

## AGRICULTURAL EXTENSION IN ASIA: CONSTRAINTS AND OPTIONS FOR IMPROVEMENT

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### ABSTRACT

Today Extension Services for the many countries of the Asian region are facing numerous newly emerged challenges. The most promising and prominent challenges include: Pluralism, Privatization, Globalization and Market Liberation, World Trade Order (WTO), Information and Communication Technology (ICT), Devolution and Decentralization. Now-a-days, the Extension clientele have preference for demand driven and participatory approaches. The need for an up-to-date Extension advice to the farmers on farming systems and marketing linkages is becoming increasingly important. In the past, extension systems of the region have not been able to make positive impacts on increasing agricultural production. Due and focused efforts have not been made regarding the transfer of new farming technologies efficiently and effectively. The purpose of this paper is by-fold; firstly to identify and enlist the problems associated with the existing traditional agricultural extension systems of the region and secondly accommodate the newly emerged challenges. It aims at devising suitable recommendations to improve the situation. Prime shortcomings and the major constraints associated with the extension services include: defects in extension organization, insufficient incentives to the extension professionals, lack of sufficient funds and resources, and absence of in-service training facilities. Extension has many approaches and methods at its disposal. However, it is important to carefully tailor the extension methodologies keeping in view perceived needs of a particular country. Since the literacy rate in most of the Asian countries is low, therefore in the situation, television, video and other pictorial means of communication could be useful for delivering and transferring new technologies to the illiterate farmers and less educated rural masses. A vast majority of the poor farmers use farm radio to seek extension advice. However, the complex and complicated messages comprising more technical information through radio should not be disseminated. Yet, the Information and Communication Technology (ICT) can be combined with the other extension methods for making extension more effective.

**Key words:** Extension Systems, Constraints, Emerging Challenges, Devolution, Information technology, Improvement Strategies.

### INTRODUCTION

With almost two thirds of the world's population, some 4 billion Asians live on an area of about 45 million km<sup>2</sup>, roughly 17 per cent of the world's surface. About 80-90 per cent of the population is poor in most of the Asian countries, and essentially the poverty remains a rural phenomenon (Rural Poverty Portal, 2012). About 60 per cent of the population in Asia is associated with the agriculture sector (FAO, 2004). Unfortunately, agriculture sector is producing far below than its potential due to many technical barriers on one hand whereas many new challenges have emerged recently on the other hand. In Asia, agricultural extension has played a very essential role in realizing higher crop yields in the era of green revolution. Agricultural extension is known to offer technical guidance, provide information, help farmers to identify their problems and organize themselves in the farmers groups. Traditionally, state agricultural extension departments in Asian

countries are supposed to educate farmers, however, they were unable to make any significant impact and positive changes due to numerous weaknesses such as weak organizational structure; low participation of farmers in the developmental work; lack of appreciation and incentives for the extension staff; and the wide communication gaps among the researchers, policy-makers, planners, farming communities and the extensionists (Takenaka, 2006). Takenka (2006) further maintains that in some of the countries, the status and role of extension have been changed because the NGOs and private sector along with the government are undertaking extension activities. Extension Services of the many Asian countries faced many issues and challenges in the last two decades. The recent and newly emerged challenges call for revisiting extension to remain functional in the changing environment. In this article an effort has been made to identify the constraints associated with extension services in the Asian region and develop some workable strategies to make the working of the

state extension services more productive, efficient and cost effective.

**Extension in Asia:** In the context of everyday definition, agricultural extension is as an effective mechanism and a service or system which helps farmers to help themselves. Farmers are exposed to various educational procedures to equip and enable them to improve their farming practices, cultivation techniques; increase production efficiencies and enhance income levels; improve livelihoods, and elevate the social, economic and educational standards (Antholt, 1991; Van den Ban and Hawkins, 1996; Anderson and Feder, 2004).

Extension in essence remains an educational function. However, the working and the responsibilities entrusted to extension may vary from one country to another, but without exception, it aims at providing information, giving advice and imparting education (Rivera *et al.*, 2002). However, agricultural extension services are established to improve the knowledge and skills of farmers on farming practices, and make their attitudes positive towards agricultural innovations. Whereas the extension service organizations are supposed to establish a pleasant working relationships within the organization. Also they are meant to be complementary rather than competitive in relationships with all other institutions, services, private industries, and organizations working for the realizing sound agriculture and betterment of rural people. Davis (2008) described the concepts of extension by coining many definitions and noted that numerous approaches and methods have been placed at the disposal of extension service to carry out extension activities. However, with the advent of recent developments, views on what Extension is all about, have been quite changed. Previously it was believed that extension only provides research-based knowledge and information to the farmers aiming at improving the livelihoods of the farmers. Yet, today the understanding for extension and its working philosophy both have been changed considerably. The author further noted that extension was primarily undertaking technology transfer activities in the past but now it also focuses on the facilitation of all the steps involved in the whole farming process. Today, extension goes beyond training, learning and helping farmers in forming farmer groups. Now in its wider working sphere, it also takes initiatives to address the marketing issues and joins hands to enter into partnerships with the wide-range of service providers and other related organizations. Birner *et al.*, (2006) state that today agricultural extension is partner of all those organizations that support, facilitate and assist the farming communities involved in agricultural production. These organizations primarily address the farming issues. Farmers obtain information, attain skills, and seek superior technologies from these organizations to improve their livelihoods and well-being.

