AME's journey in promoting Sustainable Agriculture in dry lands with resource poor farmers

AME Foundation, as a resource organisation, has been promoting ecological agriculture for more than 27 years. AME Foundation has been guiding small and marginal rainfed farmers to manage their natural farm resources better, practice alternative eco-farming practices for enhanced yields and reduced costs. AMEF believes that sustainable management of natural resources is the key to improved livelihoods, stable agricultural development as well as improved ecological balances.

1982-86 and 1986-90 **AME Project**	• Started pioneering ecological farming approaches, 1982 • Offering international training courses in LEISA (Low External Input Sustainable Agriculture) • Shifted to Pondicherry, India, 1986 • Leaders in ecological agriculture movements take pride in being 'AME aluminus'
1990-95 **AME Project**	• Focus on hands-on trainings through PTD • Enlarging the basket of options in ecological agriculture • Initiating networks as well as encouraging articulate ecological farmers • Establishing SA in watersheds
1996-2001 **AME Bilateral Project (GOI/GON)**	• Developing eco-friendly alternatives in major dryland cropping systems • Training large number of NGO networks through PTD and FFS • Focusing activities in dryland districts one each in Andhra Pradesh, in Karnataka and in Tamil Nadu • Creating synergies through crop based stakeholder platforms
2002 onwards **AME Foundation**	• Focusing on resource poor, risk-shy rainfed farmers in dry lands • Promoting **combination of SA practices** for improved productivity and livelihoods • Focusing on empowering learning and sustainability through PTD, FFS and Rural youth training

The journey of AME Foundation

Beginning as an international training course on ecological agriculture in the Netherlands in 1982, shifted to Pondicherry, India in 1986, operated as project in several phases, became an Indian Foundation in the year 2002. All along, for more than 27 years, has been promoting Sustainable Agriculture in drylands and resource poor farmers through empowering learning processes like PTD and FFS.

AME Bilateral project

(1996 — 2001)

AME during the bilateral project (Government of India—Government of Netherlands) phase (1996-2001) played the role of an active promoter of ecological agriculture. The major objectives of the programme during this phase were:

- To improve dryland agriculture and other natural resource management practices through a low external input approach.
- To create effective and lasting linkages and interfaces between various actors in promoting alternative agriculture.

AMEF established working relationships with farming communities in the three states of Andhra Pradesh, Karnataka and Tamil Nadu. Major focus was on capacity building, networking and linkage development to stabilize the process of alternative agriculture. Beyond this, crop based working groups, annual workshops and stakeholder concerted action platforms were initiated to involve the various biomass actors.

Impact Study Results

Improved ecological conditions

- Increase in organic matter application, 10-20% reduction in chemical fertiliser use in paddy and cotton
- Reduced number of pesticide sprays in paddy - from 5-8 to 0-3 in Raichur and nil in Tiruchi
- Reduced number of pesticide sprays in cotton - from 20-24 to 6-8 in Raichur and from 10-15 to 2-3 in Tiruchi
- Increased on-farm biodiversity; inter and mixed cropping; increased use of green manure and organic manure
- Trees and fodder crops reintroduced in farming system – bund plantation (Tiruchi, Madanapalli) and fruit trees (Raichur)

Improved economic returns

- Higher net profits due to lower cultivation costs
- Cost of cultivation reduced by 20% in Paddy resulting in increase in net returns by Rs.5000 per acre
- Cost of cultivation reduced by 40% in Cotton
- Reduced cost of cultivation by 10-20% in Groundnut owing to availability of good quality seeds

Improved yields

- Paddy yields improved due to improved cultivation practices and use of soil amendments for alkaline soils
- In groundnut there was a net increase of 2-5 bags/acre

Popularisation of participatory processes

- AME popularised concepts and methods of PTD
- PTD processes resulted in knowledge empowerment of women, leading to increased self-respect and respect of others

Stake holder working groups formed—Groundnut Working Group and Cotton Round Table

- These working groups pooled their competencies to address major field problems faced by the farmers each year. Some collaborative joint actions include: Research taken up by Universities on field problems (cotton varieties); Varietal trials leading to availability of better quality seed; Bio inputs becoming bankable (NABARD)

