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FARM ECONOMY IN INDIA WITH ICT APPLICATION

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ABSTRACT
Today we are in need of new approaches and technical innovations to cope with the challenges and to enhance the livelihoods of the rural population. ICT-based market information systems have a proven track record for improving rural livelihoods in middle income developing countries where they have been introduced.

ICT initiatives provide information services such as facilitation of access to land records, question-and-answer services, information on rural development programmers', weather forecasting, marketing information, best package of practices for dry land agriculture, information on crop insurance and post- harvest technology. It is also recommended that, before ICT services are set up in a region, efforts are made to develop among the farmers both a satisfactory level of faith in the intentions of the ICT staff and a firm commitment to the goals of the proposed project.

It is also suggested that participatory and rapid rural appraisals are carried out to ascertain what information the farmers need. In the process, the farmers' self-fulfilling faith in the information services provided should be enhanced. It is further recommended that the farmers be instructed in how to get the best possible use out of the services provided.

However, these systems are generally limited in scale and have not been effectively pretend beyond the local level. This article explores the potential contribution of information and communication technology in agricultural sector in developing countries;, the opportunities and challenges in the agricultural sector for the upliftment of the small-scale farmers and to raise their efficiency.

INTRODUCTION

Agriculture is an important sector with the majority of the rural population in developing countries depending on it. Almost 60-70% of more than a billion people depend on agriculture in India. The sector faces major challenges of enhancing production in a situation of dwindling natural resources necessary for production. The growing demand for agricultural products, however, also offers opportunities for producers to sustain and improve their livelihoods.

Today a new paradigm of agricultural development is fast emerging in both developing and developed countries. The overall development of rural areas is expanding in new directions; old ways of delivering important services to citizens are being challenged; and traditional societies are being transformed into knowledge societies all over the world. Information and communication technologies (ICT) play an important role in addressing these challenges and uplifting the livelihoods of the rural poor.

Information and communication technology (ict) plays a key role in improving the availability of agricultural production and market information in developing countries. ICT-based market information systems have a proven track record for improving rural livelihoods in middle income developing countries where they have been introduced. However, these systems are generally limited in scale and have not been effectively pretend.

In recent years, the International Institute for Communication and Development (IICD) in the Hague, the Netherlands, has been engaged in projects that focus on the use of ICT in the agricultural sector. The experiences of IICD and other organizations form the basis for the recommendations for future reaction in Commonwealth countries.

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SCOPE OF ICT

It has been accepted by various reports of government that application of ICTs at the different levels of agricultural processes provides

1. Improved agricultural competitiveness through management of technological information which includes price and market information; weather conditions; economic variables; communication with peers and business transactions etc
2. Transparency in implementation mechanisms that reduces the possibility of malpractices by agents and also addresses the corruption danger to large extent.
3. Strategic planning in managing various stages of agriculture facilitated by weather forecasting

ICT plays crucial role in agriculture production, crop management and others, however, the implementation is affected by several factors such as: required infrastructure for access and affordability of ICT tools and facilities; internet connectivity in production and commercial areas; outreach of awareness programmes, the quality and availability of suitable information content; limitation of the media; choices and appropriation of individuals towards ICT based approaches etc.

FARM ECONOMY : THE CHALLENGES AND OPPORTUNITIES

The agricultural sector is confronted with the major challenge of increasing production to feed a growing and increasing population . This an important situation of decreasing availability of natural resources, particular concern are water shortages, declining soil fertility, effects of climate change and rapid decrease of fertile agricultural lands due to urbanization. However, the growing demand, including for higher quality products, also offers opportunities for improving the livelihoods of rural communities. Realizing these opportunities requires compliance with more rigid quality standards and regulations for the production and handling of agricultural produce. New approaches and technical innovations are required to cope with these challenges and to enhance the livelihoods of the rural population.

