Redefining Agriculture Information Systems and Backward Linkages

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ABSTRACT

How farmers get access to knowledge and information about new and existing technologies can be critical in determining the viability of cultivation. Constant interaction with farmers has to become the norm, so that extension officers can become aware of current and emerging problems in cultivation and transmit these to the agencies devoted to agricultural research and other relevant policy makers. All this requires not only a drastic overhaul of the extension system itself, but an acceptance that the creation of a knowledge society has to begin with the areas that may seem to be the least apparently connected to frontier knowledge but are the most basic, and therefore possibly also the hardest, to tackle.

Keywords: Agriculture, Information, Knowledge, society

These days there is much talk of transforming India into a ''knowledge society'' producing goods and services rich in explicit and implicit knowledge. Even farmers are to be empowered into becoming ''knowledge workers' 'using the latest available information and knowledge about cultivation practices, inputs and output markets.

As early as 2001, a Task Force set up by the Planning Commission argued that this would increase agricultural productivity and release surplus person power from traditional agriculture, which could then be redeployed elsewhere (''India as a knowledge superpower: Strategy for transformation'', Planning Commission, June 2001). More recently, pronouncements from within and outside government have focused on the creation of a knowledge society and economy as the basis for defining official strategy in all sectors. It is almost trivially obvious that emerging as a ''knowledge society'' is a desirable goal for any society, as it is to aim for a situation in which farmers, along with everyone else in society, have access to the latest knowledge and techniques and can use them to improve their conditions. But there are some equally obvious problems with such an ambitious aspiration.

One problem, of course, is that improving labour productivity in any one sector and thereby releasing labour for other activities is socially useful only when the economy is able to absorb this

