RUAF – ***Cities Farming for the Future*** **(RUAF-CFF)**

PILOT PROJECT
On
Strengthening Magadi Peri Urban Farmer Groups on Ecological Agriculture through Farmer Field Schools (FFS)

Contract 3: PO No. 450004743

BANGALORE CITY
April –Dec 2008

Draft Final Report

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FOUNDATION

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Preamble

Like any other city, Bangalore is growing, in fact more rapidly than many other cities, both in terms of population and prosperity. As in most of the developing economies, the agricultural interest in peri-urban areas is shrinking resulting in increased migration to cities. On one hand, while the food needs are growing, the production and supply systems around the city are shrinking. Global food crisis, fuel crisis, climate change, growing social inequities, urban poverty, health and hygiene are adding to the complexity.

There are several ways these problems are being addressed and tackled, for instance, investments in infrastructure, better governing mechanisms and creative participatory solutions. We are focusing on an approach which we feel is being planned but to a limited extent only.

An approach, which would focus on strengthening peri urban production systems, recycling wastes for productive use, strengthening peri-urban farming communities and exploring gainful employment for urban poor communities. Therefore, we are focusing on giving attention to **Urban horticulture and Peri Urban agriculture**.

The overall thrust of the Bangalore programme is towards creating synergies among various stakeholders as well as illustrating feasibility of the 'ideas' through pilot projects towards

- enhancing agricultural interest and opportunities for those in the peri-urban areas so as to enable them to make a reasonable living;
- to help them grow healthy produce for self consumption as well as for potential urban consumers;
- to utilize the waste being generated in these areas productively in agriculture in those areas itself;
- though in a limited way, strengthen healthy habits in the citizens in the city to grow healthy pesticide free vegetables in the limited spaces they have, may be, as a hobby;
- Helping those urban poor to get gainfully employed in pursuits which would support maintenance of green spaces.

The draft report focuses on the pilot projects conceived and implemented by AME Foundation in partnership with regional and global partners – IWMI, Hyderabad and RUAF – Netherlands.

Genesis

The genesis of the project dates back to informal discussions with Henk de Zeuw of RUAF (in 2003) and Ms Gatyathri Devi representing IWMI (in 2005). AME Foundation with 25 years of experience in promoting ecological agriculture with resource poor farming communities was formally identified to be the focal point in Bangalore. An informal meeting of potential stakeholders of the project was organized in April 2006. In September 2006, an inception meeting was organized to which all dignitaries, social activists, Department heads, NGOs and few resident associations were invited. Presentations on preliminary survey findings were presented regarding focus areas as well as potential strategies. Thus, Magadi was identified as a potential area for strengthening peri urban agriculture and residential areas like Banashankari, JP Nagar as a startup for initiating interest in urban horticulture initiatives.

Several processes were initiated for strengthening multi-stakeholder enabling teams separately for both Bangalore city and Magadi (peri-urban area). The team met

extensively visualizing goals, identifying strategies, activities and reviewing their progress. (more than 100 meetings in one and half years in both work areas). Not satisfied with meetings and strategizing, the enabling teams for the city and Magadi were interested in 'operationalising' specific pilot projects.

Thus two pilot projects were identified beginning in the year 2008.for a duration of 9-11months),

- one focusing on strengthening peri urban agriculture initiatives around Magadi
- the other focusing on strenthening citizen's initiatives in select residential areas in the city.

1. Strengthening Magadi Peri Urban Farmer groups on ecological agriculture through Farmers field schools

The major objective was to Improving farmer livelihoods and farming opportunities. The activities included identifying villages in a radius of 5 km where agricultural interest is high, organizing farmers into groups, identifying their needs through PRA's, widening their insights and options through Study tours. Most importantly, various stakeholders have been involved in diverse roles (farming communities), the departments, TMC officials, NGOs.

AME Foundation has been conducting season long Farmer Field Schools with the farmer groups – a participatory learning methodology well known worldwide for its focus on experiential learning, self and discovery learning and group learning principles. The farmers not only learn by doing but by sharing their learning week after week for the whole season. The curriculum includes, natural resource management, eco-friendly farming approaches, integration of various farm enterprises as well as awareness on other farm related operations like processing, preparing for markets.

2. Home Gardens in the Bangalore city in select residential areas

In Bangalore city, the resident associations are focusing on identifying interested citizens on getting trained on home gardens – in their terraces, backyards and front yards. The focus is on helping the citizens to grow pesticide free vegetables in the limited spaces they have. Also, the citizens are being helped in recycling kitchen wastes as manure for their gardens.

Resident associations are identifying gardeners who can support citizen initiatives. Also, women SHG's are being trained on growing nurseries for citizens. Also, large self managed layouts are being identified and encouraged to take up these home gardens initiatives at individual level and possibly waste recycling initiatives at community level.

However limited in scale these efforts may be, we hope Bangalore city will setup new benchmarks in growing and consuming healthy foods, keeping environment clean, indirectly contributing in reducing 'food miles' and thereby negative impact on environment too. This **draft report** deals with **Pilot Project 1** entitled

"Strengthening Magadi Peri Urban Farmer groups on ecological agriculture through Farmers field schools".

1.0 Background

Bangalore is a fast growing fast like any other city with shrinking peri urban areas supplying quality food to the ever growing urban population. This growth is fuelled by escalating real estate prices, rapid rural urban migration resulting in neglect of these productive agriculture areas around the city. This is not only threatening the livelihoods of farming communities in peri urban areas struggling to make a living.Also, with weak mainstream extension mechanisms, they are struggling to find out a way out to pursue farming profitably. The conscious planners, as they are, have long back realized the need for preserving green belt area around the city, but with each review this area keeps shrinking.

When RUAF CFF program was introduced in the city, in September 2006, during the inception meeting, these problems were discussed. The way out suggested was going through a Multistakeholder Process, identifying and strengthening peri-urban agriculture around the city. This was preceded by preliminary surveys to make a choice about one select peri urban area for attention. The inception meeting attended by diverse stakeholders felt that MAGADI would be an ideal choice to strengthen farming communities towards eco-friendly farm production and consumption, recycling of solid wastes for agricultural purposes.

It is also envisaged that gradually by strengthening producer – consumer linkages for marketable surpluses, there would be increased access to better quality produce for city populations as well as shorter "food miles".

As a resource organization, the main focus of AMEF is in building capacities of the farmers in practicing ecological agriculture. The emphasis is on forging farmers groups and building capacities through Farmer Field School (FFS) methodology.

2.0 Primary objectives of the Project

- Strengthening Magadi Peri Urban Farmer groups on ecological agriculture through Farmers field school methodology.
- To build the capacity of the farmers on eco-friendly farming alternatives, group learning and better decision making through season long FFS process.

3.0 Primary activities Planned *(as per the Proposal)*

3.1 Making a preliminary survey of the area to locate potential villages and interested farming communities.
3.2 Identification of cluster with three villages and baseline survey of these villages to understand the agriculture situation.
3.3 Group formation on SHG principles mainly of women members and orientating the farmers on FFS and encouraging farm women to participate in FFS
3.4 Identification of lead farmers/local youth and building their capacities to organize FFS (in short term training of facilitators,SToF)
3.5 Organizing Curriculum Development Workshop involving farmers, scientist addressing the farming system and extension staff to develop the content for the season long FFS.
3.6 Conducting season long FFS events in 3 villages covering about 60 farmers
3.7 Building awareness on participatory Guarantee scheme (PGS) and value addition
3.8 Organizing field days in villages to spread the ecological awareness
3.9 Regular monitoring & evaluation of the programme

Table 1 Planned Time table for the Activities (As per the Proposal)

Tentative Time table

Activity	Frequency	Project period – April- December 2008
Baseline survey		April-May
PRA		April
CDW – Curriculum development workshop		April
STOF – Short term training of facilitators		April-May
FFS – Farmer Field School	Weekly/ fortnightly	April-Dec
Field day + Impact assessment vis-a vis baseline survey		Dec

Table 2 Activities Completed

Activity	Frequency	Project period – April- December 2008	Status & Month
Baseline survey		April-May	Completed in April
PRA		April	Completed in April
CDW – Curriculum development workshop		April	Completed in July
STOF – Short term training of facilitators		April-May	Completed in April
FFS – Farmer Field School	Weekly/ fortnightly	April-Dec	Will be completed by the end of Feb 2009
Field day + Impact assessment vis a-vis baseline survey		Dec	Pending

Each activity is being described in Detail in the following sections.

