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Short Article

ICTs and Rural Development

In recent years there has been a lot of discussion in international development forums about the potential of information communication technologies (ICTs). There are high hopes and expectations for ICTs to reduce poverty in rural areas. But as with other poverty-reduction tools and strategies, it seems that for ICTs to have a wide-ranging and significant impact, they will require a great deal of investment together with conducive regulatory and policy environments.

It is clear that ICTs and their associated benefits are not yet reaching poor communities, especially the rural poor (Torero and von Braun, 2005). In general it is hard to gauge the development impact of ICTs, and there is little research on direct links between ICTs and poverty reduction, or links between ICTs and sector-level economic development (Morrow, 2002; Torero and von Braun, 2006; Indjikian and Siegal, 2005).

However, the potential of ICTs is also clear. The promise of ICTs to improve rural livelihoods has been confirmed in a study by the International Institute for Communications and Development (IICD, 2006) focusing on price information and market access. It found that ICTs do contribute to MDG1 by increasing incomes of small-scale farmers, strengthening the agricultural sector, and giving better access to production information, markets, and prices of input factors for agricultural commodities.

Torero and von Braun (2006) point out that in countries where there has been significant network investment (mostly wealthy countries) there is a clear link between telecommunications infrastructure and GDP, however these networks need to reach a critical mass to have an impact on economic output. These researchers also note that ICTs have significant impact on the performance of small-to-medium enterprises, considered to be an engine of economic growth in developing countries.

Other researchers observe that ICT interventions don't have to be specific to agriculture to enhance rural livelihoods; any intervention that improves the general livelihoods of the rural poor may also lead to significant agricultural development investments for rural families (Richardson, 2005). It can do this by: improving access to capital and financial services; freeing time for agricultural work as a result of information services that help improve families' health and well being; allowing people to take better advantage of the remittance economy; providing better information to rural people to make relevant decisions about livelihood strategies; and improving efficiency and quality of government rural services such as health and education.

Another indirect benefit of ICTs is their use as a tool for: intermediary information providers, e.g. universities, government offices, NGOs; mediating organizations, e.g. community development organizations such as farmers' groups; and development workers and extensionists (Morrow, 2002).

Alongside the potential of ICTs are numerous challenges. For poor rural people, the so-called digital divide is a considerable gulf operating on both North-South and rural-urban axes. The divide manifests itself in access (infrastructure and price), investment, skills and content.

In much of the rural areas where poverty occurs, overall exposure to fixed lines and Internet is extremely low. Globally, fewer than one in five people are connected to a fixed-line telephone and these are concentrated in wealthy countries. The same ratio applies to the Internet. In fact, more than 30 poor countries have connection rates of less than 1 per cent (ITU, 2007), and of this 1 per cent, the majority is the urban wealthy. Very few rural poor people get a direct benefit. Mobile phones, on the other hand, show more promise: the global penetration rate is a much healthier 50 per cent.

For many developing countries, reaching a 'critical mass' of telecommunications infrastructure requires significant network investment. And once this is in place, pro-poor economic growth will depend on an enabling environment of strong institutions that facilitate private investment, and regulation that creates competition among providers, free movement and adoption of technology and targeted subsidies (Torero and von Braun, 2006). But even with infrastructure in place, there are more issues to consider such as developing appropriate, tailored services, developing users' skills, and content (relevant information in accessible languages is currently scarce).

Until the infrastructure, investment and enabling environments are in place, new ICT development initiatives should follow the lead of innovative projects that optimize existing high-penetration ICTs such as mass media (radio, newspapers, TV), and the rapidly expanding networks of mobile phones. One thing is clear: as leading researchers (Richardson, 2005; Morrow, 2002) emphasize, optimizing the use of ICTs for rural development depends on developing programmes and projects driven by local people and their needs, not by new 'technology of the day' – experience shows that top-down projects tend to fail and community-driven projects succeed. ■

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(References available upon request)

Flash BREAKING

Crops for the Future: Paths out of Poverty

Over 7,000 plants species have been grown or collected for food, yet fewer than 150 have been commercialized and just three crops – maize, wheat and rice – supply half our daily protein and energy requirements. Internationally there is a growing recognition that 'underutilized' crops help to diversify farming systems and contribute to more secure livelihoods. There is also a clear and on-going need for an international entity to help catalyze, backstop, promote and publicize work on underutilized crops for the benefit of the poor and the environment. Consequently a new global body, provisionally called 'Crops for the Future', has been established to spearhead the drive to bring underutilized crops into the mainstream.

