Coordination among Agencies delivering Extension Services under Agricultural Technology Management Agency

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Abstract

In the late Nineties the World Bank funded a new extension delivery mechanism in India, called Agricultural Technology Management Agency (ATMA). Since 2005, ATMA is being fully funded by the Government of India. One of the key features of ATMA is the financial sustainability of the system. To ensure financial sustainability, the high recurring cost incurred in the T&V system in the form of establishment costs was controlled in ATMA by not recruiting additional staff. To meet the shortfall of extension personnel, private agencies and NGOs were roped in. All the agencies delivering extension services were linked. This study was conducted with the objective of investigating the extent and factors of coordination among various agencies involved in delivery of extension services. Ahmednagar district of Maharashtra state and Dahod district of Gujarat state were purposively selected and sixty ATMA staff were interviewed. Resources, relations and performance; necessity and adaptability; values; information; and infrastructure were the factors of coordination. Majority of the ATMA staff of Ahmednagar and Dahod districts expressed that coordination among agencies delivering extension services was high.

Introduction

Agricultural extension in India has grown phenomenally over the years. Organized extension at the national level commenced in early twentieth century. It picked up momentum in the fifties with the implementation of the Community Development Programme. Various target groups and commodity based schemes were adopted during the second half of the century. The World Bank promoted Training & Visit System was the next major extension system in

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India in the seventies. In the late Nineties the World Bank funded a new extension system in India. The extension delivery mechanism is called Agricultural Technology Management Agency (ATMA). Since 2005, ATMA is being fully funded by the Government of India.

One of the key features of ATMA is the financial sustainability of the system. To ensure financial sustainability, the high recurring cost incurred in T&V system in the form of establishment costs was controlled by not recruiting additional staff. To meet the shortfall of extension personnel, private agencies and NGOs were roped in. All the agencies delivering extension services were linked. The agencies were coordinated by ATMA. Mattessich *et. al.* (2001) described three degrees of partnership – cooperation, coordination and collaboration.

Coordination of various government, private and NGOs is easier said than done. Every organization has its own mandate and objectives. It is important to align these objectives in such a way that it achieves the objectives of ATMA without hindering the agencies' objectives. Coordination has its own merits. It avoids duplication of extension services by different agencies. It pools together resources like capital, manpower, time, etc. and uses them efficiently. Agencies become interdependent as they rely on other agencies in their environment, for resources necessary to achieve organizational objectives (Aldrich, 1976; Pfeffer and Salancik, 1978).

Objectives

Keeping in view the above mentioned issues in implementation of ATMA, a study was conducted with the objective of investigating the extent of coordination and factors of coordination among various agencies involved in delivery of extension services.

Methodology

The states of Maharashtra and Gujarat were purposively selected for the study. Maharashtra was one of the states covered in the pilot testing of the system in 1998. Gujarat started implementation of ATMA since the system was mainstreamed in 2005. These states were purposively selected to facilitate comparison of both phases of implementation of the system.

Ahmednagar district of Maharashtra state was purposively selected because it was the first district in the country to prepare the SREP. In case of ATMA staff,

90 staff members were involved in ATMA activities. Among them, 30 ATMA staff members were randomly selected.

In Gujarat, Dahod district was purposively selected because rainfed agriculture was predominantly practiced in the district which reflects the major farming practice in the country. Moreover the resources were limited in terms of land and water. In case of ATMA staff, 50 members were involved in ATMA activities. Among them, 30 ATMA staff members were randomly selected. In total, 60 ATMA staff constituted the sample size.

Data Collection and Instrumentation

Coordination conceptually has been defined as linkage and harmonious interaction of two or more constituents of a system. Coordination in this study refers to mechanisms, processes and effectiveness in terms of communication, meetings, division of work, working together, sharing resources, complementarities, linkage, and networking. An index containing 76 items with a 5 point continuum, namely, a great degree, a high degree, a fair degree, a few degree and not at all with the weightage of 5,4,3,2 and 1, respectively was designed. The score ranged from 76 to 380. The primary data was collected from the respondents through personal interview by administering the questionnaire to them during August – October 2008.

Factor analysis was done to identify the factors of coordination. Cronbach's alpha was calculated to measure the internal consistency reliability of the coordination index.

