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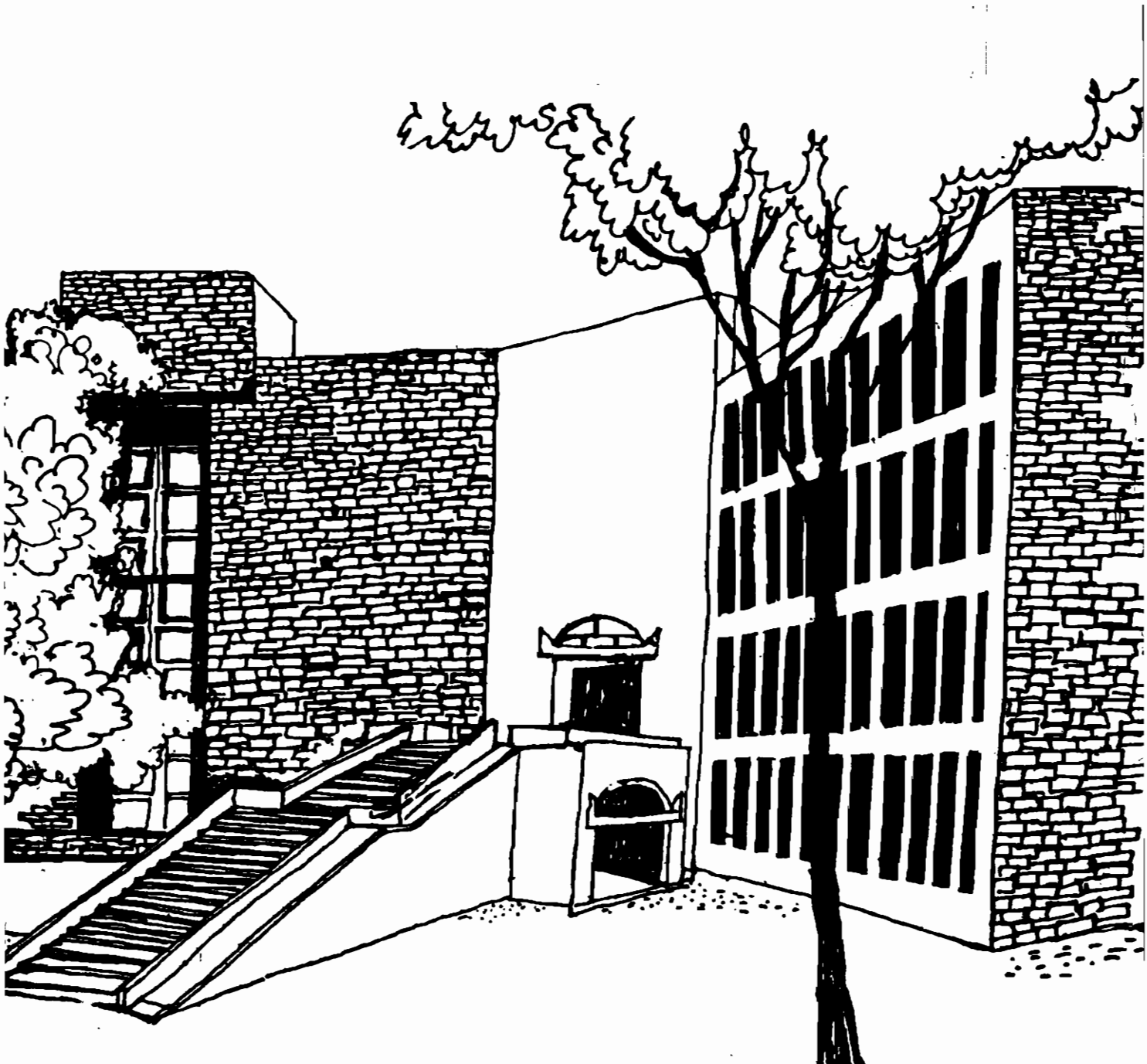

THE INSTITUTION OF AGRICULTURAL EXTENSION IN THE NEW SOCIO-ECONOMIC ORDER: SOME ISSUES AND HYPOTHESES

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W.P.No.2000-03-01
March 2000 1581

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SUMMARY

This paper has presented an economist's perspective to the institution of agricultural extension and raised some issues that have recently assumed importance. Focusing on three main components of the extension system -- the providers, the people and the price, the paper has argued that there is enough room for private sector participation in delivery of these services. While the information with strong public good component will need to be supplied by the public sector, there are sufficient opportunities where private sector can play a complementing role. In addition, a number of other innovative models of service delivery have emerged across the world in the recent past which need to be examined in detail.