**Six Models of Agricultural Extension:** Currently, six basic extension models have been employed in various forms and stages of development in many Asian countries. Various countries are trying to identify the best extension model, but the reality is that most of Asian countries have opted for the pluralism of models (Davis 2006; Birner *et al.*, 2006; Birner and Anderson 2007). The extension models implemented in the past were not able to meet the basic extension goals for having limited funds; the situation have prompted the design of the new models and necessitated reforms in the existing extension systems. Davis (2008) further states that there is no “best practice” available to modify the extension programs and formulate a magic model that could be launched as a standardized or ideal model for the development of the farming in a particular country. Almost every developing country now has a mixture of public, NGOs and private marketing firms (e.g. seed and fertilizer dealers) delivering extension assistance and providing advice to the small farmers.

Despite all this, three or sometimes more extension models can be observed operating simultaneously in Asia: 1) the sectoral government services model, 2) the sub-sectoral intervention societal model, 3) and the model of a unified development service with mobilization of local resources. A number of transitional structures between each of the three types can also be noticed at occasions in a particular country. The prime features of the agricultural sector, major patterns of agriculture and rural development in the main Asian sub-regions have been discussed briefly in Table -1.

**The Sectoral Government Extension Organization:**

The Sectoral Government Extension Organization happens to be the most commonly operating model in Asian countries and especially those basically have been ruled by the British Empire. Very often a Department of Agriculture (DA) functions under the Ministry of Agriculture i.e. the main agency, primarily responsible for realizing development in the agriculture in a particular country. Moreover, the DA can have many further divisions, in addition to the research and extension subdivisions. The extension wing consists of a number of officers in the head office but has a clear line of command from national level to the province, district, and down to the village level. In most countries, extension service functions through its four or five subdivisions (Blanckenburg, 1984; Baig, 1992; APO, 2006).

**Extension Methodology: Some Basic Issues:**

The individual instruments used for information and advisory work are called media; the mode in which extension makes use of the media is called methods (Blanckenburg, 1984). Extension methodology is really very important and it could be one of the prime reasons, extension services in Asia reach only a very limited number of farmers. Extension Service can make use of numerous

individual methods and different types of media are at its disposal too. Maunder (1984) in his manual published by FAO has also discussed more than 20 of them, excluding the combinations of methods. Each individual extension method has specific characteristics, features and properties. These methods vary in the degree of their acceptance by clients. Extension professionals in making use of them have their own preferences too. The selection of a particular extension method also depends upon its suitability to convey certain messages or to achieve a particular effect.

The individual media and methods have their specific achievement potential, which is not identical to that of any of the others. Some group methods and an individual advisory work have proved very successful with respect to their capacity to influence the farmers to act. However, they are costly too when measured in terms of the number of farmers reached. But the opposite is very true in the case of mass media. Although their strength does not lie as much in convincing the people and leading them to change, mass media reaches many clients at low cost providing with the needed information. Group methods occupy in many respects, an intermediate position. They reach a larger segment farming community than individual advisory work, and if these mass media operate very well, they have proved extremely effective (Blanckenburg, 1984; Baig, 1992).

**Pictorial means and Visual aids:** Visual aids are usually combined with the written or spoken word. In Asian countries, farmers are usually illiterate hence visual aids are especially effective as they learn much by seeing (Baig *et al.*, 1995). With the low production cost, the information provided through newspapers, magazines, journals, leaflets, pamphlets, and brochures is of great importance particularly for the literate audiences.

Information disseminated by radio is not only cost-effective but also reaches to the clientele at the most appropriate time. However, many countries like Pakistan and India, where people speak and understand different languages in the different regions, in the situation, the multilingualism of a nation could certainly limit the scope of the messages disseminated through radio (Baig *et al.*, 1995; Baig *et al.*, 1999). Under these circumstances, the delivering of extension advice comprising complex and complicated technical information should not be transmitted through radio (Blanckenburg, 1984; Baig *et al.*, 1999). However, the flexibility of radio to reach the audiences in the most economical manners and the ability of TV to integrate visual messages suggest immense potential (Antholt, 1992).

While describing the role of media and the selection of a suitable extension method, Blanckenburg (1984), suggests that the right combination of a good mix of extension methods and the suitable media, made many extension projects successful. An excellent extension worker would combine individual advisory work with group methods in order to deliver the extension advice effectively. Today Audio-visual aids and mass media have gained high popularity and due importance as a tool for performing advisory work. The publications and leaflets are also quite helpful to the literate farmers and adequately support the individual and group advisory work. While conducting group meetings and demonstrations, slides and films have also proved very helpful. The farm radio forum has received sufficient popularity for combining a mass media and an interpersonal approach. The radio broadcast is usually followed by a discussion on its delivered contents between the extension officer and a group of farmers making it an appealing extension approach. Launching of the campaigns for a single aspect remains a very suitable instrument for certain purposes.