Improved NGO-GO collaborations

- IPM in TN; APCOT and DPIP; ISPWD (K), KAWAD, RHC control and FAO cotton programme

(Source: Impact Study of Dr. Virender Khatana)

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AMEF's experiences in Karnataka based watersheds—KAWAD

(2002—2005)

AME Foundation has been actively involved as a resource organisation on strengthening Sustainable Agriculture component in Watersheds. One of them was Karnataka Watershed Development Project supported by DFID and implemented by Karnataka Watershed Development Society. (2002-2005). The second was SDC-IC Indo Swiss Project on Watershed development (2003-2004) in Northern Karnataka. In the SDC-IC project, the focus was on guiding NGO partners to help farmers learn and experiment. In KAWAD project, AMEF guided farmers groups in specific watershed areas. In both these initiatives, AMEF focused on strengthening Sustainable Agriculture component through PTD and FFS learning processes.

KAWAD watershed programme

Upparahalla and Chinnahagari watersheds
Bellary and Chitradurga districts, 37 villages
900 farmers - 40 groups

Doddahalla watershed
Bijapur district, 4 villages
92 farmers – 4 groups

AMEF focused on farmer centered approaches to improve farm productivity though alternative farm practices 'between the bunds'. These include a combination of practices - in-situ rainwater management, improved agronomic practices, diversified cropping systems and efforts toward improving organic matter in the degraded soils.

Highlights

- Worked with sorghum, groundnut and tomato farmers in Bellary, Chitradurga and Bijapur districts
- In Bijapur, worked on IPM in pomegranate with 50 farmers, ICM in chilli and tomato with 75 farmers and ICM in sorghum with 95 farmers
- Systems of mixed cropping promoted – sorghum with safflower (3:1); sorghum with Bengal gram (2:1); strip cropping of ragi with groundnut
- Five intercrops promoted in groundnut crop. Rotations with pigeonpea, greengram and black gram were tried out
- Sericulture interventions initiated in Bellary, on a pilot basis

PTD and FFS conducted in groundnut, sorghum and vegetables

Results

- Intercropped plots yielded 25-27% more yield than the sole cropped plot
- In-situ green manuring with sunhemp plus mixed crop – improved the vegetative growth of sorghum sown subsequently
- Use of biologicals reduced the incidence of bacterial blight in pomegran-

Over hundred master farmers emerged through systematic FFS trainings

Impact of AMEF's intervention captured in DFID-KAWAD publication

There are a few innovative farmers who like to experiment with new ideas and techniques, but these are very much in the minority. The Farmer Field School approach got around this social constraint, supporting groups of farmers to experiment together…reduced farmer's fear… with constant monitoring of activities…particularly supportive of women's involvement. The regular meetings throughout the season and careful monitoring of pest and disease incidence between treated and control plots helped farmers to see the differences and benefits brought about by the practices. New varietal and crop introduction was successful from the start…Introduction in association with FFS helped spread the idea more quickly, with farm cross visits reaching a larger number of families in a quicker and more convincing way.

Source: Land development and support of farm livelihoods prepared by Elizabeth Kiff. (Section on Farming systems activities - Section 3.2, pages 61-72.)

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AMEF –FAO partnership programme

(2005—2008)

This Partnership Project (2005-08) aimed at improving the farming livelihoods of resource-poor farm families in fragile ecosystems. The focus was on empowering the dry land farmers with abilities in managing the natural farm resources, managing new technologies in combination with useful traditional practices, and managing production enterprises in a cost effective manner. The project spread across three Southern states - Andhra Pradesh, Karnataka and Tamil Nadu following 'LEISA approach'. Participatory capacity building processes like Farmer Field School (FFS) and Participatory Technology Development (PTD) were extensively used.

