A complex set of challenges face rural dwellers. First, rural populations in general suffer from lower quality education *per se* because of the difficulties associated with the provision of education to remote and generally sparse populations.

Second, rural populations suffer from the low quality of education *per se* that is a feature of most education systems in developing countries. However, in this regard they suffer more than their urban counterparts because the question of quality is not only one

of the mastery of a few common skills such as reading and writing but also the learning of additional specific skills and general attitude, thought processes and value orientations that are directly relevant to the lives of these learners themselves.

The third factor is that formal education *per se* does not address many of the fundamental competencies that are necessary for developing a productive agricultural economy. Rural and particularly agricultural populations tend to be at a double disadvantage because not only is the overall quality of education poor but the education that is provided is designed for urban populations and is generally less relevant for their lives even if mastered. This, in fact, results in a negatively reinforcing cycle in many countries whereby education leads to increased exodus of people from agriculture and the rural economy and conversely, people see education as an escape from rural areas and agriculture, not as a means of boosting productivity of agricultural and other rural activities.

The third factor is the most problematic. The first and second, at least in different ways, have been recognized and there exist examples of these being fairly successfully addressed, at least through individual pilots, if not in terms of mass application. The third factor, that formal education *per se* does not address many of the fundamental competencies that are necessary for an agricultural economy, requires serious new thinking. In most cases it is the informal sector, community and family that traditionally has provided many of the critical thinking skills, awareness, local knowledge and value orientations on which agricultural production has been based and on which selective advanced education and training agriculture has built.

Today, however, there are at least two major transformations that are affecting the viability of this third factor. First, the nature of agricultural production is changing in dramatic fashion yet subsistence farmers are continuing to use outmoded practices. Evolving new agricultural production realities may not be well understood or mastered by individual agricultural populations or traditional communities. Therefore those who in the past provided the underlying competencies cannot be presumed to still be able to fulfill this role. Second in certain areas, particularly Africa, and generally strongly associated with poverty, other phenomenon, such as HIV/AIDS, the destruction of local economies, and the dissolution of traditional communities because of a variety of pressures such as migration and conflict have debilitated this traditional human capacity building infrastructure. The social capital - the linkages between people, knowledge, and production - is disintegrating.

What this means is that education designed for people engaged in or likely to engage in agricultural production must take a fresh look: first at the fundamental competencies that are necessary in the early years of education and second, how to actually deliver them, either by incorporating them in the formal education system or providing them alongside the formal education system during the critical primary and early secondary education years.

#### **4. Implications of Diverse Rural Landscapes**

An earlier paper in this series refers to three (or five) rural worlds – from wealthy commercial producers through to orphans, widows, migrants, and the landless. To briefly recap, Rural World 1 (RW1) consists of commercial farmers, Rural World 2 (RW2) are subsistence farmers who go in and out of commercial production as resources permit. Rural World 3 (RW3) are purely subsistence farmers while Rural World 4 (RW4) are landless agricultural laborers. Rural World 5 (RW5) is comprised of the most marginalized - widows, orphans, refugees, and the like. All of these rural worlds have children, youth and adults. Within any rural landscape, it is possible that all of the five rural worlds co-exist. Rural world's analyses demonstrate that rural children and youth are not a homogeneous group, coming as they do from all of these different rural worlds. Children of the commercial producers are likely to be able to attend formal schooling through to tertiary education, whether locally or at boarding schools, while orphans may be able to benefit from formal schooling provided explicitly for them through donor funded programs. Poorer children may have other choices but have different constraints. Beyond formal schooling, non-formal education (e.g., religious, community, and other schools) and informal education (e.g., community groups, technical assistance from extension agents, etc.) are widely available in rural areas but not accessible to all. In particular, marginalized groups, especially women and young girls, sometimes youth, are often excluded from most types of education due to resources constraints including time, location of training, and knowledge that the training is being offered.