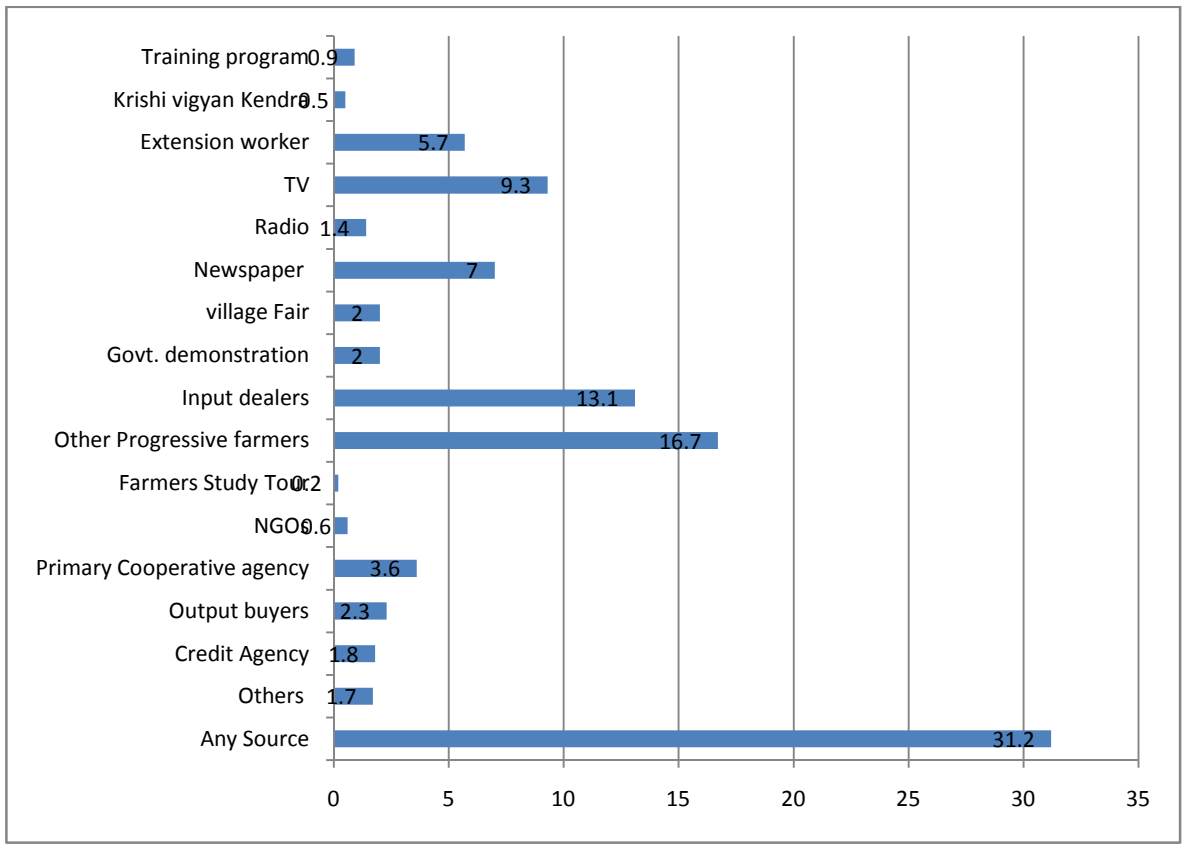
labour in productive ways. This far, unfortunately, other sectors in India have not been able to generate enough employment even to meet the needs of those already unemployed, not to mention those released from cultivation. This is one of the causes for the dramatic deceleration of employment generation in the recent years. Our huge labour force is certainly a huge potential asset, but it needs to be utilized, which requires not just education and appropriate training, but even more importantly macroeconomic policies which generate more employment. Another problem relates to what exactly is knowledge. Only the most foolhardy would claim that Indian farmers, for example, are operating Indeed, there are several studies citing cases where the departure from such traditional knowledge has created not only greater cultivation risk but also less sustainable practices. So it need not be true that all the new research and ''knowledge'' that come from various sources always generate the best or most desirable practices, even in something as apparently straightforward and technical as cultivation practices. Especially now, when a multiplicity of research undertaken by different agencies provides different results, and when at least some corporate sponsored research provides results that come suspiciously close to marketing the products of those same corporates, there are reasons to emphasise that knowledge itself is not necessarily ''neutral'', but can be complex and possibly ambiguous. In many states of India, it has become evident that new knowledge disseminated by input dealers who may have a vested interest in promoting particular inputs has become a source of more problems rather than improved cultivation practices. For example, in Andhra Pradesh the state government's Commission of Farmers' Welfare found in 2004 that unviable or undesirable practices (such as excessive chemical pesticide use or improper use of certain new transgenic seeds) were actually promoted by input dealers. All this needs to be borne in mind when designing strategies to increase farmers' access to new technology in cultivation. In any case, it is useful to begin with some sense of what could be called the current base-level reality. Fortunately, a recent report from the NSSO (Report No. 499: Access to modern technology for farming,

New Knowledge and the Farming Community on the basis of ignorance and complete lack of basic information relating to their own activities, simply because they are not aware of the latest results of what may be corporate-sponsored agricultural research. The huge wealth of traditional knowledge is often ignored by policy makers, as is the remarkable ability of farmers to adapt and develop cultivation practices according to their own specific situation and experience. Based on a survey conduced by NSS IN 2012, which covered 51, 770 farming households in 6638 sample villages, found that the majority of farmers did not access any source of information on modern technology in the previous year.

As Chart 1 below, shows, only around 31 per cent of the sample accessed such information, and it came dominantly from other farmers, input dealers, radio and television. (It should be noted that information from radio and television includes advertisements by private input suppliers. The most

significant fact to emerge from Chart 1 is the almost negligible role played by public agencies. Taken together, the public agencies that are meant to deliver such knowledge to farmers – that is agricultural extension workers, government demonstrations and the Krishi Vigyan Kendras - had been accessed by only 8.4 per cent of the farmers surveyed. By contrast, other farmers were the largest source of information, with around 17 per cent of farmers getting information from them, followed closely by input dealers, who had been accessed for such information by 13 per cent of farmers. Even the local co-operative societies had less than 4 per cent of farmers using them as sources of information for new cultivation practices.