**Table 1: Salient features of agricultural and rural development in the Asian Sub-region**

Zones	Countries	Importance of agriculture	Features of agriculture and rural development
<b>SouthAsia</b>	Afghanistan Bangladesh Bhutan India Maldives Nepal Pakistan Sri Lanka	Agriculture contributes a significant share to GDP in this region and offers jobs to more than 50% of the work-force throughout the region. Countries like: India, Bangladesh, Nepal, Sri Lanka and Pakistan have high dependence on agricultural sector	Greater numbers of malnourished and poor do live here than any other developing region. The region has the highest rural population density. Predominantly small scale agriculture is practiced on these small farms. However, irrigated areas of the regions result increased crop productions and enhanced productivity levels. Except Afghanistan, all other countries have the necessary extension infrastructure. Training & Visit (T&V) extension was implemented in Bangladesh, India, Nepal, Sri Lanka and some parts of the Pakistan.
<b>SouthEast Asia</b>	Brunei Cambodia Indonesia Laos, Vietnam	With high dependence on agriculture in countries like Cambodia, Laos, Myanmar and Vietnam,	Very distinct and well-established plantations on huge areas have been raised in Indonesia and Malaysia. With significant production and an increased productivity, rice happens to be the most important crop in both the countries. Extension

	Malaysia Myanmar Philippines Singapore Thailand	the sector employs the large proportion of the workforce except Singapore.	infrastructure is relatively well-developed in Malaysia, Indonesia, Thailand and Cambodia. In Indonesia, Malaysia, Thailand and Philippines. T&V system has been implemented to compliment traditional extension system.
<b>East Asia</b>	China, Hong Kong Japan Korea DPR, Korea Rep, Mongolia Taiwan Timor	With the exception of Hong Kong, agriculture remains an important economic activity for all other countries of the region. Agricultural sector in China, Korea DPR, Mongolia and Timor absorbs a large proportion of the work force.	Very well-structured, well developed and well-established extension systems are operational in the countries like: Japan, Korea Rep, Taiwan and China employ. Praise-worthy established infrastructure facilitates the extension messages.
<b>Central Asia</b>	Kazakhstan Kyrgyzstan Russia Tajikistan Turkmenistan Uzbekistan	Agriculture sector provides ample employment opportunities to the larger segment of the population in this region.	The political and economic systems of the Central Asian Countries are going through a complex process of change. Although they do not have an organized and technically competent extension system yet they are taking measures to make them operational, capable of bringing change.
<b>West Asia</b>	Bahrain Iran, Iraq Jordan, Oman Kuwait, Qatar Lebanon Palestine Saudi Arabia Syria, Turkey United Arab Emirates Yemen	Agriculture is the source of living for the major proportion of the people in Iran, Palestine, Syria, Turkey and Yemen. Agriculture happens to an important part of plans of the Saudi Arabia though it employs very little workforce.	The kingdom of Saudi Arabia has the most technically advanced agriculture in the region. Very successful and vibrant extension systems operate in the Kingdom. Despite of the harsh climate and limited water supplies, yet the Kingdom has successfully achieved self-sufficiency in some of cereal crops, vegetables, poultry and dairy products. T&V system of extension has remained operational in Yemen for five years. It was launched in 1985.

Source: Modified after Sulaiman R.V and A. Hall (2004); Al-Shayaa *et al.*, (2012)

For example, campaigns regarding introduction of a new variety or the sowing of a certain crop with improved method have been proved very useful in many Asian countries.

**Extension Organization:** In Asian countries, various fertilizer and pesticide companies launch promotional campaigns for their products. While operating in rural areas, their extension activities often overlap with the functions carried out by the National Extension Services. Such duplication of efforts may result in the waste of resources. The situation creates competition among the various agencies; however such competition is much better than having a single extension agency in a particular country.

**Lack of coordination and cooperation among the associated organizations/agencies:** Ali *et al.*, (1994) report that lack of coordination between extension and other agencies working for the improvement of agriculture appears to be most significant constraint in most of the developing countries. The extension efforts do not achieve the desired results if not supported by all

the associated organizations. Therefore, it is important to improve cooperation between extension and all relevant agencies if farm incomes and productions are to increase (Baig *et al.*, 2009). Extension Service of country must have greater support from the research centres and extension needs to establish stronger linkages with the agricultural research system (Antholt, 1992).

**Non-availability of inputs and absence of marketing facilities:** The provision of inputs, marketing facilities, and credit availability to the farming communities are the areas where coordination and cooperation between services can certainly facilitate and enhance the working of extension. When these facilities are not made available to the farmers, all positive efforts made by extension suffer a serious setback, making little or no impact (Blanckenburg, 1984; Antholt, 1991; Antholt, 1992). The degree of management centralization or decentralization appears another important organizational problem associated with the Extension Service (Antholt, 1991; Antholt, 1994). Most of the extension services make programs and management plans for undertaking their

extension work. Many of the extension activities are not successful because they are not adequately coordinated and integrated into the system by adopting top-down approach while completely ignoring the clientele; they plan to serve (Baig and Straquadine, 2011).

Blanckenburg (1984) without making excuses openly admits that no country in the region can afford to reach all the farmers due to lack of personnel and the limited availability of equipment. Historically the most workable remedy has been to set priorities wherein selected categories of people are to receive extension advice and services. However, for practicing good agriculture, decisions are to be made at the lower level (extension), and farm level (farmers). Therefore, decentralization of decision making and responsibilities will also facilitate an increased communication between lower level staff and the farmers (Antholt, 1994; Anderson and Feder 2004; Ozor, 2010).

In Asia, particularly the countries like Pakistan and India, farmers hardly ever participate in the planning, management and evaluation of extension work (Baig, 1992). Extension Service should be made available to the different groups without ignoring a specific group. Each Extension program deserves to be designed having appropriate and properly phrased messages and by employing suitable methods to be used for the specific needs of each segment of the farming community. This does not mean that every group gets equal attention; it does imply, however, that special and focused attention would be made and given to the small, poor and disadvantaged farmers i.e., those that are least able to obtain information from outside sources.

