



**EVALUATION STUDY  
OF  
CENTRALLY  
SPONSORED SCHEME  
ON  
MICRO  
IRRIGATION**

**EXECUTIVE SUMMARY**

**NATIONAL COMMITTEE ON  
PLASTICULTURE APPLICATIONS  
IN HORTICULTURE (NCPAH)  
MINISTRY OF AGRICULTURE  
DEPARTMENT OF AGRICULTURE  
AND COOPERATION  
NEW DELHI**

**CONDUCTED  
BY  
NABARD CONSULTANCY  
SERVICES PRIVATE LIMITED,  
(NABCONS)  
MUMBAI**

**MARCH 2003**

## **Executive Summary**

1. Considering the rapid progress made under the Central Sponsored Scheme on Micro Irrigation over the years, GoI entrusted the task of conducting “Evaluation Study of the (CSS–MI) to NABARD Consultancy Services Pvt Ltd., (Nabcons). The main objectives of the evaluation study were (i) to study the efficacy of implementing agencies and enumerate Best Practices in implementation of the CSSMI, (ii) to assess the impact of the scheme on productivity, irrigation water use efficiency, savings in input use, and labour use, (iii) to identify the procedural deficiencies and operational constraints in the path of up-scaling and (iv) to ascertain the technical feasibility and financial viability of the scheme from farmer’s viewpoint.
2. The study was conducted in six states selected on the basis of the size of operations in terms of coverage of area under MI, physical and financial achievements vis-a-vis targets, geographical spread, and perceived potential. The states selected for the study were; Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Punjab, and Orissa. Three districts from each state and two-three Blocks from each district were purposively selected on the basis of physical achievements. A stratified sampling method was used for selecting the beneficiary farmers and comparable control farmers. The study covered 6 States, 18 districts, 44 Blocks, 166 villages, and 1251 sample and control farms all over the country.
3. The study was conducted in layers covering State level Implementing Agencies and stake-holders, District level Implementing Agencies and stake-holders, Manufacturers of MI Systems and Suppliers, PFDCs, PRIs and Beneficiaries.

### **Main Findings**

#### **Performance under CSS-MI**

4. The implementation of the CSS in 2005-06 boosted the pace of micro irrigation development in such states in which micro irrigation schemes of the Central and State government were already in operation before the start of the CSS e.g. Karnataka and Andhra Pradesh. In other states the implementation process has gradually accelerated e.g. Madhya Pradesh, Orissa, Gujarat and Punjab. In the states of Orissa, Punjab and Madhya Pradesh the physical performance in terms of hectares of land covered under micro irrigation increased noticeably during 2006-07 to 2007-08. The increase in physical

performance was of the order of nearly 800 percent in Madhya Pradesh, 150 percent in Orissa and 300 percent in Punjab during the same period.

### **Nearly Zero level misutilization**

5. The field study revealed that the assets supported out of subsidy were found intact in all the sample cases thereby revealing stringent surveillance, monitoring and control systems envisaged for implementation of the scheme. The micro irrigation system is an industrial product sold under direct supervision of the manufacturers who are subjected to stringent rules for the registration and liability for misutilization of the subsidy amount. This strategy of clearly assigning responsibility on the suppliers in the CSSMI resulted in zero level misutilization. The arrangements for monitoring and surveillance included third party monitors, audit of third party monitors, and surveillance by District Administration and dedicated outside monitoring and evaluation consultants for conducting periodic monitoring and evaluation studies.

