

# Implication of ICT Policy to the Agriculture and Rural Development: Opportunities and Challenges for the Case of Bangladesh

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## ABSTRACT

In this knowledge based society, the debate on ICT has permanently shifted from 'why' ICT for development, to 'how' comprehensive and holistic ICT policies can unleash human potential and enhance people's capabilities to improve their lives. Recognizing this untapped potential and development strategies incorporating ICT are being increasingly promoted and launched across the developing countries. While the potential advantages of ICT for development are enormous in developed countries, national policies of developing countries are yet to adequately reflect truly comprehensive and integrated strategies for harnessing and exploiting this potential. This paper presents an analysis of National ICT policy of Bangladesh. Through the examination of ICT policy, in particular in the field of agriculture and rural development and analysis of applied policies and strategies implemented in these area, this paper identifies challenges and opportunities which provides lessons for policy-makers and practitioners involved in the field. This analysis reveals that the policy is inadequate to impact positively on the agriculture and rural development of Bangladesh. The policy places little emphasis on the integration and infusion of ICT in the country's agriculture and rural development. Policy implications and suggestions are offered to ensure maximum use of ICT potentials in the country's agriculture and rural development.

**Key Words:** Agriculture, Rural development, Information and Communication Technology, Challenges and Opportunities

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## 1. INTRODUCTION

The pervasiveness of ICT has brought about rapid technological, social, political and economic transformation, which has eventuated in the network society organized around ICT(Yusuf 2005). Consequently, ICT has become an indispensable part of the contemporary world for these potential advantages of development. Thereby, the debate on ICT has permanently shifted from ‘why’ ICT for Development, to ‘how’ comprehensive and holistic ICT policies can unleash human potential and enhance people’s capabilities to improve their lives. Sound ICT policies that are truly pro-poor must be an indispensable part of national development strategies (Labelle 2005). While the potential advantages of ICT for Development are enormous, national policies of developing countries are yet to adequately reflect truly comprehensive and integrated strategies for harnessing and exploiting the potential of ICT. Hence, policy-makers and practitioners involved in ICT in developing countries like Bangladesh require thorough understanding the implication of ICT Policy to the agriculture and rural development.

The field of agriculture and rural development has not been unaffected by the penetrating of ICT in Bangladesh. Undoubtedly, ICT has impacted on the quality and quantity of agricultural and rural development. However, the development of agriculture and rural community, which in fact alleviate poverty are a burning issue for the developing countries, like Bangladesh. The digital divide between urban and rural areas, particularly in Bangladesh is well established. In rural area, there is low access to basic ICT equipment, low internet connectivity, low participation in the development of ICT equipment and even low involvement in software development. Therefore, it is imperative that the government will take appropriate strategies and implement them to promote such benefits for alleviating poverty for national development. It is true that it has lack of integrated strategies and knowledge to implement such

matters and therefore promote such a technology and its uses. How ICT can be a tool for reducing the poverty, in particular rural people through the development of agriculture and rural community. What are the strategies that should be considered for agriculture and rural development through ICT? How it can be implemented? How poor people can get benefit from it? How sustainable poverty alleviation can be achieved through ICT that can ensure sustainable economic growth? The answer of the mentioned questioned can help to achieve a wide range of social and economic successes that can empower the rural poor people to increase their income, cost effective health care and quality education. On the other hand, the answer can inspire transparency in the government activities and reduce corrupt practices and ensure good governance in developing countries.

In this light, for the strategic use of ICT for the development of agriculture and rural development in particular, Bangladesh has formulated a revised National ICT Policy 2009(April, 2009). The policy document is designed to ensure that Bangladesh as a nation recognizes the strategic importance of ICT for national development and forms the basis for the "Digital Bangladesh". Therefore, this study aims to analyze the National ICT policy of Bangladesh. Through the examination of ICT policy, in particular in the field of agriculture and rural development and analysis of applied policies and strategies implemented in these area, this paper identifies challenges and opportunities and seeking the answer of the aforementioned questions, which can provide lessons for policy-makers and practitioners involved in the field. Hence, this study is designed to provide policy-makers the necessary tools, information and knowledge to facilitate the formulation and adoption of ICT policies and strategies in the field of agriculture and rural development.

## 2. A NATIONAL ICT POLICY IN AGRICULTURE AND RURAL DEVELOPMENT

In order to capture the potentials of ICT, most nations of the world have evolved national ICT policies, to serve as a framework for ICT integration in all facets of the society. Bangladesh is not exceptions to this practice. In this light, Bangladesh has formulated its National ICT policy in 2002(2002) and the policy has been revised in 2008. Finally, the revised National ICT Policy was adopted in April, 2009. The document has ensured Bangladesh as a nation in recognizing the strategic importance of ICT for national development and formed the basis for the “Digital Bangladesh”. The vision of National ICT policy, i) Expand and diversify the use of ICTs to establish a transparent, responsive and accountable government, ii) Develop skilled human resources, iii) Enhance social equity, iv) Ensure cost-effective delivery of citizen-services through public-private partnerships, and v) Support the national goal of becoming a middle-income country within ten years and join the ranks of the developed countries of the world within thirty years. The following are the key features of the National ICT policy where it has appropriately identified the objectives of ICT in development. The objectives of the policy are: (1) Social equity, (2) Productivity, (3) Integrity, (4) Education and research, (5) Employment, (6) Strengthening exports, (7) Healthcare, (8) Universal access, (9) Environment, climate and disaster management, (10) Support to ICTs.