While lip service might be given to recognizing the differences between urban and rural education, current education practices and policies cannot differentiate between these different groups in the rural landscape who may well benefit from targeting of delivery of different services. Adults in rural areas are also not a homogeneous group and constitute an obvious target for adult literacy, numeracy, and skills training, most often undertaken by NGOs. Numerous donor-funded programs provide many hours of informal training to adults in rural areas but unless careful attention is paid to these, the training may well not be relevant and women will often not attend. National skills training programs are too often connected to urban employment, industrial and service jobs in the urban space. Ellis (2005) points out in another paper in the DAC series that there is ample, if fragmentary, evidence that people are increasingly diversifying their occupations in poorly performing economies, especially as agriculture collapses as a source of primary income. This diversification appears to occur across all of the rural worlds and across all income ranges (ibid, 2005). Families in RW1 may choose to send one child for an agricultural education, one for medicine or law, and a third into business while families in the other rural worlds will make different choices based on whether the children are needed to provide labor or remittances for family subsistence, for example. Later, families may transfer their resources in a different direction, once they are better established. This livelihood diversification plays out differently, depending on income for the most part, and points to issues of costs and risk.

Whether educational opportunities are accessible and pursued in part depends on the costs and benefits associated with the opportunities or what could also be termed the

constraints to access. The costs and benefits vary across and within rural worlds: as noted earlier, individuals and families are differently situated. They will make different choices because of the way they occupy the rural space. Educational policy planning must explicitly consider how a given policy or program will impact the cost benefit calculations of these differently situated persons. Rural knowledge centers with various types of IT, for example, will be accessed by the wealthier, younger, and more literate.

Consideration should be given to the inter-related cost and benefit factors that impact how people determine whether or not an educational opportunity is accessible and worth pursuing.

#### Cost factors/constraints to access

- Proximity (in terms of travel time and location)
- Monetary price (fees, uniforms, books, etc.)
- Opportunity costs (lost production, income or care-giving – all of which are exacerbated by the impacts of HIV/AIDS)
- Social and normative costs (i.e., sanctions for not complying with community value systems)
- Psychological costs
- Safety and hygiene concerns, especially for girls and women

#### Benefit factors

- Increased income generation opportunities
- Health benefits
- Social status and influence
- Psychological benefits
- Foundation for building a more expansive life whether through work or through life-long learning.

Each of these factors and sub-factors points to things that need to be considered. For example, consider the matter of proximity in terms of travel time and location. If one owns a bicycle in a dry climate, a school two miles away is closer than for someone who has to walk. Hence the inclusion of time as it helps illustrate that income levels can provide resources that overcome distance to make a school more “proximate” and thus more accessible. For communities (or sub-communities) lacking income or alternatively affordable transportation resources (public or otherwise), schools or educational opportunities need to be located more closely. Some evidence shows that simply building more schools is sufficient to increase attendance in rural areas. This may imply that public investments might be better made in the poorer areas since higher income folks have more transportation alternatives to access the school location.

Similar analyses can be performed with regard to each cost or benefit factor – who has access, who has control, who will benefit and how? Opportunity costs point one to considerations of income, economic activity requirements, and substitute resources to replace the lost labor or lost care giving. Thus, education in HIV/AIDS stricken communities may depend on a public or community based care-giving system that can

substitute for that provided by the prospective student (child or adult). Social and normative costs point to the role of value systems and community engagement. Psychological costs and safety issues point to the value of such investments as separate latrines for girls or having a local female teacher at the school. Benefit factors point to the need to nest items within economic growth. If economic growth investments are not made, the newly educated person will not have opportunities against which to apply new skills and learning for increased income generation. If health programs or school food programs are nested within the educational opportunities, benefits are likewise increased.