### **Structure of Implementing Agency**

6. Over the period a variety of organizational structures have come to be evolved by the different state governments in response to the perceived importance of micro irrigation in sustainable agriculture development in their states. Amongst the different models of Implementing Agencies, the Andhra Pradesh and Gujarat models are unique and stand apart so far as the implementing capacity and quality is concerned. The Micro Irrigation Programme in Andhra Pradesh is implemented by means of a Special Purpose Vehicle in the name of Andhra Pradesh Micro Irrigation Project (APMIP) which has been created in the Horticulture Department to guide, supervise and monitor implementation of the project. In Gujarat state the Gujarat Green Revolution Company Limited (GGRCL), which is a Special Purpose Vehicle promoted by Gujarat State Fertilizers and Chemical Limited, Gujarat Narmada Valley Fertilizers Company Limited and Gujarat Agro Industries Corporation Limited, is the implementing agency appointed by the Government of Gujarat and recognized by Government of India for implementing Micro Irrigation System in the State of Gujarat. In Karnataka state the scheme is implemented by two major departments, viz Horticulture Department and Agriculture Department. Major part of Drip Irrigation is handled by Horticulture Department, while Agriculture Department mainly caters to sprinkler irrigation component. On the whole, drip component commands a sizeable share of the scheme. In Punjab, the Implementing Agency for Centrally Sponsored Micro Irrigation Scheme is the Department of Soil &

Water Conservation, Govt. of Punjab. In the state of Madhya Pradesh Directorate of Horticulture has been identified as the IA. In Orissa, the Orissa Horticultural Development Society (OHDS) is designated as the IA for the Micro Irrigation Scheme. The IA is also the Nodal Agency for implementation of National Horticulture Mission (NHM) programme in the State. The OHDS is registered under Society Registration Act, 1860 and was launched during July, 2005.

### Structure of Implementing Agencies in Sample States

Particulars	Andhra Pradesh	Gujarat	Karnataka	Madhya Pradesh	Punjab	Orissa
<b>Implementing Agency</b>	APMIP	GGRC	DoA DoH	DoH	Department of Soil & Water Conservation	Horticultural Development Society (OHDS)
<b>Main Focus</b>	Horticulture Department	Micro Irrigation	Agriculture & Horticulture	Horticulture	Soil & Water Conservation	Nodal Agency for NHM
<b>Nature of Association</b>	SPV – Relatively autonomous unit within Horticulture department	Registered under Company's Act; Public Limited	Government Departments	Government Department	Government Department	Registered under Society Registration Act, 1860
<b>Structure &amp; Outreach</b>	III Tier *State APMIC *Dist. APMIC *Resource Center at Mandal level	Centralized; Support from GNFC Depots at District level	III Tier *State *District *Blocks	II Tier *State *District	IV Tier *State *Division *District *Circles	II Tier *State *District

7. The sample states were found to have put in place State Micro Irrigation Committees (SMICs), Technical Support Groups (TSGs); and District Level Implementation Committees (DMICs) in terms of the guidelines of GoI on the CSS on Micro Irrigation. These Implementing Agencies were found to have been playing varied roles in different states. In Andhra Pradesh and Gujarat, the SMICs formally met regularly and played proactive role in implementation of the CSS especially in regular periodic revision of the unit cost in their states. In other states however, including Karnataka, Punjab, Madhya Pradesh and Orissa, the SMICs did not meet frequently. In these States though the SMIC has been constituted in terms of the operational guidelines, the Committees did not have regular meetings, as coordinating several high level officials for attending the meeting was felt difficult. On the other hand, various roles of the Committee were stated to be fulfilled by the State Nodal Departments.

8. Similarly the DMICs were found to have been constituted in all the six sample states. In Orissa though the DMIC Meetings are not held, the progress of the scheme implementation and various operational issues are reviewed and discussed by the District Collector and the Chairman of the DMIC with the DDH of the district, while the DDH reviews the programme with the Horticulturists and Technical Assistants / Grafters at the grass root level. In Andhra Pradesh, it was, observed during discussions with implementing agencies that the committee was not meeting periodically. The District Collector was reviewing the APMIP programme during his review of the various departments. In Punjab it was observed that the committee was meeting periodically but its frequency was not regular. In Orissa, DMIC was found to be active in only one of the three sample districts. In Gujarat the DMIC meetings were not held as District Collector reviewed the progress during his routine review of developmental initiatives.