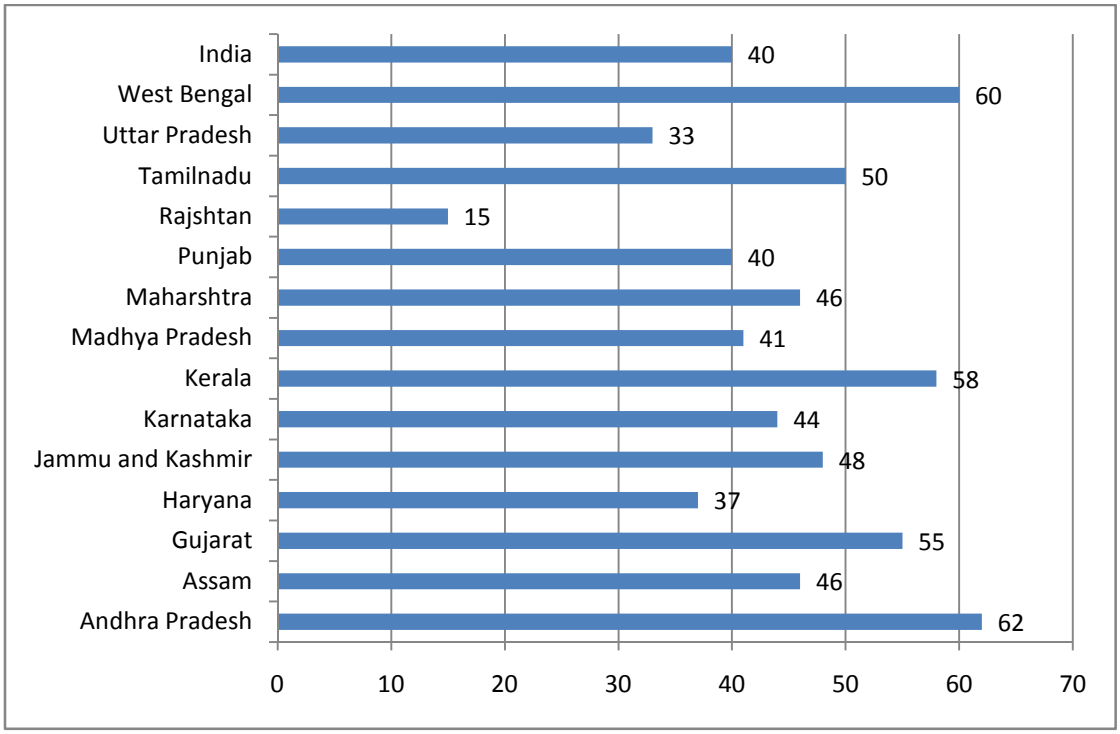
Chart: 1 Percentage of farmers accessing Modern Technology by Source



Predictably, there is substantial variation across states even in terms of the proportion of farmers even trying to get information on new technology.

Chart 2 presents the evidence by states, and Andhra Pradesh, West Bengal and Kerala emerge as the states where the most farmers (nearly two-thirds of the sample) had accessed such information in the previous year.

Chart: 2 Percentage of farmers accessing Modern Technology by state



Kerala has the country's most diversified agriculture. And in Andhra Pradesh and West Bengal there have been substantial diversification of cultivation and changes in cropping pattern over the recent period, and farmers in both states have been observed to respond rapidly to changing market conditions, but not always to their own advantage.

Interestingly, states such as Punjab and Haryana which are known to be highly commercialized, indicated only a minority of farmers accessing new technology over the previous year. It could be that cultivation patterns here have stabilized such that farmers feel that they do not require new knowledge in the same way. The most telling indictment of the lack of effectiveness of public dissemination of new agricultural technology comes from the data gathered on the extent to which farmers actually put into practice the information gathered from any particular source.

Table 1 provides such evidence. It has already been observed that agricultural extension workers account for a very small proportion of the information access for farmers. But Table 1 indicates that in most states, farmers rarely trust them to the extent of putting into practice their recommendations. And certainly they come far below the trust scale when compared to other farmers and input dealers.

