Rural Tele-centers in Sustainable Agriculture and Rural Development in Iran: Situations and Problems (Case Study: South Khorasan Province – East of Iran)

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Abstract. The majority of rural population in Iran has limited access to agricultural information. However, bridging the digital gap between urban and rural areas has been a major challenge for authorities in Iran. Using Information and Communication Technology (ICT) for poverty reduction and for the economic empowerment of poor women and men in rural areas have been experienced world wide. Tele-centers are properly tools and public facility that available for villagers and can provide rural people with information related to their business, reduce the costs of money transfers, and put microfinance within the reach of poor men and women. The purpose of this article is to introducing the rural ICT activities in south khorasan province-Iran and specially reviewing the results of socio-economic impacts of them in sustainable rural development in order to find how Iranians use these facilities for poverty reduction and economic improvement in rural areas.

Keywords: ICTs, Development, Rural, Sustainability, Iran.

1 Introduction

What makes a nation great and wise is education that percolate all through the People. (Seaman Knapp. The Father of Agricultural Extension Science. 1900).

We must see that information technology and telecommunication get there (to rural areas) Very fast. If we are interested in eliminating poverty, you have the best chance ever in human history through telecommunication, through information technology, through micro credit (Professor Yunus, Grameen Bank & winner ofNoble prize).

In 1985 a very huge exhibition performed in Tsukaba in Japan (Tsukaba, EXPo 85, The 21th Century's in View). During six months that doors of the exhibition opened to viewers, twenty millions people visited from it. This exhibition was a great propaganda for technology of Japan, but also made opportunities for thinking about future human communications. Whether when man gradually accustomed to personal facilities such as glasses, automobile and etc. he/she can't accustomed to a robot that enables to be leader of a blind man. One of the methodologist of cybernetics Problems Wrote: major

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problem of our scientists is from that still we don't have complete cognition from intelligence and wisdom. We don't go forward from first opportunities (Mohsenianrad, 1995). In rural development projects, often observe that executers have used from methods that need a huge amount resource that contain more human, technical, physical, financial. Since this side, whenever that educational activities culminate, cause come up cost ratio that motivate more necessary activities and resources must be doing for comprehensive and multidimensional encounter to problem. Educational innovation must complete two types of demands. First, it must provide on-time, appropriate and flexible responses in basis of work, culture and social dimensions that individual live in that. It must have internal talent and merit and expressive in sight of psychology. Although it must responsive to quantitative, qualitative and heterogeneity conditions. Distance education contains methods that make it appropriate facility for effective delivery the range of educational opportunities with better monitoring (see figs. 1,2,3).
With use an educational plan in base of systems approach that have developed through educational processes, under the protection of individual learning opportunities (allocated education) to be possible install systems according to day and creative as compared with individual needs.

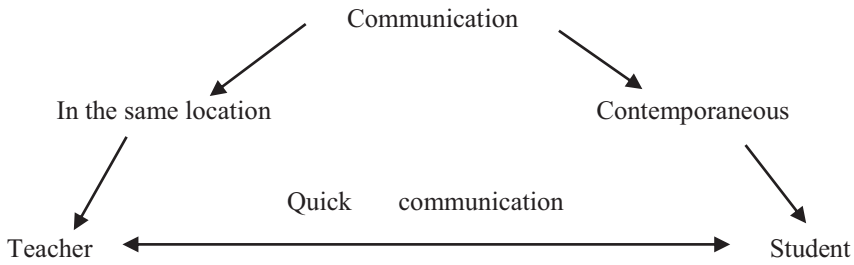

Fig. 1. Educational interaction in face to face education (performed in one's presence)

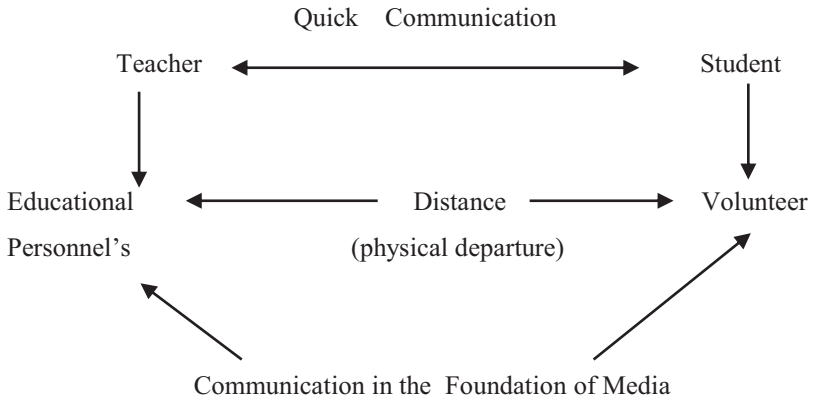

Fig. 2. Comparison between educational interaction in distance education and face to face education

