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PROVISIONAL MILITARY GOVERNMENT
OF SOCIALIST ETHIOPIA

MINISTRY OF AGRICULTURE

THE TRAINING AND VISIT EXTENSION
PROJECT IN ETHIOPIA
BRIEF REVIEW

PLANNING AND PROGRAMMING
DEPARTMENT

FEB. 1986

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The training and visit extension project in
Ethiopia Brief Review

Unlike many developing countries where the T and V system of agricultural extension has been in operation for several years, Ethiopia's experience with this project has been very recent. It was started two and a half years ago in June 1983 in Tiyo and Hitosa sub-districts of Arsi region, and Ada and Lume sub-districts of Shoa. The initial project which covered 204 peasant Associations containing approximately 58617 farm families - of which 4652 Or 8 % were "contact" farmers - was located in areas especially suited to a research-extension linkage. The idea was to use research stations in Arsi and Shoa region close to the T&V project areas. Moreover, these were areas where previous extension work had already begun to change farmer's attitudes towards new techniques. In the following year new areas in Shoa- Shashemene and Arsi-Negele were added to the project.

In this note we shall try to assess the progress of the pilot T and V project in Ethiopia from its inception, highlighting its major successes and problems, and try to assess the desirability of further extending the scale of the project to other regions of the country.

It is important to stress that the data base required to make a competent assessment to the T & V project is still incomplete. The Monitoring and Evaluation unit did produce a detailed first season report on the project but was hampered in its efforts to follow a similar report for the next season.

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Although a survey was conducted its results were seriously affected by the drought. Since the drought affected yields generally one could not evaluate the contribution of the project recommendations on productivity. This paper relies heavily on the results of the first season report but draws on the relevant parts of the draft second season survey. It also attempts to put forward some general arguments in favour of the continuation of the T and V project in Ethiopia.

2. Training and Visit extension and increase in crop yields.

Almost everyone agrees that it is difficult to isolate the impact of an extension system on increase in yields of a specific crop. But ceteris paribus a single line extension service, providing timely, relevant and flexible recommendations on key aspects of crop cultivation, is expected, over time, to result in rising yields per hectare. The need to raise productivity is especially pressing in the Ethiopian context and the first season survey has given considerable grounds for hope from the T & V system on this count.

To date, the recommendation delivered by the T and V mechanism have concentrated on aspects of new planting, improved seeds and rate of application, fertiliser dosage and timing, and weeding. The extension advice has been based on adaptive trials on a small area on farmers fields, while this is an important departure from exclusive reliance on results from replicative trials on research stations,

it is still not clear whether results obtained on small crop cuts in farmers fields can be generalised to the entire holding because of bottlenecks in input supply, credit and problems of managing labour.

Nevertheless, agronomic data collected during the first season show marked gains from improved seeds and appropriate fertiliser dosage. These have already been summarised in the "Interim ~~Final~~ Evaluation of the T & V project" submitted on 19th November 1984. However, it is relevant to recall that with the full T & V adaption for variety and seed rate, the yield for Enkoy wheat could be expected to increase from 16 quintals/hectare to 24 quintals/hectare. At the time of the survey, farmers were using approximately 200 kg/ha of seed in the belief that a high seed application reduces problems of weeding. By demonstrating that yields could actually be maintained at the existing level by using a lower seed rate, the T & V recommendations involved a saving of 50kgs/ha or Br 28/ha. In the same project area, the yield response to fertiliser under full T & V adaption was quite spectacular - from 14.5 qt/ha average for Arsi to 26.0 qt/ha under T & V optimum. T and V also recommended the use of herbicides to curb weed infestation- results- thereby expecting to raise mean yields from 21qt/ha to 26 qt/ha.

Ofcourse, the yield response to T & V recommendation varies from crop to crop, and across project areas. Not can it be expected that mean yields be predicted with anything approaching absolute confidence, given variations in rainfall, input supply

and prices. What the results do illustrate, however, is the potential for an intensive extension service to affect farming practices in a reasonably short period.

Despite the limitations of the 2nd season survey, an interesting point about recommended technology in T & V areas concerns the impact of the drought on crops in adopting plots compared to others. Both for wheat and barley in Arsi, and teff and wheat in Ada Lume, yields from improved varieties were higher than local. The following table presents the broad picture.

Table 1.

Yields from improved and local varieties in Arsi and Ada + Lume 1984/85.