By considering how each of these factors will be impacted by a proposed policy or program approach (in the education or economic growth or health areas), policymakers and planners can assess how the changes will alter costs, benefits, and the resulting cost-benefit determinations across the groups inhabiting the different rural worlds. This enables policymakers to better understand the tradeoffs associated with targeting (e.g., to orphans or to adults) and whether to give preference to differently situated persons. If rural education is to be pro-poor and pro-growth, such considerations are vital to the design of policies and programs that improves the accessibility and choice of educational opportunities by improving the cost-benefit choices facing individuals and families.

### **5. Different Learners, Different Needs**

The diverse set of stakeholders living in the rural areas will need education and training that differs from that offered in the past (Atchoarena and Gasperini, 2003). The need for education and schooling that serves the needs of different learners and that reaches rural children, out-of-school adults and youth and the rural poor, called Education for Rural Development by FAO and UNESCO, is beginning to be recognized by the donor community. As noted by ILO (1999), in the context of changing production systems, there is increasing recognition of the pivotal role of both education and training for both economic and social goals. People must have adequate knowledge and skills obtained through both education and training. This is especially important for promoting gender equality and overcoming many forms of discrimination (ibid, 1999).

Educators and community members routinely ask for curricula that reflect local needs. Examples abound of experimental programs that offer differently paced curricula, related to agricultural or rural non-farm employment and emphasizing life skills training. When education is adjusted to whom is being served, children remain in school longer and parents increasingly value keeping children in school (Mali examples, Miller-Grandvaux, 2004). Where the focus on education is for growth, i.e., building a skills-based curriculum, important impacts have been observed. (Example - USAID's Education Reform Support framework for Africa (1997) worked with local NGOs and indigenous organizations, supported school and community change, community participation, and local ownership (Miller-Grandvaux, 2004))

The problem, however, of rural education is that government policies and programs are generally designed as one-size-fits-all and do not take into account – although the constraints are known – the problems of education in rural areas. These are

many but two need to be highlighted here. First, agriculture has changed. The organizational concept of agriculture as being solely production oriented is no longer consistent with the need for a more holistic approach that includes natural resource use and management, rural development, and non-farm activities. Yet curricula, especially agricultural education curricula, have not changed much at any level, from basic through tertiary, assuming such curricula are available to the poor.

Second, convincing qualified teachers to live in rural areas, convincing parents and communities that children benefit from attending school, linking health and education programs, allowing for local governance of schools, and relevant curricula all require some action from over-stretched, financially strapped ministries of education. Strategies are needed that are both long and short term and that may or may not require major education policy changes. Short-term strategies have been used to encourage parents to send children to school and to keep them in school. These include, for example, positive asset shocks due to transfers (of funds) or transitory policy interventions such as education loans, and school feeding programs (Barrett and Swallow, 2003). International and local NGOs have been working, with donor funding, to provide education regardless of education policies in particularly dire situations with one objective being to affect policy change. They are finding (Miller-Grandvaux, 2002) however, that the process of policy change is fraught with hazards, as to be expected, and that ultimately, ministries of education have to be part of the solution.

It is possible to build on previous successes with community and farmer led education programs. These programs go a long way towards providing training in agriculture as well as for non-farm employment and with keeping people in rural areas. Educational reform programs that build alliances with communities, parents, teachers, NGOs, and learners abound but are rarely taken up by national governments for numerous reasons, some petty and some substantive (Miller-Grandvaux, 2002).

Farmer Field Schools are common throughout the world, often run by NGOs that work directly with farming communities. Cambodia, as an example, has long had farmer field schools for farmers to learn about integrated pest management, using farmers to teach other farmers. Recently, Farmer Life Schools were started using farmers' expertise in ecological analysis and applying it to civil society analysis, linking ecology, group organization, and student-centered learning through what is called "human ecosystem analysis". Farmers examine poverty-related issues including health problems, family planning, and children's school attendance as well as specific health problems such as HIV/AIDS, dengue fever, and malaria. Farmers are trained as facilitators who then work with other farmers and communities (FAO, UNDP, 2001).