Table: 1

	Percentage of Farmers adopting recommended practice, By Source					
State	Source Of Information					
	Extension Worker	TV	Radio	Newspaper	Input Dealers	Other Farmers
Andhra Pradesh	73.5	54.7	50.5	52.5	86.3	91.5
Assam	74.6	53.1	59.6	63.1	48.6	72.8
Gujarat	83.4	70.5	53.7	53.5	30.3	60.3
Haryana	72.1	64.6	66.2	74	85.5	93.1
Jammu and Kashmir	26.7	67.4	75.8	62.8	100	100
Karnataka	29.4	35.9	36.8	50.9	84.9	59.3
Kerala	74.4	44.9	37	43.1	71	79
Madhya Pradesh	54.5	59.1	48.3	50.2	75.7	80.4
Maharshtra	59	46.5	54.8	50.4	80.3	82.6
Punjab	29.8	56	40.8	59.8	65	92.2
Rajshtan	87.2	66.8	42.3	80.9	66.7	92.3
Tamilnadu	74.1	49.8	67.6	54.1	94.7	85.3
Uttar Pradesh	48.2	65.1	52	63.2	86.7	86.4
West Bengal	85.3	45.7	66.3	56	87.5	88.8
India	62.5	53.1	54.5	53.1	81.7	85.1

In some state, such as Punjab, extension officers' advice was acted upon less than 30 per cent of the times, compared to more than 80 per cent for input dealers. In many states, even radio, TV and newspapers -ads and all - were relied upon more than extension officers.

It is worth noting that the data on trial of the new technology indicate lower percentages of farmers, suggesting that in a substantial proportion of cases, farmers put into practice the advice received on new technology from other farmers and input dealers without prior trial. Given the problems already noted with private dealers (who may be and typically are interested parties) and other private agents being the main sources, it is not surprising that there was a general degree of dissatisfaction with the information thus accessed and used. Around half of the farmers reported that the information received was not good, and extension workers and input dealers fared equally in this regard. In fact, the best ranking was received by newspapers, with 55 per cent of farmers feeling the information from this source was good.

It is obvious that if India is to come anywhere near being a ''knowledge society'', a preliminary requirement is that farmers, who still constitute around 60 per cent of the labor force and support

around two-thirds of the population with their income, must have good quality access to the best knowledge (which does not always mean the latest knowledge) regarding agricultural techniques. But the NSS data always shows clearly that at present, our farmers are nowhere near being even minimally empowered in this respect. A basic failure that merges is that of the public agricultural extension services, which have clearly not delivered what was originally expected of them. The blame for this lies not with the extension officers themselves, but with central and state governments over the past decade and half, who have systematically reduced public expenditure in this important area and reduced both the scope and capacity of this system in general. Extension officers are often inadequately trained to start with and in almost all states do not receive continuous training that would keep them up to date with new developments. Their numbers have been reduced o the point that one officer has to cover a vast area and a large population, which is typically not feasible. They are not provided with the minimum requirements of effective functioning, such as transport vehicles and cellphones to enable communication. It is hardly surprising that so few farmers access them for new technology and even less farmers believe what these hapless extension officers are able to tell them.

This is a major lacuna, because it is both unrealistic and potentially problematic to rely only upon private agencies to meet the information requirements of farmers. While the current agrarian crisis in India is hydra-headed and has many causes, the apparent collapse of public extension services has certainly had a role to play. The resulting problems of undesirable or inappropriate choice of cropping pattern, spurious input provision and unnecessary, excessive or improper input use have dramatically added to the costs and risks of cultivation, especially in some states.

The revival of public agricultural extension services is therefore of critical importance. Since this requires in the first instance a substantial infusion of additional resources by state governments whose responsibility this is, it is unrealistic to expect this to happen given the current strains on state finances. So this also requires intervention by the central government in assisting or enabling such expenditure. In addition, the focus of training of extension officers must shift to one of continuous learning and upgrading of knowledge through various sources, including ICT based training where possible.