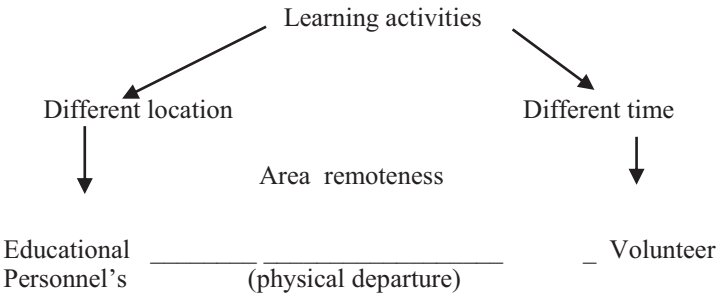

Fig. 3. Educational Interaction in Distance Education (Elliott, 2002)

Information and Communication Technologies (ICT_s) are an expanding assembly of technologies that can be used to collect, store and share information between people using multiple devices and multiple media (Chapman & Slaymaker, 2002). Many materials connected to agricultural extension and adoption have indicated that whatever more methods and channels are used to in agricultural extension, the possibility of success is increasing. But without respect to amount of complexity of method, efficiency of message in a great deal founded on the person who responsible for execution its. The method to transfer a message in large amount determines the change in behavior and attitudes. Extension workers especially in developing countries have a little instruction in exchange of information and knowledge with respect to level of learning ability, power and experience of farmers. The major goals of interventional communication that be utilizing in extension, are mobilization, transfer of information, teaching skills and establishing organizations (Karami & Fanaie, 1994). The matter that still its potentials don't recognized completely yet in agricultural and rural sustainable development in Iran, is ICTs. The subject that in developed and success developing countries (especially India, Bangladesh, Kenya, etc.) have 15 to 20 years successful experiences and works in that field. Perhaps the main reason for this, is later entrance of these technologies and concepts to Iran. This article is part of a research titled: ((Studying role of co-operatives in entrepreneurship and agricultural development in conditions of globalization of economics-Case Study: South Khorasan Province)) that by the author have been done in Islamic Azad University-Birjand Branch-Birjand, Iran.

2 Situation and Challenges of Agriculture Sector in Iran

From 75 millions population of Iranian country; 30 millions live in rural regions, which main their activities are in agricultural and animal husbandry sectors. Over 26 percent of

employed population in country; work in the agricultural sector. Over 26 percent of (GDP) country is obtained from agriculture. Rate of average growth for this sector in the 4rd development national program predicts to be 1/5 percent. The extent of forests and pastures in Iran is 102/4 million ha. The extent of forests and pastures in Iran is 102/4 million ha (Moja, 2010). In recent years, Iran has raised production of many necessary and strategic food crops such as wheat, oil seeds, Potato, citrus Fruits, apple and etc; and have walked high steps to receive self-sufficiency in wheat (especially) and also export in some products such as pistachio, saffron, raisin, almond, walnut, potato, Onion and etc (Ibid.). Major type of production system in agriculture of Iran is petty landowners and peasantry and subsistence.

Table 1. The Iranian out-put listed according to the largest global producer rankings in 2007 (FAO).

World Ranking	Commodity
1st	Pistachio, Berberis (Zereshk), Caviar, Saffron, Stone fruits, Berries
2nd	Dates, Apricots
3rd	Watermelons, Cherries, Cantaloupes & other melons, Apples, Figs, Gherkins
4th	Sheep Stocks (Flocks), Fresh Fruits, Quinces, Wool, Almonds, Walnuts
5th	Anise, Badian, Fennel, Corian, Chickpeas, Silk worm cocoons
6th	Hazelnut, Buffalo milk, Tomatoes
7th	Grapes, Onions, Sour cherries, Sheep milk, Kiwifruit
8th	Spices, Peach, Nectarines, Tangerine, Mandarin orange, Clem, Lemons & Limes, Oranges, Goat milk, Pumpkins, Squash & Gourds
9th	Lentils
10th	Persimmons, Tea, Natural honey
11th	Hempseed
12th	Citrus fruits, Wheat, Plum and sloes
13th	Melon-seeds, Hen eggs, Eggplants (Aubergines)
14th	Sugar beet, Fresh vegetables, Barley, Potatoes
15th	Safflower seed, Artichoke

Commercial and industrial agriculture in Iran have developed since 1970 specially by American multinational corporations, but they don't have a strong situation in agricultural sector yet. Agricultural development is one of the most important priorities in national development Programs in developing countries. This sector in these countries has faced with these major challenges and ICTs can play a significant role in

improving them: (1Globalization of Economic and Production system , 2(Erosion of natural Basic Resources and Environmental Crisis, and 3(Poverty and food security (Emad, 2005).