3.1 Preliminary survey

Preliminary surveys were carried out in the peri urban areas to identify a location around Bangalore where agricultural interest has not eroded. This was done before the inception meeting way back in 2006. The survey examined the existing agricultural and environmental context, the farming community's practices and aspirations, the officials interest in agriculture and waste management, the type of local markets. Thus, Magadi was shortlisted.

3.1.1 Magadi as the area for pilot project

During the inception meeting it was reiterated by the Bangalore stakeholders that Magadi indeed needs to be focused for strengthening production, solid waste management and gradually, the markets for the farmers produce. Subsequently, a detailed situation analysis was carried out on Magadi. All these studies and interactions pointed out that Magadi farmer groups could be guided towards eco-friendly cultivation. Also, local interest and efforts indicated possibility of recycling the waste of the town as well as their farm wastes for productive purposes in agriculture.

Following the inception meeting, several meetings were organized under the leadership of TMC chairperson of Magadi. The response was tremendous in terms of enthusiasm of various departments, SHG groups, School administrators attending and also voicing that farming communities need to be strengthened towards eco-friendly agriculture besides strengthening the mechanisms for productive use of solid waste. Based on the situation

analysis, efforts were initiated to strengthen people's participation through PRA orientation and identification of select villages and forging farmer groups.

3.1.2 About Magadi and farming communities

Magadi is a taluk 45 km west of Bangalore and comes under the newly formed Ramanagar District (prior to August 2007 it was part of Bangalore Rural District). Geographically, Magadi is situated on the Deccan Plateau and between latitude 12.58 & 12.97 degrees North and longitude 77.23 degrees East.

Magadi has a good climate owing to its average elevation of more than 900m above sea level. The maximum temperature during summer is 38°C and the minimum 12°C in winter. The average maximum and minimum temperatures are 33°C and 14°C, respectively. The average annual rainfall is 800 mm. Most of it is received between June and September from the southwest monsoon. However, the northeast monsoon also brings rain for a short period during November to December.

Magadi taluk has an undulating terrain. It has 8.0 lakh ha of geographical area, of which about 4.5 lakh ha is net cropped area. Total number of farmers in the taluk are 39,462, of which 31,888 have small holdings. Major crops grown in the area are ragi (26,314 ha), paddy (3,798 ha), field beans (2,500 ha), horse gram (2,370 ha), groundnut (1,690 ha) and red gram (855 ha). Vegetables are grown through-out the year under assured irrigation in some pockets. The produce is sold both locally and in Bangalore. The small and marginal resource poor farmers have several problems relating to agriculture production and marketing. Farming being the mainstay of the population, deteriorating agricultural conditions have become a matter of concern. The shallow soils with low organic matter content add to the problem with their poor water holding capacity and poor fertility levels. Because of the pervading mono cropping practices not only are the soils continuously impoverished but also the pest and disease build up becomes quite acute. Over the years, as the vegetation on and around the farms is getting depleted, the sources of both animal fodder and organic manures have diminished. Thus, food and fodder scarcity have become immediate serious problems.

Today, every farmer produces something to sell, since cash income is a must both for the family and for farming. But, in most cases, farmers are losers in the market place. As such, understanding the market behavior and practicing collective market operations will be helpful to them.

3.2 Selection of villages & Baseline survey

3.2.1 Selection of villages

After the preliminary survey of the Magadi taluk, strategically, one cluster of 3 villages was identified. This was done in consultation with Project leader from IWMI, taking into consideration factors such as geographic distance, (around 5 KM from town), agricultural interest, and social response. Later, after internal discussions another potential cluster of 3 villages was also identified which could serve as potential 'outreach' area through study tours to 1st cluster, participation in field days etc.

The first cluster of villages are: Guddahalli, Ukkada, Pollahalli. The second cluster of villages are: Joggipalaya, Kalyanpalaya, Thagiguppe.

Baseline was conducted for all the three villages in first cluster. **PRA**s was conducted in 1st cluster and also one village from second cluster to get an idea of overlapping interests and needs.

FFS is being conducted in two villages in the first cluster (Guddahalli, Ukkada) and one village in the second cluster (Joggipalaya). These choices were made strategically after examining the results of baseline and PRA as well as examining the potential for scaling up.

3.2.2 Baseline survey

Baseline survey was conducted to understand the existing situation of the village before implementing the programme. The team consisted 5 members.

Overall Agronomic Practices affecting yields

As already indicated, Ragi is the major crop being grown by the farming communities. They were interested in improving the Ragi farming system. The following are the findings from Baseline survey which highlighted the inadequacies existing in the Ragi farming system.

a. Poor or no efforts in In-situ moisture conservation:

- Though summer ploughing (Fall ploughing) is a well-known practice, most of the farmers are not practicing it for different reasons

- Sowing across the slope is another practice that is not being practiced by many farmers

b. Poor soil fertility management: Application of compost/ Farm yard manure (FYM) is irregular and inadequate. The available FYM is applied once in three years and the quantity applied is two tons per acre.

c. Improper or inadequate agronomic practices

Sowing time: The sowing of Ragi starts from end of July and even extends upto first fortnight of August based on the rainfall. In some cases, it gets delayed due to non-availability of bullocks and farm labour during the peak season. Thus, the available soil moisture is lost, the crop germination affected and therefore, crop is affected at the initial stages itself.

Seed Rate: 8 to 10 kg, if the moisture is good then the seed rate is less - it's a farmers practice in the village.

Farmers are not aware of the improved varieties of Ragi.

Monocropping is a common practice in the area. No alternative crops are grown, leading to lowering of yields.

The farmers are in need of knowledge support, to help them understand better different aspects of farming holistically.

Specific Facts

Rainfall

The phenomenon of erratic distribution of rainfall has been a common feature of the Taluk. Average rainfall of the region for year 2006-07 is **923.5 mm** and for the year 2007-08 is **787.0 mm** & temperature ranges from 33 to 14 c.

Table 3 Magadi Taluk Rainfall 2007 -08

Sl.no.	Month	Normal rainfall	Average Rainfall (mm)	
			2007	**2008**
1.	Jan	2.0	-	-
2.	Feb	4.0	-	22.5
3.	March	11.0	-	107.2
4.	April	47.0	78.0	12.0
5.	May	121.0	84.7	98.6
6.	June	65.0	74.5	6.0
7.	July	93.3	72.6	193.2
8.	Aug	127.0	180.8	199.8
9.	Sept	198.0	218.2	67.5
10.	Oct	190.0	186.1	44.2
11.	Nov	55.0	18.0	36.0
12.	Dec	14.0	10.5	-
	Total	**927.3**	**923.5**	**787.0**

Source: DoA, Magadi Taluk

Landholdings

Most of the farmers have an average land holing of 1-3 acres. 80% of the total area of the sample is under rainfed area. 20 farmers have their land under irrigation.

Landholding pattern for 78 farmers from 3 villages is as follows (Table 4)

Table 4 Distribution of land holding

Sl.No	Area (acres)	No. of Farmers
1	1 to 3	59
2	3.1 to 6	14
3	6.1 to 9	2
4	9.1 to 15	3
5	>15	-
	TOTAL	**78**

Farm Practices

Soil and water management practices

- Most of the farmers are following around 4 practices namely bunding, fall ploughing, and cultivation across the slope and inter cultivation.
- Dead furrows and mulching are not practiced.
- 20 farmers practice silt application

Table 5 Soil-water Management Practices (Sample)

SL. No	**Practices**	**No. of farmers Awareness level**	**%**	**No. of farmers adopting the practice**	**%**
1.	Bunding(farm bunds/inter bunds)	78	100%	40	51.3%
2.	Fall/early ploughing	78	100%	60	77%
3.	Silt application	60	77%	20	26%
4.	Cultivation across the slope	78	100%	70	89.7%
5.	Opening of dead furrows	40	51.2%	0	0
6.	Inter cultivation	78	100%	65	83.3%
7.	Surface mulches	60	77%	0	0

Nutrient management practices

Most of the farmers use farmyard manure (FYM), but not every year. They use it in alternate years. Very few farmers are using it every year based on the availability. The quantity used on an average is 2t/acre.