GFU, 2008. Crops for the Future: Paths out of Poverty, http://www.underutilized-species.org / (January 2008).

Gates Foundation's Agriculture Aid a Hard Sell

The Bill and Melinda Gates Foundation is expanding its efforts to help the world's poorest farmers, and has helped fund US$ 37 million in grants for genetic engineering research aimed at developing plants that carry more nutrition. In the future, drought-tolerant varieties of maize could lead to big increases in food supply and incomes of poor farmers in parts of Africa. However, critics are concerned that this market-oriented, technology-centric approach will open the door to big agribusiness interests and genetically engineered food. Some critics have suggested the move plays into the hands of profit-hungry corporations vying to control the seed market in African countries, a move that will harm indigenous seeds and biodiversity.

The Seattle Times, 2008. Gates Foundation's Agriculture Aid a Hard Sell, http://archives.seattletimes.nwsource.com/ (20 January 2008).

Telecentre on Wheels

The Telecentre on Wheels (TOW) is an experimental project for remote villages in West Bengal, India, launched by the Change Initiatives, a rural Indian NGO, with support from UNESCO and the West Bengal Renewable Energy Development Agency. TOW is a customized tricycle (rickshaw) equipped with a solar panel and hardware such as a laptop computer, printer and power panels. It travels from one village to another on a regular basis. The objective is to develop a knowledge network among rural women to share information that can bring change in the quality of their lives. Using Ethnographic Action Research techniques, this project determines local needs and examines the transformation in village life through ICT.

UNESCO, 2007. Telecentre on Wheels: A New Way to Access Information in Rural India, http://portal.unesco.org/ (18 December 2007).

Corn and Its Many Potential Uses

Corn, particularly the white quality protein maize (QPM) provides many health benefits. Despite this, a large portion of the Filipino population refuses to eat corn, preferring rice as their staple food. In response to increasing malnutrition and rising costs of rice cultivation, researchers developed a mixture of rice and corn (known as RICO or CORI). The RICO varieties were chosen for their nutritional value and palatability. Substituting rice by 10 per cent corn grits is enough to fill rice shortages and alleviate malnutrition. Small-to-medium enterprises have been encouraged to consider RICO for commercialization – this is a move that can also increase farmers' income.

Hurtada, 2008. Corn and Its Many Potential Uses. SEARCA, http://www.searca.org/ (11 January 2008).

Natural Resources Support Livelihoods and Reduce Poverty

In Greater Mekong countries, rapid economic growth of recent decades is expected to continue, but growth must be matched with efforts to reverse negative impacts on the environment if the region's poor are to benefit, according to the Greater Mekong Environment Outlook 2007. In the Greater Mekong, one of the fastest growing regions in the world, economic growth has boosted incomes and well being in many countries, particularly Thailand, Viet Nam and Yunnan province in China. However, much of the growth has bypassed more than 70 per cent of its rural population, most of which is directly dependent on natural resources for livelihoods and incomes. Economic growth, coupled with growing population pressures has also led to widespread pollution, land degradation and depletion of natural resources. After land and water, air pollution is another growing threat, whose associated treatment and cleanup costs are a serious drain on public finances. Unless addressed, these changes may cause irreversible ecosystem damage with far-reaching implications for economic activities that depend on natural resources. They may also increase the vulnerability of the poor and rural populations to health threats, natural disasters, food insecurity and community fragmentation. People's well being is intricately tied to ecosystems and the goods and services they provide. The main challenge is to reverse the trend of environmental degradation and secure the ability of natural resources to contribute to sustainable development. ■

Based on Antara News, 2007. Natural Resources Support Livehoods and Reduce Poverty, http://www.antara.co.id/ (22 December 2007).