3 National Project to Development ICTs Application in Iran (TAKFA)

This project approved in council of ministers in government of Iran in date of 30 June 2002. Regulations on special manner of implementing specified activities in order to deployment utilization Information and Communication Technologies (ICTs) in country approved in following summarized details: (1Preparation as more as possible country in order to presence whole dimensional in information society and for attainment to:
a) Systematic deployment of ICTs for the sake of proving to be true ((sagacity axis)) economic in order to national sustainable development. b) Development human resources as strategic priority of ICTs development in order to establishing value added employment. c) Cultural development and strengthen environment and space to national together increasing. D) Implementing infrastructure arrangement for ICTs development containing access network, security, rules and regulations, resources and facilities. E) Development fields and opportunities for the sake of mobilization private sector as key strategic axis in ICTs development. F) Collaboration among ministries and organizations to mobilization all material and human possibilities in country to access the goals of (TAKFA). G) Some plans under this project are as following:
1) E-government plan (system, metaphorical network, rule and security), and 2) Functional deployment plan ICTs in ministry of education and development digitally skills in human power of country, and also in higher education, hygiene and other ministries and organizations in commerce, culture, economic, science, research and etc (Management and Planning Organization of Iran, 2005).

4 Problems of Extension System in Iran

With pass of time and during studies, iti s revealed that past strategies of rural extension and informing in spite of some successes, because of various reasons, mainly: A) One way being, B) Emphasis on some special social categories and uncovering public (both individual and rural levels). C) Un- comparing with all real educational needs of rural people and giving especial attention on agricultural extension and supposing other various educational needs of rural people to be un-necessary. They can't very successful for villagers. Because of previous deficiencies, plus not indigenous and not comparing with cultural characteristics and geographical conditions in rural Regions in Iran (lasaeizadeh, 2000).

5 ICT and Agricultural Knowledge and Information System in Iran (AKIS / NEDAK)

((AKIS- in English)) or ((NEDAK- in Persian)) is a system that contains elements such as centers and collections of production, process/polish, transfer and application of agricultural information and knowledge in the direction of increasing content of

knowledge in agricultural sector and finally with agricultural development are in interaction and connection, as following: 1(Producers of information (like research centers, policy making); 2(Polishers and transmitters of information. (Like extensional structures and agriculture and rural services); and 3(Users of information (agricultural stakeholders).

These are fundamental elements and proportionately the level of agricultural sector advancement, sub systems, mechanisms and other abundant elements interfere in this system. With study the situation in this system in various Countries we can find that Agricultural Development has meaningful and cause and effect relationship with developing of this system. From the viewpoint of (AKIS) following cases are most important fields of action and exactly problems of agricultural and rural development:
1- Efficiency in knowledge and information production.
2- Access to information and knowledge.
3- Communicative infrastructures.
4- Media, channels and communicational methods.

ICTs have following roles in development of (AKIS) in Iran: 1(ICTs as tool for improving agricultural productivity; in the following ways: a) Access to basic services (such as education, hygiene). b) Improving social and political participation (by means of connections and interactions between individuals and groups in various regions) .c) Support from economical activities, and d) Improving access to credit services.
2) Role of ICTs in increasing biological production output; in the following ways of delivery appropriate information: a) Technical information and better and more effective productive skills for implementing farm affairs (exploitation Unit). b) Information in field of dangerous factors (risk), decreasing risk and productive wastages, and c) Information in climate predictions and environmental shocks.
3) Role of ICTs in increasing economical efficiency of production: For example, some studies show that E-commerce can with remove some middlemen, increase revenues of poor farmers by means of delivery final prices, sometimes to ten folds (Ministry of Communication and Information Technology in Iran, 2009).

6 Applying ICTs in Extension System of Iran

A new revolution is sweeping the globe- Information Technology (ICT). It is a vehicle for future development, opportunities, challenges and competition that enables information to be collected and used. No aspect of human life remains untouched by the impact of IT, and agriculture is no exception. Access to information and improved communication is a crucial requirement for agricultural development. However, it is observed that rural population still has difficulty in accessing critical information in order to make timely decisions. Modern communication technologies, when applied to rural areas can help in improving communication, increase participation, disseminate information and share knowledge and skills. Cyber extension would be the major form of technology dissemination in the near future. It uses the power of online networks, computer communications and digital interactive multimedia to facilitate dissemination of agricultural technologies. In Iran, increasing attention is being paid to apply information technology as a means of technology transfer in extension planning and

implementation process. In the extension system of Iran, a great emphasis is placed on the role of indigenous knowledge to facilitate communication in rural development programs. Communication between project personnel and farmers is often very poor, particularly in projects with a structure that favors literacy, top-down message flows and innovations developed elsewhere. The extension system has been using four main channels to convey information to farmers. Those channels are radio, TV, printed materials and interpersonal communication. Radio and TV stations located in the province's centers allocate time to the extension offices to make agricultural programs and broadcast them to the farmers. The programs are made in the extension office by the extension staff. These programs try to reach rural audiences with specially tailored messages in an attractive and cost efficient format. Also, extension officers prepare publications on the related agricultural topics and present them to farmers. In addition, many extension organizations in different provinces produce periodic bulletins with news and review articles (In Farsi), which primarily aim at extension services. Extension agents also teach the farmers in interpersonal communication channel (Golmohammadi . 2007))Emadi, 2005(.