### Pattern of Assistance

Particulars	CSS	AP	Gujarat	MP	Karnataka	Orissa	Punjab
<b>Drip Irrigation &amp; Sprinkler Irrigation</b>							
Total Assistance (% Of Total System Cost)	50%	70%	50%	70%	75%	70%	75%
CSS Share : State Share: Beneficiary's Margin/ Share (%)	40:10:50	40:30:30	40:10:50	40:30:30	40:35:25	40:30:30	40:35:25
Limit On Sprinkler Coverage	No	25% Of Target	No	No	No	No	No
Ceiling On Subsidy	5 Ha	Rs. 50000 Per Farmer	Rs. 60000 Per Farmer	5 Ha	5 Ha	Rs. 30000 & 10000 /Ha For D & S	5 Ha
Crops Eligible – all Horticulture and Plantation Crops Except Tea, Cofee, Rubber & Oil Palm	Oil Palm Included	CSS	CSS	CSS	CSS	CSS	CSS
Coverage Of Mf/Sf	25%	25%	25%	25%	25%	25%	25%

### Scope of the Scheme

9. Although the CSSMI provides for 50 percent of the investment cost as subsidy out of which 40 percent would be met by the Central Government and 10 percent by the State Government, the different State Governments were found to have supplemented the Central Subsidy Funds with their own resources and improved the scope and coverage of the Micro Irrigation Scheme. The unique improvements made by

different Government were that (i) in case of Gujarat the State Government removed the limit of 5 hectares for entitlement of subsidy, while keeping the subsidy at 50 percent uniform across all the category of farms and channeling the earmarked funds for the development of the SC/ST and enhancing the subsidy limit in their case to 75 percent; (ii) AP Government increased the subsidy level to 70 percent with a limit of Rs. 50000 per beneficiary, (iii) Karnataka State Government increased the subsidy to 75 percent except two extremely drought prone districts in which case the subsidy is 100 percent of the cost of investment, (iv) Similarly in Punjab the State Government increased the subsidy to 75 percent, while the Government of Orissa and Madhya Pradesh increased the subsidy level to 70 percent.

## **Impact of the Scheme**

### **Impact on Land use Pattern**

10. Major impact of drip irrigation in the sample states of Andhra Pradesh, Karnataka, Gujarat, Orissa and Madhya Pradesh was for crop diversification viz., rain fed field crops to horticulture or vegetables, and bringing cultivable waste lands to horticulture. Water saving expected with adoption of micro irrigation motivated the beneficiary farmers in shifting from low duty crops to high duty-high value crops. In case of Andhra Pradesh a 35.80 percent of the benefitted area recorded crop change and bringing up of 75 percent of cultivable waste to horticulture crops indicating the transformational influence of micro irrigation on land use pattern in the drought prone areas of the state. Similar findings were recorded for the other sample states.

### **Saving in cost of production**

11. Saving of irrigation water due to sprinkler irrigation in ground nut and cotton crops in Gujarat, Karnataka and Andhra Pradesh was found to the tune of 35-40 percent, and saving of water as a result of the impact of drip irrigation varied among horticulture crops in the range of 40 to 65 percent and in vegetables from 30 to 47 percent. Adoption of micro irrigation resulted in significant reduction of labour (irrigation, weeding, harvesting) and aided convenience by eliminating drudgery in farm management (irrigating crops during irregular and odd hours of power supply), which the farmers valued most. It was observed that labour saving in terms of mandays was generally higher for field crops followed by horticultural crops. Major part of labour saving come from lesser weed growth under micro irrigation and low/no labour requirement on irrigation.

12. Saving in irrigation water due to micro irrigation resulted in directly reduction of power consumption as a result of reduced hours of pumping. The reduction in power consumption is directly proportional to the quantum of irrigation water saved. Irrigation scheduling in all the sample states depended largely on the scheduling and duration of the power supply. Adoption of fertigation was limited due to high prices of liquid fertilizers and lack of demonstrable benefits in the field. Only 30 percent of the sample beneficiaries reported fertigation of crops and soluble urea was the major fertilizer used for the purpose.
13. Adoption of micro irrigation resulted in significant increase in yield in all major crops to the extent of 19.4 percent (A.P.) to 50 percent (Gujarat) in ground nut, 19.1 percent in sweet orange, 33 percent (Gujarat) to 42.1 percent (Andhra Pradesh) in vegetables, 17.1 percent (AP) to 25 percent (Karnataka) in banana in comparison with conventional irrigation. The increase in yield due to the micro irrigation was reported in all the six sample states and in all the crops covered in the study. The impact of the Micro Irrigation technology on yield was therefore pervasive. Micro Irrigation technology also reported by the beneficiaries to have resulted in improved quality of produce and therefore resulting in realization of higher prices. It was reported by beneficiaries in Andhra Pradesh, Madhya Pradesh, Gujarat and Karnataka that in ground nut due to uniform pod filling; better shine in sweet orange and uniform bigger sized fruits in banana under drip irrigation, helped beneficiaries in fetching a premium of 5-10 percent in sale price.