**Lack of Staff Development Facilities:** Asian countries experience Extension staff shortages in remote, marginal and underdeveloped areas. Many extension officers are forced have to undertake non-extension activities and tasks, making advisory work suffer and in cases ineffective (Ali *et al.*, 1994; Anderson and Feder 2004; Shalaby *et al.*, 2011). The influence of extension organization also depends upon the working conditions and on the equipment made available to them. To be effective extension workers, they must be mobile enough to reach the scattered clients. Factors like lack of transport, heterogeneous nature of these areas and underdeveloped infrastructure prevent the extension workers to perform their duties (Antholt, 1994).

The selection of the extension staff with the non-farm, non-rural background causes the significant problems particularly when such staff members undertake extension activities in the field. Indeed in this context, subject matter knowledge of extension officers has to be broadened and their skills improved in communications and extension methodology. While scientific knowledge keeps on changing on daily basis, making the periodic and regular in-service trainings for extension staff

imperative to update their scientific knowledge and professional skills. Cho and Boland (2003) reported the importance of pre-service and continuous in-service training of extension agents. In Myanmar, a study discovered that in-service training would motivate the extension agents and improve their performance on the job by enhancing their knowledge on extension methods and contents. Antholt, (1991) also maintains that agricultural extension graduates of the South Asian universities usually are not well equipped with necessary skills and education to carry out extension activities effectively. On the contrary, Antholt, (1994) argues that in-service training is of paramount importance to make extension professionals productive and effective, therefore should not be a divisive issue in any case.

**Challenges and Constraints in Agricultural Extension:** According to a report by Anandajayasekeram *et al.*, (2008) Agricultural Extension faces the two foremost challenges:

- It is assumed that information and organization in the agriculture sector do not receive due importance whereas they have higher significance and deserve greater importance;
- Extension staff is not well equipped with appropriate skills for their efficient functioning. Therefore it is important that skills of extension agents must be improved, their working knowledge be updated, and they should have innovative ideas in order to develop agriculture that is in a position to meet complex demand patterns, reduce poverty and pressure or enhance ecological resources.

With the exception of very few, almost all the Agricultural extension departments in the region are faced with a number of challenges and constraints that are common to many extension institutions in developing countries. These include: inadequate finances and funding, lack of qualified and trained extension staff; poor weak and deteriorated infrastructure; lack or weak coordination mechanisms and functional linkages with the other institutions in both the public and private sectors, absence of quality control and impact assessment mechanisms; unclear extension mandates and lack of job descriptions staff (FAO, 2005; APO, 2006, Shalaby, 2011).

**Agricultural Extension and the National Planning:** Often the agricultural development projects are introduced before establishing the markets to absorb the extra production; therefore, there are inadequate storage facilities and much of the increased production is wasted. At the moment, enough technology is available in Asia that can enhance production if farmers will adopt. But agricultural extension will never be a success unless farmers face adequate incentives. They will not adopt any new practices, especially if risk factor prevails, unless they are going to profit by so doing. Farmers often

require at least 50% increase in production before they will sacrifice their traditional techniques and adopt new methods (Baig, 1992).

Sometimes farmers are willing to adopt the new promising technologies but they are unable to afford to buy the essential inputs. In order to facilitate extension work and make extension workers mobile, adequate transport facilities and reasonably good infrastructure are quite essential to reach their clientele (Antholt, 1994).

Educational level of the rural community greatly influences the acceptance of extension advice and guidance. The acceptance and adoption of an innovation highly depends upon the literacy rates and understanding levels of the farming community. Educated farmers grasp the concepts of modern and technical agriculture. Such innovators understand, assimilate, accept, and use the new technology passed on to them by the extension agent (Anandajayasekeram *et al.*, 2008).

The availability of insufficient finances and at occasions their interrupted availability constraint the extension activities in most of the Asian countries. The absence of finances prevents the farmers from trying the new technology which could require the use of costly inputs (APO, 2006).

Village leadership also affects the implementation of an extension program in a particular region. If the program is going to advantage these elites, they will happily accept and make it happen; if its focus is small farmers and their betterment, rather than a favoured few, or if it poses a threat to their authority, they forcefully oppose to that. Usually these elites have affiliations with the higher governmental authorities or influential political leaders, so they will abandon the project or change its entire structure to benefit the big farmers instead of its working for the benefit of the ordinary people (Baig, 1992). Whereas Antholt (2004) believes that by establishing farmer's cooperative organizations, owned and run by the farmers themselves, the role, significance and impact of agricultural extension could be enhanced by manifolds.

**Extension Service and the Efficiency of Agricultural Extension:** Agricultural extension is as good as the quality of the extension workers providing the service. However, Extension Services of many Asian countries lack the qualified graduates capable of undertaking extension activities effectively (Antholt, 1992; Antholt, 1994); it can be particularly seen actually happening in Pakistan (Baig *et al.*, 1999).

**Poor roads and communication facilities:** Poor roads, unsatisfactory means of transport and lack of communication facilities make the job of the extension worker difficult and harder, if not impossible, preventing them reaching their clienteles. In some cases, local customs and traditions, and even religious practices, vary considerably. Under these conditions, care should be

taken to appoint extension workers, fully aware of the language and customs; preferably, both the farmers and extensionists should have the same religious beliefs (Baig, *et al.*, 1995). Antholt, (1991) reports that "the most effective communication takes place when the communicator (extensionist) and the receiver (farmers) come from the same economic class and are similar in personal and social characteristics. Otherwise extension workers will not be able to openly communicate with ease and understand the farmers; in the situation misunderstandings may make extension efforts ineffective.