The paper also argues that the practice of delivering pre-packaged generalised prescriptions/recommendations to all categories of farmers has resulted into wasted efforts. The service providers need to understand the clients better in order to minimize losses due to mismatch between demand and supply. For example, the paper points out that small and marginal farmers, landless labourers, women, rural youth and so on need differentiated extension input and a targeted approach would be necessary to maximize the potential of information and knowledge as a factor of production.

While acknowledging the question of who should pay for these services and how much is a complex one and more research is needed in Indian context on these issues, the paper also points that there is enough international evidence to build on where the commercialization of agricultural services has helped reorient the extension services to be farmer oriented, to balance demand and supply of information and to provide services in an efficient manner.

The Institution of Agricultural Extension in the New Socio-Economic Order: Some Issues and Hypotheses

Main objective this paper is to raise some issues relating to the institution of agricultural extension. These issues have assumed great significance over the last few years as the Government of India continues with its economic liberalisation program. We do not pretend to have all the answers. These are complex questions and would require a great deal of debate and discussion. Since this conference draws agricultural economists from all different parts of the country, there could perhaps not be a better forum than this one to discuss these issues in order to take the debate to the next level.

The paper is organized as follows. The first section motivates the problem and presents an economist's perspective to the institution of agricultural extension. Section 2 presents a brief review of the origin and evolution of agricultural extension in India as background to the discussion in some of the new and emerging issues in this field which are presented in Section 3. Finally, concluding remarks are offered in Section 4.

1. Knowledge as a Factor of Production

Knowledge about production and service delivery is fundamental in any economy at whatever level of development. In this paper, we view people, technology, and institutions as the vectors of knowledge through which knowledge enters the production function. Because of its intractability in empirical analysis, economists largely ignored the role knowledge plays in moving the production systems to higher production possibility frontiers. During the last decade or so, however, the endogenous growth theory has, refocused attention on knowledge as a factor of production. Romer (1986) is among the many papers which have significantly influenced the thinking in this context. Romer

presents a model of long run growth in which knowledge is assumed to be an input in production that has increasing marginal productivity. Using this model, he shows that it is possible to sustain high rates of growth over long periods of time even in absence of exogenous technical change.

What distinguishes 'knowledge' from conventional factors of production is the possibility of increasing returns to scale in the production of final good. Romer (1986) also provides evidence in support of empirical relevance of this assumption, The implication of all this is that it is the investment in knowledge which can help break the barriers of production imposed by the diminishing returns in conventional factors of production.

This is more than just of academic significance. In the context of India's agriculture sector, it has been argued that the traditional sources of growth have been exhausted and the future growth in agricultural production will have to come from increases in total factor productivity (TFP). For example, Kalirajan and Shand (1997) estimated that during 1980-87, output growth in the agriculture sector came increasingly from input growth whereas technical efficiency grew slowly. Based on their analysis, they concluded that the technological progress and technical efficiency are key sources of future long term agricultural growth and more attention should be paid to promote them. Since TFP growth depends crucially on the innovation at the farm level, which, in turn, is a function of the farm level stock of information and knowledge, it is important that serious attention be paid to the research and extension services. It is with this perspective that agricultural economists need to pay attention to this very important institution.

2. The Institution of Agricultural Extension: A Brief History

As a formal institution agricultural extension world-wide is quite young. Although there are some cases of informal organization of agricultural extension services in some industrialising countries in the 19th century, it wasn't until the end of the century that it acquired the present status of a formal public institution. Japan was the first country to formally establish a national agricultural extension system in 1893, followed by the US in 1914. Among the developing nations, India was among the first few to formalize the function of agricultural extension (Rivera, 1990).

The extension system in India has evolved from being a multi-task system with weak links to agricultural research to a system geared towards systematic promotion of improved cultural practices at the farm level. In the 1950s and 1960s, the extension services were viewed as a means of promoting a broad development agenda with extension agents carrying out a variety of functions ranging from credit delivery and input distribution to a number of co-ordination activities. During the 1970s, however, with the introduction of the Training and Visit (T&V) system, technology diffusion became the focus of agricultural extension. This represented a major institutional shift in the provision of agricultural extension services.

The T&V system has been a subject of much scrutiny and debate and has generated much controversy. While some studies claimed that the system resulted in significant productivity gains, others found no effect of T&V system on agricultural productivity. For example, Feder and Slade (1986), evaluated the impact of T&V system in one district of Haryana and found that (i) for most practices not involving specialized technical knowledge, contact farmers under the T&V system learned mostly from the

extension services and non contact farmers learned mostly from other farmers including contact farmers, (ii) farmers whose main source of information was the Village Extension Worker (VEW) had the highest yield index of 114.5, followed by farmers whose source was other farmers, and (iii) the internal rate of return on the project exceeded 15 percent. Sanghi (1989), on the other hand, found that in rainfed and less endowed areas of Andhra Pradesh, T & V had no effect on agricultural productivity. Similarly, a recent review of West Bengal, Bihar, Kerala, Maharashtra and Tamil Nadu, all of which have had T & V for more than ten years, also concluded there was no clear causal connection between incremental productivity and incremental investment in establishing the T & V system (World Bank 1991).