<u>Arsi</u>	<u>Variety</u>	<u>Mean yield qt/ha</u>	
		<u>Adopting</u>	<u>non-adopting</u>
Wheat	Local	15.1	15.8
	Improved	19.9	16.9
	Overall	19.5	15.9
Barley	Local	16.3	10.7
	Improved	21.6	18.2
	Overall	18.6	13.3
<u>Ada + Lume</u>			
Teff	Local	19.4	12.3
	Improved	15.0	-
	Overall	16.2	12.3
Wheat	Local	15.1	11.5
	Improved	17.5	-
	Overall	17.3	11.5

The broad conclusion which emerges from this brief discussion of yields is the potential of the T&V system to generate and communicate a crop technology which can both raise the overall mean yield of crops. At the moment, these effects of the T & V are necessarily tentative, but if the initial guess is indicative of future rise in yields, then it is an experiment worth pursuing.

3. T and V extension and its suitability in the Ethiopian case

Slade and Feder (1985) who have written much on the T & V experiment in India have highlighted a number of difficulties with the system in the Indian context. Simply put, these problems relate to,

- a) the delivery mechanism
- b) the effectiveness of T&V compared to other forms of information dissemination.
- c) biases in the supply of the extension service resulting from variations in size of holdings between contact and non-contact farmers, and between irrigated and non-irrigated technology.
- d) the matching of demand and supply of the extension service,

3.1 Training of extension workers and manpower Planning under the T&V system.

A common problem in the operation of the T&V extension system in many developing countries is the proportion of vacancies to total posts, and the quality and frequency of training provided to extension workers.

TABLE 1

T&V Management Structure 1984/85

HQ	PS Agriculture T&V Pilot Project Committee Agric-Development Department Head of T&V Pilot Project 3xSMS		
REGION	Shewa		Arsi
(Project AREA)	Team Leader ADD ADD SMS	ADD SMS	Head of Extension Extension SMSs
	Ada + Lume	Shashemene + Arsi Negele	Hitosa + Tiyo
AWRAJA	1 x AAED 2 x SMS	1x AAED 2x SMS	1 x DAED 2 x SMS
AED RANGE	3 x AED	3 x AED	4 x AED
EXTENSION CIRCLE	26xDA	24 x DA	23 x RDA
CONTACT FARMERS	1580	1332	1740
FARM FAMILIES	18017	21043	19557

Table 2

Key Indicators of Implementation

	Hitoya + Tiyo			Ada + Lume			Shashemene + AN			T O T A L		
	Planned	Actual	%	Planned	Actual	%	Planned	Actual	%	Planned	Actual	%
1. STAFFING												
DA	27	23	85	26	26	100	26	24	92	79	73	92
AEO	4	4	100	4	3	75	4	3	75	12	10	83
AAEO	1	1	100	1	1	100	1	1	100	3	3	100
SMS	3	2	66	3	2	66	3	2	66	9	6	66
R/E Coordinator	1	1	100	1	0	0	1	0	0	3	1	33
HEAD										1	1	100
2. TRANSPORT												
Bicycle	6	3	50	11	11	100	8	14	175	25	28	112
Mule	21	21	100	13	13	87	18	8	44	54	42	78
Motorcycle	4	4	100	4	3	75	4	3	75	12	10	83
Awraja Pick-up	1	1	100	1	1	100	1	1	100	3	3	100
3. HOUSING												
House Construction	17	0	0	15	10	66	30	0	0	62	10	16
4. EQUIPMENT												
Desks										5	2	40
Chairs										8	4	50
Shelves										4	1	25
Typewriters										2	0	0
Calculators										3	3	100
Photocopies										1	3	0

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Table 1 and 2 present a summary picture of the staffing structure and the current level of vacancies in the Ethiopian T & V programme in 1984/85. It is clear that the level of staffing is very high with only frictional vacancies due to illness or other unavoidable reasons. In contrast to many other countries, in Ethiopia the T & V pilot scheme has seen the creation of a committed extension force. The reason is to be found in the earlier system of extension prevailing under MPP II which the DA, were responsible for providing a wide range of services. The mean DA, farmer ratio was 1:2600 under MPP II compared to 800 under T & V. The advent of T & V provided the opportunity for training and concentrating on a single activity. That the provision of training is highly valued in the extension service is shown by first season survey which reported that many DAs had complained of shortage of teaching aids & materials, or in sufficient extension messages from SMS.