### 2.1. A NATIONAL ICT POLICY IN AGRICULTURE AND RURAL DEVELOPMENT

ICT policy has been categorized Rowland (1996) into vertical, infrastructural, and horizontal policies (Rowlands 1996, 1996) and his

work has cited in Hafkin (2002)(Hafkin 2002). Vertical ICT policy addresses sectoral needs, such as agriculture, rural development, education, health and tourism. The infrastructural aspect deals with the development of national infrastructure and this is closely linked with telecommunication and the horizontal aspect deals with the impact on broader aspects of society such as freedom of information, tariff and pricing, privacy and security. These three aspects are adequately addressed in the Bangladesh National ICT policy. It is now important to examine the document as it affects agriculture and rural development sectors. In making this analysis, we identified four key questions in line with the aforementioned questions:

- What does the National ICT policy of Bangladesh tell us about agriculture and rural development?
- How adequate is the policy for the integration of ICT in the agriculture and rural development sectors in Bangladesh?
- What implications are there for the agriculture and rural development in Bangladesh?
- What agenda is needed to redefine the national ICT policy to cater for the country's agriculture and rural development?

Answers to these questions are intended to provide a basis for redefining and re-development of the national ICT policy of Bangladesh(April, 2009). First, the document mission statement recognized the need 'To Use ICT for agriculture' Strategic theme 1.1 No. 8; 1.2 No. 14; 1.3 No. 15; 2.1 No. 22, 27, 29 2.2 No. 35–38, 40,41; 2.4 No. 47; 3.2 No. 79,81,82; 3.4 No. 92, 96; 3.5 No. 99, 100, 101; 4.3 No. 114; 9.1 No. 249, 251; 9.2 No. 253, 255; 9.5 No. 264; 10.4 No. 291. And "To use ICT for rural development" in case of local government: Strategic theme 1.1 No. 2,3,6,8; 1.2 No. 13; 2.2 No. 31; 3.2 No. 56,66,79,81,82; 3.3 No. 87; 3.4 No. 92, 96; 3.5 No. 99; 100, 101; 4.9 No. 155; 9.1 No. 249, 251; 9.2 No. 252,253, 258;10.4 No. 291. In case of rural development and cooperative: Strategic theme 1.1 No.8,14; 3.2 No. 73,79,81,82; 3.4 No. 92, 96;

3.5 No. 99; 100, 101; 9.1 No. 249, 251; 10.4 No. 291. In addition, the general vision in three (i, ii and iii) of policy document stated objectives stressed that information technology must be used to: i) Expand and diversify the use of ICTs to establish a transparent, responsive and accountable government, ii) Develop skilled human resources, iii) Enhance social equity.

In order to achieve these objectives, strategies were outlined as follows: The second strategic theme was stated in this way: “Utilize GIS based soil mapping system to analyze detailed data to provide information relating to crop suitability, land zoning, nutrient status and fertilizer dosage”(Strategic theme 2.2, No. 38). Establish Community e-Centres in City Corporations, Upazila Parishads, Pourashavas and Union Parishads (UPs) (Strategic theme 1.1, No. 2). Provide access to critical public services related to livelihood and human development through online means from any location in Bangladesh (Strategic theme 1.1, No. 8). Establishment of e-center in the rural area will increase the access to new technology which was previously unavailable and this information and contents on livelihoods will benefit rural populations through capacity Building (youth, women etc) and central government can reach to rural populations. The policy document encourages maximum utilization of ICT services nationwide to boost productivity of small, medium and micro enterprises and agriculture sector, and focus on innovation and competitiveness. It also ensures dissemination and utilization of latest know-how and market information to increase production capability and supply chain management of agriculture through ICT applications and encourage e-commerce, e-payments, and e-transactions in general bringing in a new dimension of productivity to the economy at the earliest. In spite of these objectives and strategies that are focused on agriculture and rural development, the document is inadequate to cater for the needs of the country’s agriculture and rural development sectors. Some of the deficiencies noted in the

document are enumerated as follows.

