

Constraints Perceived by the Stakeholders in Planning and Implementing Development Projects : Environmental Concerns in Rice Farming

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ABSTRACT

Rice fields have high ecological significance and are one of the highly fragile wetland eco-system. Success of any sustainable agriculture development effort is based on the stakeholders' concern for environment which in fact turns out to be a pre-requisite for eco-friendly rice farming. As part of decentralization process large tracts of rice fields were brought under the control of Padashekarasamithis who were involved in planning at the grass roots. Considering the threats of intensive farming in rice, this study delineates the constraints faced by the stakeholders of rice farming in planning and implementing development projects addressing environmental concerns under decentralized planning. A total of 160 respondents belonging to the four categories; farmers, agricultural labourers, extension personnel and people's representatives/social activists constituted the sample of this study. A direct survey approach along with focus group discussions (FGDs) were adopted for recording the primary data from the respondents at the field level. The respondents were asked to assign first rank to the item, which they considered as the most serious constraint and a score value was assigned. The frequencies of the stakeholders ranking each constraints were found out and multiplied with the corresponding score value. It was evident from the study that the major constraint in the planning stage was that the padashekarasamithi was merely looked upon as a supplier of inputs provided by krishi bhavans and thereby ignored its crucial role in sustainable development of the group farms. Labour unavailability was found to be the foremost constraint in the implementation phase.

Key words: *Constraints; Decentralized planning; Eco-friendly rice farming; Padashekarasamithi;*

Rice is an integral part of our culture, which is deeply ingrained in our mindset that gets reflected in our deeds and needs. Rice, being the second largest consumed cereal, feeds over half the world's population and meets 80 percent of their calorie requirements. Approximately three-quarters of a billion of the world's poorest people depend on this staple to survive (Maclean and Hettel, 2006). Four-fifth of the world's rice is grown by small-scale farmers in low income countries. Rice based production systems and their associated post-harvest operations employ one billion people in the rural areas of developing countries (Misra, 2010). Rice fields have high ecological significance as they have an imminent role in conserving water, stabilizing ground water table, preventing floods and

maintaining the microclimate of an area. Moreover, they provide shelter to diverse flora and fauna. In case of rice, which is a highly fragile wetland eco-system, the impacts of high external input farming are prominent and far-reaching. So according to Swaminathan (2006) our goal should be to achieve an "ever-green revolution" in rice, which could improve productivity in perpetuity without associated ecological harm so that there is not only adequate rice in the market but also happiness on the faces of both farmers and consumers.

Kerala is unique with the presence of vast tracts of wetlands, which is a precious natural resource in the context of maintaining eco-system balance and conserving biodiversity. Wetlands of Kerala are mainly used for growing paddy and prawn culture. About 3.5

lakh hectares of land is used for agriculture in the state. This accounts for nearly 50 percent of the total area under wetlands in the state [Kerala State Land Use Board (n.d.)]. Conservation of these productive wetlands therefore requires attempts to increase production and to resolve the problems of rice farmers through community participation. There had been several initiatives by the state government towards this endeavor as early as mid 1980s. Two of such programmes that had worked exceptionally well and gained international attention in harnessing group efforts in rice farming were 'group farming' and GALASA (Group Approach for Locally Adapted Sustainable Agriculture). Sustainable agricultural development is possible only through a decentralized system of development administration, where by possibilities and limitations of local areas are identified. Group and community endeavors hold the key for successful implementation of ecological farming over larger areas especially in the case of rice farming. Eco-friendly farming systems and techniques have been developed on the basis of a holistic view of human beings' existence within the biosphere and the awareness of their dependence on scarce natural resources. According to *Ribot (2004)* democratization and decentralization have resulted in creation of wider opportunities for people's participation in governance and, also in exercising control over natural resources. Many developing countries including India have made efforts to devolve Natural Resources Management (NRM) functions to local self-governments, as a part of the process of institutional reforms. As part of this decentralization process large tracts of rice fields were brought under the control of *Padashekarasamithis* who were involved in the planning at the grass roots.