3.2 Research - extension linkages

While progress has been made in strengthening the research - extension linkages under T and V, there is still much room for improvement. Despite the establishment of EPID in 1971 and the formation of a separate Institute of Agricultural Research, extension has played only a small part in influencing the nature and quality of research. Under MPP II a joint IAR - ADD Programme was begun in 1981. Under this scheme 11 IAR - ADD trials sites were set up to arrange field testing of research findings and

Table 3

T + V Extension - Research Linkages

RESEARCH-EXTENSION LIAISON COMMITTEE

RESEARCH COORDINATOR

research results	ADD recommendations
------------------	---------------------

Compatible?

no

yes

FIELD TRIALS

SEASON ACTION PLAN

analysis

recommendations

DA FORTNIGHTLY

TRAINING

problem

┌───┐
└───┘
extension

farmer adoption

to provide joint formulation of recommendation. Feed back to research is to be achieved through the ADD/IAR co-ordination committee. In the T & V links between research and extension are achieved by the research extension liaison committees at the research stations in the three project areas. The research extension linkages under T & V are set out in table.

- The first season survey noted the need for
- A. more off-station field work by research stations.
 - b. The T & V project to modify recommendations to suit the capability of the farmers-using sub-optimal fertiliser applications when fertiliser prices are high.
 - c. practical field training on research demonstration sites.
 - d. a more in-depth analyses of trials results.

These problems must obviously be addressed when the issue of extending T & V to other regions is considered, but the experience of T&V to date shows the ability of the system to set up closer research extension linkages than before. Moreover, none of the above recommendations are that difficult to implement.

3.3 T & V and other forms of information dissemination

In the developed countries, various elements of the media play an important part in supplying farming information. Prominent among such forms of communication are radio, television, specialised newspapers and bulletins from agricultural universities. In addition conferences and annual work-shops play an important part.

In Ethiopia, as in most, developing countries such mass media are not fully utilized for extension purposes. Such absence of alternative channels of extension advice therefore will give a free rein to the T & V network, and facilitating the evaluation of its impact.

3.4 Biases in extension supply

A considerable part of the literature on T and V operation in countries which have large inequalities in landholding reveals biases in extension supply because of wide inter contact non-contact farmer variations in the size. It is well known that in the context of a unmotivated extension staff, often facing difficulties of travel, extension advice may filter to the relatively wealthy sections of the farming community which have large landholding sizes. Therefore these elements are in the best position to gain from such advice since input supply is usually not a problem.

In Ethiopia variations in land holding are determined by the size of the family. The 1975 land reform law even provides for an on-going redistribution of land thus preventing the re-emergence of larger farms.

3.5 Demand and supply of T and V extension

Slade and Feder have put forward the idea that the supply of extension services is reflected in the interaction between extension agents and contact farmers, and then to non-contact farmers.

The interaction between extension agents and non-contact farmers is, however, demand determined because the former are not obliged to visit the latter. Instead they are expected to meet the non-contact farmers when requested to do so. In the early years of a T & V programme, supply is expected to be higher than demand. Eventually, as non-contact farmers realise the value of extension advice, demand is likely to match supply which may in turn be reduced slightly as the mechanism runs down because of problems of motivation, the difficulty of finding new and appropriate advice on crop production.

An important indication of the demand for T&V extension is the frequency of visits by extension agents to non-contact farmers. Secondly, it is expected that demand for extension will be higher in the T & V areas compared to others.

We have argued that in Ethiopia, a functioning supply mechanism is already in existence. As far as demand is concerned, the first season M&E survey did collect information on the pattern of visits, but this was not continued in the 2nd season. While one would not expect demand for T&V extension to be high in the first season, dependent as that is on the demonstration effects of crops on contact farmers fields, most development agents felt that many follower farmers know them by name. This is not to disguise the fact that DAs faced a number of problems in arranging meeting with contact as well as follower farmers. These difficulties are documented in the first season report and need not be repeated in detail here.

As present, the M/E unit has not studied the pattern of extension demand between T & V and contiguous areas, but on a prior grounds one would expect demand to be higher in the T & V project area.

4. Continuing problems in Ethiopian T & V project

While Ethiopia's T & V experiment has been successful in establishing an effective supply mechanism for extension in a very short time, as well as in creating a committed extension work force, the project faces a number of difficulties.

Some such as input supply and prices are external to the project. Others such as the research-extension linkage, training of SMS and other staff and the frequency of meetings between contact and follower farmers are important current problems.