Project coverage

- Farm Families – 14044
- Male – 68% Female – 32%
- Farmer Groups – 660
- Villages – 631
- NGOs/CBOs – 48
- Districts – 13
- States - 3

Project Highlights

- Widening the scope of FFS from IPM to dry land agriculture
- FFS curriculum developed for 16 different crops
- 1126 farmers trained through FFS
- More than 500 farmers participated in PTD processes
- 521 NGO staff trained as facilitators through trainings of facilitators
- 400 rural youth trained as FFS facilitators
- 16 Stakeholder Workshops were conducted

Results

- The project has generated and promoted practices for sustainable agriculture in dry land areas. Small and marginal farmers in dry land areas were enabled to practice simple affordable technologies for increasing crop and land productivity and plant biomass while protecting the environment. This was achieved through diversification of cropping systems, adoption of less costly and more environmentally sustainable practices, and change of cultivation practices.
- PTD and FFS complemented each other as participatory empowerment processes, making farmers better decision-makers.
- Nine crops recorded a reduced cost of crop production ranging from 4.2 to 27.3 %.
- 18-20% improvement in crop yields.
- Environmental benefits included on-farm soil conservation, improved vegetation around the farm, increased crop biodiversity, increased number of crop defenders, reduced use of chemical fertilizers, pesticides and the popularisation of bio agents.

FAO evaluation team's observations

One of the added values of the Project was to propose a combination of practices which can develop synergies and provide compounded benefits in terms of improvement of the agricultural system and the economic returns; this contributed to enhanced technical and economic sustainability.

- Farmers are aware, knowledgeable and are adopting a number of practices promoted by the Project through PTD and FFS. Participation in FFS also gave them some easier access to Government programmes and subsidies
- The Project has developed so far a wealth of experience, on methodology as it did on techniques
- The cost of external inputs was strongly reduced, which entailed automatically reduced risk of indebtedness
- For some crops, yields stabilised also in the occurrence of drought spells
- Overall, labour requirements did not increase, as different practices offset each other
- Diversification of crops and the introduction of kitchen gardens led to greater food security at household level
- Participants diversified their livelihoods through the set-up of saving groups linked to the FFS
- Improved self-confidence and relations with other FFS participants and higher status in their communities

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SRI Programmes

(2005 onwards)

Though the focus of AMEF is improving dry land agriculture, believes, it can make a difference, by addressing the issue of water use in irrigated lands. As SRI (System of Rice Intensification) is based on similar principles of 'Producing More with Less' and using judiciously precious natural resources like water and inputs, got interested in 2004-05 in a small way. With programmatic support from Deshpande Foundation and WWF, started promoting SRI since 2008 in three states. While in Andhra Pradesh and Tamil Nadu, SRI is promoted in irrigated conditions, in Dharwad area on medium black soils, has been promoting SRI under rainfed conditions also. In total, AMEF has so far enabled 8473 farmers in 4017 acres in 70 villages covering 9 districts across the three states till the end of March 2011 (Kharif and Rabi season). Besides promoting SRI under varying growing conditions, has been enabling farmers to adopt **SRI principles** in other crops too, namely **Ragi** and **Red gram.**

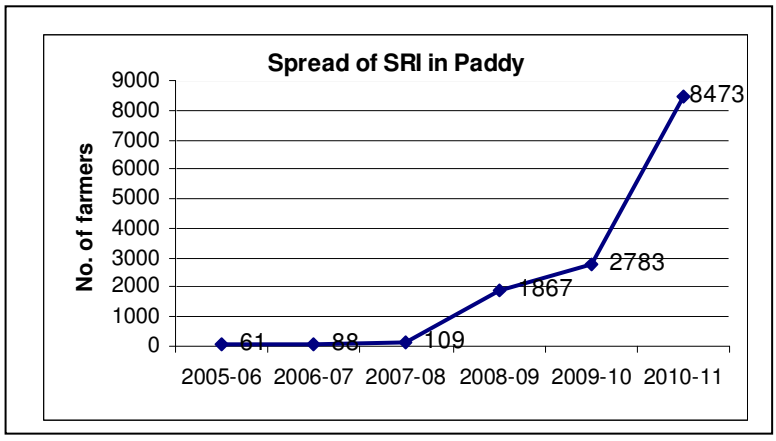
No. of farmers adopting SRI Paddy				
Year	AP	KAR	TN	Total
2005-06	56	2	3	61
2006-07	59	8	21	88
2007-08	95	9	5	109
2008-09	880	151	836	1867
2009-10	319	1528	936	2783
2010-11	*579*	*6374*	*1520*	*8473*

The factors enabling rapid adoption under AMEF guidance are:

a) Farmer education processes like FFS and PTD

b) Training and employing local farm youth in spread of SRI

c) Awareness programs like field days, rallies etc.