In Kerala "farming" was used as a synonym of rice cultivation in the past. Rice farming was indispensable production endeavor, which had influenced the lives of every individual in the society under feudal agrarian relations. Haystacks in front of a house were then considered to be the symbol of prosperity. Moreover, rice fields played a very important role in the maintenance of eco-system balance and climate of the state. As the state is blessed with adequate rainfall with an average of 2600 mm a year (*Kerala Agricultural University, 2007*) and as rice is a crop that requires water throughout the season, it is very much

suitable to the climatic conditions of Kerala. But, it is an astounding and distressing fact that the state has been designated as a 'statutory ration state' (*Mathew, 1999*) producing only about 15 per cent of its requirement in 2008, compared to 45 per cent in 1951 (*Nair, 2008*). Agriculture, especially rice farming has been sidelined in the process of development and large tracts of rice fields have been converted for building better infrastructure in the state. The cropping pattern in Kerala too had undergone major changes in the past four decades. During 1960-61 rice was the most extensive crop occupying 7.79 million hectares and the next in importance was coconut, which occupied 5.01 million hectares. Between 1975-76 to 1995-96, there was a rapid decline in the area of food crops, especially rice. However during this period there was a substantial increase in the area under coconut, rubber and pepper. Total rice area in Kerala has declined from 7.79 lakh hectares in 1960-61 to 1.99 lakh hectares in 2013-14 and the production has declined from 10.5 lakh tones in 1960-61 to 5.6 lakh tones in 2013-14 consequent to various factors. On comparing the statistics with 2001-02, 38% paddy area has decreased till 2013-14 and there has been a 20% reduction in production during this period (*State Planning Board, 2014*).

Success of any sustainable agriculture development effort is based on the stakeholders' concern for environment which in fact turns out to be a pre-requisite for eco-friendly rice farming. It involves lot of hardships on the part of the farmers to make sustainability in rice farming a reality. There have been many studies in this direction. *Chizari et al. (2000)* showed that major barriers hampering adoption of sustainable agricultural practice included little financial returns for farmers, low farmers knowledge with respect to sustainable agriculture, low levels of farmers' education, government rules and regulations, problems with soil erosion, lack of water and low extension workers knowledge with respect to sustainable agriculture. But according to *De Buck et al. (2001)* farmer's perception of production risks was the major barrier in adopting sustainable practices. In addition, they revealed that market situations, political situations, and personal conditions were farmer's reasons for changing or not changing to more sustainable practices in arable farming.

Considering the threats of intensive farming in rice, it is important to understand in detail, the constraints

faced by the stakeholders of rice farming which include farmers, agricultural labourers, extension personnel and people's representatives/social activists in planning and implementing development projects addressing environmental concerns. The study would also help delineate the constraints perceived by various stakeholders in eco-friendly rice production, which would guide the policy planners, and administrators to resolve these issues based on real life situations. This would revitalize and enhance the attempts of all community based organizations, including *padashekarasamithis* for popularizing large-scale eco-friendly rice cultivation in the state. This study will also be an eye-opener towards the functioning of *padashekarasamithis* and grass root planning for agriculture sector.

METHODOLOGY

The research was undertaken in the state of Kerala, India. Palakkad district was selected purposively as the district accounts for about 1/3rd of the total area under rice cultivation of Kerala state and has all the agro-socio-economic conditions suited for paddy cultivation. The district lies between 10°21' and 11°14' North latitude and 76°02' and 76°54' East longitude. The total geographical area of Palakkad district is 4480 sq.kms. representing 11.53 per cent of the state's geographical area. The cultivated area of rice in Palakkad and Kerala during 2015-16 was 81120 ha and 196870 ha respectively. Palakkad district is known as "Granary of Kerala" as the district has 41.5% of the total paddy area of the state and is also the major rice-producing (228459 MT) tract in the state (*Directorate of Economics and Statistics, 2016*). Topographically the district can be divided into two regions, the low land and the high land formed by the hilly portion. The soil is laterite in the hill and mid regions. Mid land is thick with coconut, arecanut, cashew, pepper, rubber and paddy cultivation. The most important river in the district is the Bharathapuzha. The seven tributaries of the river are flowing through the district. The district has a humid climate with a very hot season extending from March to June in the western part of the district whereas it is less humid in the eastern sector. About 75% of the annual rain is received during the southwest monsoon period. The temperature of the district ranges from 20° C to 45° C. There are three types of soil (1) laterite soil seen in Ottappalam, Alathur, Chittur and Palakkad taluks