Biotechnology and Farm Yields

Agricultural biotechnology offers great potential as an instrument for achieving food security and poverty reduction. It uses advanced plant-breeding techniques to introduce beneficial traits to the crops grown for food and fibre. Application of agricultural biotechnology in developing countries could reduce the need for inputs and increase efficiency of input use. This could lead to the development of crops that use water more efficiently, fix nitrogen from the air, extract phosphate from the soil more effectively, and resist pests without the use of synthetic pesticides. There is considerable potential for biotechnology to contribute to improved yields and reduced risks for poor farmers. Globally over 70 different commercially important species of plants have been modified to incorporate seven main transgenic traits, i.e. herbicide tolerance, insect resistance, viral disease tolerance, fungal disease tolerance, product quality improvements, male sterility traits, and others (for example, production of metabolites/chemicals, improvement of nutritional traits, incorporation of marker genes, stress resistance properties, etc.). The important crops that have been modified genetically include maize, soybean, cotton, tomato, potato, alphalpha, petunia, rapeseed and mustard, rice, wheat, beet, barley, chickpea, cabbage and tobacco. Expanded enlightened adaptive research on agricultural biotechnology can contribute to food security in developing countries, provided that it focuses on the needs of poor farmers and consumers in those countries, identified in consultation with poor people themselves. Agricultural biotechnology must be viewed as one element in a comprehensive sustainable poverty alleviation strategy focused on broad-based agricultural growth, not a technological quick fix for world hunger. ■

Based on Ali, M. A. and Abbas, A., 2008. Biotechnology for Raising Farm Yield. SEARCA , http://www.bic.searca.org/ (9 January 2008).

Feminization of Agriculture in Asia

Studies on land and agriculture in Asia and Africa show that gender inequalities affect rural and agricultural development. In many Asian countries, due to deep-seated social inequalities that exclude them from things such as training, extension and irrigation management, rural women are denied an effective voice in community management or farmers' associations. At the same time, women are playing increasingly major roles in agricultural production. Trends that mark the feminization of agriculture include: an increased number of women in agricultural production; a change in the traditional gender division of farm work in which women are taking up (at lower wages) the tasks formerly done only by men; and rural women having increasing control of household income and farm management decisions. Ensuring equal rights to land and assets will enhance rural development because it will: increase economic opportunities; encourage investment in land and crop production; improve household food security; enhance women's agency; and lead to better agricultural management. However, the causes, the extent and the impact of the feminization of agriculture on women and productivity have not received sufficient concern in policy and practice throughout Asia. Insufficient attention has meant that women's contributions and concerns remain invisible in planning and thus are ignored in agriculture knowledge and technology institutions. These findings and the complex inter-relationship between women agricultural producers and their lack of rights to land and the related factors of production are discussed in a new UNIFEM report on the feminization of poverty. ■

Based on One World South Asia, 2007. Feminization of Agriculture in Asia, http://southasia.oneworld.net/ (24 December 2007).

Impact of Contract Farming on Income

Contract farming is seen as a way to raise small-farm income by delivering technology and market information to small farmers, thus incorporating them into remunerative new markets. A recent study addressed three key research questions in relation to contract farming: to what degree are small-scale and less-educated farmers able to participate in contract farming; does contract farming raise the income of farmers; and what explains the income difference between contract and non-contract farmers. The evidence revealed that selection of contract farmers is mainly based on location and labour availability. The results also suggest that contract farmers earn more than their neighbours who grow the same crops. The majority perceived an increase in income since contracting began. The way contracting contributes to farm income varies between commodities: contract apple growers benefit from higher yields (presumably due to technical assistance), while contract green onion growers receive higher prices (presumably due to better quality). These results suggest that contract farming can help small farmers raise their incomes and gain access to the growing urban and export markets. Questions remain regarding the number of farmers that are, or could be, brought into similar contract arrangements. The recommended policy support includes: (a) establishing a clear legal framework for contracts between farmers and agribusiness firms; (b) helping firms identify potential contract farmers; (c) allocating extension agents to provide technical assistance under the guidance of the firms; and (d) mediating conflicts between farmers and buyers. ■

Based on Miyata, S.; Minot, N. and Hu, D., 2007. Impact of Contract Farming on Income: Linking Small Farmers, Packers, and Supermarkets in China. Discussion Paper No. 742. IFPRI, http://www.ifpri.org/ (December 2007).