It has been shown (Educatodos, Honduras; School for Life, Ghana) that adult learners and youth can participate in accelerated programs and achieve the same rates (or better) of learning that occur through regular programming. Educatodos targets youth and young adults who have dropped out of school before completing nine years of basic education, and older adults seeking to complete the basic education they failed as children (DeStephano, 2004). Since 1996, Educatodos has enrolled over 500,000

students, achieving completion rates similar to public schools. School for Life, serving the most isolated region of Ghana, has a nine-month version of grades one to three. Of the students completing the nine-month program, 66 percent continue on to fourth grade in a formal school. Youth need to learn basic skills within the context of agriculture education, e.g. Cambodia, FAO and WorldEd programs.

#### Examples:

Curricula for adult learners need not focus only on basic education but can be crafted to include technical information and develop specific skills, even for adults with only primary level or below education (e.g., Uganda REFLECT; Oxenham DATE). Skills training for workforce programs have been undertaken in post-conflict in Liberia and Sierra Leone; HIV/AIDS curricula have been developed in Ethiopia, Nigeria, South Africa, and Zimbabwe to name a few. Teaching can be in modules so that students learn what they need, when they need it. Education can be integrated with people as and where they are working; education can be delivered in dispersed locations.

Workforce programs such as Opportunities Industrialization Centers International (OICI), committed to the philosophy of self-help and placing responsibility for workforce development in the hands of local communities, rather than with the national government, can build alliances with industry, service organizations, and the like.

HIV/AIDS curriculum can be taught not only in the schools but must also be incorporated in the teacher training curricula. In Ghana, World Education and the Ministry of Education have designed a national HIV/AIDS curriculum for use in Ghana's Teacher Training Colleges to ensure that teachers are better prepared to address HIV/AIDS issues in the classroom.

Different approaches can be developed for different environments. Improving education requires multiple methods and approaches to delivery – radio instruction, television in some areas self-help agricultural associations assisting their members to learn new techniques (e.g., Zambia National Farmers' Union).

When peoples' lives are disrupted by conflict and emergencies, education is often neglected. Children and people may remain in refugee camps for decades (e.g., Burmese refugees in Thailand) or for enough time to cycle past a "normal" education. Basic and primary education may be provided, usually by a donor or relief organization working with NGOs. Depending on the circumstances, programs may be in place to develop both teacher-training programs and to deliver education and training to camp inhabitants. Youth and girls, especially, are often neglected; secondary schooling is rarely available. Nevertheless, numerous programs are being provided around the world. What kind of training is provided is widely variable and subject to both donor trends in funding and the particular status of the refugees (why they are there, when, if ever, they will return to their home areas, which are trained, etc.)

One example that occurs after a conflict is that of mine risk education. Mine risk education project in Cambodia is a joint effort between the Ministry of Education, Youth

and Sports and World Education (an NGO), funded by UNICEF. It works to train teachers and school administrators to plan and carry out activity-based mine risk education programs and to organize community based mine awareness activities with a particular emphasis on out-of-school youth.

## **6. Education Services**

Many countries are decentralizing the delivery of education services yet are not also sending financial resources to the districts so that the quality of delivery sinks quickly. It is essential to decentralize the financing along with the educational services so that school budgets are managed locally. Decentralizing agricultural education and services along with decentralized education services could lead to synergies between the two but is unlikely to occur without considerable willingness and support.

Communities and rural non-farm enterprises can become partners in developing schools and curricula relevant to that specific context and that keep people in the rural areas productively employed. Involving the local community and accessing local knowledge is being done more frequently, especially in programs that encourage experiential learning (e.g., Cambodian rural education programs). Innovations such as developing co-curricular activities (outside of classroom, off campus, in the community), encouraging children to play games, and developing games and problem-solving activities specific to agriculture is also being done, primarily by NGOs working on the fringes or outside of the regular school system and with donor funding.