### **Economic Impact:**

14. Cost of cultivation was found to have been reduced in horticultural crops like mango (13.3 percent in AP to 16.98 percent in Gujarat), ground nut (10.82 percent in Gujarat to 17.0 percent in AP), while it reportedly increased in vegetables (23.1 percent, AP), banana (11.4 percent, AP). Savings have come mostly on labour component and increase in cost of cultivation of papaya and banana was due to increase in intensity of management and use of high cost seed and increased use of fertilisers to meet the significant growth in yields.
15. The Gross Value of Produce (GVP) per hectare increased with adoption of micro irrigation, which varied from crop to crop and state to state. Payback period on investments under micro irrigation was found to be shortest in field crops like groundnut, potato and cotton (0.5 yr to 1.17 years), and relatively higher in case of drip irrigated horticulture crops. Financial rate of returns ranged from 30 percent to

greater than 50 percent in from crop to crop and state to state. The financial viability of the Micro Irrigation technology therefore was pervasive.

### **Social Equity**

16. Convergence of CSSMI with State Horticulture Mission (SHM), and SC/ST Corporation, Tribal Welfare, Comprehensive Land Development Program (CLDP), where assigned lands of weaker section are developed before undertaking horticulture under micro irrigation, has resulted in social equity of the scheme. Such convergence was found in all the sample states.

### **Drivers for adoption of micro irrigation**

17. The adoption of drip irrigation and sprinkler irrigation by farmers was more due to the motivation of management convenience, labour saving and amenability for mechanization of farms and shifting of crops to high value-high duty crops. While water saving was appreciated but it was found to be not a sufficient condition for adoption of drip irrigation. But in sprinkler system, the drivers for adoption in field crops were water saving, labour saving, reduction in risk of crop failures and expansion of cropping to other wise uncultivable gravely lands. These lessons explain the reasons for rapid adoption of micro irrigation in dry regions of the country for groundnut, banana, sweet orange and mango, while the progress was slow in coastal regions, and regions of high rainfall and irrigation.

### **Best Practices**

#### **Proactive State Government Support – Improvement in Scope of the Scheme**

18. In Andhra Pradesh, Karnataka, Punjab, Madhya Pradesh, Orissa and Gujarat the scope of the MIS has been substantially improved by the respective state governments by increasing their share of subsidy and relaxing eligibility norms. Andhra Pradesh and Punjab Governments conferred infrastructure status to micro irrigation and borrowed from the Rural Infrastructure Development Fund (RIDF) for supporting micro irrigation. Besides, Gujarat government improved the procedures for timely release of State share of the Funds and increased the outreach by removing ceiling on subsidy. Punjab Government has in addition to MIS, launched a supporting scheme for assistance on individual on-farm water storage tanks. This scheme provides for assured irrigation water for Drip/Micro-Sprinkler and Sprinkler Irrigation systems in the canal command areas of the state. It envisages, subsidy @50 percent of the cost, limited to

Rs. 1.00 lakh per tank per individual farmer for construction of on-farm water storage tanks (brick-lined) of an average capacity of 25 lakh litres (Size 32mX 29mX 3m).

### **Policy Support for Micro Irrigation**

19. In the Orissa State Agriculture Policy 2008, MIS has been projected as the basis for agriculture development and accordingly the share of State Subsidy was increased to 30% of the unit cost. Similarly Gujarat Government viewed micro irrigation as the basis for second green revolution and therefore provided pervasive policy support and priority. In other sample States of Karnataka, Punjab, Andhra Pradesh, and Madhya Pradesh micro irrigation has similarly recognized as the vehicle for sustainable agriculture development.