(2) virgin forest soil of Mannarkkad taluk and (3) black soil in Chittur and Attappady valley which is used for the cultivation of cotton. Coconut and other oil seeds occupy a prominent position among the crops and is one of the major sources of income to the cultivators. The climate in the district is suitable for the cultivation of horticultural crops such as mango, jackfruit and papaya. Plantation crops such as rubber, tea and coffee are planted in a big way in midland and highland regions.

There are 13 block panchayats in Palakkad district. Of these, four predominantly rice growing blocks viz. Kollengode, Kuzhalmannam, Chittur and Alathur were purposively selected with the highest net rice area. Thekkinchira, Nelliancaud, Manchira and Kolapadam padashekarams were randomly selected from Kollengode, Kuzhalmannam, Nalleppilly and Erimayur Grama Panchayats respectively. Ten beneficiary farmers were randomly selected from each padashekaram. Likewise ten each of agricultural labourers, people's representatives/social activists in the same padashekaram were selected randomly for the study. Thus a total of 40 beneficiary farmers, 40 agricultural labourers and 40 people's representatives/social activists were selected from the study area. In addition to those included in the selected projects / padashekarams, extension functionaries (agricultural officers and agricultural assistants) from other regions of the district were also randomly selected, so as to make a sample size of 40. Thus a total of 160 respondents belonging to the four categories constituted the sample of this study. A direct survey approach along with focus group discussions (FGDs) was adopted for recording the primary data from the respondents at the field level based on ex-post facto design. One of the specific objectives of the study was to identify the constraints perceived by the stakeholders in planning and implementing development projects that address environmental concerns in rice farming. After FGDs with a cross-section of stakeholders, pilot study and review of relevant literature, constraints perceived by the stakeholders at planning and implementation stages were identified and listed out. Number of constraints identified in the planning stage was 17 and for implementation stage it was 18.

The respondents were asked to assign first rank to the item, which they considered as the most serious constraint. Scores of 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2 and 1 were given to ranks I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XII, XIII, XIV, XV, XVI and

XVII respectively for planning and in the implementation stage the scoring started from 18. Zero score was given for constraints, which were not ranked by the respondents. The frequencies of the stakeholders ranking each constraints in each rank were found out and multiplied with the corresponding score value. The constraints with the highest score value was considered as the most serious one followed by others in the order of decreasing score values.

RESULTS AND DISCUSSION

The constraints according to their severity in the planning and implementation stages of the development projects in eco-friendly rice farming as perceived by stakeholders are presented in Table 1 and 2.

Constraints perceived by the farmers : As revealed by the ranking of the constraints based on their severity as perceived by the farmers, it is evident that the *padashekarasamithi* was looked upon as a supplier of inputs provided by *krishi bhavans* and thereby ignored its crucial role in sustainable development of *padashekaram*. Lack of interest of the members in

the *samithi* activities stood as the major constraints perceived by the farmer respondents. Most of the farmers considered *padashekarasamithi* as a supplier of inputs from *krishi bhavans* like subsidies, manure and fertilizers, bio control agents and other plant protection inputs. Majority of the members were not interested in the *samithi* activities, and their participation was found to be very low. All the responsibility of running the *samithi* was bestowed with the president and secretary. The next two constraints were associated with the former ones and they were lack of proper planning by the *samithis* and lack of co-ordination among its members. There is no proper planning in majority of the *samithis* on the technologies to be adopted. The *samithis* convene meeting primarily to discuss on the supply of inputs, bonus and subsidies from *krishi bhavans* and nowhere in this, cultivation practices or technologies were discussed. Lack of interest results in lack of co-ordination among the members, which was another limiting factor in the planning stages of development projects in rice farming. Lack of consensus among the members on the technologies to be adopted

