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**ROLE OF AGRICULTURAL EXTENSION IN SUSTAINABLE
RURAL DEVELOPMENT IN PAKISTAN**

**ROLUL EXTENSIEI AGRICOLE ÎN DEZVOLTAREA RURAL
SUSTENABIL ÎN PAKISTAN**

MIRZA B. BAIG^{*}, FAISAL SULTAN AL-SUBAIEE^{},
GARY S. STRAQUADINE^{***}**

Pakistan is an agricultural based economy and about two-third population lives in the rural areas. The role of agricultural extension in the sustainable development of rural areas has not been fully exploited to realize sustainable rural communities. An effective extension system of any country always plays very prime role in the developmental process. However, Pakistan is under heavy criticism for not making significant the impact on crop yields and for not bringing the desired positive changes in the rural livelihood. New initiatives in the form of decentralization and devolution; participatory approaches to extension, and the use of new information and communication technologies have been taken to improve the efficiency and effectiveness of the service. An extension system that could promote sustainable agriculture and address the rural development issues is in dire need.

Key Words: *Sustainable agriculture, production constraints, Improvement strategies, Holistic approach*

Introduction

Agriculture sector is the lifeline of Pakistan's economy. It contributes 24% to the GDP, employs 48.4 percent of the labor force and contributes to 70% of the foreign exchange earnings through export of raw materials; semi processed and processed agricultural products.

The agricultural growth in Pakistan since 1960s has taken place at a magnificent rate of 4.3% per annum. It is seen that the productivity levels of

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crops in Pakistan are generally low. There are wide gaps in yields of crops at the farms of progressive and subsistent growers. The prospects for increase in area are limited. Strenuous efforts are being made to raise productivity levels through increasing extension-scientists-farmers contacts, improving out-reach capacity and focusing on electronic transfer of technology through manpower training and allocation of resources.

The developments in agriculture would not be sustainable without developing the rural areas and addressing the issue of poverty and enhancing investment capacity of the resource poor farmers. Government of Pakistan is undertaking programs through agriculture and initiatives aiming at improving income generating skills. The horticulture & livestock are important segments of agriculture sector to provide a platform for rural uplift. Agricultural loans are being provided to farmers at their door steps through agricultural banks. The overall objective of the various initiatives is to improve the agricultural sector and that in turn will help realizing sustainable healthy and prosperous rural communities. An effective agricultural extension system has the potential of developing rural areas through the delivery of superior, economical and viable farming technology package. The article is an effort to review the role of agricultural extension in realizing sustainable rural development in Pakistan.

Agriculture in Pakistan

With the population of approximately 166 million Pakistan has been ranked the 6th most populous country in the world (Wikipedia, 2009) and is the most populated country in the Eastern Mediterranean Region, accounting for 30% of the regional population (WHO, 2006). About 68% of the population is rural and is increasing by 2.6 % per annum (Economic Survey, 2006-07). Agriculture is the backbone of the country's economy. It has been named as a dominant driving force of livelihood for 66 percent of the country's population. It accounts for 20.9 percent of the GDP and employs 43.4 per cent of the total labour force (Economic Survey, 2006-07).

Agricultural extension system of Pakistan

An agricultural extension helps farmers (through educational procedures) in improving farming methods and techniques, increasing

production efficiency and income, bettering their levels of living and lifting the social and educational standards of rural life. Agricultural extension helps alleviating poverty and improving food and crop production and security. It promotes the transfer and exchange of information that can be converted into functional knowledge, which in turn helps develop enterprises that promote productivity and generate income in present changing climate. In addition to technology transfer, agricultural extension provides agricultural education and information services. Also it can provide whole population with institutional development and income generation together with increased food crop output (Malik, 2003; Bajwa et al., 2008).