### **Special Purpose Vehicles for Implementation of CSS on Micro Irrigation**

20. Innovative Dedicated Project Management Structure characterized by autonomy, transparency and self-sustaining structure have been evolved by some State Governments e.g. Gujarat and Andhra Pradesh. In Gujarat State the Government evolved a model of Corporate Structure for Governance of Government Schemes which is a self sustaining set-up attempted at profit generation while implementing government schemes. In Andhra Pradesh, noticeable autonomy has been provided by creating a special purpose vehicle for implementation of the MIS. In Karnataka decentralization through Raitha Samparka Kendra (RSK) at Hobli level has been attempted by delegation of powers to lower tier functionaries and by assigning separate staff for micro irrigation scheme. In MP, the District DMIC has been empowered to sanction and disburse funds for MIS and Nodal Officers have been appointed at the District Horticulture Office for focused attention for smooth implementation.

### **Effective use of Information Technology**

21. Effective integration of Project Management, Financial Management, and Management Information System (MIS) functions through development of dedicated software has been attempted by GGRC in Gujarat and similar attempts are underway in Andhra Pradesh. The AP Technology services had developed software for online reporting system for all 22 districts in Andhra Pradesh. This software when put to regular use would facilitate daily progress reports and MIS, financial tracking, process monitoring and performance monitoring. In such IT enabled environment, the efficiency of implementation reportedly improved, transparency of operations was ensured, the transaction costs appeared to be low and

the integrity of data was found to be high. (Gujarat, Andhra Pradesh (under development)). In Gujarat State the digitalization of MIS beneficiary files and records is underway which is expected to reduce the operational costs.

### **Transparency in operations**

22. Clear rules and procedures for each operation have been devised and widely publicized. (Gujarat, Andhra Pradesh, Karnataka). In Karnataka, transparency is imparted in selection of beneficiaries by maintaining seniority list through standardized procedures and practices. In Gujarat State the progress of sanction procedure is made available on-line through the internet to all stake holders including the beneficiary and suppliers. Similarly effective implementation strategy based on clearly defined procedures and time-limits for sanction and implementation (Andhra Pradesh, Gujarat, and Karnataka) also enhanced transparency. In Karnataka, Hobli level single-window forum have been created to address farmers' grievances. The adalat at hobli level which acts as a forum to address the grievances of farmers is reportedly gaining popularity in the State.

### **Effective Checks and Balances**

23. Zero level misutilization of subsidy funds ensured through hierarchical layers of checks and balances e.g. third party inspection, audit of third party, structured surveillance by IA, standalone monitoring and evaluation Consultant for yearly field monitoring study. (Andhra Pradesh, Gujarat).

### **Innovative package**

24. In the states of Andhra Pradesh and Gujarat insurance of equipment and beneficiary, agronomical supports services in post-implementation period and hand-holding for bank finance are integral parts of the innovative package put in effective operation. (Gujarat, Andhra Pradesh)

### **Toll free Telephone Facility:**

25. A Toll Free Number has been provided for enabling the farmers to directly contact the project authorities at the district level for any assistance / complaint about the micro irrigation system. (Andhra Pradesh, Gujarat).

### **Resource Centers:**

26. In Andhra Pradesh 112 Resource Centers have been opened at the mandal level over the past one and half years to provide service to the farmers under the State Horticulture Mission and micro irrigation programme. Horticulture Officer and Field Assistants of the Horticulture Department and MI Area Officers of the APMIP man the resource centers. The resource center is expected to provide advisory / training services to the farmers on micro irrigation system and extension services. The farmers can purchase some of the spare parts required for the micro irrigation systems from the resource centers.

### **Para professional workers:**

27. In Andhra Pradesh and Gujarat attempts are being made to create a pool of para professional workers at the village level for attending to the maintenance of MI systems. Local youth are selected from the villages and are provided training on micro irrigation systems with the help of MI companies, KVKs, Agriculture Universities etc. After training, these youth can provide services to the farmers by charging fee from them. In Gujarat focus is placed on training ST youth with twin objectives of promoting MI in tribal areas and creating self employment opportunities.

### **Convergence with other Government programmes:**

28. Most State Governments have developed convergence mechanism under which linkages have been established with other government programmes such as NREGA, Comprehensive Land Development Programme, SC / ST Development Corporations, and State Horticulture Mission etc.