Results and Discussion

Factors of Coordination

Coordination among various agencies involved in delivery of extension services under ATMA was assessed by administering a coordination index, developed with 76 items and five point continuum response category viz., not at all, a few degree, a fair degree, high degree and great degree with a score of 1 through 5, to the ATMA staff. These 76 items were quantified with factor analysis. Five items were eliminated for not having variability in the data. The remaining 71 items were run with factor analysis. The extraction method used was principal component analysis. The Rotation method used was varimax with

Kaiser Normalization. Rotation converged in 13 iterations. It reduced 69 items to 7 factors. These seven factors explained 90 per cent of the total variance (Table 1).

Table 1: Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	36.607	51.559	51.559	36.607	51.559	51.559	29.159	41.069	41.069
2	16.843	23.722	75.281	16.843	23.722	75.281	21.717	30.588	71.657
3	3.050	4.296	79.577	3.050	4.296	79.577	3.493	4.919	76.576
4	3.016	4.248	83.825	3.016	4.248	83.825	3.118	4.392	80.968
5	1.916	2.698	86.523	1.916	2.698	86.523	2.617	3.686	84.654
6	1.559	2.196	88.719	1.559	2.196	88.719	2.528	3.560	88.214
7	1.239	1.745	90.464	1.239	1.745	90.464	1.597	2.250	90.464

Extraction Method: Principal Component Analysis.

Factor loadings generated 7 factors. Items containing a value of 0.5 and above were included in the factors. Some of the items were having a value of 0.5 and above in more than one factor. Such items were included in all the factors in which they possessed a value of 0.5 and above. Factors 6 and 7 did not contain items with a value of 0.5 and above. Hence these factors were eliminated. Only 5 factors were finalized. The number of items included for the factor 1, 2, 3, 4, and 5 were 45, 34, 5, 2, and 1 respectively (Table 2). Cronbach alpha measured the internal consistency of the coordination index. As a rule of thumb a Cronbach alpha value of 0.7 and above might be regarded as adequate reliability (Nunnally, 1978). In this case, the Cronbach's alpha was 0.9778 which indicated the desired / excellent reliability. This implied that the coordination index developed for this study measured produce dependable, similar or same results if a researcher measures the same subjects or similar subjects again and again. It indicates the accuracy / precision of the results.

Table 2: Factor loadings

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
39	.942	.079	.064	.006	-.143	.073	.059
76	.942	.023	.037	-.080	-.045	-.053	-.116
9	.940	.014	.135	-.053	.123	.058	.066
7	.937	.086	.017	-.052	.147	-.041	-.028
13	.924	-.116	.022	.003	.203	.188	.050
8	.922	.111	.112	.057	.053	.042	.224
16	.917	.106	.028	.123	.142	.114	.135
22	.916	.173	.148	-.013	-.071	-.035	-.156
66	.894	.006	.035	-.032	.009	-.323	-.042
11	.893	.108	.117	.005	.135	-.071	-.200
34	.882	.175	.178	.123	-.048	.043	-.194
53	.877	.082	.355	-.002	.007	-.052	-.037
2	.873	.074	.374	.103	-.058	-.011	.000
27	.858	-.130	-.117	.222	.204	.098	.155
15	.852	-.428	.242	-.017	.005	.088	.063
62	.851	-.066	-.070	.282	.139	.172	.171
51	.848	.217	.180	.193	-.043	.055	-.101
18	.832	.282	.224	-.049	-.015	-.077	-.193
43	.830	-.219	-.102	.235	.333	-.036	.140
28	.822	-.486	.131	.059	.169	-.073	-.022
10	.793	.361	-.055	.205	.102	-.307	.100
73	.785	.053	.201	.427	.196	-.003	.066
31	.776	-.048	.100	.499	.162	.086	.093
48	.771	.140	.164	.289	.307	-.006	.246
17	.765	.283	-.137	.286	-.184	-.167	.194
74	.762	.216	.007	.273	.168	.300	-.245
32	.749	.357	.015	.276	-.104	-.370	.001
24	.734	.271	.226	.353	-.055	-.350	-.030
1	.730	.351	.156	-.052	-.004	.475	.103
5	.727	.457	.110	.031	.307	.112	.152
25	.713	.510	-.032	-.010	.232	.195	.077
30	.704	.069	.234	.202	.339	.424	-.002
44	.682	.586	.142	.027	.155	-.063	.208
21	.656	.443	.268	.329	-.055	-.100	-.137
54	.651	.447	-.150	-.004	.432	.149	-.162
41	.630	.663	.097	.007	.044	.000	.233
56	.623	.496	-.004	.407	-.093	-.298	-.082