Since independence, Pakistan has tried many extension programs for agriculture and rural development. In the country, provincial governments are primarily responsible for agricultural research and extension functions. Being a provincial subject, there is a long list of multi-sectors as well as single sector extension models experimented, one after another and often in overlapping manner, in the public domain. Several extension approaches designed primarily to improve the living standard of rural people through increased agricultural production and improved farm income, have been tried. During last five decades, agricultural extension witnessed various perspectives. The Village Cooperative Movement started in early 50s under the control of Cooperative Department. The village agricultural and industrial development program (village-AID) was initiated during 1952, with substantial financial help from USAID and Ford Foundation. The Basic Democracies System (BDS), phased in 1959, was designed to bring community and political development in association, especially at local level (Malik, 2003). Again with the change in political scenario in the country, an integrated rural development program (IRDP) was launched in early 1970.

Then training and visit (T&V) system of agricultural extension was introduced during 1978 in five districts of the Punjab province namely Jhelum, Sargodha, Sheikhpura, Vehari and Rahimyar Khan. Later it was introduced in whole Punjab during 1987-88. This system was mandated with only transfer of agricultural technology and was separated from supply functions such as provision of inputs. Supply of inputs and other services were handed over to private sector or commercial corporations (Malik, 2003; Bajwa et al., 2008).

Malik (2003) noted that the T & V system could not continue as per programme after the completion of the project in 1994-95, because the provincial governments were unable to provide budgets for its continuation.

The traditional Extension system, which prevailed in the country till 2001, the provincial department of agriculture, was run by a Directorate General of agricultural extension, administering a large extension net work down to the union council level. A union council is the lowest unit of the local government system and consists of 3-5 villages depending on the size of population. Agricultural extension like several other bureaucratic agencies operates on a top-down approach maintaining weak linkages with agricultural research, education, and other farm-support system. However, its working level and operation intensity varies from province to province.

New initiatives – devolution and extension system

In order to strengthen the Extension system and to empower the elected people representatives with more authority, the government implemented its devolution plan on August 14, 2001. In the plan, functions of all service delivery line departments including agricultural extension were transferred from provinces to the newly elected district governments. The introduction of devolution plan enabled the government to introduce drastic changes and to provide bloodline to the existing setup. The plan helps in reducing the bureaucratic impediments and providing people better access to the resources in all the public service departments.

The above mentioned programs could not yield desired performance and the entire extension service had to face heavy criticism. Some of the shortcomings and weaknesses of the extension service include:

- Inadequate professional training of extension staff
- Ineffective and unreliable input supply system
- Lack of mobility, and lack of reliable logistic support
- Lack of adequate incentives; slow promotion of extension staff
- Weak and linkages with research

Rural development in Pakistan

The rural development initiatives were undertaken were Rural development is a complex phenomenon (Memon, 1993). Whereas Gill et al. (1999) view rural development essentially a part of the process of structural transformation characterized by diversification of the economy away from agriculture. Similarly Aziz (2008) believes that the concept of rural development is broader than agricultural development although two processes are closely inter-dependent. Therefore keeping in view role of agriculture in rural development, Pakistan's launched many programs since it came into being.

Rural development experts of the country still have good reasons to believe that revitalization of rural development can very rightly provide a sound foundation for broad-based accelerated growth.

An overview of rural infrastructure

Pakistan is essentially a rural country, having 48,363 rural localities with the population of around 70 million. The size of the rural communities influences the demand for and the capacity to provide and support many infrastructural features. About sixty eight to seventy percent of population lives in the rural areas, the units in which population lives are known as villages, settlements, towns etc, the population in each unit varies, in villages it is minimum of 300 and maximum in small towns comes to 40,000. The size of population is the basic parameter influencing the demand of infrastructure.

The picture rural infrastructure

- § About fifty six percent of rural localities do not have pacca (cemented) streets and drains and only twenty six percent has got partial network of pacca streets and drains.
- § About forty nine percent rural localities do not have the educational facility (primary, middle or high school) at all.
- § About forty six percent of rural localities do not have toilets and any sanitation system.