The role of ICT is needed to enhance food security and support rural livelihoods and this recognized and was officially certified by the World Summit on the Information Society (WSIS) 2003-2005. This includes the use of computers, internet, geographical information or TV. Although it is a relatively new phenomenon, evidence of the contribution of ICT to agricultural development and poverty alleviation is becoming increasingly available .Since 1998, The International Institute for Communication and Development (IICD) which has been involved in many projects for the development of rural areas and also to help the poor farmers and framed policy and it also consistently monitors the progress and what are the impact of the use of ICT.
The following were the experiences of IICD projects

- **Enhancing agricultural production**
  Increasing the efficiency, productivity and sustainability of small scale farms is an area where ICT can make a significant contribution. Farming involves risks and uncertainties, with farmers facing many threats from poor soils, drought, erosion and pests. Key improvements stem from information about pest and disease control, especially early warning systems, new varieties, new ways to optimize production and regulations for quality control.

- **Improving market accessibility**
  Awareness of up-to-date market information on prices for commodities, inputs and consumer trends can improve farmers 'livelihoods substantially and have a dramatic impact on their negotiating position. Such information is instrumental in making decisions about future crops and commodities and about the best time and place to sell and buy goods .In many countries, initiatives have appeared that seek to address this issue.

  Simple websites to match offer and demand of agricultural produce are a start of more complex agricultural trade systems. These sites tend to evolve from local selling/buying websites and price-information systems,

to systems offering marketing and trading functions. Typically, price information is collected at the main regional markets and stored in a central database. The information is published on a website, accessible to farmers via information centers. To reach a wider audience, information is broadcast via rural radio, TV or mobile phone, thereby creating a 'level playing field' between producers and traders in the regions.

- **Market Information**
  Web-based trading platforms offering one-stop shop facilities are emerging, especially for main commodities. In India the private sector-led Agriwatch (www.agriwatch.com) and e Choupal programme (www.itcportal.com/ruraldevp_philosophy/choupal.htm) support several million farmers with price information, tender and transaction facilities. Capacity-building and empowerment Communities and farmer organizations can be helped through the use of ICTs for strengthen their own capacities and batter present their constituency when negotiating input and output prices, land claims, resource rights and infrastructure projects ICT enables rural communities to interact with other stake holders, thus reducing social isolation. It widens the perspective of local communities in terms of national or global developments, opens up new business opportunities and allows easier contact with friends and relatives. ICT played a role in making processes more efficient and transparent.

- **Accessibility of Information & Communication Technologies**:
  Global Positioning Systems (GPS) linked to Geographical Information Systems (GIS), digital cameras and internet, help rural communities to document and communicate their situation. Rural communities benefit from better access to credit and rural banking facilities. Recent mobile banking initiatives offer further scope to reduce costs and stimulate local trade. The Indian AMUL programme automates milk collection and payments for its 500,000 members, thereby enhancing transparency of the milk volume and quality collected and ensuring fair payments to farmers. Bring hope full environment for information and knowledge societies to be effectively used by rural communities.

- **Documentation of agricultural information**:
  It is generally accepted that information to sustain and increase agricultural production is spread over different agencies, notably farmers, universities, research institutes, extension services ,commercial enterprises, and non-governmental organizations (NGOs). However, this knowledge is often poorly documented or hard to access. IICD promotes documentation of social agricultural practices in original communities in Bolivia.

For the overall agricultural development of small production system, the ICT helps in the extension by re-orienting itself .With the appropriate knowledge, small-scale producers can even have a competitive edge over larger operations. When knowledge is harnessed by strong organizations of small producers, strategic planning can be used to provide members with least-cost inputs, better storage facilities, improved transportation links and collective negotiations with buyers. ICT can also play an important role in bringing about sustainable agricultural development when used to document both organic and traditional cultivation practices. Developing countries can create Traditional Knowledge Digital Libraries (TKDL) to collect and classify various types of local knowledge so that it can be shared more widely. These libraries could also integrate widely scattered references to Indigenous Technical Knowledge (ITK) systems in a retrievable form. Thus IT could act as a bridge between traditional and modern knowledge systems.