### **Priority Connection of Electricity:**

29. In Orissa, Punjab and Gujarat the scheme enables the beneficiary farmer to get electricity connection from the State Electricity Department on a priority based on a certificate supplied by the IA recommending for the same. This is an additional benefit of the scheme to the beneficiary farmers and works as an incentive for them. In Orissa, Biju Jyoti Yojana has been evolved for quick electrification of dugwell / Private LI Points etc. The Government of Gujarat has envisaged innovative schemes for providing preferential power connection to those farmers who have installed MI Systems through GGRCL. These Schemes are named GUVNL – 2000, GUVNL – Tribal Area, GUVNL PDC/RC.

### **Discrimination in favour of SC/ST Farmers**

30. In MP State Government discriminates by providing higher level of subsidy for SC/ST farmers i.e. 40 percent State share in system cost in favour of SC/ST against 30 percent for other farmers. Similarly in Gujarat State the subsidy to ST farmers is provided at 70 percent of the cost of investment against the general subsidy level of 50 percent.

### **Labeling of Equipment – Assurance of quality**

31. In AP the supply firms are required to emboss ‘Made for APMIP’ on the components supplied by them and standing arrangements have been put in place for periodic quality testing of equipment by CIPET. Similar steps are under way in Gujarat State.

### **Fiscal Incentives:**

32. In Karnataka 4 percent VAT is included in the unit cost for subsidy eligibility. There are proposals for payment of 4 percent VAT by the GOAP (subject to changes made by GOI) on behalf of the beneficiary farmer. The Karnataka and AP Governments have exempted stamp duty on all documents for availing loan for MI.

### **Easing of Procedures**

33. Karnataka Government has provided for Notarized lease agreement instead of registered lease agreement for tenant farmers with the objective to encourage micro irrigation facilities to share croppers.

### **Micro Irrigation led agriculture development approach**

34. MI has been placed at the center of the policy for most of the State Government Programmes e.g. Comprehensive Land Development Programme (CLDP), SHM, NREGS, SC/ST Corporation

### **Objective and Consultative Unit-Cost Revision Methodology**

35. Effective unit cost revision systems have been evolved on State Government initiatives in Andhra Pradesh, Gujarat, Punjab and Madhya Pradesh. In revision of unit cost of MI Systems the GGRC in Gujarat and APMIP in Andhra Pradesh consider cost escalation in cost of MI components, secondary transportation and Installation Expenses (Skilled and unskilled manpower cost) separately. The revised unit cost is the sum of the revised unit cost of materials used, components used, secondary transportation

and installation expenses. The methodology is made known to stakeholders. Water Storage Sump has also been incorporated in the Scheme in Gujarat State. In Punjab state, a supporting scheme for irrigation water storage in canal irrigation areas has been launched.

### **Convergence with major irrigation schemes**

36. In Gujarat State the State Government has taken initiative for inclusion of MIS in SSNNL canal command area as Pilot Project. Installation of drip irrigation / sprinkler irrigation system is proposed to be made compulsory under the scheme in the command area of the major irrigation project.

### **Interactive Dedicated Website**

37. GGRCL Web-site is dedicated site with URL [www.ggrc.co.in](http://www.ggrc.co.in) . The website is unique amongst all the Implementing Agencies in the Country. The main features of the web-site are following:

- Application Forms are available for download
- Provides Link for expert advice – advice available on day to day basis through e-mail
- Provides success stories
- Provides introduction to Technology and downloadable literature in vernacular language
- Farmers, suppliers and other stakeholders can directly enter to find out progress of their applications or status
- Transparency through on-line MIS available to Public
- Policies and Procedures made public through the website

### **Operational constraints / procedural deficiencies**

#### **Lack of Bank finance for MIS emerging as a hurdle in up scaling**

38. The study revealed that the arrangements for institutional credit at grassroots level was abysmally lacking in all the states studied and further growth would depend on bank arrangements. It is found that the Commercial Banks, Regional Rural Banks as well as Cooperative Banks were shy towards financing MIS. In AP the percentage of area covered by bank loan declined from 14 percent during 2005-06 to 2.8 percent during the year 2007-08 and 0.1 percent in the current year (2008-09, up to January 2009). Similarly in Gujarat the percentage coverage of bank financed MIS systems fell down from 52 percent in 05-06 to 12 percent in 08-09. On the other hand in the states of MP, Punjab, Orissa, and Karnataka the bank finance supported MIS were found to be negligible. The study found that lack of coordination at

BLBC and DCC level, lack of branch-wise credit planning for MI and loose role of grassroots level bankers in implementation process were the main reasons for the malady.