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- § In twenty one percent of rural localities drinking water is either brackish or it is not available at all.
- § Less than half of the rural communities are served by public water systems, in about one third of the rural communities with public water supply, the pipeline is largely deteriorated.
- § None of the local governments has responsibility for construction of roads and bridges. Only recently district governments have been allowed such responsibility.
- § Only some of the rural communities have waste water treatment plants. In about seventy percent of the rural communities having water treatment facilities, the current flows exceeded the designed capacity.
- § Rural communities are generally within 20 kilometers of hospitals; only about ten percent population is outside such a radius. But having access to hospital does not necessarily translate into adequate health care.
- § The rural road network is only about 254000 kilometers (metalled and unmetalled) which is fifty percent below the required standards.
- § The 56 percent rural localities are located in between 15 to 50 Kms from concerned Tehsil headquarters and about 15 percent localities are 15-50 Kms away from concerned union councils.
- § The current statistics show that about one fourth population does not have the electricity at all and one fourth rural communities have partial availability of electricity.

Requirements of the rural infrastructure

The linkage of infrastructure to positive economic development cannot also be denied, however, it has been argued that two third of nation's communities are unable to support economic development until major new investments are made in basic facilities such as water supply, sanitation and roads.

Threats and challenges in rural development

Although however, still seems to be quite capable of feeding its growing population. The country witnessed unprecedented technological

and economic transformation. It was able to achieve food self-sufficiency, triple its agricultural exports, reduce poverty, increase income levels and improve quality of life for its people. Despite the impressive growth in the economy, the country in general and the rural economy in particular is still faced with the threats and challenges.

Agricultural sector has not resulted in improving the living standards of the rural population due to several factors which include: poverty; illiteracy; poor health, education, drinking water and sanitation; land issues, water shortage and drought, post-harvest losses and poor marketing infrastructure. The rural poor face the constraints like: inadequate access to productive resources, particularly agricultural land and credit; poor skill levels; weak rural infrastructure; inefficient technical support services; and poor organization and empowerment. Some of the prime issues have been discussed briefly in the Table -2 and the following paragraphs.

Table -1 Threats and Challenges in Rural Development in Pakistan
Poor policy framework

- A disincentive policy framework
- Poor marketing and buying policies
- Import of food etc. (China is very rapidly encroaching the fruit market).

Poverty

- Poverty is predominantly a rural phenomenon; the poverty rate in rural area is higher than that in urban areas; Poverty varies significantly among rural and urban areas and from province to province, from a low of 14% in urban Sindh to 41% in rural NWFP

Agriculture

- Stagnant yields and the low productivity of water; Unreliability of water services
- Poor performance of rural sector markets and extension services
- Under investment in research and technology development

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- Absence of the mechanism for scaling up of diversification into new higher value crops and the use of new and more efficient irrigation technology

Education

- Inadequate access to basic services such as primary education
- High illiteracy rate and poor skill levels particularly in rural women

Land issues

- Low land holding and land fragmentation
- Increasing land degradation, particularly in the rain-fed areas and rangelands
- Salinization of many irrigated areas; almost forty percent of land in Sindh province alone has turned into salt-affected.
- Land productivity is declining due to continuous cultivation; waterlogging; wind and water erosion; low organic matter etc.
- Difficulties in expanding the cultivated areas
- Inadequate access to productive resources, particularly agricultural land

Sanitation

- Inadequate access to basic services such as safe drinking water
- Poor sanitation facilities in the rural areas; unhygienic disposal of used house-hold water.

Health and nutrition

- Poor health, malnutrition, and high family growth-rates in rural areas
- Maternal and child health involve continuing challenges
- Maternal and child malnutrition and rates of infant, child and maternal mortality are high
- Increased migration from rural areas to urban satellites, consequently social disruption and increased urban violence are being witnessed

- Unequal access to healthcare, particularly in Baluchistan and the North-West Frontier Territory
- Inadequate health information systems for monitoring communicable diseases and major health risks
- Need to build capacity for policy analysis and formulation at all government levels to support a devolved health system
- Need to strengthen capacity of the Federal Ministry of Health and provincial health departments to regulate, support and build partnerships with the private sector
- Imbalanced health workforce with excess doctors and specialists; lack of nurses, paramedics, skilled birth attendants and health system managers
- Inadequate access to basic services such as low primary health care facilities.