Table 1. Constraints perceived by the stakeholders in the planning stage of development projects in rice farming

| Constraints | Farmers | | Extension personnel | | People’s rep./ social activists | |
|--|---------|------|---------------------|------|---------------------------------|------|
| | OS | Rank | OS | Rank | OS | Rank |
| Planning Stage | | | | | | |
| Lack of co-ordination among the members of <i>padashekarasamithi</i> | 576 | 4 | 560 | 1 | 568 | 4 |
| Lack of proper planning by the <i>padashekarasamithis</i> on the techniques to be adopted in eco-friendly rice farming | 580 | 3 | 528 | 2 | 604 | 2 |
| Inadequate number of meetings | 428 | 7 | 424 | 7 | 396 | 7 |
| Low attendance of members in the meetings of <i>padashekarasamithi</i> | 507 | 6 | 500 | 4 | 484 | 6 |
| Lack of interest of members in <i>padashekarasamithi</i> activities | 607 | 2 | 524 | 3 | 600 | 3 |
| <i>Padashekarasamithi</i> is looked upon as a supplier of inputs given by Krishi Bhavan. | 628 | 1 | 452 | 5 | 612 | 1 |
| Lack of consensus among the members on the technologies to be adopted | 540 | 5 | 440 | 6 | 564 | 5 |
| Longer distance to the venue of meetings | 49 | 15 | 197 | 14 | 20 | 17 |
| Inconvenient timing of meetings | 32 | 16 | 211 | 13 | 28 | 15 |
| Personal conflicts among the members | 164 | 13 | 227 | 12 | 192 | 13 |
| Political interventions leading to conflicts | 177 | 12 | 352 | 9 | 127 | 14 |
| Lack of effective leadership in coordinating the meetings and planning the activities | 149 | 14 | 392 | 8 | 258 | 11 |
| Lack of proper documentation of the decisions taken in the meetings | 7 | 17 | 256 | 10 | 24 | 16 |
| Lack of extension support / technical guidance | 363 | 8 | 244 | 11 | 362 | 9 |
| Lack of financial support | 245 | 11 | 127 | 16 | 213 | 12 |
| Lack of women participation in <i>padashekarasamithi</i> activities | 332 | 9 | 127 | 16 | 364 | 8 |
| Inadequate role of women in decision making | 305 | 10 | 140 | 15 | 324 | 10 |

OS=Observed score

Table 2. Constraints perceived by the stakeholders in the implementation stage of development projects in rice farming