7 ICTs for Effective Agricultural Extension - Lessons from Asia

Access to information and improved communication is a crucial requirement for sustainable agricultural development. Modern communication technologies when applied to conditions in rural areas can help improve communication, increase participation, and disseminate information and share knowledge and skills. The argument is being put forth that "Cyber Extension" would be the major form of Agricultural Extension in the near future. However the rural population in major Asian countries still has difficulty in accessing crucial information in order to make timely decisions. It is essential that information availability is demand driven rather than supply driven. The challenge is not only to improve the accessibility of communication technology to the rural population but also to improve its relevance to local development. ICTs have started to make their presence felt in Rural. The farmers and farm-families are browsing the net and getting general, technical and marketing information from the Information kiosks in over villages across Iran. If the rural area can be connected and the "masses" are empowered with "Information", the Rural Economy will take a leap forward into the Digital Millennium with a great speed. The process has already started. The focus on "e-Governance" and "IT for Masses" is also emerging as front-runner in Iran vision documents. For this purpose, technologies especially suitable for rural areas are being developed and deployed. Portals on Rural Markets and Agricultural Services are being hosted. District level Web Sites are being hosted, Information Kiosks are being established at sub-district and village levels and the technical and other need-based information is being collected, digitized and hosted on the Internet. The "Pakkisan.com" and "Villages Online" portals of Pakistan, The "Grameen Bank's Village Communication Program" in Bangladesh, Radio-Browsing Program in Bhutan, "Penang Elearning Community" in Malaysia and "Interactive Radio" and the " Kothamale Community Radio" in Sri Lanka are all trend-setter projects in South Asia .The pilot projects of " Warna Wired Villages" in Kolhapur, Sangli districts of Maharastra, "Gyandoot" intranet project in Dhar District in M.P. and "Info Villages" in Pondicherry, Infothela Mobile Telecentre of IIT Kanpur, Community Radio in Andhra Pradesh, Drishti.com in Haryana, U.P. and Bihar and many more such

rural initiatives in India have successfully demonstrated the acceptability and usage of high-end information and communication connectivity at village level. National Institute of Agricultural Extension Management (MANAGE), Hyderabad, India has taken up a number of innovative projects to provide information and communication connectivity to the farmers nd farm families in rural areas, under the banner of "Cyber Extension". These projects include: i)Connecting over 25 Districts, 400 Blocks on Internet; ii) Implementing Wireless in Local Loop Technology in Agriculture to provide Telephone and Internet connectivity to rural population; iii)Connecting over 40 national level institutions on two-way Video Conferencing: and iv) Providing Video Conferencing access to Farmers' groups and Farm-families in Rural Areas through its Mobile V-SAT Van. MANAGE is thus very consciously involved in consolidating the learning from all the ICT initiatives in India and abroad, and grounding pilot projects to test the economics and the logistics involved in this Projects. The ICT enabled Extension or Cyber Extension is not the replacement of existing face-to-face extension mechanism, it is only a supplement to make the existing mechanisms more effectives efficient and economical. The ICTs can help the agriculture extension, more dynamic instrument of continuous way dialogue with the farmers, on various issues, including agricultural marketing and other forward linkages. A lot has been done to test and validate this hypothesis in the Asian continent and the indications are extremely positive that ICTs can support extension in a big way) Asian Productivity Organization, 2003(.