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FUTURE PERSPECTIVES IN ICT SHARED COMPUTING

Developments in shared technology, under the umbrella of cloud computing, are reducing costs and changing the equation on speed, complexity, and risks associated with deploying both application and computing services. An increasing number of technology providers now offer services based on remote computing and on a subscription or pay-for-usage model. For example, Software as a Service (SaaS) providers host applications that are offered on demand or by subscription. Infrastructure as a Service (IaaS) models provide a little managed hardware services, enabling customers to pay based on their use of servers, storage, and networks. Since the 1990s, there had been increased attention among developing nations on providing different forms of shared access or community computing, commonly delivered through "telecenters." These shared technology access centers offer rural communities the ability to use Internet-based services in a publicly shared manner. Telecenter in act effectily in many countries have led to innovative.

Attracting Investment

Over the last decade, there have been quiet revolutions in the ICT sector of countries in the International Development Association (IDA) countries that can least afford such investments. Various microfinance initiatives illustrate the capacity of rural citizens to operate businesses and profitably serve their fellow citizens. For example, village knowledge center by M.S.Swaminathan Research Foundation and the Grameen Bank provides non-collateral credit to the poor for micro business in Bangladesh, and Kiva.org provides similar credit funded by individual donors. The entrepreneurs helped by these programs range from women who operate cell phones for community use to people who sell and maintain solar-powered home systems.

Ecosystem Collaboration

Social networking and emerging tools such as wikis, blogs, and video sharing have dramatically changed the ways people collaborate. It is now easy for dispersed communities to share, discuss, and develop solutions. These tools and a new culture of open sharing are enabling dynamic collaboration within organizations, between organizations, and among communities. Collaboration technologies can bring together a deep and broad ecosystem of stakeholders to solve complex issues.

Smart services

Telecenters provide the delivery mechanism for a wide range of solutions, including those that improve the quality of life via healthcare education, those that reduce the cost of needed services such as land registration or subsidy applications, and those that enhance agricultural productivity and commerce.

Agriculture Services

ICT-based agricultural development services focus on enhancing the skills and knowledge of smallholder farmers and enabling smallholder value chains to improve their competitiveness and flourish. Agricultural value chain analysis helps identify the value chain issues to be addressed and the size of the opportunity for improvement ICT analysis looks at the feasibility of ICT to address those issues and the size of the opportunity that can be captured.ICT delivers valuable services for stakeholders through, knowledge delivery system, including access to information, e-learning, and advisory services. Farm planning helps to create efficiencies in agribusiness operations.

- Quality assurance through communication of standards and capture of Audi table data Procurement portals that facilitate input commerce and output trading exchanges.
- Supply chain planning to reduce cost and create visibility for logistics
  Financial services that give greater access to capital and help reduce the cost of financial transactions.
- Community services that enable rural citizens to access basic healthcare, education, and e-government services**.**

To identify the right services to offer, public-sector planners need to understand where ICT can have an impact and which services are likely to attract private investors.

RECOMMENDATIONS

1. Dissemination of speedy information to farmers.
2. Reorient agricultural policies.
3. Generating awareness among the farmers ,to participate in ICT initiatives
4. Strong interfaces must developed at village level , by using friendly Software and graphic interfaces and pictorial information.
5. 5.It is also recommended that, before ICT services are set up in a region, efforts are made to develop among the farmers both a satisfactory level of faith in the intentions of the ICT staff and a firm commitment to the goals of the proposed project.

CONCLUSION

To sum up, for appropriate ICT applications and realistic opportunities in the field of development and social change, we need to think about combining situations from inside and outside agriculture. ICTs give the potential of integrating information in a cross-sartorial way, e.g. through 'mobile databases'. Participatory Information and Communication Technology Development (PICTD) can play an important role in this regard.

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