Table 6 Nutrient Management Practices

Sl. no	**Practices**	**No. of farmers Awareness level**	**%**	**No. of farmers adopting the practice**	**%**
1.	FYM	78	100%	78	100%
2.	Enriched FYM	0	0	0	0
3.	Compost	20	25.64%	0	0
4.	Vermi Compost	50	64%	10	12.8%
5.	Oil cakes/other organic concentrates	30	38.46%	0	0
6.	Biofertilisers	20	26%	0	0
7.	Green manure	50	64%	10	12.8%
8.	Fertilizers	78	100%	78	100%
9.	Sheep penning	78	100%	30	38.46%

Crop management practices

- 51 % of the farmers are doing crop rotation.
- Soil amendment is generally not done by farmers.
- Plant protection chemicals are used by all the farmers for Redgram crop. Different chemicals used are Quinlophos, Cloripyriphpos, and Phorate Granules.
- Legumes like tur are grown along with Ragi crop by 76% of farmers. Burning the crop residues is a common practice and about 89.74% of the farmers are doing this.

Table 7_Crop management practices

Sl.no.	**Practices**	**No. of farmers Awareness level**	**%**	**No. of farmers adopting the practice**	**%**
1.	Mixed cropping	78	100%	55	70%
2	Rows of legumes	70	89%	60	76%
3	Crop rotation	78	100%	40	51%
4	Variety, seed selection	50	64%	20	25.64%
5	Timely Sowing	65	83.3%	25	32.05%
6	Seed treatment	20	25.64%	0	0
7	Plant population	50	64%	10	12.8%
8	Soil amendments	15	19.2%	0	0
9	PP Chemicals	70	89%	30	38%
10.	IPM	30	38.46%	20	25.64%
11.	Burning of crop wastes	78	100%	70	89.74%

Biomass production

Biomass is generally refered to as the weight of living and dead organic matter in an ecosystem usually measured per unit area over a particular time interval. But, in our field context, we are referring to Plant manurial biomass, those plants, which are grown either on bunds or wastelands for the purpose of recycling into the soil for enhancing soil fertility.
Acacia, Neem and custard apple are the commonly found species in majority of the farmer's fields. To some extent, Eucalyptus trees are also found.
Data shows that nobody is growing biomass for manurial purposes.

Table 8_Biomass Production

Sl.No.	**Practices**	**No. of farmers awareness level**	**%**	**No. of farmers adopting the practice**	**%**
1	Nursery Raising	45	57.69%	0	0
2	Bund Planting	60	76.92%	30	38.46%
3	Planting in strips	0	0	0	0
4	Planting on wastelands	70	89.74%	15	19.23

3.3 Group formation Activity

Several meetings were conducted to forge a farmers group while ensuring the participation of farm women in the meetings as well as in the FFS.

An FFS orientation was organized in the villages to create interest among the farmers to be a part of the FFS process.

Finally after many meetings with the group, farmers & farm women came forward to be a part of the FFS group with lot of interest.

Number of Farmers covered under the FFS Programme

Sl. No	Name of the Village	Men	Women	Total
1.	Guddahalli	8	12	20
2.	Ukkada	5	15	20
3.	Joggipalyya	17	3	20
	Total			**60**

3.4 Identification of Local Facilitators

Potential lead farmers/ local youth were identified and trained. The local people were involved in the "Short term training of Facilitators" SToF at Madanpalli, AP.Two facilitators from the FFS villages were involved in the training programme. It was a residential training for 15 days. The trained facilitators are helping in the co-ordination of FFS in the FFS in the villages.

3.5 FFS Curriculum Development

After the preliminary study of the area by using tools such as PRA & Baseline data, besides several FGD's. FFS curriculum was developed by involving the various stake holders involved, such as, Department of Agriculture, Horticulture & Animal husbandry for the Ragi based farming system.(details in annexure 2)

3.5.1 FFS Curriculum

The curriculum developed for the FFS signifies the modifications both in technical content as well as methodologies, to address broad based farming needs in dry lands as well as based on the profile of the participants in the group. The curriculum addresses basic farming operation like In-situ rainwater management, soil fertility up-gradation and skill building on income generating enterprises, value addition, PGS (Participatory guarantee scheme) in addition to the conventional crop management (particularly pest and diseases) aspects. Therefore, the curriculum covers both the pre sowing as well as the post harvest periods, which are key determinants in crop management. Skill building required for Income generating enterprises is another unique addition to the curriculum.

The topics addressed in the FFS are as follows:

Table 9: FFS curriculum

Month	1st Week	2nd Week	3rd Week	4th Week
June	▪ Gram sabha ▪ Group formation ▪ ST-FFS introduction ▪ SS-Entry point activity (Soil erosion) ▪ Collaborator selection	▪ Pre BBE ▪ Subgroup formation ▪ FFS plot selection & layout ▪ SS-Germination test ▪ Verbal, Oral contract. ▪ SS-Green manuring	▪ Biomass plantation ▪ SS-Germination test conclusion ▪ SS-WHC SS: e- FYM	▪ SS-Seed treatment ▪ Nursery bed preparation and sowing. ▪ SS-Jeevamrutha ▪ SS-Importance of top soil
July	▪ ST-Sowing methods ▪ Introduction of SRI In ragi ▪ SS-Composting & Vermicomposting est. SS-Nutrient mining	▪ SS-Green Manure incorporation ▪ SS-Vermicompost ▪ E-FYM conclusion ▪ ST-PGS(Participatory Guarantee Scheme)	Sowing of Ragi crop	▪ AES Concept ▪ SS-Importance of top soil conclusion ▪ SS-Kitchen garden est. ▪ Know your insects-Friends & Enemies GD-Food web (NFE)
Aug	14 DAT ▪ AESA-1 ▪ ST-Disease management (Neck blast) ▪ SS-Azolla est. ▪ Earthing Up/ intercultivation GD-9 dot game	▪ 21 DAT ▪ Study tour	▪ 28 DAT ▪ AESA-2 ▪ Follow up of Biomass ▪ SS-Panchagavya GD-Communication distortion	▪ 35 DAT ▪ ST- Livestock ▪ ST-Value addition ▪ SS-Azolla conclusion
Sept	▪ AESA-3 ▪ SS-Mulching in DLH est. ▪ ST-Diary ▪ GD- Water brigade	▪ ST-Botanical preparation	▪ AESA-4 ▪ ST-DLH ▪ GD-Longest line	▪ SS-Vermicompost Compost conclusion ▪ SS-Mulching conclusion ST-Back Yard Poultry
Oct.	AESA-5 ▪ SS-Kitchen garden conclusion GD-Seeing and sensing	▪ SS-Establishment of community nursery	▪ AESA-6 ▪ Value addition in Ragi. ▪ GD-Broken squares	▪ ST-Animal health camp SS- Dairy

Nov.	AESA-7 ▪ Post BBE ▪ Preparation for Field day GD-Material collection	▪ Field Day/ Sharing event	▪ ST-Harvesting & Yield analysis GD-Festival celebration	▪ ST-Dairy & Backyard poultry & Rabbit rearing
Dec.	▪ Follow up of community nurseries	▪ Action Plan for next season Consolidation of learning's	▪ Documentation of reports ▪ Plans for Scaling up of activities.	▪ LTE Yield analysis & Documentation

The curriculum included appropriate group dynamics for each session.