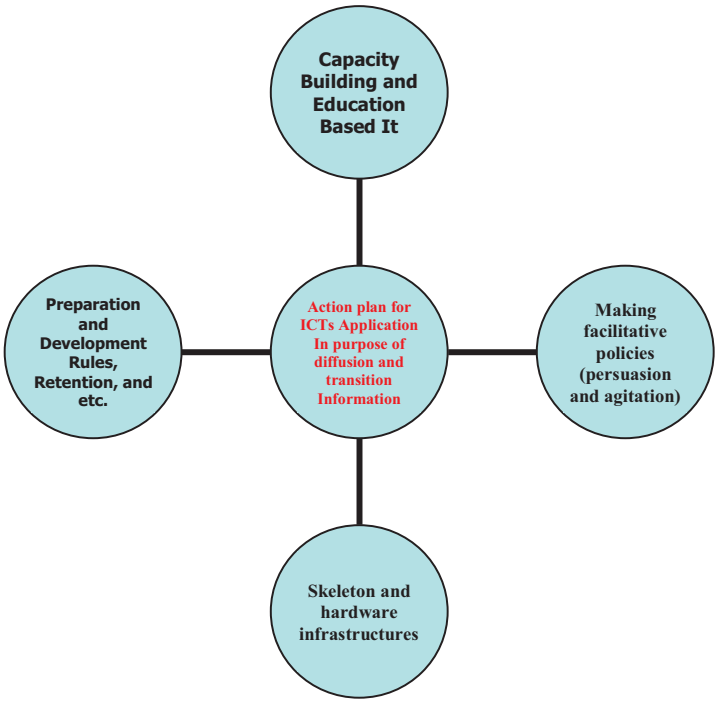

Fig. 4. elements of system (program) of action for Application Information and Communication Technologies (ICT_s) for diffusion and Transfer of Information and Innovations to Rural Regions (Author).

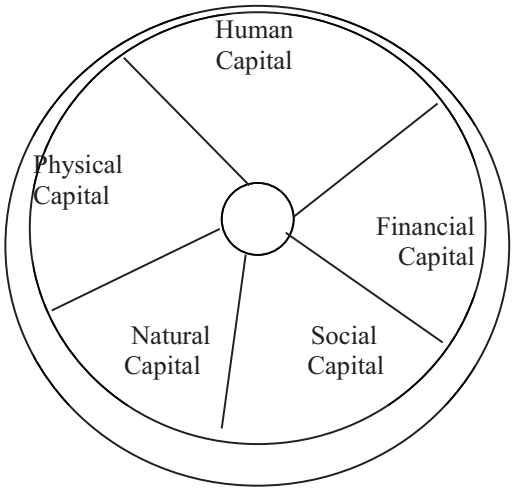

Fig. 5. Livelihood Information wheel (Chapman. & Slay maker, 2002).

8 ICT$_s$ Capabilities in Diffusing Information and Innovations to Rural Regions

Information is the explicit compiled of knowledge, recognition and awareness and knowledge. Recognition and awareness are important aspects of sustainable human development. In other hand, sustainable human development can achieve through development and Improvement human resources approach. Harbison and Myer defined " development and improvement human resources as: to consist of increasing in knowledge (recognition and awareness), skills, capabilities and powers of whole people of a society. Of course, improvement in recognition capabilities in individuals is consequence of education, extension and informing activities. The importance and place of information and knowledge in development process specially in rural development is such important that specially since 1998-99 in global development reports published by world Bank and UN that have paid special attention to them (Chapman & Slaymaker, 2002).

9 ICT$_s$ for Rural Development and Food Security in Iran

Information and communication technologies can play a major role in improving the quality of life of rural people. However, the promise is yet to be realized owing to lack of connectivity, poor access to universal service and an efficient market. It is necessary to remove the impediments faced by the developing rural economy and provide basic infrastructure in rural areas to enable ICTs to spread, which would enable them to be

part of a comprehensive socio-economic development strategy for rural development as a means, not an end. Over 60% of people in Asia-Pacific region and about 40% of the people in the world live in rural areas. Extending the international rural ICT experiences is a very important issue in most of the world. In Iran some rural ICT experiences have been started since year 2000.

With an area of 1.6 million square kilometers, Iran's population is 75 million, 33% of which live in 64 thousand villages. Most of the villages are thinly populated, so that the population of 60% of the villages is less than 100 individuals, and that of only 5% of the villages are above 1000. The Iranian's average per capita income was US$2,401 in 2006, and normally the rural per capita income is about 75% of the average national per capita income. Agriculture sector, considered as the major sector with regard to rural activities, contributed to 11% of GDP. For communication, Iran's statistics are as follows: 280 telephone lines per thousand individuals, 64 mobile telephone lines per thousand, 82 internet users per thousand, 110 computer systems per thousand. South Khorasan is a province located in eastern Iran. Birjand is the centre of the province. The other major cities are Ferdows and Qaen. South Khorasan Province consists of 7 counties: Birjand, Boshruyeh , Ferdows , Qaen , Sarayan , Nehbandan , Darmian and Sarbisheh. South Khorasan is one the three provinces that were created after the division of Khorasan in 2004. Its area is 69,555 km² and its Population (2005) is 636,420 and its Density is 7.3/km². there are 192 Tele-center in its villages until 2010, that these centers covering 95% people living in its rural regions.