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
4	.609	.472	.256	-.158	.077	.265	.047
65	.606	.501	-.163	.105	.387	.042	-.165
36	.591	.607	.059	.193	-.079	-.044	.364
57	.576	.664	.211	.164	.240	-.064	.083
47	.555	.531	.543	-.025	-.061	-.021	.141
50	.540	.552	.540	-.068	-.056	.011	.088
49	-.502	.812	-.201	-.004	-.117	-.018	-.073
59	-.606	.761	-.162	-.010	-.078	-.076	-.056
58	.059	.948	.094	.037	.046	-.125	.055
33	.074	.942	-.053	-.043	.081	.061	.101
61	-.070	.937	.120	-.092	-.038	-.039	-.045
37	-.140	.905	.269	.076	-.060	-.075	-.067
29	-.244	.879	.042	-.014	.044	-.068	-.272
71	.003	.865	.215	.200	-.031	-.214	.037
69	.146	.863	.265	-.012	-.206	.194	.095
68	.026	.857	.047	.406	-.049	.203	-.072
3	.256	.843	.186	-.001	.046	.273	.186
38	-.039	.830	.008	.299	.034	-.251	-.177
6	.301	.829	.208	.036	.028	.236	.185
35	.293	.828	-.133	.141	.144	-.317	.032
67	-.045	.827	.149	.050	.183	.268	.306
49	-.502	.812	-.201	-.004	-.117	-.018	-.073
19	.407	.811	.039	.008	-.060	-.084	-.184
23	.361	.810	-.025	.107	-.239	.006	.035
64	.286	.774	.109	.002	-.009	-.106	-.436
70	-.090	.763	.062	.187	.288	.356	-.277
59	-.606	.761	-.162	-.010	-.078	-.076	-.056
72	.178	.757	.131	.046	.153	.451	.171
52	.032	.744	.168	.247	.229	.401	-.232
60	.350	.726	.012	.164	.365	-.290	.028
57	.576	.664	.211	.164	.240	-.064	.083
41	.630	.663	.097	.007	.044	.000	.233
20	.431	.618	.573	.032	.025	-.061	-.083
36	.591	.607	.059	.193	-.079	-.044	.364
44	.682	.586	.142	.027	.155	-.063	.208
55	.470	.559	.585	.156	-.020	-.043	-.009
50	.540	.552	.540	-.068	-.056	.011	.088
47	.555	.531	.543	-.025	-.061	-.021	.141

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
25	.713	.510	-.032	-.010	.232	.195	.077
75	.397	.505	.076	.699	.151	.020	8.171E-06
40	.400	.503	.008	.693	.204	.002	.011
65	.606	.501	-.163	.105	.387	.042	-.165
26	.224	.243	.832	.061	.081	.127	-.026
55	.470	.559	.585	.156	-.020	-.043	-.009
20	.431	.618	.573	.032	.025	-.061	-.083
47	.555	.531	.543	-.025	-.061	-.021	.141
50	.540	.552	.540	-.068	-.056	.011	.088
75	.397	.505	.076	.699	.151	.020	8.171E-06
40	.400	.503	.008	.693	.204	.002	.011
14	.424	.023	.065	.160	.859	.066	.018

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 13 iterations.
Reliability Cronback Alpha = .9778

Factor 1, 2, 3, 4, and 5 were described as resource, relations and performance; necessity and adaptability; values; information; and infrastructure, respectively (Table 3). Resource turned out as the predominant item in the coordination of the agencies followed by relations, performance, necessity, adaptability, values, information and infrastructure. Resource dependency had forced the government departments to work in collaboration with one another. In Ahmednagar district, fiscal sustainability was achieved by continuing the ATMA system even after withdrawal of funds from the World Bank with the funds of the Government of India. Due to collaboration, the government departments like Department of Sericulture which did not have adequate staff enhanced their services by utilizing the services of the Department of Agriculture staff who were adequate in number. However, collaboration with private agencies and NGOs had not been taken up. In Dahod district, coordination had been established among government departments, private agencies and NGOs. In ATMA, veterinary doctors were made conveners of BTT which was very encouraging. Moreover the private input dealers assisted in organizing training programmes and arranging the necessary inputs for the crops. The Government of Gujarat had assigned the overall responsibility of ATMA in some districts to NGOs.