Besides guiding farmer groups through FFS and PTD, has been identifying and training rural youth systematically and intensely to serve as locally available Sustainable Agriculture Promoters/Trained volunteers. In Dharwad, about 70 local farm youth, were trained through TOTs. As 'SRI Preraks', they conducted campaigns and guided farmers during the sowing period and later. Several farmer innovations have emerged in weeders and markers, green manuring and weed control as well as easy transfer of seedlings.

Results

- Increased yield – 22% under rainfed conditions and 18-22% under irrigated conditions
- Decreased cost of cultivation and increased net returns
- Improved awareness and knowledge on SRI practices among farmers
- Increased availability of farmer facilitators to guide farming communities

S. No	Results	Conventional	SRI
1	No of Tillers	20-25 tillers/ plant	35-40 tillers /plant
2	Grain yield – **Rainfed** (q/ac)	11	13
3	Grain yield - **Irrigated** (q/ac)	17-20	20 – 26
4	Cost of cultivation (Rs/ac)	10,442-11617	7976 – 8738
5	Gross returns (Rs/ac)	19,571- 21,587	23165 – 28773
6	Net returns (Rs/ac)	7281- 11145	14361- 20035

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NABARD Supported Projects

(2010 onwards)

NABARD Bangarpet Project

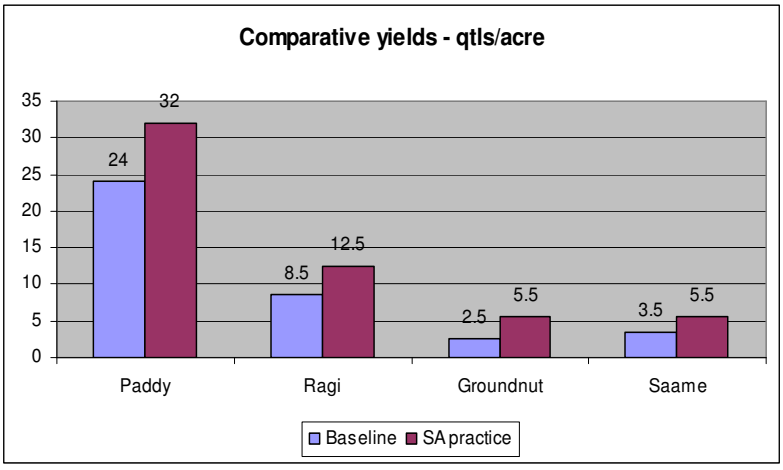
Programme	No. of farmers
SA in Ragi	124
SRI Paddy (Kharif and Rabi)	75
SRI-Ragi	64
SRI Redgram	40
Seed production in Groundnut	52

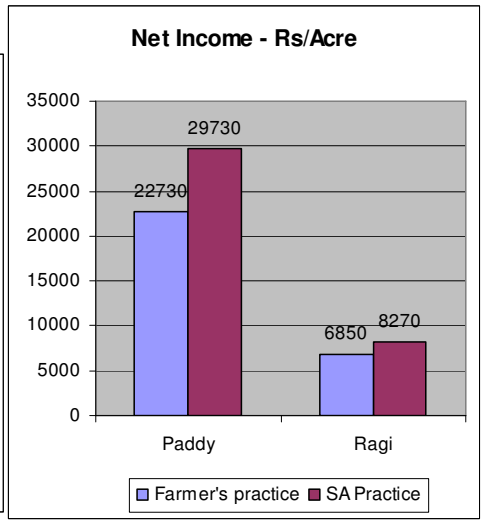
The project was initiated in five villages in Bangarpet during 2010. The project focuses on augmenting the productivity of lead crops / activities through adoption of Sustainable Agriculture (SA) practices. Within 8 months period, significant progress has been made.