FAO (2004) advises and suggests the governments of the developing countries to adopt policies to make extension agents as information providers. Such policies should be in place that could help shifting the primary role of extension worker from technology provider to the information giver. It may start at the level and the stage where extension agents become "information agents." Sometimes government policies do not favour farmers' interests. In many developing countries bureaucrats do participate in planning process, having little or no knowledge concerning farming and farmers, resulting irrelevant and ineffective extension plans to pursue. In the situation, farmers do suffer financial or other losses; they become angry and frustrated and don't want to work with the extension workers.

It is also important for extension that it should be considered in association with rural development initiatives. Extension and rural development initiatives go together, and rural economies depend upon sound agriculture. Extension cannot work alone; no matter how effective an extension system of a country is, it works best with the collaboration and cooperation of the other institutions involved in the developmental initiatives (FAO, 2005; Baig and Straquadine, 2011). Also it was not uncommon to notice extension worker performing non-extension activities such as supplying inputs and credits (Birkhaeuser, *et al.*, 1991; Ali *et al.*, 1994; Anderson and Feder, 2004; Shalaby *et al.*, 2011), gathering agricultural and population data etc (Baig, 1992; APO, 2006).

**Non-extension activities:** If an extension worker undertakes the additional non-professional duties, not related to the farming business along with the advisory work, the quality of his extension work will be poor, decreased and diminished making no impact. Similarly, if too many supervisors control the lower staff and a wide range of duties are asked to embark on, would certainly limit the extension work. Antholt, (1991) concludes that any top-down centralized extension system with an extension field staff equipped with poor and low technical, analytical and communication skills are merely not going to meet the needs of the progressive farmers

and making agriculture modern and sustainable agriculture. Finally extension absolutely remains a service helping farmers to help themselves and helping farm groups to organize themselves. Whereas many workers like Baig *et al.*, (2009) and Shalaby *et al.*, (2011) suggest that there is a need to revisit the extension service and mobilize its staff, turning the poorly motivated and less-trained field agents into effective and effective agricultural extension agents.

**The Shortcomings of the Conventional Extension Services:** Fact remains that extension efforts in Asia have not always achieved the anticipated results. An agricultural extension service is used by almost every country for realizing agricultural development, yet it is faced with many challenges. The situation has not changed markedly and continued efforts are underway to improve these systems (Swanson and Claar, 1984). However, FAO (2005) has identified the following prime issues and major constraints associated with the extension services of the developing countries.

In the Asian countries, Extension departments are administered by the Ministries of Agriculture. The institutional structure comprises of the hierarchy from the national to the provincial to the district and finally to the village levels. Most of these countries lack the extension policy; usually extension is placed under the national agricultural development policy. The governments provide the operational funds to the Extension departments. Such an insufficient and meagre funding is not enough to carry out extension activities to make any significant difference. Almost all the Asian countries have national research institutes/stations to generate innovative, environmental friendly farming technologies whereas Extension Services are entrusted with the mission and mandate of transferring agricultural technologies to disseminate those to the end-users (farmers). However, many extension workers think that the linkages of Extension Service with the research and other institutions are quite weak (Anandajayasekeram *et al.*, 2008). In cases, the extension services of most of these countries do not make concerted efforts to verify the validity of these farming technologies before recommending these to the farmers.

The extension agents prefer to like to work with the male farmers and big landlords. The possible reason could be: a) the small farmers are greater in number and b) are located and scattered over the wide geographical areas and c) for having less and inadequate transport facilities restrict them to the farms of large farmers. No doubt, without exception, hardworking, and dedicated Extension agents make the field staff. In-fact, they are still the product of poor academic programmes; most learn on the job. Emphasize this issue, regular in-service training is very essential for the extension staff to keep them informed of the latest developments in agricultural

technology (Antholt, 1992; Antholt, 1994; FAO, 2005). In addition, in-service training facilities are quite unsatisfactory and insufficient, career development options are limited and the basis for staff rewards and accountability remains mostly absent (Shalaby *et al.*, 2011).

Usually extension professionals have weak technical knowledge and express little interest in the work they are doing. They are provided with low status, less benefits and scarce career development opportunities as low compared with those of other disciplines. They are poorly paid and work in miserable conditions with few or no incentives (Baig *et al.*, 1999; Anderson and Feder, 2004). In order to address these issues, revising the job descriptions and terms and conditions of service for the extension staff is recommended, keeping in view the national extension policy and vision. Such measures will result better chances of career improvement and offer more advancement opportunities and professional development attracting more productive candidates for running the effective and successful extension programs. Although Extension staff feels constrained due to insufficient logistic support, making them less mobile in their areas of duties yet they still make themselves accountable to their superior officers, if required (Shalaby *et al.*, 2011).

On the other hand, farmers are exposed to the generally adopted top-down approach and their participation in the planning process and involvement at grassroots levels remains minor rather negligible (Ali *et al.*, 1994; Anderson and Feder, 2004). However, extension can disseminate its message by employing one of the extension methods like demonstrations, farm visits, individual contacts, group contacts, and use of mass media (Qamar, 2005).