LTE's (Long term Experiments)

The long term experiments identified included: Varietal trials (Varieties taken up are MR-1, GPU 28, L-5 and local in the FFS plot)

3.6 Conducting Farmers Field School (FFS) (April 08 – Feb 09)

FFS is a discovery learning method, where the farmers are empowered individually and as a group so as to solve their field problems by fostering participation, interaction, joint decision making and self confidence. Through experimentation and hypothesis testing in a learning situation, this process builds farmers skills for making appropriate action.

General principles include,

- Field is the primary learning source
- Experiential learning forms the basis
- Discovery based approach (learning by doing)
- Decision making by the farmers enable the learning process

3.6.1 Facilitators and Farmers coverage in FFS

Facilitating team

AMEF: Ms.Sangeeta.R.Patil & Mr.Raghunath (Chintamani), Mr.Srinivas Reddy (Chintamani)
Farmer Facilitator: Ms.Varalaxmi (Village: Ukkada)

Three FFS were organized in 3 villages namely Guddahalli, Ukkada & Joggipalyya of Magadi taluk of Ramnagar District, reaching 60 farmers. Ragi is the major crop of the area.

Table 10. Number of Farmers covered under the FFS Programme

Sl. No	Name of the Village	Men	Women	Total
1.	Guddahalli	8	12	20
2.	Ukkada	5	15	20
3.	Joggipalyya	17	3	20
	Total			**60**

The Farmer Field School evolved from the concept that optimal learning derives from experience – in case of farmers, from observations in the field. The FFS integrates the domain of ecology and non-formal education to give the farmers the opportunity to learn about their crop and to learn from each other. During the FFS sessions the larger groups were divided into small sub groups.

Each FFS session commences with the recap of the previous session's activities to consolidate the learnings. Later, activities planned for the day will be briefed to the farmers. Then the participating farmers review the implementation of previous week's decisions. Among the four small groups, two groups conduct AESA (Agro ecosystem analysis) in FFS plot and the other 2 groups go to the farmers Practice plot. The farmers groups observe different biotic and abiotic factors. Based on their observations, farmer groups take decisions.

Table 11 Number of FFS Sessions Conducted (April – Dec 2008)

Sl. No	Name of the Village	No. of Sessions conducted	Average attendance (20 members)
1	Guddahalli	12 sessions	15
2	Ukkada	13 sessions	18
3	Joggipalyya	11 sessions	11
	Total No. of sessions	**36 sessions**	**14**

3.6.2 Pre-Sowing sessions

Initial preparations were made for selection of interested farmers, selection of collaborator farmer, selection of FFS plot and layout preparation. Sub-group formation sessions on Ragi seed germination test, on Water Holding Capacity of soil, Seed treatment- its importance and methodology of application were conducted. Before onset of the cropping season, farmers were oriented on in- situ moisture conservation aspects as an entry point activity by conducting a short study.

Till now importance has been given to off farm conservation of water. However importance of conserving the water moisture *in-situ*, near the root zone within the farm was not given much priority. Thus, more focus was given to conserve the rain water especially in dry land conditions as in the case water will be much more critical.

Over the years, rainfall pattern of the taluk shows that for every 2-3 years, the taluk gets inadequate rains or experiences drought like situation.

Sowing Dates

Table 12. Details of sowing in Collaborators field

Sl. No.	Name of the Village	Name of the Collaborator farmer	Date of Sowing of FFS plot
1.	Guddahalli	Mr. Venkanarasayagouda	31/7/08
2.	Ukkada	Ms.Varalaxmi	29/7/08
3.	Joggipalyya	Mr.Venkateshappa	30/7/08

3.6.3 Plant growth stage:

After the sowings in all the FFS plots, sessions related to Ragi crop growth stages were started.

All the groups took up first, *Agro Eco System concept* first. The FFS group farmers were organized into small groups where they observe and realize the food chain existing in nature by themselves in the following areas i.e. in cropping area, barren field, grass field.

As the farmers understood Agro eco system analysis, they examine the need of the crop and identified the decisions to be taken.

Ragi being a dry land crop with lower pest incidence, sessions focused on insitu moisture conservation as well as aspects related to fodder and manure.

The following **short term experiments** were conducted as part of the curriculum to enhance their understanding – learning by doing..

- Soil erosion
- Seed germination test
- Enriched FYM
- Vermicomposting
- Botanical extract preparation
- Azolla cultivation

Special topics included in the FFS included to broaden the horizons of understanding.

- Concept of Farmers field School (FFS)
- Participatory Guarantee Scheme (PGS)
- Value addition
- Botanical preparations
- Dryland horticulture
- Dairy & Backyard Poultry

3.6.4 Short Term experiments

Generally, many technologies in agriculture developed are not easily understood by the farmers. To get them involved and make them understand in a shorter time, with results at field level, short term experiments are conceived.

Soil erosion

Magadi taluk has an undulating terrain. The distribution of rainfall is erratic in the region. Because of uneven & erratic rainfall, the soil erosion is a common phenomenon in this area. To help farmers understand the ill effects of soil erosion possible and *in-situ* soil moisture conservation measures, this study was included in the FFS as an entry point activity.

Objective

- To know the impact of soil erosion
- To know the different steps to be taken to avoid soil erosion in dry land conditions.

Farmers conducted this short study in two groups. Each group made a uniform size of undulating land. On one land they made synthetic rainfall by pouring water with a mug to observe the ill effect of rainfall without any conservative treatment. During this, they observed that the most fertile soil eroded from the field. They observed different types of soil erosion. So land became much more undulating and became infertile. On the other hand, on the second land before onset of shower, they made different intervention like bunds, bund planting, farm pond, inter bunds, cultivation across the slope etc to prevent soil erosion. After the shower they observed only reduction in the soil erosion, water holding capacity enhanced and soil remaining fertile because of less erosion. In both cases the quality soil eroded was measured. This study was done in all the 3 villages; the observations recorded:

Observation:

Villages	**No treated (1 sq. m land)**	**Treated land (1 sq.m land)**	**Non Treated land (1 acre land)**	**Treated land (1 acre land)**
Guddahalli	730 gm	50gm	730 kg	50 kg
Ukkada	850 gm	60gm	850 kg	60 kg
Joggipalyya	750 gm	55gm	750 kg	55 kg

Conclusion

- Soil loss is more in untreated land.
- Loss of soil fertility is also more in untreated soil
- By adopting soil conservative practices one can minimize the soil erosion
- Soil conservation practices also help in retaining soil moisture for longer period

The farmers realized that if the measures are taken into consideration, they can avoid erosion & conserve more moisture on the farm.

Seed germination test

Seed is one of the crucial inputs, whose quality is directly proportionate to the yield. In this context to know germination percentage, germination test is conducted by using locally available materials. So this short study was conducted in the FFS.

Objective

- To identify suitable method of seed germination test
- To identify good quality seeds through germination percentage

Farmers did the short study by making 4 small groups. Each group tested seed germination by one method of seed germination test in 4 replications. The exercise was carried out by using 2 methods by the small groups.

The observations of germination noted by each group in all the 3 FFS villages is as follows:

Results of the seed germination test

Sl.no.	**Replication**	**Seed Germination Methods**	
		No. of seeds germinated in Cotton cloth	**No. of seeds germinated in newspaper**
1.	R-1	68	98
2.	R-2	96	98
3.	R-3	96	93
4.	R-4	80	99
	%	**85%**	**97%**

Conclusion and outcomes

- News paper method was found to be very easy & accurate as compared to the cotton cloth method.
- Quality of seed was identified by percentage of germination.

The farmers learnt a simple method of testing the seed germination percentage so that they can do it before sowing the crop to check the quality of the seed. In some crops, this helps also to increase the percentage of seed rate.