Around 355 farmers have been directly involved in promoting SA and SRI. Seed production has been taken up by 52 farmers and distribution activities included enrolling 415 new farmers to use the quality seed. An intensive Training of Facilitators (ToF) was organized for 22 rural youth during the period. Discussions to explore a small initiative with bore well farmers in harnessing rain water as well as its rational management were initiated.

Results

- Yields improved during Kharif season in SA plots against farmer's practice (FP) and baselines (BL). In paddy, yields increased by 30%, in ragi by 40% and in groundnut by more than 50% as compared to the baseline.
- Net income increased by 29% in Paddy and 21% in ragi.
- Around 22 rural youth were trained in LEISA through Training of Facilitators (TOF).





NABARD-LEISA project at Dharwad

The project focus is on promoting LEISA for improving livelihoods of dry land farmers through Farmer Field School (FFS) approach. It was initiated in April 2009 and is being implemented in 4 villages of Hubli taluk.

Around 48 FFS sessions on Vegetables and Soya bean, one day TOT to volunteers on FFS and LEISA have been completed. Farmer groups have been guided to become Farmer clubs to avail additional development opportunities.

Feedback by CGM, NABARD, Bangalore

"…I am very much impressed by the way farmers took lead and organized the whole programme, confidently sharing their experience as part of the FFS group. Looking to the exhibition and the information centre, I felt how effective FFS methodology is in building the capacity of the farmers on LEISA activities and to make them adopt these technologies in their respective farms to improve the productivity".

Dr. Venkatesh Tagat, during his visit to Inamveerapur village in Dharwad district, 28.10.2010

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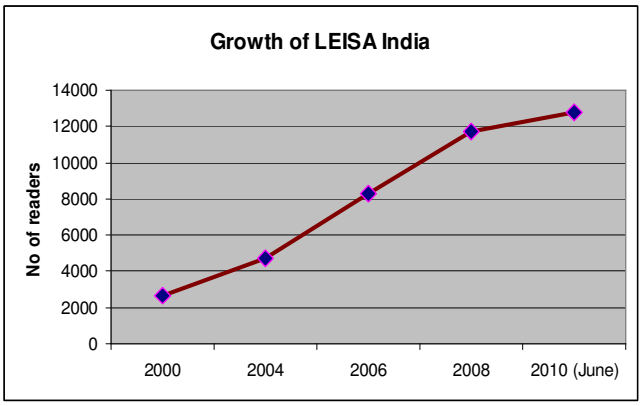
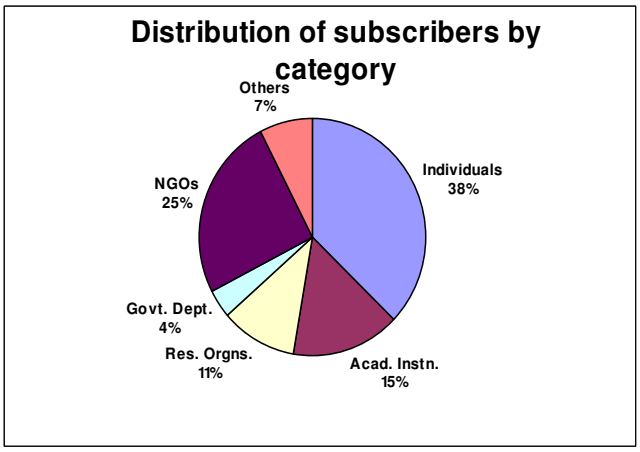
LEISA India

(1999 onwards)

LEISA magazine is recognized as the leading magazine for sharing field based experiences in **L**ow **E**xternal **I**nput and **S**ustainable **A**griculture. **LEISA India** is the regional Indian edition of Agricultures Network of the global LEISA magazines. LEISA India, is being published in English, with an Indian focus and an international perspective. LEISA India is being published by AME Foundation in collaboration with ILEIA (1999-2011). AME Foundation will continue to publish the magazine in collaboration with MISEREOR during the period 2011-13.