| Constraints | Farmers | | Agril. labourers | | Extn. personnel | | People's rep/ social activists | |
|--|---------|------|------------------|------|-----------------|------|--------------------------------|-------|
| | OS | Rank | OS | Rank | OS | Rank | OS | Ranki |
| <i>Implementation stage</i> | | | | | | | | |
| Labour unavailability | 720 | 1 | 720 | 1 | 712 | 1 | 700 | 1 |
| Lack of availability of eco-friendly inputs on time | 449 | 8 | 444 | 9 | 408 | 4 | 472 | 8 |
| Lack of availability of adequate quantity of eco-friendly inputs | 480 | 6 | 476 | 7 | 345 | 6 | 504 | 6 |
| Lack of availability of adequate fund on time | 143 | 16 | 92 | 16 | 416 | 3 | 172 | 16 |
| Higher transportation cost | 404 | 9 | 354 | 10 | 337 | 7 | 317 | 10 |
| Difficulty in handling and application of eco-friendly inputs | 237 | 13 | 504 | 6 | 259 | 8 | 290 | 12 |
| Difficulty in storage of bulky eco-friendly inputs | 16 | 18 | 17 | 18 | 184 | 11 | 18 | 18 |
| Low storage life of eco-friendly inputs | 167 | 15 | 244 | 13 | 137 | 17 | 188 | 15 |
| Lack of good quality, certified organic inputs in the market | 561 | 3 | 592 | 3 | 588 | 2 | 572 | 3 |
| Lack of knowledge on eco-friendly techniques | 523 | 4 | 676 | 2 | 391 | 5 | 532 | 4 |
| Problems in marketing of organic rice due to difficulty in getting it certified | 639 | 2 | 532 | 5 | 166 | 13 | 596 | 2 |
| Higher cost of eco-friendly inputs | 472 | 7 | 552 | 4 | 136 | 18 | 484 | 7 |
| Low yield compared to inorganic farming in the first few years of practicing organic farming | 500 | 5 | 468 | 8 | 172 | 12 | 528 | 5 |
| Results are not visible immediately as in the case of inorganic inputs | 267 | 11 | 298 | 11 | 189 | 10 | 284 | 13 |
| Unfavourable stance towards eco-friendly cultivation | 197 | 14 | 288 | 12 | 144 | 16 | 374 | 9 |
| Lack of proper extension strategies in supporting eco-friendly cultivation in rice | 257 | 12 | 227 | 14 | 152 | 15 | 273 | 14 |
| Lack of involvement of some members during the implementation stage | 353 | 10 | 216 | 15 | 164 | 14 | 297 | 11 |
| Lack of leadership in effective management of the group. | 128 | 17 | 78 | 17 | 214 | 9 | 138 | 17 |

OS=Observed score

resulted from the lack of co-ordination among its members. Low attendance of the members in the meetings, which might be attributed to their lack of interest, was one of the major constraints in the effective planning of the activities of *padashekarasamithi*. Interestingly, it was reported that all the members were usually present only on the day of distribution of bonus and subsidies. The other two major constraints were inadequate number of meetings and lack of extension support or technical guidance on eco-friendly technologies. Women participation was also not found effective in *padashekarasamithis* as their participation in decision-making was very low. Women membership in the *samithi* was less and this was due to the fact that the land ownership in a family was mostly confined to the elder male member.

In the implementation stage of the development projects on eco-friendly rice farming, the major constraint perceived was the labour unavailability. As eco-friendly farming is labour intensive and as there was extensive

out- migration of agricultural labourers, the farmers found it very difficult to implement eco-friendly technologies in rice. The next major constraint perceived by them was the problem in marketing of organic rice due to difficulty in getting it certified. The cumbersome procedures and formalities and the high investment involved in certification made it a difficult option for the farmers. As rice is a crop grown in an extensive area with a common irrigation system, for getting it certified, organic cultivation has to be adopted on a *padashekaram* basis, for which the consent of every member had to be sought which was found to be practically difficult.

Lack of availability of good quality, certified organic inputs in the market was yet another important constraint. The organic inputs available in the market under different names and companies were not certified and checked for quality. Many a time the farmers were cheated with spurious products. There was no quality control mechanism for organic inputs at the grass root level.

The other major constraints were lack of knowledge on eco-friendly techniques, lower yield in the first few years of organic farming, lack of availability of adequate quantity of eco-friendly inputs like organic manure, organic plant protection inputs etc. and its higher cost as per their decreasing order of importance. This is in accordance with the study conducted on adoption of Integrated Pest Management (IPM) practices by *Sumathi and Alagesan (2000)* who found that less than 50.00 per cent of the respondents expressed lack of adequate knowledge on predators and parasites and high cost of labour as the major problems. Lack of knowledge on NPV usage, high cost of pesticides and lack of knowledge on Economic Threshold Level of the different pests were reported by the respondents as the major problems in the level of adoption of IPM practices.