Table 3: Description of Factors

Factor	Description	Variable No.	Variables included and factor loadings
1	Resource, relations and performance	39	The coordinating staff of the agencies is having good coordination skills.
		76	Coordination widens the area of coverage.
		9	Agencies are able to resolve disagreement/disputes due to coordination.
		7	Good relationship prevails among agencies.
		13	Funds are shared among agencies
		8	Agencies are satisfied about their relationship.
		16	Agencies are aware of the goals and services of each other
		22	The differing goals of collaborating agencies are hindering effective coordination.
		66	Frequent staff transfer is affecting coordination.
		11	Agencies implement joint activities well.
		34	Returns are more than coordination costs.
		53	Agencies treat each other equally.
		2	Good relationship prevails between ATMA staff and agencies.
		27	Coordination enhances agencies' performance.
		15	Agencies share staff
		62	Coordination improves farmers' participation in the extension programmes.
		51	Agencies adjust their structure to suit the purpose set by coordination.
		18	Agencies help each other in attaining one's own agency goals
		43	Agencies communicate frequently through letters.
		28	Coordination reduces uncertainty of availability of resources.
		10	Agencies plan well for joint activities.
		73	Coordination ensures more profit to the farmers.

Factor	Description	Variable No.	Variables included and factor loadings
		31	Coordination has prevented duplication of same service delivery by more than one agency.
		48	Coordination meetings are conducted regularly.
		17	Rules and procedures are framed for performing joint activities
		74	Coordination facilitates timely and adequate supply of inputs.
		32	Coordination has improved the service delivery.
		24	Agencies share resources.
		1	Good understanding exists among the agencies delivering extension services.
		5	Due to coordination among agencies, farmers have good access to markets.
		25	Agencies gain prestige due to collaboration.
		30	Coordination among agencies makes it possible to provide services which were difficult to be provided by a single agency.
		44	Agencies communicate frequently through telephone.
		21	It is difficult to synchronize the organizational routines and procedures with coordination among agencies
		54	Agencies work together to achieve common goals.
		41	Agencies meet regularly and deliberate coordination issues.
		56	Activities are planned jointly.
		4	Due to coordination among agencies, farmers have good access to inputs.
		65	Agencies show low responsibility in executing coordinated programmes.
		36	Agencies trust each other.
		57	Clear cut division of activities is done among agencies.
		47	Coordination committee is formed.
		50	Agencies coordinate due to high interdependency of resources.

Factor	Description	Variable No.	Variables included and factor loadings
		49	A coordination unit with a building, staff is established.
		59	Common resource centres are established at grass-root level for service delivery.
2	Necessity and adaptability	58	Agencies jointly fund coordination costs.
		33	Coordination increases public value.
		61	Agencies coordinate because of the urgency in delivering services.
		37	Agencies are flexible in functioning joint activities.
		29	Coordination helps in solving problems having multiple causes.
		71	Coordination reduces the financial burden of the government.
		69	Agencies' resistance to change is hindering coordination.
		68	Too many agencies make it difficult to coordinate.
		3	Good relationship prevails between Farmer Interest Groups at village level and agencies.
		38	The coordinating staff of the agencies is highly committed to their work.
		6	Good relationship prevails between agencies and farmers.
		35	Agencies work together as a good team.
		67	Political support is weak for coordinated programmes.
		49	A coordination unit with a building, staff is established.
		19	Agencies exchange information about their activities and clients.
		23	Farmers bring different expectations and procedures on each agency.
		64	Agencies feel a sense of ownership in implementing coordinated programmes.
		70	Coordination overcomes the manpower shortage.