Inadequate support services

- Ineffective support services to provide farm inputs like seeds, fertilizers, credit etc
- Provision of low-level technology
- Inadequate access to basic farm services such extension services and technology transfer
- Poor organization and empowerment of extension services

Poor rural infrastructure

- Weak and poor rural infrastructure
- Over crowding and congestion in rural households
- Katchi abadies (mud houses not made of bricks and cement)
- Poor roads and muddy pathways

Labour force

- Productive labour-force is vital for agriculture and it is not available because the sector can no longer gainfully employ more youth

- Due to increased migration from rural areas, the food producers themselves have become net consumers

Employment opportunities

- Due to lack of intensification and diversification of agriculture sector, on-farm (agribusiness) and non-farm entrepreneurship/self-employment opportunities are limited and becoming scarce day by day
- Due to non-availability of safety-net, social dislocations and distortions are rampant

Lack of recreational facilities

- Youth do not find ample facilities to be involved in healthy activities at leisure
- They may get attracted by un-healthy hobbies to spend free time
- Cases of drug addiction, rape, robbery and murder, etc., are not uncommon to notice in the rural areas.

Women farmers, children and youth

- Women in poor families and in rural areas account for 70% of the women population
- Especially are forced to live inferior lives due to the double discrimination of poverty and discrimination against women
- Inequality based on gender is a big characteristic of the social and economic environment in Pakistan even today
- Women-half the world-although part of active labour force in the rural areas, suffer the most because of illiteracy, poor nutrition, poor health, high birth-rates and unacknowledged labour
- Women own fewer assets, have limited economic options and less access to social services

- The children because of economic pressure are compelled to leave their homes for jobs and as such fall victim to child abuse and child labor
- Unemployment in rural areas and migration of skilled workers to urban areas;
- Unrest and crimes due to unemployment

Natural resources environmental problems

- The rangelands on which 70% of local livestock thrives have been degraded and no rehabilitation plans are in place.
- The natural resources base is deteriorating due to burgeoning population pressure, inappropriate agricultural practices, overstocking, deforestation and consequent upon the soil erosion, destruction of habitats for wild fauna.
- Environment is under severe stress, biodiversity is vanishing

The water shortage and drought

- Most of the land in Pakistan is arid, semi-arid or rugged
- Pakistan has been hit by drought over the last many years, resulting in a significant decrease in the production.
- Farmers have shifted to crops that require less water, such as wheat, cotton and sugar, the production of which has risen

Source: Modified after Baig and Khan (2006)

Strategies to address the threats and challenges

Following activities to formulate a comprehensive strategy of rural development must be undertaken:

- § Continuing improvement is needed in rural infrastructure including farm to market, roads, rural electrification, extension of telecommunication and IT services, low cost housing drinking water, education and health services (Aziz, 2008).

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- § Efforts should be made to realize greater diversification of the rural economy towards small and medium sized industries, agro-services and other non- farm activities. It is absolutely essential to divert a sizable portion of the labour force to non farm activities, preferably within the rural areas (Aziz, 2008).
- § Special attention must be paid to the problems of small farmers and the landless poor, partly through an improved system of property records and tenancy arrangements and partly by linking them to the cold chain for marketing high value agricultural products like mille fruits, vegetables and flowers through equity participation in various entities (Aziz, 2008).
- § Steps in improving the institutional framework for rural development should be taken through grass root community organizations to give people a stake in the development process and participate in decisions that affect them (Aziz, 2008).
- § Innovative approaches to increasing women's economic opportunities, developing skills, literacy programmes, and organization and mobilization within socially and culturally acceptable norms need to be initiated.
- § For the betterment of women in the country, the government must make concerted efforts to outline strategies in developing a national policy and capacity building.
- § To eradicate poverty, the government has to introduce measures and create opportunities for overcoming poverty. Its policy and institutional reforms must include measures to improve the access of poor rural families to land and credit; expand rural infrastructure; decentralize the institutional framework, and budgeting and financial control; and encourage participation through decentralized governance and community mobilization.
- § The country badly needs an integrated, holistic and comprehensive approach supported by an effective and efficient mechanism to implement the plans and policies to achieve the real rural development.
- § There is a need to enlist the problems faced by a particular area, resources available to launch developmental activities, possible solutions to address issues, and introduction of new innovations to bring economic reforms.