Constraints perceived by the agricultural labourers: As labourers were nowhere involved in the planning stage of development of projects in *padashekarams* they were not able to perceive the constraints in that stage and hence planning stage were not included in the questionnaire for labourers. Table 2 reveals agricultural labourer's perception of constraints in the implementation of development projects on eco-friendly rice farming. Labour unavailability was the major constraint in the implementation stage as perceived by the labourers themselves. They agree that most of the agricultural labourers are migrating to other places or non-agricultural jobs like construction sector as they are highly paid compared to agricultural labourers. Lack of knowledge was the next major constraint, as most of the labourers had not attended any training programmes on eco-friendly cultivation. Majority of them reported that no agencies provided any kind of training for labourers though they are the ones directly involved in cultivation. Lack of good quality, certified organic inputs in the market and higher cost of these inputs were the major constraints as perceived by the labourers. Problems in marketing of organic rice, difficulty in handling and application of inputs and lack of availability of adequate quantity of eco-friendly inputs were perceived to be the other major limiting factors in the implementation of eco-friendly cultivation practices.

Constraints perceived by the extension personnel: It is evident from Table 1 that lack of co-ordination among the members of *padashekarasamithi* and their lack of planning on the technologies to be adopted in eco-friendly

rice farming stood as the most important constraints perceived by the extension personnel. The lack of interest of members in the *samithi* activities and low attendance of the members due to lack of interest were also perceived as serious constraints. Another major problem as perceived by this group of stakeholders was that farmers looked upon the *samithi* as an input supplier from the department. Lack of consensus among the farmers was posing serious threats to the smooth planning of the *samithi*. The other constraints were inadequate number of meetings, lack of effective leadership, political interventions leading to factions and conflicts and lack of proper recording of the decisions taken at the meetings.

It is obvious from Table 2 that the most important constraint perceived by the extension personnel in the implementation stage was the labour unavailability followed by lack of good quality, certified organic inputs in the market. Lack of availability of adequate fund on time was rated the next major constraint followed by the lack of availability of eco-friendly inputs on time. Lack of availability of adequate quantity of eco-friendly inputs was also found affecting the implementation of eco-friendly cultivation. Higher transportation cost that claimed difficulty in handling and application of eco-friendly inputs, lack of leadership in effective management of the group and difficulty in convincing the farmers, as the results were not visible immediately unlike inorganic inputs were the other major constraints faced by them in the implementation stage.

Constraints perceived by People's representatives / social activists: Table 1 reveals that the major constraint perceived by the people's representatives/social activists in the planning stage is that the farmers looked upon *padashekarasamithi* as an input supplier of *krishi bhavans*. Lack of proper planning by the *samithis* on the technologies to be adopted and lack of interest of the *samithi* members in the *padashekaram* activities were some of the important constraints in the planning stage. Lack of co-ordination among the members of *padashekarasamithi* and lack of consensus were the subsequent constraints. Low attendance of the members in the meetings and inadequate meetings were other restrictive factors in the smooth planning, which may be attributed to lack of interest and co-ordination among the members. Lack of women participation, lack of extension support/

technical guidance and inadequate role of women in decision making were some of the added constraints in the planning stage of development project on eco-friendly rice farming in order of decreasing importance, as perceived by people's representatives/social activists.

As in the case of the farmers, agricultural labourers and extension personnel, the most important constraint perceived by the people's representatives/social activists in the implementation stage was also the labour unavailability. At present, one of the major constraints faced by the agriculture sector is the labour problem. Most of the labourers here are migrated labourers from other states. The unemployed youth of Kerala are not willing to take up jobs in the farming sector as it is perceived as a low status job by the society. Moreover they were highly paid in other jobs especially in the construction sector. Problems in marketing organic rice due to the difficulty in getting it certified and lack of good quality certified organic inputs were some of the important factors hindering the implementation of eco-friendly rice cultivation. Lack of knowledge on eco-friendly techniques and low yield compared to inorganic farming in the first few years were also perceived to be the important constraints. Other two major limiting factors as perceived by the people's representatives/social activists were lack of availability of the required quantity of eco-friendly inputs and the unfavorable attitude of the farmers towards eco-friendly practices, which pose serious threats in eco-friendly rice cultivation. One of the major shares in the input cost was the higher transportation cost and this was also perceived to be a major restraint.