**Strategies and Options for Improvement:** State supported extension service, in the past in most of the Asian countries has been helping farmers by offering advice on increasing crops yield, fighting against diseases and insect-pests. The superiors have been setting the agenda for the extension staff and targets were set by the state. Although the activities of the extensionists are not still following the same old pattern, yet extension systems now badly ask for vivid and vibrant comprehensive strategies to address the newly emerging challenges and needs (FAO, 2004; FAO, 2005). The authors are convinced that there is not a single ideal extension model that can work very well in all the countries but many good principles are there that can be integrated into the existing extension systems to make them work in a particular country for addressing problems, meeting needs and challenges and realizing desired future targets. An account of the good extension principles is presented in the following paragraphs.

**Improving the Efficiency of the Extension Services:**

Keeping in view the low performance of the extension services of many countries, various meetings were held at the national and international levels to enhance their working. Eicher (2007) also noted that at present reforms in extension are occurring in various Asian countries as well. FAO (2005) also organized a meeting of near east countries to help them out with the improvement measures to uplift their Extension Service and associated programs in the new changing scenario. FAO (2005) after reviewing the country reports of the participating states, concluded that reforming of extension systems is a very wide-ranging process, and there is no single formula or blueprint for realizing immediate extension reforms in a particular country. FAO enlisted several improvement options for making reforms happen, and all of these should be examined by reformers, as different countries have different situations and there is no single size that fits all.

However, many organizations (FAO, 2005; APO 2006) and researchers (Ali *et al.*, 1994; Khan, 2000; Anandajayasekeram *et al.*, 2008; Abbas *et al.*, 2009; Shalaby *et al.*, 2011) agree that whatever the circumstances, prerequisites for an effective extension service remain and are presented as under:

- Extension must have a legal basis and mission.
- Effective linkages with research and with farmers' organizations are required.
- State financial support makes the Extension Service in place, functional and operational.
- The success of extension organization depends upon the availability of adequate number of well-trained and motivated staff.
- To fill the knowledge gaps continued in-service trainings are quite important.
- Extension staff deserves the provision of adequate incentives to keep them motivated.
- Political and continued support would strengthen and result the better extension work.

However, in order to make the extension improved and sustainable, extension must become accountable to its clientele. However, in addition to the beneficiaries and users of extension must also share the financial responsibility to ensure extension's presence and maintenance on long term and sustainable basis. With the dawn of the new century, many new challenges have emerged for extension indicating the business as usual would not certainly prevail. An account of such challenges, identified by FAO (2005) is presented as under:

- The world has emerged as a global village and resultantly the process of globalization brings the market liberalization phenomenon on the surface;
- In some Asian countries, extension is moving from the public to the private sector. Many fertilizers, seeds, insecticides companies are providing advisory

services to promote their products under the cover of Extension;

- In many countries, natural disasters and wars have negatively impacted the agriculture sector and production systems, and to cope with the situation, extension will have to make changes on its agendas and wish lists;
- The revolution in information technology has certainly assigned and changed the role of extension offering many new choices to the extensionists. ICT has really made extensionists more productive and effective in their roles in guiding and delivering the extension message by employing the multiple modes and methods along with ICT;
- Similarly, the scope and working sphere of extension has been enlarged and expanded with the emergence of issues like: rural poverty, food insecurity and the HIV/AIDS epidemics;
- In order to make extension service more useful and effective, Asian countries need to adopt programs having an integrated, multidisciplinary, holistic and sustainable development approach.
- Today top down approach seems quite outdated and appears unpopular in favour of bottom up approach. Participatory approach has been embraced in all the Asian countries due to its inherent features that ensure the participation of extension clientele.
- The concepts of devolution, decentralization, delegations of powers to the lower managers have been tried in many countries. However, there is a need to closely and carefully examine the issues of decentralization, privatization and pluralism of extension services within the cultural, social, economic and physical situation of a particular country.

After having comprehensive deliberations, FAO (2005) has offered numerous suggestions to make extension more productive, meaningful and useful. More importantly at this juncture, where the scope of the extension organization and service has changed a lot and expectations of clientele have grown quite higher. Types of key reforms required making agricultural extension services more responsive to the needs of farmers and farming are depicted in Table-2 and the framework for an efficient working of the extension is presented as under:

- Asian countries need to formulate the very vibrant national extension policies that could also gain and ensure political support and commitments for the availability of funds;
- The farming community and civil society both most often do not show Extension professionals due respect. It is very important to attach and accord great respect to the extension professionals to enable them to work with the missionary spirit and dedication;



- To make pre-service education more capable to cater the needs of the farmers, radical improvement changes are required in the Curriculum to accommodate the changes happening in extension reforms;
- Extension organization has too many superiors and bosses, however, such a problem can be checked by introducing decentralization and launching extensive capacity building programs for the decentralized units without the politicizing of the process;
- Pluralism in extension needs to be promoted and that can be achieved by involving both public and private institutions;
- Farmers could to be empowered through the formation the farmers' groups. By doing so, they can help themselves and can watch their interests and benefits, and can create an effective lobby for getting an effective extension service;
- Extension should decide on privatization option only where and when it is socially and economically practicable, viable and feasible;
- The extension services certainly can have a constructive role for all the communities particularly in post-war, post-disaster and epidemic situations;
- The mandate of extension needs to be broadened to develop the rural human resources;
- The development and the application of information technology tools can certainly facilitate the extension work however this development must not be viewed and taken as the replacement extension;