Factor	Description	Variable No.	Variables included and factor loadings
		59	Common resource centres are established at grass-root level for service delivery.
		72	Coordination improves the efficiency of the agricultural extension system.
		52	Farmers exert pressure on agencies to work jointly.
		60	Selection of project beneficiaries is done jointly.
		57	Clear cut division of activities is done among agencies.
		41	Agencies meet regularly and deliberate coordination issues.
		20	Agencies loose their independence due to coordination.
		36	Agencies trust each other.
		44	Agencies communicate frequently through telephone.
		55	Agencies remove their conflicts through negotiation.
		50	Agencies coordinate due to high interdependence of resources.
		47	Coordination committee is formed.
		25	Agencies gain prestige due to collaboration.
		75	Coordination facilitates delivery of production and marketing information.
		40	Training in coordination is imparted to the coordinating staff.
		65	Agencies show low responsibility in executing coordinated programmes.
3	Values	26	Professional values favour coordination among agencies.
		55	Agencies remove their conflicts through negotiation.
		20	Agencies loose their independence due to coordination.
		47	Coordination committee is formed.
		50	Agencies coordinate due to high interdependence of resources.

4	Information	75	Coordination facilitates delivery of production and marketing information.
		40	Training in coordination is imparted to the coordinating staff.
5	Infrastructure	14	Agencies share building space

Overall Coordination

The overall coordination among agencies delivering extension services was assessed. The coordination score of each ATMA staff was worked out. The possible range of scores was 76 to 380. The actual score range obtained by the respondents was 173 to 290. This range was broken into 5 categories with a class interval of 23.4. Majority of the ATMA staff of Ahmednagar and Dahod districts expressed that coordination among agencies delivering extension services was high (28 % of ATMA staff), followed by very high (17 % of ATMA staff) (Table 4). This might be due to the financial constraints faced by the government departments forced to coordinate among themselves as well as with private agencies and NGOs. This had yielded good results in service enhancement. In T&V system, coordination with other agencies was poor (Kulhari, 1980). Rajeev (1995) found that farmers of group farming had no linkage with other agencies and groups.

Table 4: Overall Coordination among Agencies (N = 60)

S.No.	Category	Number	%
1	Very low	9	15
2	Low	9	15
3	Medium	15	25
4	High	17	28.33
5	Very high	10	16.67
	Total	60	100

Class interval: 23.4 Minimum: 173 Maximum: 290

Extent of Coordination among Agencies

The extent of coordination among various agencies delivering extension services under ATMA were assessed through the mean of each item as perceived by the ATMA staff. The items were classified into five categories based on the mean score of each item namely great degree, high, fair, few, and no coordination with the scores of 4-5, 3-4, 2-3, 1-2 and 0-1, respectively, using the

formula proposed by Gupta (1992). Thirteen items fell under great degree of coordination. Among them, 'agencies loose their independence due to coordination' was the most important item (mean=4.62); followed by 'coordination overcomes the manpower shortage' (4.58) (Table 5). The main items like resource dependency; organizational adaptability; political support; area enhancement; information delivery; extension efficiency; relationship; and responsibility had great degree of coordination.

Table 5: Extent of coordination among agencies delivering extension services

Variable		Mean	S.D	Minimum	Maximum
No.	Name				
20	Agencies loose their independence due to coordination.	4.6167	.55515	3.00	5.00
70	Coordination overcomes the manpower shortage.	4.5833	.49717	4.00	5.00
21	It is difficult to synchronize the organizational routines and procedures with coordination among agencies	4.4333	.62073	3.00	5.00
67	Political support is weak for coordinated programmes.	4.4000	.49403	4.00	5.00
76	Coordination widens the area of coverage.	4.4000	.58802	3.00	5.00
75	Coordination facilitates delivery of production and marketing information.	4.3833	.49030	4.00	5.00
72	Coordination improves the efficiency of agricultural extension system.	4.3667	.58125	3.00	5.00
22	The differing goals of collaborating agencies are hindering effective coordination.	4.3333	.65527	3.00	5.00
03	Good relationship prevails between Farmer Interest Groups at village level and agencies.	4.2167	.69115	3.00	5.00
06	Good relationship prevails between agencies and farmers	4.1667	.71702	3.00	5.00
65	Agencies show low responsibility in executing coordinated programmes.	4.1333	.50310	3.00	5.00
69	Agencies' resistance to change is hindering coordination.	4.1000	.70591	3.00	5.00
30	Coordination among agencies makes it possible to provide services which were difficult to be provided by a single agency.	4.0167	.50394	3.00	5.00
23	Farmers bring different expectations and procedures on each agency.	3.9833	.56723	3.00	5.00
25	Agencies gain prestige due to collaboration.	3.9833	.56723	3.00	5.00