It is clear that the system failed to produce results in many parts of the country. However, this was not entirely due to the design of T&V system. There were a number of problems with its implementation as well. These included staff not doing their jobs, training classes not being held, subject matter specialists possessing little or no specialized knowledge, contact farmers not bothering to meet non-contact farmers, or even worse, not even being aware of their role in the whole process (Moore, 1984). Moore concludes by saying that "the introduction of T&V in India may be viewed as yet another incident in the sad story of the emasculation of the developmental potential of the Government of India's revenues through the growth of transfers to the states and of current expenditures as opposed to central development expenditures".

Agricultural extension continues to be a component of ongoing development programs. But, a clear long-term strategy/vision about the future of this very important institution is lacking. It would not be an exaggeration to say that overtime the institution

has been locked into what may be termed as 'lower level learning'[1]. Extension agents are being assigned routine jobs which require little fresh thinking on their part. They have little incentive to absorb the ongoing innovations at the farm level and to work closely with the farmers to extract the maximum potential of these innovations. At the same time, new economic realities are putting pressure on this institution to break away from this state of 'lower level learning'. Experiences of other countries in this field are suggestive of various innovative ways the efficiency of this institution can be improved. In the next section, we discuss some important issues that need to be addressed to harvest full potential of 'knowledge' as a factor of production as well as to minimize adverse distributional consequences.

3. Emerging Issues

This section discusses some of the issues which are currently being debated in national and international extension circles. In this paper, we focus on three main components of the extension system: the Providers, the People, and the Price.

3.1 The Providers

Extension services in India, as in many other developing countries, have mostly been financed by the government and by the external donor agencies. The rationale for public provision of these services derives from the public good nature of these services. Since there are significant externalities associated with the creation and dissemination of knowledge, private investment is likely to be sub-optimal. Thus, it makes sense for the government to provide these services.

[1] Lower level learning is the result of repetition and routine. This results in standard procedures applied to repetitive and unchanging situations. The Higher level learning, on the other hand, refers to an overall adjustment in the mission and rules of the game (Lyles, 1988).

At the same time, however, whether the governments can provide these services at optimum level depends on their fiscal capacity. In the recent past, the central as well as the state governments have come under severe fiscal strain. It is now becoming exceedingly difficult for the governments to manage and sustain publicly financed agricultural services including extension. Given the high political cost of downsizing in the public sector, a huge proportion of the allocated budget are being spent on salaries as opposed to the developmental activities[2]. This does not bode well for the growth of agriculture sector in general and future of this institution in particular.

A conceptual rethinking of the role of state in the provision of agricultural services is necessary in this new economic environment. A number of researchers have called for enhanced private sector participation in the provision of agricultural services (Umali, 1997). Others have, however, argued that privatization is not the solution in the case of public goods such as research and extension (Vaidyanathan, 1996). It appears that already there is some degree of polarization of ideas and ideologies as far as the role of private sector in research and extension is concerned. The academic debate notwithstanding, there have been moves to privatize public extension in many parts of the world, and in many cases this has led to institutional pluralism, with mixed extension systems where the services are provided by private agencies for large-scale agricultural activities and the public agencies for small-scale farming and welfare distribution (Rivera, 1990). In the context of India, however, there is a perception that private sector initiative will not be

[2] For example, in Tamil Nadu, 88 percent of extension budget in 1990-91 was spent on staff salaries and allowances and only 0.04 percent on "materials and supplies" (Macklin, 1991). Similarly, the Andhra Pradesh and Maharashtra were reported to be suffering from the shortage of operational funds for their extension systems (World Bank, 1991).

forthcoming due to the subsistence nature of Indian agriculture. That argument is often used to put at rest the debate about privatization of agricultural services. It appears though that it would not be appropriate to shut the debate on the role of private sector in the provision of agricultural research and extension services at such an early stage. There certainly exist opportunities where private sector can contribute and it would be worthwhile to consider models of public-private partnership with an open mind[3].

Besides privatization, a number of other innovative models of service delivery have emerged across the world in the recent past which need to be examined in greater detail. For example, in Ecuador, extension agents sharecrop with the farmers for a profit (van Crowder, 1991). Costa Rica has experimented with vouchers that promote private technical assistance to small and medium scale producers (Kenyan, Olin and Dinar, 1997). Chile publicly finances 70 per cent of the costs of private technology transfer firms, which contract with small-scale producers (Picciotto and Anderson, 1997). In India itself there are instances of grape growers coming together to hire their own professional agronomists (Antholt, 1990).

This section can be summarized by observing that there are enough experiences worldwide from which to draw lessons for designing alternative models of service delivery. It appears that there is room for both the private and the public sector. What is needed is an open mind and focused research on models of public-private cooperation.