- § Provision of basic rural infrastructure and delivery of basic public services such as water supply, sanitation and roads, is crucial for rural economic growth and improved welfare of the rural poor.

Conclusions and Recommendations

Agriculture is the hub of Pakistan economy which consists of crops and livestock products. The planners and policy makers seem convinced that rural development primarily depends upon sound and sustainable agriculture in the country. It is almost impossible to realize good agriculture in the absence of an efficient and effective Extension system. A well-organized Agricultural Extension System can create useful and beneficial rural developmental programmes through focusing on both farm and non-agricultural enterprises. However agriculture sector faces many constraints and issues and measures must be taken to overcome these. Some of the conclusions and recommendations are as under:

- § Crops yields are realized with big yield gaps than their potential and are discouragingly low. Various strategic options to improve performance of the agriculture sector have been suggested by various scientists.
- § Land degradation and fragmentation is on the increase and water deficit is becoming a prominent feature. To overcome the land and water issues strategies need to be outlined for sustainable development initiatives.
- § More emphasis on agricultural research to generate innovative technology including biotechnology for raising productivity per unit of land, water and livestock deserves be placed.
- § The hard work of the farmers cannot be of any use unless agricultural inputs and supplies and appropriate production technology is made available timely to the farmers and at the users' end.
- § Better and higher prices for agricultural commodities means prosperity and improving their marketing can obviously uplift and elevate the rural livelihood.

- § Efforts should be made to improving the productivity of small farmers while encouraging the large farmers for utilization of modern technology.
- § Poverty is the rural phenomenon and to reduce poverty in rural Pakistan, a comprehensive strategy is needed to improve the living standards of the rural population.
- § With the prevailing incomplete infrastructure and poor communication means, many rural communities still lack basic health, education, potable drinking water and sanitation facilities. However, through the present devolution government system developmental projects and programs to improve the rural areas must be launched.
- § In achieving pro-poor growth through agriculture, the government is aiming at improving rural and agricultural infrastructure and supporting agricultural programs that would generate sustainable growth. It includes development of high yielding varieties of improved and hybrid seed, balanced application of fertilizer, integrated pest management and improved agronomic management, and agriculture extension system, Commodity Boards, and Integrated Pest Management Project. The government is freeing up agricultural prices by removing market imperfections to safeguard farmers' interests (IMF, 2004).
- § Small and medium enterprises (SMEs) sector has a great potential for generating employment especially for the low income groups. Thus creating a business environment that is supportive of SMEs is an important strand of the poverty reduction strategy. In addition, the development of agro processing sector primarily consisting of fruits, vegetables, dairy and livestock is quite promising (PRSP 2004).
- § The World Bank (2007) recognizes the importance of reducing rural poverty as part of the country's overall poverty reduction efforts. The PRSP gives a key role to the rural sector in accelerating growth and reducing rural poverty, placing major emphasis on employment-generating growth in agriculture and other sectors. However, it lacks an explicit integrated rural-development strategy that covers all major aspects of the rural economy, including agricultural production and markets, input markets (seeds, fertilizer, extension),

factor markets (land, water, labor and credit), the rural non-farm sector, targeted interventions, and perhaps most important, how local governments and communities can more effectively deliver basic rural services and strengthen the rural investment climate.

- § Agriculture is the core of Pakistan's rural economy, however, the rural non-farm economy also needs to be examined carefully through the government and non-government policies and programs related to rural service delivery, social mobilization and safety nets.

Since the rural development in Pakistan very fairly depends upon the sound agriculture and happens to be strongly linked with an efficient and effective agricultural extension system. It is an established fact that all the three systems are inter-linked and inter-dependent. These strategies, if adopted with letter and spirit, the rural landscape will not only improve the rural livelihood but also can boost up the economy at the national level.

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