Variable		Mean	S.D	Minimum	Maximum
No.	Name				
02	Good relationship prevails between ATMA staff and agencies	3.9167	.94406	2.00	5.00
31	Coordination has prevented duplication of same service delivery by more than one agency.	3.9167	.67124	3.00	5.00
36	Agencies trust each other.	3.8833	.66617	3.00	5.00
04	Due to coordination among agencies, farmers have good access to inputs.	3.8500	.44436	3.00	5.00
68	Too many agencies make it difficult to coordinate.	3.8167	.74769	3.00	5.00
73	Coordination ensures more profit to the farmers.	3.8167	.70089	3.00	5.00
15	Agencies share staff	3.7667	1.09493	2.00	5.00
01	Good understanding exists among the agencies delivering extension services.	3.7333	.88042	1.00	5.00
43	Agencies communicate frequently through letters.	3.7167	.64022	3.00	5.00
62	Coordination improves farmers' participation in the extension programmes.	3.7000	.69624	2.00	5.00
27	Coordination enhances agencies' performance.	3.6833	.67627	2.00	5.00
26	Professional values favour coordination among agencies.	3.6000	.55845	2.00	4.00
16	Agencies are aware of the goals and services of each other	3.5500	.76856	2.00	5.00
32	Coordination has improved the service delivery.	3.5500	.56524	3.00	5.00
24	Agencies share resources	3.5000	.50422	3.00	4.00
13	Funds are shared among agencies	3.4833	.79173	2.00	5.00
07	Good relationship prevails among agencies.	3.4667	.67565	2.00	5.00
33	Coordination increases public value.	3.4500	.74618	2.00	5.00
08	Agencies are satisfied about their relationship.	3.4333	.78905	2.00	5.00
39	Coordinating staff of the agencies is having good coordination skills.	3.4000	.66892	2.00	4.00
34	Returns are more than coordination costs.	3.2833	.64022	2.00	4.00
51	Agencies adjust their structure to suit the purpose set by coordination.	3.2667	.66042	2.00	4.00
18	Agencies help each other in attaining one's own agency goals	3.2500	.77295	1.00	4.00
53	Agencies treat each other equally.	3.1833	.72467	2.00	4.00
29	Coordination helps in solving problems having	3.1500	1.02221	1.00	5.00

Variable		Mean	S.D	Minimum	Maximum
No.	Name				
	multiple causes				
37	Agencies are flexible in functioning joint activities.	3.1500	.73242	2.00	5.00
74	Coordination facilitates timely and adequate supply of inputs.	3.1500	.54695	2.00	4.00
35	Agencies work together as a good team.	3.1333	.70028	2.00	5.00
71	Coordination reduces the financial burden of the government.	3.1000	.62977	2.00	4.00
54	Agencies work together to achieve common goals	3.0667	.48246	2.00	4.00
05	Due to coordination among agencies, farmers have good access to markets.	2.9333	.60693	2.00	4.00
57	Clear cut division of activities is done among agencies	2.9167	.71997	2.00	4.00
19	Agencies exchange information about their activities and clients.	2.9000	.57342	2.00	4.00
38	The coordinating staff of the agencies is highly committed to their work.	2.9000	.60226.	2.00	4.00
41	Agencies meet regularly and deliberate coordination issues.	2.9000	.62977	2.00	4.00
44	Agencies communicate frequently through telephone.	2.8333	.64221	2.00	4.00
64	Agencies feel a sense of ownership in implementing coordinated programmes	2.8167	.50394	2.00	4.00
48	Coordination meetings are conducted regularly.	2.7667	.62073	2.00	4.00
50	Agencies coordinate due to high interdependency of resources.	2.7167	.45442	2.00	3.00
10	Agencies plan well for joint activities.	2.6333	.66298	2.00	4.00
55	Agencies remove their conflicts through negotiation.	2.6333	.48596	2.00	3.00
59	Common resource centres are established at grass-root level for service delivery.	2.6000	1.63852	1.00	5.00
56	Activities are planned jointly.	2.5500	.62232	2.00	4.00
28	Coordination reduces uncertainty of availability of resources.	2.4167	1.41770	1.00	5.00
11	Agencies implement joint activities well	2.3833	.64022	1.00	4.00
09	Agencies are able to resolve disagreement/disputes due to coordination.	2.3667	.75838	1.00	4.00
58	Agencies jointly fund coordination costs.	2.3000	.82954	1.00	4.00