**Table-2. Types of key reforms in the provision of agricultural extension services**

<b>Reform</b>	<b>Brief description</b>
<b>Pluralism</b>	Today many private organizations have also started providing extension guidance and services. They are undertaking extension activities either on their own or in response to the demands of the farmers. At occasions these organizations are being facilitated and encouraged by the government due to the policy guideline, just to lessen the load on the public service.
<b>Decentralization Deconcentration and devolution</b>	The concepts of decentralization, de-concentration and devolution aim at making decision-making easier. The management authority and accountability aspects operate closely at the field level within public sector structures (de-concentration). With the aim of making extension more flexible and responsive to client's needs, such measures and initiatives if taken would prove useful. This may or may not be necessarily linked with the local government reforms. For example in the Philippines the funding was made available to the local government (devolution) to provide the extension advice and guidance rather such initiatives are taken by central government departments.
<b>Cost-recovery</b>	The clients, individuals or farmers associations share the cost and pay for receiving the extension advice and guidance. Public sector service recovers some of the cost involved for providing the extension service. Such an activity certainly lessens the financial burden, otherwise falls on the budget of public/government sector.
<b>Commercialization</b>	Public sector service operates on a commercial and semi-autonomous basis. The organization is held responsible for providing extension service while meeting a (rising) proportion of its costs from client fees and enjoys the greater freedom than a government department in matters relating to personnel and contract negotiation, and in the re-investment of income.
<b>Privatization</b>	Extension advice and services are provided by the Public sector. In cases, rights are sold to the private sector to carry out extension activities. However the government (public) service may continue to provide funds making contract arrangements with the private service.

Source: Mulhall and Garforth (2000)

**Role of Information and Communication Technology (ICT) in Extension:** The revolution of the information age has naturally increased an interest to harness its potential. The innovative applications of the latest communication technologies (IT) in the efficient and enhanced extension delivery are areas yet to be explored. Information and Communication Technology (ICT) makes use of numerous techniques and consists of infrastructure for storage, processing and managing the information. The devices and tools include computers, software, books, personal digital assistants (PDAs),

digital and non-digital libraries and different communication channels such as mail and email, radio, television, telephone, mobile phone, pager, instant messaging, internet etc. It is important to use ICT in combination with the more traditional extension methods such as mass media, group meetings, field days, demonstrations and exchange visits (APO, 2002; FAO, 2004; Anandajayasekeram *et al.*, 2008) with the objective to make the information available to all the stakeholders very effectively, efficiently and quickly (FAO, 2004). Anandajayasekeram *et al.*, (2008) have also presented

many examples from some of the Asian countries using ICT for the delivery of extension messages.

#### Use of ICT in Extension Efforts

- Keeping in view the potential and productive role of ICT numerous ‘Tele-centres’ for the delivery of extension have been established in the countries like: Lao People’s Democratic Republic and Vietnam.
- Virtual Linkages have also been established in order to bring research and extension departments closer and together to enable them to work as a unit. For example, in Bhutan the FAO has introduced an innovative tool namely VERCON (virtual extension, research and communication network) to strengthen complement the efforts the extension Service.
- FAO has helped the government of Philippines to provide the internet and interactive e-mail facilities at the municipality level the extension staff to disseminate extension advice and guidance.
- The subject-matter specialists have usually busy schedules and most-often are not in the position to make frequent visits to the farmers and their farms/fields. However, expert systems have been developed and employed in delivering the valuable extension advice to the end-users replacing the role of subject-matter specialists.
- Particularly for the rural development projects, the extension professionals use cellular phones for immediately delivering extension messages in Bangladesh.

Anandajayasekeram *et al.*, (2008) suggested that while re-designing extension, it is important to incorporate the following key points:

- All efforts should be made to pick up the positive features, prevailing in the private sector or NGOs;
- Extension needs to focus on production of agricultural commodities and focus on their transformation and marketing;
- Encourage the farmers’ participation and make the other extension modifications to make more suitable to the farmers’ needs;
- There is a need to recognize the generic problems of extension. However, extension issues can be addressed by introducing the concepts of decentralization. Also, improvement can be made when the institutions do have built in mechanism to promote pluralism.

**Conclusions and Recommendations:** The purpose of this article was to develop an understanding on the Asian extension systems so as to highlight the shortcomings and lessons we can learn out of these discussions made in the aforementioned paragraphs to improve the deteriorated situation.

**Conclusions:** In the last 2 decades, the extension service in many Asian countries has not been able to make due impact, assist farmers in addressing their issues and

provide them with better and improvement strategies. The leading reasons for the failures have been recognized by many organizations such as FAO, 2005; APO 2006. In the situation, the extension systems of the Asian countries call for the reforms and establish the need for revisiting them. The working of the Extension Service can be improved by recruiting knowledgeable and qualified extension staff, capable of undertaking extension activities effectively and efficiently. Extension planners should be aware of the fact that no single and or an ideal extension model has been identified so far, that could be presented as “one size fits all” capable of addressing all issues over-night. Therefore, it is imperative that all the developing countries evolve their own extension systems based on the issues experienced and the systems that are relevant to the needs and the situation of a particular country. More importantly, Extension also must prepare itself to meet the newly emerged challenges like: globalization, decentralization, devolution, pluralism and use of ICT in the extension initiatives. Extension Service must be supported and backed by the credible and strong agricultural research support system so that its activities are reliable, relevant and responsive to the needs of Asian farmers - and accountable to the overall mission of the Extension.