Flash EVENTS

International Symposium on Interdependencies between Upland and Lowland Agriculture and Resource Management
1 - 4 April 2008
Stuttgart, Germany
Abstract Deadline: 1 December 2007
Info:
https://www.uni-hohenheim.de/uplands2008/

International Conference on Food Security and Environmental Change: Linking Science, Development and Policy for Adaptation
2 - 4 April 2008
University of Oxford, UK
Info:
http://www.foodsecurity.elsevier.com/

Global Agro-Industries Forum: Improving Competitiveness and Development Impact
8 - 11 April 2008
New Delhi, India
Info:
http://www.gaif08.org/

5th International Crop Science Congress: Recognizing Past Achievements, Meeting Future Needs!
13 - 18 April 2008
International Convention Center, Jeju, Korea
Abstract Deadline: 13 August 2007
Info:
http://www.cropscience2008.com/

Biodiversity Research - Safeguarding the Future
12 - 16 May 2008
Bonn, Germany
Abstract Deadline: 1 March 2008
Info:
http://www.precop9.org

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Paper Review

Does Women's Status Matter for Food Security? Evidence from Bangladesh

Mohammad A. Razzaque and Mohammad M. K. Toufique, Research Paper No. 2007/79, UNU-WIDER, Helsinki, Finland, 2007, ISBN: 978-92-9230-032-6.

Gender inequality, mostly related to customary relations between sexes, is considered to be a root cause of poverty. In developing countries, within their families, women are considered to be subordinate to their husbands. By influencing household decisions, intra-household relations have a significant impact on the allocation of household resources to different activities and to welfare. Hence, a change in the intra-household decision-making mechanism, especially a greater decision-making power of women, might alter the household resource allocation. How does this change influence access to food? Could it be used to improve food security? The authors of this research paper attempt to answer these questions, using patriarchal Bangladesh as a case study.

In the first section of the paper, the authors presented a literature survey after a short introduction. The evidence emerging from a very large number of studies seems to suggest that when women have greater control over resources, more resources are allocated to basic needs, particularly food, health services and children's care. Studies suggest that female-headed households spend less on leisure and more on basic needs. Despite this evidence, the relationship between women's status (including greater control over resources) and overall food security requires a thorough and convincing analysis. The paper attempts to do this by evaluating econometrically the correlation between food security and the status of women.

The second section presents the methodology and data used for the analysis. Data were derived from a survey of 1,039 households in Bangladesh, of which 70 per cent were located in rural areas. The indicators of food security and women's status were constructed from this survey. As an indicator of food security, the authors used the calories approach. They made a distinction between ordinary food items (like cereals) and good/preferred food items (like eggs, meat, dairy products). Two indicators of food security were considered: the ratio of calories from good food to total calories consumed (GF); and the calorie adequacy ratio, which is the ratio of energy received to energy required for good health. Three different indicators of female status were considered: (a) husband's and wife's assets brought at marriage (considered as an indicator of their relative bargaining power); (b) female share of household income; and (c) a composite index of women's empowerment (which takes into account the ability of women to take purchasing decisions, occurrence of degrading and abusive incidents, the women's earning, saving, spending, and their mobility).
The estimations and results are presented in the third section. It appears that if the head of the household is a male, the GF is significantly lowered, and the share of eating outside home rises significantly. These findings imply that female heads give more attention to the quality of the diet at home. Also an increased female share of the household income has a negative impact on addictive consumption. 'Good food' availability is significantly higher in households in urban areas than in rural areas. The husband's and wife's assets at marriage had little effect on food availability. However, the empowerment of women index has a significant positive impact on the availability of good food at home, and significantly raises the household's expenditure on food. The paper also suggests there is gender discrimination in food allocation. Within a household, male school children are in a better position than female school children in terms of the calorie adequacy ratio, and elderly males are favoured over elderly females in terms of food expenditure. The paper concludes that the apparent discrimination against females can be mitigated to a considerable extent by improving female status, a move that will also improve food security.

The paper is interesting, and contributes to the existing literature on gender inequality and how it is related to food accessibility. However, it has some limitations. Firstly, the authors consider the household's total expenditure to be an indicator of the household's command over resources. But the total expenditure includes transfers from relatives, in money or other resources, from inside the country or abroad. These transfers are very significant in developing countries. Therefore, there is an overestimation of the household's capacity to access to food. Secondly, the fact that the paper is focused on a micro level (household level) of food availability diminishes its importance for policy planning. Improvement in food availability for households in a given country does not necessary mean that the country's food security is improving. For example, the improvement can be a consequence of massive food imports. It would be better to use the production of food as indicator of food security. Nevertheless, the paper is a good contribution to the current debate and will be useful for further analysis. ■

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