Enriched FYM

One of the ways by which farmers improve rain water conservation is by using organic manures from sources readily available in their area. Organic manures in soils improve texture and microbial activity of the soil. Enriching farmyard manure and applying to soil improves the soil fertility and productivity along with improving its water holding capacity. For most of the farmers, the easily available source of organic manure is FYM. Generally FYM prepared by farmers does not ensure the quality in terms of nutritional

demands by the crops as it is exposed to different ways of loss of nutrients. Hence it is important to enrich the available FYM with cheaply available sources of nutrients like Single Super Phosphate (SSP) with Phosphorous Solubilizing Bacteria (PSB). so that, the increased nutrients status and microbial activity makes the FYM fulfill the crop demand.
Objective

- By the end of this exercise participants will be able to prepare enriched FYM
- Discuss about quality of FYM, soil fertility & microbial activity

Conclusion
It was concluded that good quality FYM Is necessary for improving soil fertility. Improved microbial activity will increase the quality of FYM. Farmers concluded that microbial activity is more in EFYM. All the participants experienced that the process of enriching FYM will increase the quality of FYM.
The collaborator farmer tried out using EFYM in the FFS plot & the other farmers got enthused to apply EFYM in their own fields subsequently.

Vermicomposting
The use of chemical fertilizers (minimum of 1 bag) is a common practice in the working villages in the dry land conditions. Realizing the negative impacts of chemical fertilizers on soil health as well as farm expenditure, farming groups tried out vermicomposting options.
Objective

- To know the importance of vermicompost
- To learn the methodology of preparation of vermicompost

Different sources of same nutrients required by the crop were discussed. Farmers felt that vermicompost not only supplies all the nutrients required but also helps in holding soil moisture for a long time. Farmers prepared the vermicompost in collaborators field.
Conclusion

- Vermicompost can be easily produced in the field with local resources.
- It can be prepared in a less time without great expenditure.

Impact of the study
10 farmers have prepared vermicompost pits in the 3 FFS villages & others farmers are willing to adopt. Linkages are built with horticulture department to support the farmers with some subsidies under various schemes provided by the department. Preparation & benefits of vermicompost were observed by the farmers.

Botanicals preparation
Plant extracts has been traditionally used by farmers in pest control for centuries. These extracts are an ideal source as low cost, safe and effective eco- friendly measures, instead of chemicals. One such plant extract is Neem. Neem is present everywhere in the villages. Farmers need to be given awareness mainly on its pesticidal usage. The 3 parts of neem namely fruit pulp, seed coat & kernel can be effectively used. The kernel contains alkaloids which acts as antifungal, antibacterial and as a insect repellent. Neem being one of the botanical pesticides, which has insecticidal properties, does not cause any ecological imbalance. Therefore, knowledge on preparation of NSKE is essential to manage the pest complex in any crop. Farmers tried it on Redgram which they were growing.
Objective

- Introducing botanicals to reduce chemical pesticide application
- To know the preparation methodology of NSKE

Short study was conducted in which each group prepared the neem seed kernel extract.
Conclusion
Farmers finally, concluded that NSKE is a useful alternative which can be prepared and used for insect pests without disturbing the environment and at a low cost.

Azolla
Azolla can be a source of good nutritional supplement for the cattle feed. It can be cultivated at a very low cost. Therefore, azolla cultivation has been chosen as a short

study in FFS. The village in which FFS is being conducted has milk co –operatives. Supply of good quality milk to these would be advantageous for farmers as azolla helps them supply milk whose quality is enhanced.
Objective

- To introduce azolla as green fodder
- To make availability of green fodder around the year with limited resources especially in hot dry summer
- To spread this practice in the entire taluk as well in neighbouring taluks

Farmers conducted the experiment during the FFS programme. They gained the experience by cultivating azolla themselves. The farmers noted the following results as a result of feeding azolla to cattle.

Farmers feedback

- It is easy digestible
- Azolla can be harvested as green fodder even in dry months of the year
- It improved the quality as well as quantity of the milk
- Slow growth during winter season

Impact of the short study

- 25 farmers have adopted it in the FFS villages
- Other non FFS farmers have also shown interest in it. They are also planning to adopt it.

3.6.5 LTE's (Long term Experiments)

Ragi varieties taken up for varietal trials are MR-1, GPU 28 & L-5 in the FFS plot. The observations are recorded below.

Plant growth Parameters
The observations made by the FFS farmers at different crop stages on the characters of different varieties are consolidated in the Table.. The farmers observed more number of tillers (8-10/hill), more ear heads per unit area (70/ sq.m), higher grain weight per unit area (500g/sq.m), in L-5 compared to MR-1 & GPU-28.

Table 13 Observations recorded on Different varieties

Sl.no.	**Parameters**	**Ragi Varieties**		
		MR-1	**GPU 28**	**L-5**
1.	Plant height	Medium (37 inches)	Medium (35 inches)	Tall (39 inches)
2.	Stalks	Thick	Thick	Thick
3.	Ear head size	Medium	Medium	Big
4.	No. of tillers	5-6	6-7	8-10
5.	No. of heads/sq.m	50	60	70
6.	Weight of grain per square m	**300**	**300**	**500**

3.7 Study Tour of FFS farmer groups

As part of FFS programme, the farmers went on study tour to AMEF's working area, Chintamani where FFS was going on. This was to help farmers to see for themselves the process, interact with the farming communities & also identify options suitable for them to try out in their own farms.

Place visited: Chintamani, Doddatikkanhalli & Bhramandini villages

No. of Participants: Farmers from 3 FFS villages i.e. Guddahalli, Ukkada & Joggipalayya participated in the study tour. A total of 45 farmers including 14 farm women were part of the study tour.

Facilitating Team:
The facilitating team included Mr. Sebastian and Ms.Sangeeta from AMEF Bangalore & Mr.Bhaskar Joshi & Mr.Sanjeev Joshi from AMEF Chintamani.
Farmers observed & interacted on the following activities during the one day study tour.

- As Ragi is the major crop, farmers of the Chintamani area have taken up Varietal trails on their fields. On FFS plot the varieties they are trying out are MR-1, L-5, GPU 28 & a local variety.
- In-situ soil & moisture conservation practices such as Dead furrow, bunds & bund planting and live fencing.
- Vermicompost Pit – Low cost and High cost
- Azolla cultivation
- Cropping systems like border crop, trap crop, strip cropping
- Introduction of Perennial Fodder varieties like Rhodes grass, Hameta, Sikars, Makuni grass & Gini grass
- SRI Paddy
- Interacting with the farmer groups on the savings & various other group activities.
- Compared the costs of cultivation of Ragi crop in Chintamani & in their own areas.

Feedback of farmers:
Farmers from Magadi actively participated in the study tour. The quick reflections are highlighted below:

Bund planting is not a common practice in Magadi area. In Chintamani, we saw different species on bunds serving various purposes such as bund strengthening, fodder & as manurial biomass. ***Ms.Sarojamma, Ukkada***

In our Magadi area we go for monocropping of Ragi. During the study tour we became aware of different cropping systems in Ragi such as Border crop (Bajra, Fodder sorghum) strip crop & intercrop (Redgram) etc. ***Mr.Prakash,***

We have gained information about Azolla cultivation & how it helps to improve the milk quality. We can adopt this practice in our area.
Ms.Chandrakala, Guddahalli

*We all became aware of the importance & different low cost methods of vermicomposting****. Mr.Lokesh, Guddahalli***

The farmers found the group approach effective to carry out agricultural activities & how FFS is helping to build the capacity of farming communities.

3.8 Linkages with the line departments & State Officials

Linkages with Line Departments
As a part of the FFS, a session on various schemes offered by from the Line Departments for the benefit of farmers was briefed to them. The line departments participating in the discussion included representatives from Agriculture, Horticulture, Forestry, Fisheries &

even Gram panchayath. FFS group farmers approached Agriculture department for input support like seeds. They have got a good response from the departments as compared to earlier.
Department of Animal husbandry has helped the farmers in the purchase of Sheep under their subsidized scheme.

Linkage with Village Panchayath
Meetings were conducted with Panchayath President to explore linking of the farmers groups to existing rural development & income generation programmes of the State & Central Government like NREGS.