### **Systemic delay in release of funds for subsidy by States**

39. Although the GoI funds are directly credited in the accounts of the DMICs in the beginning of the year, it was revealed that the state's share of the funds was being released at the end of the financial year for example in Orissa, Karnataka, and Punjab. In certain states the size of state support for MIS was not clear in the beginning of the year e.g. Karnataka. In states like Karnataka this resulted in inordinate delays in disbursement of subsidies. The study revealed that in the matter of release of subsidy 52 percent of sample farmers experienced delay of more than one year and 29 percent reported time lag of six months to one year in Karnataka. As the Scheme is characterized by back ended subsidy the delays increased cost of beneficiaries on the one hand and constrained the capacity of the equipment suppliers on the other hand while keeping the CSS Funds idle for long duration. Similar problems, although at different levels, with state's share of the subsidy were reported in Punjab, Madhya Pradesh and Orissa States also.

### **Unit Cost**

40. While the CSSMIS was planned in 2005-06, the CSS share was based on the 2005-06 prices of the systems. Some State Governments have taken initiative and have evolved own mechanism for periodic revision of unit cost, e.g. Guajrat, Andhra Pradesh and Punjab. However in some states the unit cost have remain unchanged and become unrealistic e.g. Karnataka. The subsidy was fixed on 1st July 2006 in Karnataka and remains unrevised since then. Even in Kolar and Bijapur Districts where subsidy is stipulated at 100 percent of the cost, in reality the subsidy amounted to only 41.91 percent of the actual cost due to unrealistic unit cost.

### **Planning and Implementation of the scheme is top-down and target oriented**

41. The CSS was being implemented in a top-down and target oriented manner in all the sample states. The targets were trend based and not linked to potential. At the grassroots level the focus of the functionaries was on disbursement of the subsidy and monitoring of the utilization of the same. Micro Irrigation was seen as an end by the IAs and sustainable agriculture development issues were found to be passive.

## **Convergence with Other Developmental Initiatives**

42. Although a very high level of convergence with the NHM was observed in all the sample states but the convergence and coordination across other departments / schemes was found to be generally lacking. The state's initiatives for watershed development, community minor irrigation schemes, other subsidized minor irrigation schemes, poverty alleviation schemes etc did not consider water use efficiency in public investments. In the programme the role of other stake-holders e.g. Agriculture Department, Minor Irrigation Department, Ground Water Board, Watershed development, wastelands development, KVKs etc depicted lack of ownership and commitment. The centrally sponsored scheme for artificial recharge of ground water and rain water harvesting in over exploited/critical watersheds, drought prone areas and areas affected by inland salinity in which ground water recharge was the major objective also did not depict convergence with CSSMIS at operational level.

## **Extension Support**

43. Extension support including demonstrations as also attempts to increase the outreach and coverage of the schemes were generally found to be not adequate across all the sample states. The density of demonstrations was found to be insignificant. Capacity of the PFDCs in providing training to farmers and Officials was found to be limited to about 1000 farmers and Officials per annum.
44. Excessive dependence was placed in most of the states on the equipment suppliers for education, motivation, hand-holding for documentation, post-extension, training, exposure etc. of the beneficiaries. The Implementing Agencies across the sample states depicted general lack of strategic approach to penetrate new potential areas.

## **Role of Panchayati Raj Institutions**

45. The role of PRIs in planning, implementation and monitoring of the CSSMIS was either lacking or token across all the sample states.

## **Excessive documentation**

46. In all up to 14 documents were required to be arranged by individual beneficiaries for self finance and about 18 for bank finance which was discouraging and also increased the transaction cost of illiterate farmers.