3.2 The People

A pre-requisite for efficient resource use for any agency in the business of

[3] Already there are examples of private companies taking initiatives in this field. For example, the Pioneer seed company representatives introduced and pushed a variety of maize that transformed maize production from summer to winter with substantial increases in yields and farm income (Antholt, 1990).

providing services is to know its clients and their characteristics so as to minimize losses due to mismatch between the nature of demand and supply. So far the extension approach in India has comprised of delivering pre-packaged generalized prescriptions/ recommendations to all categories of farmers. This has resulted into wasted efforts and low efficiency of the system. Below we point out some of the clients where differentiated extension input will be necessary.

Small and marginal farmers and landless labourers: The extension needs of small and marginal farmers are significantly different than those of large farmers and differentiated extension input is necessary for this segment. Efficiency as well as equity considerations require that the extension system be sensitive to the needs of this group. For example, it has been repeatedly pointed out that the size of operational holding of this group is not sufficient to provide even a subsistence level of living and that diversification of farm level activities into allied sectors such as poultry and piggery is a robust means of augmenting their income. But, the institution of extension continues to focus on supplying productivity related information irrespective of the farmer category.

Another important category to be considered is the landless agricultural labourers. These workers provide a significant proportion of labour inputs in agricultural production function yet have been completely ignored by the existing extension approaches. Enhancing the human capital of this component could have significant positive impact on productivity as well as equity via influencing the wages earned by the landless labourers.

Women: Although very little data is available on the contribution of women to agriculture production in India, there can be little doubt that women's contribution is substantial and that "women in extension" is emerging as a new priority linked to

efficiency and innovation at the farm level. Women are involved in farming practices directly, by being in control of the farms, and also indirectly by influencing the decisions at the farm level. According to one estimate over 70 percent of farm work in India is done by women, yet less that 1% of all extension officers are women (Axinn, 1991). The significance of women's contribution to decision making process calls for special attention to the issues relating to women in agricultural extension services[4]. In order to make current extension approaches more gender sensitive, priority needs to be given to the involvement of women as extension professionals. However, whether hiring of women as extension workers alone would lead to gender sensitive approaches of agriculture extension is an open question.

Young farmers: Another group which would require differentiated extension inputs is the rural youth of today. A significant portion of rural youth who are entering the farming occupation are school dropouts and/or urban rejects (Shingi, 1997). They do not have adequate exposure to farming techniques and would require much different approach than those who have been in the occupation for some time. For example, Shingi (1997) argues that this segment needs a one-time comprehensive exposure to all aspects of scientific cultivation including basic knowledge about crop farming, agro-forestry, veterinary care, drainage, marketing and so on. In addition, information about alternative sources of income generation will also be relevant for this segment.

3.2 The Price

Within the perspective presented above where knowledge is viewed as a factor of

[4] International agencies such as the World Bank are already working on designing ways of reaching women farmers.

production with positive marginal product, the issue of price becomes extremely important. Efficiency considerations would suggest that, in absence of externalities, those who benefit from the service should bear the cost. In case of information which is of private good nature, therefore, there should be little confusion about who pays for the service.

The debate about fee based extension from for-profit private sector or cost recovery by the public sector centers around farmers' willingness to pay for these services and possible adverse impact of commercialization on poor farmers. Although these are empirical issues, the empirical studies pertaining to willingness to pay and distributional consequences of commercialization of agricultural services in India are almost non-existent.

At the same time, there exists enough international evidence to show that farmers are willing to pay for services such as agricultural extension, veterinary care, animal health services and so on and that the poor may actually gain from improved access and better quality of these services. In fact, one would expect that part of the problem of mismatch between demand and supply discussed above may be mitigated as a result of commercialization because the introduction of fee based service would extend ownership, and therefore, right to the services to the farmers. This would lead to increased farmers control over the research and extension, and would ensure that the extension services are responsive to the farmers problems and tailored to the needs and resources availability of local areas. In the case of public sector this would also lead to increased efficiency of the system by encouraging synergy between the three segments - research, extension and the farmers.

This section can be summarised by observing that the issue of who pays for agricultural research and extension services is complex and more research is needed to understand the extent and nature of demand as well as the possible distributional consequences of cost recovery or fee based extension system. At the same time, it is important that the beneficiaries be made to bear at least a proportion of the costs. That can only help make the system more responsive to the clients' needs.

4. Concluding Remarks

This paper has presented an economist's perspective to the institution of agricultural extension and raised some issues that have recently assumed importance. Focusing on three main components of the extension system -- the providers, the people and the price, the paper has argued that there is enough room for private sector participation in delivery of these services. While the information with strong public good component will need to be supplied by the public sector, there are sufficient opportunities where private sector can play a complementing role.

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