Linkage with State officials
Preliminary meetings were held with Karnataka State Director of Agriculture and Karnataka State Director of Horticulture with regard to plans of the pilot project in Magadi. After the MSHF meeting, working group meeting of Asst. Director of Agriculture and Sr. Asst. Director of Horticulture and Asst. Director of Animal Husbandry was organized. Subsequently, their Sate level Directors were also requested to guide these district level authorities to strengthen Magadi initiatives. Meanwhile, TMC has been highly supportive to Farmers knowledge empowerment processes. At the state level, the **political leadership** has also been kept informed through submission of Note. (Vice Chairman, Karnataka Planning Commission; Bangalore Agenda for Action convened by Chief Minister).

Linkage with the University of Agricultural Sciences, Bangalore
Meetings were conducted with Dr.Vijayalaxmi, Professor, Department of Food and Nutrition, University of Agricultural Sciences, GKVK, Bangalore & Dr.K.Narayana Gowda, Project Co-coordinator, Rural Bio resource Complex, Bangalore Rural District regarding FFS farmer groups visit to the Ragi processing unit co- coordinated by the University at Tubagere Hobli,Bangalore Rural District(UAS,Bangalore).

3.9 Building awareness on participatory Guarantee scheme (PGS) and value addition

Participatory Guarantee scheme (PGS)

PGS sessions focused on adopting participatory, community driven self certification measures for assuring, quality produce. In view of the costly third party certificate procedures inappropriate for small farmers, the relevance of PGS was highlighted as an option to get a better price.

Dr.Vishwanath facilitated the session on PGS where in he explained the farmers about the schemes, its need. Mainly he concentrated on the organic production & marketing
aspects. He explained the procedure of the registration of the group of farmers for "*Organic certification*" & then marketing. The farmers were provided with a booklet in local language in which the detail information the PGS scheme, roles of the key groups & steps involved in certification are explained in detail. At the end of the session the farmers were asked to take Oath that they will follow the procedure by telling the Organic pledge to build oneness among the farmers.

Organic agriculture Pledge

India is my country.
All Indians are my brothers and sisters.
I love my land and
All men and women have equal rights on the land.
I am proud of the diverse culture and diverse traditional seeds of my country and I pledge to preserve them.
I will conserve all animals, birds, plants, trees, micro organisms and indigenous seeds
Of my farm and surrounding areas.
I will also conserve water and all life in it.
I undertake to keep alive my land by using
Traditional seeds and organic inputs.
I will not use harmful chemical fertilizers, pesticides, insecticides and GMO seeds.
I will propagate my seeds through natural and traditional methods.
I promise to ensure organic integrity and to
Live in harmony with all citizens.
In their welfare and development lies my happiness.

4.0 Value addition of Ragi:

Ragi, the leader among small millets, is grown in many states of India. Small millets, as a group, is quite an important dry land crop in which Ragi stands out. Ragi alone accounts for nearly 50 % of the area and 60% of the production. In spite of superior nutritive value of grains, its consumption is largely confined to rural areas. Lately, there is a raise in urban consciousness to consume nutritive foods and increasing interest in urban consumers for Ragi products. Besides human consumption, Ragi straw is also a precious fodder for bovines.

To create awareness on Value addition, session on Value addition was included in the curriculum.

Dr. Vijaylaxmi, Professor, Department of Food and Nutrition, University of Agricultural Sciences, GKVK, Bangalore facilitated this session. She briefed the farmers about the importance of value addition & demonstrated few products made out of Ragi. The products prepared by her in the session were namely

- Ragi chocolate
- Ragi Burfi
- Ragi ladoo
- Ragi malt

And also briefed them about the other products of Ragi which can be prepared at home which will fetch good price in urban market.

5.0 Monitoring & Evaluation

FFS has standard procedures which are being followed for evaluating the progress so far. The filled in formats will be enclosed in the final report.

There were highly positive reactions about the learnings by farming communities as well as suitability of FFS methodology during Multistakeholder Forum Meeting.(Minutes in the annexure 1)

6.0 Tasks to be undertaken

- Study Tour to Ragi processing unit at Doddaballapur
- Field Day at the FFS villages

Annexure-1

A brief report on the FFS orientation

An orientation on Farmer Field School was conducted on 24 March 2008 at Milk Producers Cooperative Society, Guddahalli. 35 participants (Male 20 Female 15) belonging to Ukkada, Guddahalli and Polahalli participated in the orientation programme. Mr. Sebastian and Mr. Nagana Gouda facilitated the session.

Mr. Sebastian welcomed the participants and briefed the core activities proposed in the Urban Horticulture & Peri urban agriculture project.

There was a discussion on the major crops of the area and main factors affecting the yield. Participating farmers have undergone trainings conducted by Department of Agriculture. The trainings have not resulted in adoption of all the learnt technologies. The reasons for non adoption were discussed. Lack of experiential learning was found to be the root cause for non adoption / non remembrance. Nagana Gouda briefed the history of FFS and meaning.

FFS History:

FFS approach was developed by FAO in South East Asian countries as a way for small-scale rice farmers to investigate and learn for themselves the skills required for and benefits obtained from adopting practices in their paddy fields. Then the details about the first FFS were discussed. During 1986, in the Central Java, Indonesia there was a heavy outbreak of brown plant hopper that destroyed 20000 hectares of rice in Java alone. At the same time not even a patch of the field was affected with BPH and that was due to the effect of IPM training in rice. This gave a lead for the full fledged FFS during the year 1989 with non formal education techniques as a major part. FFS beyond IPM was dealt. It included FFS in Soil Fertility Management, Integrated Production and Pest Management, Poultry Production, Livestock, Literacy Training, Health and HIV field school also.

-1990- Total 1800 FFS were conducted in Indonesia through National IPM programme

-1991- FFS expanded to other crops also, especially in South East Asia (Soyabean)

-1991–9-FFS expanded to India, Srilanka, Combodia and Philippines with the assistance of FAO

-1995–99- Expanded FFS in Sri Lanka and China through Farmer-to-Farmer programme

2002 – 04 In India 8700 FFS were conducted in 28 states

The success stories of FFS in AME is working areas were shared with the participants.

Major principles within FFS process:

- Growing a healthy crop
- Observing fields regularly
- Conserving natural enemies of crop pests
- Farmers understand ecology and become experts in their own field

Characteristics of the Farmer Field School Approach:

- Farmers as experts
- The field is the learning place
- Extension workers as facilitators, not teachers
- Scientists/Subject Matter Specialists work with farmers rather than giving lectures to them
- The curriculum is integrated
- Training follows the seasonal cycle
- Regular group meetings
- Learning materials are learner generated

I. GROUP DYNAMICS: LISTENING, SEEING AND SENSING

To accentuate the significance of experiential learning,a group dynamic exercise (listening, seeing and sensing) was conducted.

The participants were divided into three groups – Group-1, Group-2 and Group-3. The Groups-2 and 3 were sent out of the hall.

The Facilitator read out names of 20 items to the group-1 that was inside the hall and then they were sent out with a chart to list down the items that they had heard.

The group 2 members were called inside the room and were showed 20 items and they were sent out with a chart to list down the items that they had seen.
The group 3 members were called in and were passed on the same 20 items in their hands for 2 seconds. Later, the items were collected back and the group was given time to list down the materials with some details.
The charts from all the three groups were evaluated. The group, which sensed the items,(group 3) could remember more the number of items compared to the one who had just listened or seen the items. The facilitator explained the objectives of the exercise to the participants and concluded the study that sensing works better than seeing and listening.

By the end of orientation programme,all the participating farmers have shown much interest in FFS.

Annexure-2

Brainstorming for Developing Curriculum for FFS on Ragi with various Stakeholders

Date: 10/07/08
Venue: Community Development Centre, Magadi

Chief Guest:
Dr. Maadegoudar, Assistant Director of Agriculture, Magadi
Dr. Rajshekar, Assistant Director, Department of Veterinary Science, Magadi

Participants:
Mr. Ravindranath Reddy, CPO, AME Foundation, Bangalore
Mr. B. V. Joshi, AAUC, AME Foundation, Chintamani
Ms. Sangeeta Patil, APO, AME Foundation, Bangalore
Farmers from 6 villages namely Guddahalli, Ukkada, Pollahalli, Joggipalyya, Thagiguppe & Kalyanpalyya.
The workshop was inaugurated by Dr. Maadegoudar, Assistant Director of Agriculture, Magadi & Dr. Rajshekar, Assistant Director, Department of Veterinary Science, Magadi.