A critical question not yet analysed in depth in Ethiopia is the cost effectiveness of the T & V system. This is an issue which can be taken up in the evaluation report of the next season but preliminary estimates from the first season show that the T & V system is viable under fairly reasonable assumptions on input supply and expected incremental yields. The survey estimated an internal rate of return of well over 14%p. a, if existing adoption rates are continued. The question of cost-effectiveness is an important one and deserves a special study involving a comparison between the T&V and non T&V areas, however, rough estimate indicates the average cost incurred exclusive of salaries for a DA is 3443 Birr and for a contact farmer 54 Birr.

An analysis of the Ethiopian T & V project leads to the conclusion that there are many reasons for continuing the experiment. The absence of an entrenched previous extension system allows for new initiatives in the T & V programme. The low degree of inter-farmer variations in size of holdings would tend to reduce biases in extension supply. The use of individual farmers as points of extension contact compared to the earlier system of using peasant associations allows a more focussed channel of communication. A functioning mechanism for linking research to extension has been created. All these reasons lead weight to the view that the T & V experiment has been highly effective in raising farm yields in the project areas.

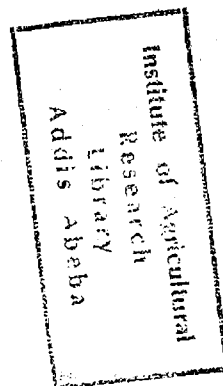
Finally if T & V programme is extended to identified woredas of the 27 high potential Awrajas, it can show very high impacts in relatively short period, which justifies the concentrated use of efforts and resources in few areas.

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Asella					Debrezeit				Shashemene					
	DAs	cf	FF	cf+ff	DAs	Cf	ff	cf+ff	DAs	cfs	ffs	cfs + ffs		
1975	25	-	-	-	26	-	-	-	27	-	-	-		
1976+77	23	1500	18,810	20,310	23	1687	17765	19,452	25	1312	22437	23799		
<u>Costs (Birr)</u>					<u>ALLDAs</u>				<u>ALL cfs</u>		<u>ALL ff</u>		<u>ALL cfs+FFs.</u>	
1975		55,674.35*			1975	78		4652		-		-		
1976		244,447.5			1975	71		4549		59012		63,561		
1977		269,281.90			1976	71		4549		59012		63,561		
		569,493.73												
<u>Average costs (Birr)</u>														
	<u>DAs</u>	<u>cf</u>	<u>FF+cf</u>											
1975	71375	.95	-											
1976	3443	53.70	3.85											
1977	37927	59.20	4.25											
1976+77	3618	56.45	4.05											

Costs do not include salaries

*for the monthly of May and June only



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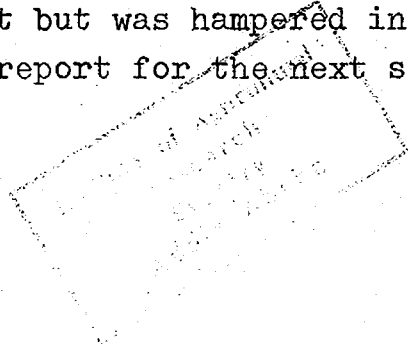
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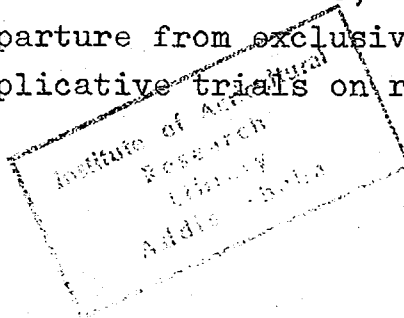


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- d) the matching of demand and supply of the extension service,

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A common problem in the operation of the T&V extension system in many developing countries is the proportion of vacancies to total posts, and the quality and frequency of training provided to extension workers.

TABLE 1

T&V Management Structure 1984/85

HQ

REGION

(Project AREA)	Shewa	
	Team Leader ADD ADD SMS	ADD SMS
	Ada + Lume	Shashemene
AWRAJA	1 x AAED 2 x SMS	1x AAED 2x SMS
AED RANGE	3 x AED	3 x AED
EXTENSION CIRCLE	26xDA	24 x DA
CONTACT FARMERS	1580	1332
FARM FAMILIES	18017	21043

PS Agriculture
T&V Pilot Project Committee
Agric-Development Department
Head of T&V Pilot Project
3xSMS

Arsi

Head of Extension
Extension SMSs

+ Arsi Negele

Hitosa + Tiyo

(Development
District)