However, care must be taken when building parallel school systems that send rural children into education programs that, while offering relevant curricula in local vernacular, might keep them from transferring to the regular track of education should they be able to do so. There is also the issue, in former colonies, of possible perceptions of dual and unequal education systems being established, one for the elite and one for the poor. In Mali, pilot programs had rural children attending community schools, learning in the local language, as a result of parents and community being interested in having an accessible education program. With the success of their children in these community schools, parents began to demand that their children transfer to the regular school but because they had not been taught in French, adjustments had to be made (Miller-Grandvaux. p.c.). Community schools must be prepared and able to make such adjustments. Most national education systems are not nimble enough to adapt to accepting children from alternative learning programs, whether from community schools taught in local vernacular or from religious schools. As noted below, some religious schools make every attempt to prepare their students to enter government-run schools but it is always the case that the non-government run program is the one that has to adapt to the government, formal education programs.

Improving school attendance has to go hand-in-hand with improving quality yet governments seem unable to do both at the same time. Reaching EFA targets in some countries has put children in seats without teachers. Teacher shortages beg for the development of more efficient methods of teacher training yet ministries of education and

teachers themselves are wary of such. What do children need to learn and how many years of teacher training are needed to meet those learning objectives in a more efficient teacher-training program? Many programs have linked the provision of health care and food to children with giving funds to parents to ensure attendance (e.g., PROGRESA, Mexico) but some argue that poor parents would send their children to school anyway because of the perceived value of education (de Janvry and Sadoulet, 2003). They also note that it is better to target for risk of not attending school (for secondary students, at any rate) than to target by poverty. The Mexico program is government funded; many others are not. DeStepano (2004) notes that both public and privately funded programs can achieve learning outcomes relatively the same costs.

Special mention should be made of faith-based education, which has seen significant growth in recent years, often in response to the failure of the public system to reach religious minorities and isolated rural areas. These are often the only schooling available to the rural poor. Much of this provision is unplanned and has little state regulation. While Christian missionary organizations began the practice of opening schools in former colonies, Koranic schools have existed for centuries in one form or another. Today, in Islamic countries, Koranic schools (madrassas) offer education that either replaces or complements state-run education programs. In rural areas, students generally come from poor families who cannot afford to send their children to government-run schools. The community, not the state, funds the schools. In the past, these schools emphasized religious instruction whether Christian or Islamic. The closer the schools are to major population centers, the more likely they will offer literacy and numeracy, frequently Arabic language instruction, and some form of life skills, social studies, and cultural values training. The students can then, if resources are available, transfer to government approved primary education. There is some concern the curriculum might be frozen (out-of-date) but many claim that madrassas now offer up-to-date schooling, including the use of IT in the classrooms and afford opportunities to girls as well as boys (World Bank, 2002). A conservative estimate is more than 12 million children attend these schools across the world ([developmentgateway.org](http://developmentgateway.org)).

## **7. Role of Further Training and Higher Education**

Higher education and training for rural development is not only about agriculture. The challenge for agricultural education is to either accept or ignore the opportunity to become part of a major shift in focus from production agriculture to rural development (Atchoarena and Gasperini, 2003). Three waves of development have occurred in agriculture – production agriculture, environment and natural resource management, and rural development. Most agricultural education programs missed the second wave and continued to focus on production despite evidence of the complexities of rural activities. A focus on rural development – the third wave – would allow agricultural education, especially higher education, to take leadership in solving the problems associated with revitalizing rural areas, poverty reduction, and food security (ibid, 2003).