Ravindranath Reddy briefed the purpose of Curriculum Development Workshop.
Dr. Maadegoudar remarked about the agriculture situation at Magadi and facilities extended by the Department of Agriculture. Monocrop is being practiced in the area hence soil fertility upgradation is to be included in the curriculum.
Dr. Rajshekar provided information on livestock possession in the Magadi area and the schemes available to improve the health of the livestock.
During the afternoon session, Mr. B. V. Joshi divided the larger group in to sub groups and assigned group exercise on the cultivation pattern of Ragi and the constraints involved in Dry land farming. Each representative from the sub groups presented their ideas to the large group and the problems were identified, prioritized after the discussion in the large group. By brainstorming and interaction with the farmers, we were able to find possible solutions for the problems discussed. *Ms.Sangeeta Patil* documented the process and thus curriculum was prepared.

The points coming out from the presentations of the representatives are as follows:

Presentation done by Mr. Krishnamurthy (Ukkada village) Group 1

- ✓ Erratic Rainfall
- ✓ Fall ploughing is not done in time (75% farmers are doing),done in April –May month, if rainfall is assured, all the farmers are doing early ploughing
- ✓ Livestock population is reduced, they wont get it for agriculture operations
- ✓ Inputs like seed, fertilizers are not got in time (dependency on Government because of the subsidy)
- ✓ FYM availability is less due to reduction in the livestock population owing to drought
- ✓ Fodder problem
- ✓ Labor problem
- ✓ They are wasting cow urine. They are not aware of the importance of the Cow urine
- ✓ Chemical fertilizers are spoiling the human health
- ✓ Mixed cropping is practiced in Ragi, Avare, Red gram, Horse gram, Sasave (3 to 4 crops)
- ✓ Disease- Elaka roga in MR-1 variety is less when compared to HR 940 variety
- ✓ Cultivation across the slope is not practiced
- ✓ Weed management is not done
- ✓ Uneven distribution of Rainfall
- ✓ Seed multiplication is not done by the farmers

- ✓ Climate is changed now, because of low rainfall & more hot when compared to earlier times
- ✓ Economic level of the farmers is low, no technical support is available for the farmers

Presentation done by Mr.Lokesh (Guddahalli village) Group 2

- ✓ Technical information is not given to the farmers, no support from the agriculture department to the small & marginal farmers
- ✓ Knowledge on Improved implements is not there
- ✓ Soil fertility is decreasing due to the use of the chemical fertilizers
- ✓ Marketing problem
- ✓ Seed rate: 8 to 10 kg, if the moisture is good then the seed rate is less- it's a farmers practice in the village
- ✓ Sowing method should be proper
- ✓ Wild animals are a problem- the farmers have stopped growing groundnut, almost all the crops are spoiled (since 20 years, this problem is there)

Mr. B.V.Joshi, AMEF, Chintamani facilitated the session & priotized the problems listed by the farmers as follows

- Poor Soil moisture content
- Poor soil fertility
- Insitu soil & moisture conservation is not done
- Lack of technical information
- Livestock population is reducing
- Cost of cultivation is more but the returns are less.
- Labour problem
- Marketing problem & the farmers are not getting better price.

Then the facilitator focused on "Ragi" and its cultivation practices which need to be addressed while designing the curriculum.

The Ragi cultivation practices discussed are as follows

- Land preparation
- 4 times ploughing
- FYM 3 cartloads (Depending on the availability)
- Seed rate – 10 kg/acre
- Variety- MR-1 (130 days)
- Intercultivation – 3times, 1 time hand weeding (15 labours depending upon the weeds)- 1month after sowing
- Pest problem
- Disease- Elaka roga
- Mixed crops Avare, Jowar,Alasandi,Uchalu, Saasave
- Harvesting methods (1acre- 10 labour , tying purpose 20 labour
- Yield for 1acre- 6-8 qtls
- Chemical fertilizer is DAP

The workshop was concluded and then the Curriculum was developed based on the problems identified & also FFS methodology is introduced.

Annexure-3

Magadi Multistakeholder Meeting minutes

Date: 17th Oct, 08
Venue: Town Municipality Corporation (TMC), Magadi
Time: 11am to 2 pm

Members attended:

TMC:

Mr. S Manjuthaswamy, Talisdar Magadi Taluk/Incharge Chief officer, TMC, Magadi
Mr. Nagaraj, President TMC Magadi,
Mrs.Hajira Afsana Vice president, TMC Magadi
Mr.Seetharam, former vice president, TMC Magadi
Mr. Purushotham,Counsellor, TMC Ward no.8
Mr.Jayaram, Counsellor, TMC Ward no. 10
Ms.Meenakshi, Envtl Eng, TMC
Mr.Ramanna, Health Inspector
Mr.Ramesh, Health Inspector
Mr.Ramakrishnappa, Group organizer

Departments:

Mr. Madegowda Asst. Dir of Agriculture & team
Dr. C. Rajashekar Asst. Director of Animal husbandry, Magadi

IWMI:

Dr. Priyanie Amerasinghe
Regional coordinator,
RUAF programme, IWMI, Hyderabad
Ms. Saba Ishaq, MPAP officer, IWMI

AMEF: Dr. R Dwarakinath
former Vice chancellor, UAS Bangalore and
former Director of Agriculture, Karnataka
Dr. Arun Balamati,Executive Director, AMEF, Bangalore
Mr. KVS Prasad, Chief Knowledge Coordinator, AMEF
Ms.Radha, Editor, LEISA
K S Sebastian- Consultant- MPAP process RUAF/IWMI/AMEF Programme
Ms.Sangeeta, Area Project Officer, AMEF

Press: Mr.Ganeshacharaya, Vijay Karnataka

Magadi Multistakeholder Meeting was organized on 17th October 08 at Magadi. The purpose of the meeting was to bring together various stakeholders to discuss the prospects of strengthening peri urban agriculture & urban horticulture in Magadi. Also discussed were the prospects of SWM systems in Magadi to support recycling waste for productive purposes. The stakeholder forum also discussed & identified other potential & priority areas for attention to strengthen development processes in Magadi.

Mr. Sebastian welcomed the gathering & briefed about the programme schedule which is as follows:

11.00-11.20hrs	Welcome and introduction to Day's programme	**K S Sebastian**- Consultant-MPAP process RUAF/IWMI/AMEF Programme
11.20-11.30hrs	Welcome address	**Chief Officer**,TMC,Magadi/ **Mr. Nagaraj**,President TMC Magadi
11.30-11.45 hrs	Introduction of the objectives of the meeting	**Mr. KVS Prasad** Chief Knowledge Coordinator,AMEF **Ms.Sangeeta** Area Project Officer,AMEF
11.45-12.00 hrs	Experience Sharing	FFS farmers group
12.00-12.15hrs	Address by Guest of Honour	**Dr. R Dwarakinath** former Vice chancellor, UAS Bangalore and former Director of Agriculture, Karnataka
12.15-12.25 hrs	Address by Chair person	Mr.D S Manjuthaswamy Talisdar Magadi Taluk
12.25-12.45hrs	Purpose of Multistakeholder forum	**Dr. Priyanie Amerasinghe** Regional coordinator, RUAF programme, IWMI, Hyderabad **Ms. Saba Ishaq**, MPAP officer, IWMI
12.45-13.15hrs	Presentations by Invitees and Chief Functionaries (5min each)	**Mr. Madegowda,** Asst. Dir of Agriculture, Magadi **Dr. C. Rajashekar** Asst. Director of Animal husbandry, Magadi **Mr.K V Durgaprasad** Member Secretary, Magadi Planning Authority **Mrs.Hajira Afsana** Vice president,TMC Magadi **Mr. Purushotham** Counsellor, TMC Ward no.9 **Ms.Suma Gangarevanna** Counsellor, TMC Ward no.10 **Mr.Jayaram** Counsellor, TMC Ward no. 10
13.15-13.45hrs	*Open Discussion:* Strengthening Development Initiatives in Magadi	
13.45-14.00hrs	Concluding remarks and Vote of thanks	**Dr. Arun Balamati** Executive Director, AMEF, Bangalore

***Mr.Nagaraj**, President,* TMC Magadi welcomed the gathering on behalf of the various stakeholders & shared that it's very happy to have this programme at Magadi. As a token of love & respect, the guests were garlanded.