Government's programs for telephone and cell phone development privatization as well as expansion of internet service providers throughout the country show a promising future with respect to rapid development of internet and telephone in Iran. Focusing on connecting villages to telephone lines and covering villages by mobile network is among the priorities of the country. One of the Development of physical infrastructures and services of the villages, specially attended in the first and second decades of the revolution. The Islamic system has particularly focused on rural areas to reduce the disparities/differences between rural and urban access to various services including roads, drinking water and power, so that now all villages have access to municipal roads and electricity and most have access to safe drinking water. Other economic and social services have also been developed rapidly in the rural areas. This period is known as Rural Construction era among the Iranian. In recent years, further foci were made mostly on economic and social development, and inter alias, on skill development, modern technologies and production investments. Among them, extensive programs of the government for ICT development in villages could be mentioned.

Access to information by rural population is often very limited, which prevents it from using the new technologies and information effectively. Rural areas are characterized by the following challenges:

Inadequate infrastructure to use ICTs, Far away locations of service centers to maintain and repair ICT devices and systems, Small markets, Inadequate financial resources, which make ICTs less affordable and lower levels of literacy and ICT literacy, Low awareness of opportunities and benefits that ICTs can provide (Golmohammadi, 2003, 2005, 2007).

Fig. 6. Map of the Iran and the South Khorasan Province in the East of Iran.

Fig. 7. Tele-center in Kalate nasir village - Birjand.- East of Iran (Author, 2010)

However, bridging the digital divide between urban and rural areas is one of the challenges facing governments and policy-makers today. Factors that contribute to and widen this divide include the following:

A) Economic: ICT infrastructure remains prohibitively expensive for many communities and nations.

B) Geographic: Difficult terrain, long distances and inadequate infrastructure.

C) Technological: Lack of skills to participate in the economy that uses ICTs extensively.

D) Cultural: Inequalities of access and participation.

E) Political: Long-term investment versus short-term political cycle.

10 Why Rural Tele-centers?

A) Gap between urban area and rural area may be reduced by using Information and communication Technology.

B) We cannot have poverty reduction and economic empowerment of poor women in rural and remote areas without using ICT applications at rural Tele-centers.

C) The most cost-effective solution in rural area is to share necessary facilities at Tele-centers. Iran has some experiences in building Tele-centers (Jalali, 2006).

11 Benefits of Rural Tele centers

Promote self employment opportunities. Computer training at village level. Promote CLC services, activities and products. ICT training center for education and health care in the region.

Most of the villages in Iran need to use Information and Communication Technology (ICT) services. Iran Rural ICT Strategic Plan is one of the Iran ICT Development National Plans, and considered as a reference for integrated coordinating of Iran rural ICT development. The most important goal of the project is decreasing the rural digital divided for economic development in villages and move toward information society. National Rural ICT Strategic Plan in 2005 begin and received to its fundamental goal namely establishing and exploitation of the 10000 Rural ICT Tele-Service Center in 2010.

Rural Tele-center which can be publicly or privately owned, be part of a public or private franchise, or be provided by international donors, has been proved its justification in the world(Jalali, 2006).

Figs. 8 & 9. Tele - centers Bojd and Khorashad villages – Birjand - East of Iran (Author, 2010)

12 Goals, Target Groups and Challenges of Tele-center in South Khorasan Province – Iran

A. Education for all ages and for all people in the areas who need it.
B. Cultural Activities.
C. A show case for the way IT can be utilized to govern and a small scale model for e-government.
D. A center for women's activities.
E. An ISP for village.
F. An e-commerce hub for the village and surrounding areas.
G. A vehicle for e-learning, and access to virtual universities.
H. A general information center (health, agriculture, etc.)
I. Access to E-learning.
J. Tele-working (Job opportunity), (Jalali, 2006).

Target Group at Tele-centers in South Khorasan Province – Iran are as following:
Individuals(local community members and village leaders); Small businesses; Schools; Youths; Disabled people; Farmers; Women groups; Tele-workers; Government departments.

Tele-centers Challenges in South Khorasan Province – Iran are as following:
High implementation cost (initial), Limited telecommunication infrastructure in remote areas, Limited usage –not enough to sustain, High operating cost (telecommunication, electricity, personnel), Encourage private sector participation, Need for effective management, need for strong community support, ICT training–wide coverage, Technology moves fast.