First, the policy has no specific special application to agriculture as well as rural development. While there are sectoral applications for health, culture, tourism; and governance, rural development is subsumed under other sectors. The policy has no specific direction for building local capacity for employment and diversification of economic activities. Second, there is no direction for building inclusive information and knowledge system to provide exclusive agricultural services to farmers. Third, there is an absence of universal access policy, particularly in remote rural areas. Fourth, there are a lack of directions for building e-learning infrastructure for the farmers and rural community, online transaction, payment infrastructures in promoting e-business and e-commerce. Culp and his colleagues put forward seven key recommendations by reviewing of 28 key policy documents over 20 years in the United States (Culp, Honey and Mandinach 2003). The second emphasizes the creation of more high quality content and software. The available software in Bangladesh rural area containing agricultural information is limited in local content. The policy document does not address this issue. A further recommendation by Culp, et al. (2003) also includes an increase in research, evaluation, and assessment. None of the issues relevant to ICT application in the Bangladesh agriculture and rural development address the issue of research, evaluation, and assessment, all of which are critical to ensure success. Research, evaluation, and assessment should address access, professional development, use and competence, attitude, and so on.

### 3. OPPORTUNITIES AND CHALLENGES

ICT policy implementation has made huge opportunities for the development of agriculture and rural development. The potential

impacts of rural ICT projects by providing rural areas with services, products and better infrastructure, a wide range of impacts and benefits could be achieved. These ICT projects can also have a strong positive impact if focused on adding value to local products or improving supply chain systems, precision farming, mapping and promotion of decentralized renewable energies such as bio-energy, preservation of the natural heritage, provision of public and business information, provision of data for specific users and for educational purposes, capacity building, etc. As a result, there could be positive spillover effects leading to increased use of bio-energy, better access to training opportunities, development of employment guidance, effective delivery of public services, promotion of sustainable farming and last, but not least, transfer of innovation and promotion of good practices. There is demand for ICT enabled services and information in rural areas in Bangladesh and rural community participation in village information center (e-center) ensures sustainable economic growth.

However, the challenges ahead in implementing the ICT policy for the development of agriculture and rural community are identified as follows: 1) Financial and social sustainability through a feasible business plan, 2) Engaging local communities by making ICT awareness; scaling up the pilot projects for making awareness of ICT use among the farmers and other rural people), 3) Ensure locally relevant contents and information for rural areas and use of local language in ICT applications and contents, 4) Ensure quality and high speed internet connectivity for rural areas, 5) Electricity infrastructure, 6) Expensive technology and equipments, 7) Lack of education, and viii) Ensure participation of the extreme poor people/communities in ICT activities.



## 4. DISCUSSION

The implications of the inadequacies are that the national ICT policy cannot adequately take care of the need of the agriculture and rural development of Bangladesh. Its agriculture and rural development focus is limited. There is need for integration of poor people and ICT usage, the need for quality infrastructure. Therefore, ICT policy for rural Bangladesh should focus on (i) Building infrastructure (ii) equipment to access the internet, (iii) content, covering what people look at and use on the internet, including the services which encourage them to go on line, and (iv) developing new skills among the rural community to access the internet. Since rural poor people are vitally important to ICT diffusion in agriculture and rural development, the national policy on ICT should address the issue of poor people e-government skills developments. This should incorporate issues relating to rural people training institutions and ICT, pre-service and in-service training.

In view of these inadequacies, there is a need to revise the national ICT policy of Bangladesh. Such revisions should be undertaken to involve stakeholders in the area of agriculture and rural development so that they can ensure that the policy covers issues related to learning about ICT and development through ICT. Although the issue of infrastructure is implicit in the present policy, particularly in the case of rural ICT infrastructure, it should be reviewed in such a way that access policy is addressed in concrete terms, since this is important in ICT integration. Infrastructural needs must be addressed across zones and community levels. Since research, evaluation, and assessment are critical for ICT usage in agriculture and rural development like other sectors, the national policy should identify a frame of reference in order to gauge success of ICT application in agriculture and rural development. Such a frame of reference will encourage refinement of agricultural practices, quality life of rural

community relating to ICT integration.

## 5. CONCLUSION

The adoption of the new National ICT Policy in 2009 was the right step in ICT application in every sector of the nation's life. It has specific direction and guidelines reflecting most of the priorities of the Digital Bangladesh. However, successful application in every sector can only be assured through adequate coverage of needed areas and identified gaps should be filled through the involvement of important stakeholders in agriculture and rural development. ICT is a powerful tool for the development of agri-based business for the rural development; it is a catalyst for the radical change in existing agricultural practices and veritable vehicle for preparing the farmers and rural people for their digital future. Success in the implementation of an ICT policy will be dependent on the recognition of the importance of the sectoral application to agriculture, rural development and sustainable implementation. Maximizing ICT potentials will improve quality ICT policy, greater involvement of private and public in the funding of the implementation, and proper implementation and monitoring. Through the examination of National ICT Policy, in particular in the field of agriculture and rural development and analysis of applied policies and strategies implemented in this area, we provided tangible policy implications and lessons for policy-makers and practitioners involved in the field. Finally, this study has provided policy-makers the necessary tools, information and knowledge to facilitate the formulation and adoption of ICT policies and strategies in the agriculture and rural development sector. We do hope this study will positively contribute to assisting policymakers in moving forward on this agenda.

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