There continues to be great debate amongst education specialists, including economists, whether to put funding predominantly into primary education or to spread

the funding across all levels to ensure that those children who finish primary school have the opportunities to avail themselves of further education. That debate will not be continued in this paper except to note that no developed country in the world has achieved that status without a tertiary education sector that has a coherent set of activities embracing professional training, research, and academic education. And no country in the world can achieve economic growth without developing science and technology capacity in selected areas, including the capacity to use S&T in value-enhancing ways. See Chapter 12 of this series for further elaboration on this topic. Suffice it to say that many of the recommendations in that chapter – working with stakeholders, building on innovations and technology available from elsewhere, participatory agricultural research – all require a vibrant, dynamic agricultural higher education system that is linked with private sector, the national agricultural research institutions, with international agricultural research centers, and with higher education institutions in other countries. In stagnant technological and economic conditions, the returns to education can be low (Pritchett, 2004). An up-to-date higher education system will reinforce and improve education at all other levels. Again, the importance of national policies outside of education, e.g., that encourage innovation and trade, to drive the demand for education will result in improved rates of return to education only when there is a demand for educated labor. This has happened in India and Latin America due to the technological shock of high yielding varieties that have not been successful in Africa (Pritchett, 2004). Few are the higher education institutions in developing countries that can qualify as dynamic and up-to-date.

Training in agriculture at the tertiary level has to become broader, and not just be seen as training for civil service extension agents. It has to overcome the urban bias, the civil service bias, and the non-research orientation bias. It is not the purpose of this paper to discuss the poor quality of agricultural extension services in the developing world that is attributable to not only poor agricultural education and training but also to numerous other factors, especially the counterproductive agricultural policies pursued by most poor country governments.. The private sector has to be involved. Farmers have to be included. Training and education at the tertiary level has to be accessible, of good quality, relevant, and cost effective. How can this be achieved? First, students and professors would actually have to work with real farmers on real problems of the rural landscape. Second, a holistic approach to education would have to be embraced, as noted above. Third, multiple models of education services and delivery could be developed. For example, in the U.S. and Europe, secondary school students have the option of either college-preparation or vocational education tracks that lead them to either further training at universities, community colleges or trade schools. Private sector driven models of higher and tertiary education exist. Agricultural education in most countries, if it exists at all, is poor. Vocational education is stuck in the '50s and takes too long to complete. Adults and youth need skills development training that is not focused solely on agriculture; rural non-farm employment opportunities can be ample for trained individuals. Government usually does not cover skills development for non-farm employment but if rural development is to be considered in its broadest contexts, a re-thinking and engagement of many ministries (education, labor, agriculture), donors and NGOs will be needed.

Good quality education does not come cheaply – faculty will have to be re-tooled and re-trained, administrators will have to recognize the need to expand their mandates and curricula, and linkages will have to be developed broadly, including internationally. There is a history of scattering donor-driven projects across the landscape (Babu and Sengupta, 2004). These are not sustainable and they have high transaction costs for national programs and staff. There must be a strategy (or strategies) that build on the needs of the rural populations, not only the wealthy producers but also the poorer farmers in Rural Worlds 2-5 (Hazell, 2003). Relevance will come from engagement – engagement with the diverse set of rural stakeholders and with the private sector. Researchers have to talk to farmers and have to disseminate their results back to farmers. By improving linkages, faculty and staff are better able to identify science and technology needs that are relevant to their own country's contexts. Institutional leadership at the higher education levels is key to success here.

In addition, these same endeavors can provide infrastructure, resources, personnel and program support that can be leveraged and employed in the basic and primary education areas – formal, informal and non-formal. For example, higher education personnel working with real farmers could mean working with adults and children. Furthermore, institutionalizing such a program ensures longer-term delivery and may provide public-private sector collaboration opportunities that might employ early participants as future trainers and workers. Rather than view the issue as higher education OR primary education, we need to seek and identify the ways in which both sets of educational investments can be mutually reinforcing in a manner conducive to multiplier effects, increased returns and long-term economic growth.