In general the major constraints perceived by most of the stakeholders in the planning stage of development projects in rice farming are (i) & (ii) Lack of co-ordination and interest among the members of *padashekarasamithi*, (iii) Lack of proper planning by the *padashekarasamithis* on the techniques to be adopted in eco-friendly rice farming (iv) *Padashekarasamithi* was looked upon as a supplier of inputs given by *Krishi Bhavan* and (v) Lack of consensus among the members on the technologies to be adopted. The major constraints identified by the stakeholders in implementation of eco friendly methods in rice cultivation which includes the perception of agricultural labourers too are (i) Labour unavailability (ii) Lack of good quality, certified organic inputs in the market (iii) Lack of knowledge on eco-friendly

techniques (iv) Problems in marketing of organic rice due to difficulty in getting it certified (v) Low yield compared to inorganic farming in the first few years of practicing organic farming. *Muthuraman and Sain (2006)* in their study too found that the important constraints faced by the sample farmers in the adoption of IPM technology were the market factors, innumerable components of rice IPM, influence of para-extension, lack of knowledge on natural enemies and economic threshold level of major insect pests and diseases, non availability of bio pesticides and pheromone traps, absence of community action and poor extension facilities to popularize IPM. The study conducted by *Ponnusamy (2007)* that reported heavy investment in the initial stage, lack of marketing for the produces from different enterprises, labour unavailability and its high cost and lack of infrastructure in addition to scattered land holdings of farmers as the major constraints in adoption of Integrated Farming System further justifies the observations. He also observed marketing problems, input related problems, natural calamities, lack of government support, labour, pest and disease occurrence, lack of infrastructure facilities, financial difficulties, non-reclamation of water bodies as the major constraints in a crop production system in the order of their importance. *Ahmadvand (2008)* revealed that little financial return to farmers, low extension workers knowledge, low farmers knowledge with respect to sustainable agriculture and low levels of farmers' education were the major barriers in adoption of sustainable agriculture which justifies certain constraints in the study.

CONCLUSION

Fragmented, small and marginal farm holdings, common water management system, marketing of small quantity of products etc makes eco-friendly farming in rice impossible at the individual farmer level. Group farming had shown the way to tackle most of these problems. But lack of co-ordination and interest among the members of *padashekarasamithi*, lack of proper planning by the *padashekarasamithis* on the techniques to be adopted in eco-friendly rice farming and considering *Padashekarasamithi* as a mere supplier of inputs given by *Krishi Bhavan* were found to be the major constraints in planning phase of this grass root institution. The major constraints identified in the implementation phase that included the perception of agricultural labourers too were labour unavailability, lack

of good quality, certified organic inputs in the market, lack of knowledge on eco-friendly techniques, problems in marketing of organic rice due to difficulty in getting it certified, low yield compared to inorganic farming in the first few years of practicing organic farming. There is high need to strengthen the grass root initiatives like the *Padashekarasamithi* in rice farming and support them in their attempts to bring in sustainability in rice farming as the future of rice cultivation now lies in group approach alone in the state. Agriculture Department and the Local Self Governments should take the role of facilitators in this matter. Technical and leadership trainings may be provided to its members in effectively bringing together the group as a team and coordinating

activities of the *samithi*. Timely supply of quality inputs, regular inspection for spurious organic inputs in the market and imparting technical know-how is also very important in keeping the morale of the groups who have come forward to adopt eco-friendly rice farming. Labour banks have to be established for tackling the issue of labour unavailability in rice farming. Certification for Good Agricultural Practices has to be made more accessible and feasible to farmer groups that helps them in better marketing. From the list it is apparent that there is still a long way to tread in curtailing the constraint faced in eco friendly farming. But initiatives at the grass root level are imperative in making sustainability a reality in agriculture sector.

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