Fig. 10. Tele-center and Post Bank in Bijaem village- Birjand.- East of Iran (Author, 2010)

Fig. 11. Infrastructures of Telephone and Electricity for Tele-center in Forg village- Birjand.- East of Iran (Author, 2010)

13 Conclusion and Recommendations

Ministry of Communication and Information Technology in Iran in an integrated and holistic approach to end of 2009 aimed to establishing 10000 ICT_s bureaus in rural regions of Iran. In these ICT_s bureaus in addition to delivering various services such as post, post bank, telephone and fax, and other governmental services, provide accessing these rural regions to internet and global WWW. These ICT_s bureaus provide at least one location to connect internet in these rural regions. The baseline viewpoint for application this project is full access ofmost of Iranian rural regions to telephone and usage of this potential for post, communication and bank services in rural regions for providing delivering other governmental services in them. Ministries such as Jihad-Agriculture (MOJA), Education, Health and Medical, Power and Electricity, and other governmental organizations can provide and deliver various services to villagers in these rural ICT_s bureaus electronically and solving many problems of villagers such as coming them to cities for using of governmental services. This project have been begun from 2004 and until end of June 2009, number of ICT_s bureaus in rural regions of Iran become 8800 that recieved 100% of planned ICT_s bureaus in rural regions of Iran wererealized. ICT_s although can be considered as important achievement of human race, but their application accompany with considerations and hesitations that must pay attention to them. Entrance to information age, namely instrumental and attitudinal completion human in relation to environment and necessarily not meant resolving fundamental problems and challenges. In simpler tense, although we can through utilization ICTs,can access more information and knowledge and, deliver more power and capability to communities, but as noted in human development Report (1999) UN , information is only one of the needs of communities. Electronic mail can't replace to vaccine and can't produce safety drinking water. This statement monitor to attention in selection, range, extension and application of these technologies. Although internet is not remedy for all pains of food security, It can open new channels that bring new knowledge, awareness and informational resources to rural communities. It has stated that "access to an integrated internet development approach in a determined nation or region, need collaboration and assistance public agencies, organizations and services. Food and Agricultural Organization of United Nations (FAO) therefore can establish and strengthen union, mutual agreement and correlation with other international, regional, national, donors, multi dimensional and development agencies, governmental and non governmental organizations (NGO_s) and rural groups in order to access sustainable rural and agricultural development. Social multipurpose Tele-centers could play a key Role in "information Renaissance" in developing countries and assure global accessto information.

Information and communication technologies have a tremendous potential to help in improving the living conditions of the rural population in Iran and it is evident that ICTs will change the way people live, work and learn. A large proportion of the rural population in Iran is yet to benefit from this technological revolution. Based on the results of the study by the researcher in 2009 – 2010 in South Khorasan Province – Iran, author find the following findings:

- Establish the partnerships with the public and private sector. The financial burden of developing ICTs for rural areas is mainly on the government and it is important to enlist the private sector to participate in the development or expansion of ICTs in rural areas.
- Explore ways to increase the participation of the rural population in the planning, implementation and evaluation of ICTs program. The lack of support from rural population may hinder the progress in the development of the ICTs and slow down the momentum.
- Design the instructional materials which support the role of new ICTs as a complement for conventional delivery system. These could speed up the application of the ICTs and facilitate the exchange of ideas among various stakeholders.
- Financial participation of rural people from initial stage is very important. Land of Tele-center should be donated by villagers.
- Training rural people in short period of time after opening is important.
- Creating website for village with popular villagers' information and other information.
- Sufficient agricultural information and elementary services.
- E-Banking for small investment and low operational cost loan at initial stage for commercial operation is important.
- Participation of rural women in operation is useful for empowerment.
- Sharing local government in permanent cost (Internet, telephone, gas, water and maintenances plus guards) is very important.
- Broadband access to Internet for running multi-media is needed.
- According the results of author's research, villagers have boosted their general and specialized knowledge and improved their social and economy since the Tele-centers opened.
- The role of Tele-centers for improving knowledge in general and making a good media for business development and entrepreneurship is proved.
-Adapting new technology without Tele-centers is not possible.
- Author's Research on the socio-economics impacts of rural Tele-centers in South Khorasan Province–Iran is shown how well these Tele-centers are running. Tele-centers in South Khorasan Province–Iran improving Social and Economic processes identified as important for women empowerment. Tele-centers help poor women get basic capabilities and the process of social needs economic security.
-The Tele-center has even created jobs for educated girls in South Khorasan Province–Iran and more than 90 of them are currently active in this centers.
- In South Khorasan Province–Iran, educated girls will soon begin work in the Tele-centers and the economic impacts of Tele-centers in the villages have mainly targeted women.
- The results of author's research indicate, more than 90% of women and young people reported a positive impact of rural Tele-centers on their lives in South Khorasan Province–Iran.
- Tele-centers in South Khorasan Province–Iran villages are used as a development tool for reduction of the need to travel, means of boosting the rural economy and providing job opportunities, support for trade and tourism, reducing isolations and extending e-learning facilities, etc.