## **8. Issues and action areas**

Poverty is reinforcing. The poor are caught in a continuous cycle of being unable to access services and opportunities that would take them out of poverty – education, gainful employment, adequate nutrition, infrastructure and communications – simply because they are poor (Atchoarena and Gasperini, 2003). MDGs addressing poverty and education have focused on universal primary education (UPE) as one means of alleviating poverty. However, achieving UPE as promoted through Education for All (EFA) goals of universal access and completion is unlikely to be achieved by 2015 by most of the developing countries, especially the poorest with large rural populations. This is especially true if the sole strategy for achieving EFA is based on the linear expansion of existing public school programs. Clemens et al. (2004) note that data from 90 countries indicate that increasing enrollment from 50 percent to 90 percent takes an average of 58 years and, they assert, reaching 95 percent enrollment by 2015 will require historically unprecedented growth rates. Across the world, the children not in school are the poorest and the most isolated. What do we teach children in rural areas who, at best, will have three to four years of formal schooling? What kind of foundation education do they need to become lifelong learners?

As discussed here, the problem of access in rural areas is acute, as is the problem of quality and relevance. The 2004 World Development Report states, “Too often [government] services fail poor people.” DeStephano (2004) notes that entirely different approaches and dramatic rethinking are required in governance, management, and accountability so that schooling can be provided to the populations that education system have been least likely to serve. Rural populations - including poor adults, women, and unemployed youth who have dropped out of school - are seeking opportunities to further their education. Complementary education programs (e.g., NGO and community-run schools) have been developed to meet these demands and are often cost efficient when learning outcomes are compared to government programs (DeStephano, 2004). Some of these have been reviewed here. It is clear that a combination of both public and private strategies – each of them attentive to the diversity of rural world communities - must be encouraged to provide education to rural populations. As noted above the EFA Monitoring Report for 2004 notes that quality is being compromised by expansion.

One enormous hurdle is that there has been a decline in support to rural areas since the 1980s when donors shifted their focus away from agriculture. There continues to be an across-the-board urban bias – by donors, governments, ministries, teachers, parents, and job seekers. Improving education without improving rural infrastructure simply will not work. Likewise, demand alone (i.e., market forces) will not improve education programs in rural areas. National policies and international donor programs must reinvest in agriculture and rural development – both as a means to reducing pressures on urban sectors and meeting the needs of the rural poor.

A second hurdle is how to employ a multi-sectoral policy approach. The responsibility for the development of relevant rural education and relevant pro-poor educational policies cannot rest solely with the ministries of education. Agricultural, economic, health and finance policies significantly alter the accessibility, affordability, and value of educational opportunities and approaches. Inadequate allocations for infrastructure and macro-policies that undermine the farming sector make it very difficult to provide pro-poor rural education. Pro-poor growth requires a national policy on education for rural development. If pro-poor growth were achieved, it would reinforce the value of education for rural development. Education policy only approaches will not work. Formal, non-formal and informal programs need to be coordinated with policy efforts in other sectors. Accelerated learning programs are also critical and may be most productively implemented via economic, health and agricultural institutions or activities in the rural sector. Indeed, the reshaping of agricultural research and extension cannot rest solely with the ministries of agriculture. Kunkel et al. (1996) notes that an education policy framework for agriculture must be multidisciplinary and include social science, economics, anthropology, as well as agricultural sciences, nutrition, health, and natural resources. It must also include the private sector. The challenge is how to link ministries of education/educational policies with ministries of agriculture, finance and health.

While these hurdles are daunting, the opportunities for productive action are significant. By appreciating the diversity across and within rural world communities, policies in multiple sectors can be designed to enhance the accessibility and pursuit of

educational opportunities. By identifying with precision the set of critical skills agricultural populations need at various stages on the continuum of agricultural production, educational opportunities be developed to serve and be integrated with rural economic growth programs. By projecting the development of new generation agricultural production technologies, educational programs and curricula can foster an appropriately skilled workforce. By employing community approaches and analyses, knowledge transfers from older to younger generations can be maintained and institutionalized. These are not impossible or even improbable agendas. If we are committed to pro-poor growth, we need to be equally committed to pro-poor rural education integrated with pro-poor policies in other sectors.

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