The meeting started with a presentation by Mr.**KVS Prasad,** Chief Knowledge Coordinator, AMEF. He discussed the project focus, what AMEF have been doing in the project & goals of the programme. He briefly explained that the association of AMEF, IWMI & TMC Magadi is almost about 2 years. Mr. Raghunath, was the person who initiated this task at Magadi as he is the son of the soil. We had around 60 meetings with TMC, Departments, farmers, CSO's etc at Magadi in the last two and half years. He said, "*I feel iam part of you, part of Magadi & part of the programme. That's why I am explaining focus as 'our' focus in the context of the project". He briefly explained the project focus by saying that - Thinking together - Planning together and Acting together, for* Improving the farmer's livelihoods; improving farming opportunities in a limited scale; with supportive policy; and strengthening initiatives for a clean Magadi while exploring ideas for converting wastes into Manure for farmers. Lastly he shared that - Ultimate goal - we want Magadi to be a "***shining Model*** ".

To begin with, farmers from the FFS villages shared their experiences.

Mrs. Varalaxmi, Farm women Village: Ukkada

- She is a Member of FFS group
- Attended a training of facilitators on Farmers Field School (FFS) for 15 days by AMEF.The training helped her to build her confidence level & enriched her knowledge about Farming.
- She learnt about Ragi variety, Pest management, Azolla, Vermicomposting, importance of biological/botanicals& the facilitating skills.
- Working as FFS facilitator & started conducting FFS in not only in her village but also in the neighboring villages where FFS is going on.
- She thanked AMEF for providing the training and giving her opportunity to build her knowledge & confidence levels not only in farming but also facilitation skills.

Mr. Krishnamurthy, Farmer Village: Ukkada

He shared that before, no organized farmers group was existing in the village. But after the initial meetings only 8 to 10 farmers were part of the FFS, but later the number went high looking to the interest. AMEF gave guidance on different varieties of Ragi, introduction of L-5 Ragi variety, insitu soil & moisture conservation practices, Azolla cultivation, Vermicomposting, cropping pattern in Ragi crop like mixed cropping, trap crop, border crop etc

Dr. R Dwararikanath, former Vice chancellor, UAS Bangalore and former Director of Agriculture, Karnataka addressed the gathering.

He began by saying "what farmers have shared now this should have actually been done by the departments. But for various reasons it has not happened. There needs to be a connection between urban & rural lives & livelihoods. Earlier there was a sort of affinity within a village. There were all types of people & artisans – mutual dependence – no external/outside dependence. With changes over time, there was a need for dependency for e.g. seeds, fertilizer everything has to come from outside now. Earlier it was seed from previous harvest, manure from joint families. By 2050, around 50% of the population will move towards urban centres.Therefore there needs to be a relationship-between village and town centres. This type of programme ought to be initiated by the state/central governments. Initiated by RUAF in the Netherlands, this programme is in Hyderabad & Bangalore/Magadi besides several international locations.

With the urbanization, waste problem will also increase. We need to look at recycling waste, convert to manure & give back to rural areas. It is not just enough if you only produce. You should see how you can market well. Replying to one of the counsellor's

remark that there is not enough water, he replied & concluded saying that "There are many ways to do even in dry lands".

Manjunath swamy, Tahsildar Magadi Taluk & incharge Chief officer, TMC Magadi.

He shared that he was not clear about Multistakeholder forum. As he was not a part of it in the earlier stages, but he got an overall picture of the forum & the project focus.

Taking the points from Dr. R Dwarikanath address, he told it is quite clear that how we are moving in farming. In Magadi, farmers experienced the how much the problem is when faced with shortage of chemical fertilizer. When there is shortage of chemicals, the farmers are depending upon the Organic manure. There is a lot of disguised unemployment.

With support from organizations like AMEF, it will be possible to do farming better. There are many organic farmers bringing a silent revolution. But they are not coming out sharing widely. He also added he understood common goal but what the individual departments has to do is still not understood 'multiple leadership' which was made in Prasad's presentation.

Later, Prasad clarified the purpose and philosophy of Multistakeholder forum as well as multiple leadership points.

MR. MADEGOUDAR, ADA, MAGADI

He has been actively involved in the process with AMEF. He is also being part of the programme conducted by AMEF.He attended the Curriculum Development Workshop (CDW) & contributed his valuable suggestion.With usage of OM being low, the soil has lost its fertility and has no capacity to hold water. Then he briefed the various schemes under the agriculture department.

- Subsidies are there for processing machines for Ragi. This could be availed & value added
- Farm machinery also has subsidy
- If municipal waste is connected to OM (like Agrigold) we can help in supplying to farmers with subsidy.

RAJSHEKAR, AD ANIMAL HUSBANDRY, MAGADI

He shared that 1 lakh litre of milk/day is collected from the farmers & sent to Bangalore milk dairy, (Rs.13 lakh).
The average population of Cows in the district is 16000.
-Subsidy for Azolla is there at a preliminary stage Rs.1000/- subsidy for 5-6 farmers
-Three training programmes are being organised- AME can join.
Our infrastructure is poor to conduct trainings.

MR.JAYARAM, COUNSELLOR, TMC MAGADI

He presented before the gathering that, earlier farmers used to collect the waste, recycle it & apply to field. But now farmers no more do that and depend on chemicals. There is also a feeling that Organic manure will lead to delayed harvesting. He assured to support the formation of SHG's in wards of Magadi TMC.

NAGARAJ, PRESIDENT, TMC, MAGADI

He presented to the gathering about the "*Swacha Magadi*".His words were" We have already started "Swacha Magadi" programme about 4-5 months back. Lots of awareness meetings have
been organized. He also told the public to provide separately dry & wet wastes. We are waiting for permission. Once this happens we will recycle the Solid waste through the machines. Already, the government has asked us to provide an estimate for converting Solid waste to Organic manure. We are in the process. I feel that this could be done at panchayat jurisdiction rather than town limits, so that more farmers can benefit.

Iam very happy that you have selected few wards. We are here to give you full support.

MR.NAWAB

Fortunate to have AMEF's support and for choosing Magadi for their programmes.Iam sure there will be improvement in farming in Magadi.

Dr. Amerasinghe Priyanie, Regional coordinator, RUAF programme, IWMI, Hyderabad
She started with the presentation by raising a question to the members saying that "Can Magadi have a vision of eco city?" This is based on the reports about Magadi. Members agreed to it.

Mr. Prasad gave clarity on Multistakeholder forum, multiple leadership roles to the members. In development, every institution,farmer,Dept,TMC,all have a role to play. For instance, If a farmer has to grow ragi,how can different institutions with help him in growing better – better seed varieties (Dept); better forward backward linkages, better knowledge (Dept, NGO); better market infrastructure (planning authorities). While each would play a role, they assume leadership for a certain function in accomplishing the goal while others play a supportive role. For instance, in one aspect AMEF department plays a lead role while NGOs and Planning authorities play a support role.

Priyanie with support of Prasad and Sangeetha facilitated a brainstorming exercise where the members were asked to identify issues for attention for Magadi so that it can become a eco-city.

The following challenges and opportunities were presented.

- Need and opportunity to strengthen agriculture in peri urban areas
- Promoting eco-friendly cultivation

- Converting the city waste to organic manure - segregation of waste – not yet started
- Support for Vermicomposting

- Rainwater harvesting (waste-14tonnes/day in magadi
- Systematic plan for water management

- Utilization of youth power, providing livelihood through Agriculture

The programme was concluded by Vote of thanks by Dr.Arun Balamatti.