Author also present recommendations in development of ICTs in agriculture and rural sustainable development in Iran as following:

- Increasing literacy level of employees in agricultural sector.
- Development and completing Agricultural Knowledge Information System (AKIS or NEDAK).
- Establishing linkages between Iranian agricultural research, education and extension organizations.
- Development Cooperatives and NGOs in rural regions and then scientific strengthening of them and finally transferring ICT_s to them.
- Development infrastructures, services, hardware, software and human ware in rural regions in field and domain of ICT_s.
- Absorbing and stuffing young educated and expert people in field of ICT_s from cities to rural regions.
- Preparing and development comprehensive plan for ICT_s education in the country.
- Considering cultural, economic and social conditions in usage of ICT_S in rural regions.
- Empowering small farmers in forward to usage of ICT_s.
- Studying and evaluating experiences of successful countries in this domain with similar cultural, economic and social conditions with Iran – such as India, China and Japan- and then use of them.

Foot notes

Information and Communication Technologies (ICT_s):
ICT_s , are an expanding assembly of technologies that can be used to collect, store and share information between people using multiple devices and multiple media (Chapman and Slay maker. 2002).

References

1. Mohsenianrad, M. (1995) Communication and Human Communication(Individual ,Group ,Mass((Persian) . Soroush Publication. Iran. Tehran.
2. Elliot, S. (2002) Distance Education systems. Translated to Persian Dr. Seyyed Mehdi Mirdamadi. Agricultural Education publications. Iran. Karaj.
3. Chapman, R. and Slay maker, T. (November 2002) ICTs and Rural Development: Review of the literature , current interventions and opportunities for Action. Available online: www.odi.org.UK/publications /working papers/ wp192.pdf
4 Karami, E. and Fanaie, A. (1994) Study Theoretical Frameworks in Extension . Vol 182. (Persian). Ministry of Jihad Sazandegi. Iran. Tehran.
5. Ministry of Jihad Agriculture,(MOJA) (2010) Extension and production systems (Persian). Available online: www.Irantarvij.ir
6. Food and Agricultural organization of the United Nations. (2007) Global Producer Rankings. Available online: www. Fao.org
7. Emadi, M.H. (16-19 December 2005) Information Society and Information Technology Application Fields in Agriculture and Rural Development in Iran. Paper presented on : Scientific conference on : » Iran and Information Society in 2021 «(Persian). Tehran. Iran
8. Emadi, M.H. (2005) Role of Information and Communication Technology in Agricultural Development . Available online: www.Irantarvij.ir sector of Extension and production system . papers sector. (Persian).
9. Management and Planning Organization of Iran. (2005) Regulations for Specific Applications toward Development ICTs in Iran. (Persian) Governmental Publications. Iran. Tehran.
10. Lahsaeizdeh, A. (2000) Rural Development Sociology. (Persian). Zar Publications. Iran, Shiraz.
11. Ministry of Communication and Information Technology in Iran. (2009) Plans, Programs and Perspectives. Available online: www.Irantelecom.ir
12. Golmohammadi,F. (2007) Preparing Systematic Functional Pattern of Extension to Attaining Sustainable Development of Agriculture. Dissertation of Agricultural Extension and Education (Ph.D.). Islamic Azad University_ Science and Research Branch – IRAN, Tehran. 286 pages.
13. Asian Productivity Organization (APO). (15-20 December 2003) Enhancement of Extension Systems in Agriculture. Report of the APO Seminar on Enhancement of Extension Systems in Agriculture held in Pakistan, Edited by Dr. V.P. Sharma, MANAGE, Rajendranagar, Hyderabad, India . Published by the 1-2-10 Hirakawacho, Chiyoda-ku, Japan, Tokyo.
14. Golmohammadi, F. (Dec 2003) IT, ICTs and progressive Education in global Movement in Agricultural Information, Poverty Alleviation and sustainable Development. Paper presented in : First scientific – Research National Conference of Agricultural and natural Resources Students in Iran (Persian). Guilan University. Iran, Rasht.
15. Golmohammadi, F. (MAY 2005) ICTs Application in Natural Resources Conservation and access to sustainable Agricultural Development. Paper presented in : National conference of Iran perspective in 2021 Horizon (Persian). Iran, Isfahan.

16. Jalali, A. A. (May 4, 2006) Socio-Economic Impacts of Rural Tele-centers in Iran WomenEmpowerment and Empowerment Economic The .ICTs of Role The World Bank Seminar, Washington DC.
17. Farrell, C.O, Norrish, P., and Scott, A. (2000) Information and Communication Technologies for Sustainable livelihoods . available online: www.fao.org/waicent/ faoinfo/ sustDev/ CD direct/ Cdre 055d.htm
18. Fazelnia, G., and Kiani, A. (24-25 FAB 2004) ICTs and state rural theory and rich and poor information rural. Paper presented in: Conference on ICTs Application in Rural. (Persian). Tehran. Iran
19. Vindal, S., Signitzer, B., Olson, j. (1997) Application of Communication Theories » an introduction to Planned Communication « .Translated to Persian: Alireza Dehghan. Center of studies and Researches in Media Publications. Iran, Tehran.