1 x DAED

2 x SMS

4 x AED

23 x RDA

1740

19557

.../5

Table 2

Key Indicators of Implementation

	Hitoya + Tiyo			Ada + Lume			Shashemene + AN			T O T A L		
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SMS	3	2	66	3	2	66	3	2	66	9	6	66
R/E Coordi- nator	1	1	100	1	0	0	1	0	0	3	1	33
HEAD										1	1	100
2. TRANSPORT												
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Shelves										4	1	25
Typewriters										2	0	0
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Table 3

T + V Extension - Research Linkages

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RESEARCH COORDINATOR

research results

ADD recommendations

Compatible?

no

yes

FIELD TRIALS

SEASON ACTION PLAN

analysis

recommendations

DA FORTNIGHTLY

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problem

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A considerable part of the literature on T and V operation in countries which have large inequalities in landholding reveals biases in extension supply because of wide inter contact non-contact farmer variations in the size. It is well known that in the context of a unmotivated extension staff, often facing difficulties of travel, extension advice may filter to the relatively wealthy sections of the farming community which have large landholding sizes. Therefore these elements are in the best position to gain from such advice since input supply is usually not a problem.

In Ethiopia variations in land holding are determined by the size of the family. The 1975 land reform law even provides for an on-going redistribution of land thus preventing the re-emergence of larger farms.

3.5 Demand and supply of T and V extension

Slade and Feder have put forward the idea that the supply of extension services is reflected in the interaction between extension agents and contact farmers, and then to non-contact farmers.

The interaction between extension agents and non-contact farmers is, however, demand determined because the former are not obliged to visit the latter. Instead they are expected to meet the non-contact farmers when requested to do so. In the early years of a T & V programme, supply is expected to be higher than demand. Eventually, as non-contact farmers realise the value of extension advice, demand is likely to match supply which may in turn be reduced slightly as the mechanism runs down because of problems of motivation, the difficulty of finding new and appropriate advice on crop production.

An important indication of the demand for T&V extension is the frequency of visits by extension agents to non-contact farmers. Secondly, it is ~~ex~~pected that demand for extension will be higher in the T & V areas compared to others.

We have argued that in Ethiopia, a functioning supply mechanism is already in existence. As far as demand is concerned, the first season M&E survey did collect information on the pattern of visits, but this was not continued in the 2nd season. While one would not expect demand for T&V extension to be high in the first season, dependent as that is on the demonstration effects of crops on contact farmers' fields, most development agents felt that many follower farmers know them by name. This is not to disguise the fact that DAs faced a number of problems in arranging meeting with contact as well as follower farmers. These difficulties are documented in the first season report and need not be repeated in detail here.

As present, the M/E unit has not studied the pattern of extension demand between T & V and contiguous areas, but on a prior grounds one would expect demand to be higher in the T & V project area.

4. Continuing problems in Ethiopian T & V project

While Ethiopia's T & V experiment has been successful in establishing an effective supply mechanism for extension in a very short time, as well as in creating a committed extension work force, the project faces a number of difficulties.

Some such as input supply and prices are external to the project. Others such as the research-extension linkage, training of SMS and other staff and the frequency of meetings between contact and follower farmers are important current problems.

A critical question not yet analysed in depth in Ethiopia is the cost effectiveness of the T & V system. This is an issue which can be taken up in the evaluation report of the next season but preliminary estimates from the first season show that the T & V system is viable under fairly reasonable assumptions on input supply and expected incremental yields. The survey estimated an internal rate of return of well over 14% p. a, if existing adoption rates are continued. The question of cost-effectiveness is an important one and deserves a special study involving a comparison between the T&V and non T&V areas, however, rough estimate indicates the average cost incurred exclusive of salaries for a DA is 3443 Birr and for a contact farmer 54 Birr.

An analysis of the Ethiopian T & V project leads to the conclusion that there are many reasons for continuing the experiment. The absence of an entrenched previous extension system allows for new initiatives in the T & V programme. The low degree of inter-farmer variations in size of holdings would tend to reduce biases in extension supply. The use of individual farmers as points of extension contact compared to the earlier system of using peasant associations allows a more focussed channel of communication. A functioning mechanism for linking research to extension has been created. All these reasons lead weight to the view that the T & V experiment has been highly effective in raising farm yields in the project areas.

Finally if T & V programme is extended to identified woredas of the 27 high potential Awrajas, it can show very high impacts in relatively short period, which justifies the concentrated use of efforts and resources in few areas.

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