Variable		Mean	S.D	Minimum	Maximum
No.	Name				
61	Agencies coordinate because of the urgency in delivering services.	2.2833	.73857	1.00	4.00
60	Selection of project beneficiaries is done jointly.	2.1167	.58488	1.00	3.00
49	A coordination unit with a building, staff is established.	2.0667	1.13297	1.00	4.00
47	Coordination committee is formed.	1.7000	.46212	1.00	2.00
17	Rules and procedures are framed for performing joint activities	1.6833	.56723	1.00	3.00
52	Farmers exert pressure on agencies to work jointly.	1.5667	.49972	1.00	2.00
66	Frequent staff transfer is affecting coordination.	1.4667	.50310	1.00	2.00
40	Training in coordination is imparted to the coordinating staff.	1.3500	.48099	1.00	2.00
14	Agencies share building space	1.1000	.30253	1.00	2.00
12	Agencies sign formal written Memorandum of Understanding.	1.0000	.00000	1.00	1.00
42	Website is opened to share information among agencies.	1.0000	.00000	1.00	1.00
45	Agencies communicate frequently through emails.	1.0000	.00000	1.00	1.00
46	Each agency has a liaison officer.	1.0000	.00000	1.00	1.00
63	Coordination committees are formed at village level.	1.0000	.00000	1.00	1.00

Thirty two items fell under high degree of coordination. Among them, 'farmers bring different expectations and procedures on each agency'; and 'agencies gain prestige due to collaboration' (mean = 3.98 each) were the most important items. The main items of high degree of coordination were farmer expectation, agency relationship, efficiency, trust, resource dependency, communication, participation, performance, values, satisfaction and adaptability.

Twenty items fell under fair degree of coordination. Among them, 'Due to coordination among agencies, farmers have good access to markets' (2.93); and 'clear cut division of activities is done among agencies' (2.92) were the most important items. The main items of fair degree of coordination were farmers' access to resources, division of labour among agencies, resource dependency, commitment, communication, sense of ownership, planning, negotiation, risks, implementation, urgency, and infrastructure.

Six items fell under few degree of coordination. Among them, 'coordination committee is formed' (1.70); and 'rules and procedures are framed for performing joint activities' (1.68) were the most important items. The main items of few degree of coordination were committee, rules, pressure from farmers, staff transfer, training and infrastructure.

Five items fell under no coordination. The items of no coordination were memorandum of understanding, website, email communication, liaison staff and committee at grassroots.

Conclusion

Resource, relations and performance; necessity and adaptability; values; information; and infrastructure were the factors of coordination. Majority of the ATMA staff of Ahmednagar and Dahod districts expressed that coordination among agencies delivering extension services was high (28 % of ATMA staff), followed by very high (17 % of ATMA staff). The items like resource dependency; organizational adaptability; political support; area enhancement; information delivery; extension efficiency; relationship; and responsibility had great degree of coordination. Items of high degree of coordination were farmer expectation, agency relationship, efficiency, trust, resource dependency, communication, participation, performance, values, satisfaction, and adaptability. Items of fair degree of coordination were farmers' access to resources, division of labour among agencies, resource dependency, commitment, communication, sense of ownership, planning, negotiation, risks, implementation, urgency, and infrastructure. Items of few degree of coordination were committee, rules, pressure from farmers, staff transfer, training and infrastructure. Items of no coordination were memorandum of understanding, website, email communication, liaison staff and committee at grassroots.

Implications and Recommendations

Coordination of agencies is of prime importance to make ATMA effective. It is evident from the findings that the Coordination Committee, MoUs, rules and procedures of coordination were the areas of coordination which were weak. Frequent communication between the agencies on a regular basis has to be encouraged. Interdependence is to be encouraged and the agencies and the staff have to be assessed on performance as a team in achieving the objectives of

ATMA. While evaluating achievement of ATMA, the State should focus attention on instrumentalities like effective coordination.

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