**Recommendations:** The principal shortcomings of the extension service include: organizational defects and operational weaknesses and ineffective extension personnel, weak deficient and poor linkages with the other institutions. In addition, Extensional Services of the Asian countries also face the economic, political, cultural, social, and institutional constraints. The following measures can enhance the working of the Extension Service and improve the extension activities to be carried out by the extension staff:

- Improvement and corrective measures must have a meaningful and sincere support, reflected in the national extension policy in order to advance and respond to the needs of farmers;
- Gaining political support remains a prerequisite while revisiting, making reform initiatives in order to strengthen the extension systems in a particular state. It is important to inform and convince senior-level policy and decision-makers on the essential role extension and contributions of extension services in realizing sustainable agricultural and rural development. As both of them aim at realizing sound agriculture, fighting against hunger and ensuring food security.
- Since extension reforms are underway in many Asian countries, therefore, before taking measures for their improvement, it would be essential to review of the present extension system functioning in a particular country to explore its strengths and weaknesses. The reform initiatives should be based upon the past

- experiences, the related and involved stakeholders should also participate in the reforms initiatives.
- While taking reforms initiatives, focused efforts must be made to make extension service more accountable, responsive and relevant to its clientele's needs. However, in order to be relevant, extension must be responsive to the problems faced by the farming community.
  - Careful review and examining of the newly emerged prime challenges like decentralization, privatization and pluralism of extension services would help revisiting and facilitate reforms instruments. The Asian countries need to develop policies and strategies that could support agricultural Extension Services to fully cater and accommodate the recently emerged challenges.
  - Extension workers are considered to be the key players that make the extension initiatives a success. It is imperative to recruit the well qualified and knowledgeable extension staff to deliver the extension message. Active participation of the qualified and motivated staff will certainly help achieving success and realize sustainable farming.
  - Extension staff should focus only on the activities related to extension work. Therefore, they should have a clear job descriptions and conditions of service be known to them;
  - Extension personnel should exercise their duties and undertake the actives strictly in accordance with the national extension policy and vision. They must be held responsible and accountable for their activities, suitably rewarded upon their good work.
  - Attractive incentives would keep them focused on their defined activities related to extension. Extension Service must offer better career prospects and greater professional development opportunities to keep the skilled and able professionals in the system.
  - Extension professionals capable of working under complex and difficult circumstances, with little supervision and confidence continuously are to be brought into the Extension Services.
  - Extensionists should be able to make the right diagnosis to identify and analyze the existing farming problems; they should have an ability and willingness to listen and learn from the farmers and farm groups and at the same time extension agents must be visionary and knowledgeable enough at offering valid options to the farming community based on verified and tested agricultural practices.
  - When inappropriate innovations, not meeting the needs of a particular farming community are introduced, extension efforts would not meet any success; consequently both extension agent and service would lose the trust of the rurals.
  - Extension field staff should not take any technology to the farmers unless it is fully tested, supported and backed by the trust-worthy research stations. Also any methodologies should not be copied and imposed on the farmers. All the technologies, extension advocate for rather be developed according to the cultural, agricultural, economic and physical situation a particular country;
  - Focused efforts are needed to formulate the comprehensive training plan, covering both pre and in-service training programs for extension professionals. Such trainings are quite essential bridging up the knowledge and skill gaps;
  - Capacity building remains the foremost and starting point in the extension reforms. Pre-service education is viewed as the basic unit and prime ingredient of on-going extension reforms, including reviewing and updating curricula and teaching/training methodology
  - Weak extension linkages with research organizations and the other stakeholders are quite common to notice in most of the Asian countries. Extension cannot work alone; no matter how effective an extension system is, it works best in the collaboration with other research and development institutions, within the context of the country's development policy. The close working of research institutions and Extension Service organizations could certainly generate reliable and mutually beneficial outcomes and strengthen linkages.
  - Promoting pluralism in extension by involving public and private institutions would strengthen the country's policies and meet the needs of the farmers;
  - It is important to address and accommodate the emerging trends and challenges faced by the extension today. For example, information and communication technology (ICT) when combined with other approaches and methods has the great potential to compliment the extension initiatives. It is possible to make use of ICT for enhancing linkages and coordination among different stakeholders, for the betterment of the farmers;
  - Higher level extension experts should equip lower and middle level extension staff with the up-to-date knowledge on regional and global developments happening most recently. All professionals involved in Extension must make themselves aware of the changes taking place at the world level such as newly export standards; implications of the World Trade Order (WTO), market liberalization; introduction of genetically modified organisms (GMOs); devolution plans and their resultant effects both on the farmers and farming;
  - Entrusted with the multiple roles to play and functions to undertake, the working sphere of extension officers has been enlarged. Extension now

with its widen and stretched technical mandate also focuses on the growth of rural human resources and rural development activities. Therefore, it is imperative that Extension Service assists the poor and marginalized populations with extension advice especially rural women and youth of the rural areas deserve due attention.

- Various fora like FAO, 2005 APO, 2006 have advised farmers to organize themselves into the farmers' groups. Such measures would empower them to raise an effective voice, create the strong lobby for extension, and ensure a demand-driven and farmer-accountable extension service;
- Although several individual, group methods and media have been placed at the disposal of extension yet one has to be very cautious with their use as each method has its own pros and cons. For example extension message can be delivered to the vast majority of the farmers in the most economical way by using Radio. However, the dissemination of complex and more technical messages through radio may create confusions and misunderstandings among the potential users.
- Finally, extension educational systems of a country must be capable of producing graduates capable of successfully spotting the farm problems and subsequently communicate them to the research organizations, and officials engaged in formulating agricultural policies. In nut-shell, the extension must be able educating farmers' groups to help themselves.

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