LEISA India magazine, which started as an Indian edition in 2000 with a readership of around 800, is presently being received by around 10000 readers including over 500 readers in the neighbouring South Asian countries. The annual average growth of readers has been in the range of 20-30%. The contributors and readers include academics, researchers, farmers, NGOs, government departments, banks etc.





LEISA India in regional languages

With an increasing demand from our readers for local language editions, LEISA India is also being published in five Indian languages—Hindi, Tamil, Kannada, Telugu and Oriya, twice a year. Together, these language editions reach around 8000 readers at the grassroot level.

LEISA India Consortium

Besides, publishing the magazine, AME Foundation in collaboration with ILEIA, has forged a consortium of partners - **LEISA India Consortium**, to promote enhanced sharing of LEISA experiences. The consortium of willing partners involving large networks of NGOs like MYRADA, GEAG, and LEISA Network, have been involved in promoting LEISA concepts and approaches by bringing about changes at the field level through participatory processes. They also have been documenting and sharing their experiences through various mechanisms and modes.

Guiding in Documentation and Product development

LEISA India team has been supporting field level organizations. LEISA India team has also supported donor organizations like MISEREOR, Germany and CARITAS, India in bringing out special publications.

Facilitating knowledge exchange platforms

To strengthen the LEISA knowledge use and sharing, unstructured alliances of LEISA enthusiasts were formed. Two LEISA Alliance meets were organized, one in the North and one in the South.

www.leisaindia.org

Feedback on the magazine

I congratulate the team on the outstanding get up and contents of this important journal. I wish you great success in making LEISA India an instrument for the promotion of sustainable agriculture in our country.

Dr. M S Swaminathan,
Chairman, MS Swaminathan Foundation, Chennai

AMEF Model

(Combining SA practices + participatory learning processes + social initiatives)

AMEF is promoting Sustainable Agriculture in dry lands through combination of NRM and ICM practices on the same farm - rain water management, soil fertility improvement, diversified and improved cropping practices, supplemented by encouraging farmers to grow shrubs and trees on farm for meeting income, fodder and manurial needs. Most importantly, backed by farmer-centric learning processes like PTD & FFS and building rural youth as farm guides.

The model works…….. Some observations

AMEF's interventions in Watersheds

There are a few innovative farmers who like to experiment with new ideas and techniques, but these are very much in the minority. The Farmer Field School approach got around this social constraint, supporting groups of farmers to experiment together…reduced farmer's fear… with constant monitoring of activities…particularly supportive of women's involvement. The regular meetings throughout the season and careful monitoring of pest and disease incidence between treated and control plots helped farmers to see the differences and benefits brought about by the practices. New varietal and crop introduction was successful from the start… Introduction in association with FFS helped spread the idea more quickly, with farm cross visits reaching a larger number of families in a quicker and more convincing way.

*KAWAD Project, Land development and support of farm livelihoods prepared by **Elizabeth Kiff**, 2005 (pages 61-72.)*

AMEF's interventions in dry land areas

The project has generated and promoted practices for sustainable agriculture in dry land areas; More in detail, the project made the knowledge available to small and marginal farmers in dry land areas on simple affordable technologies for increasing crop and land productivity and plant biomass while protecting the environment, through diversification of their cropping patterns, adoption of less costly and more environmentally sustainable practices, and change of cultivation practices. **One of the added values of the Project was to propose a combination of practices which can develop synergies and provide compounded benefits in terms of improvement of the agricultural system and the economic returns; this contributed to enhanced technical and economic sustainability.** In terms of livelihood improvements, participants stated that their incomes had increased, that they were benefiting of improved health, education and access to safety networks, through the savings and credit groups and that their social and human capital had increased.

FAO evaluation team, 2008

Formal Research too supports the model

Elaborate trials on …research findings for individual components yield increases were not found statistically significant. However, as with the Bombay Dry Farming Method, when all the components were combined and tested, the average yields doubled in seven years, compared to farmers' method, while income increased by fifty percent. …These practices did not find a wide spread to farmers' fields. This was attributed to lack of promotional efforts.

CRIDA's study– Fifty years of Dry Land Agricultural Research in India, 1999

FOUNDATION

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June 2011