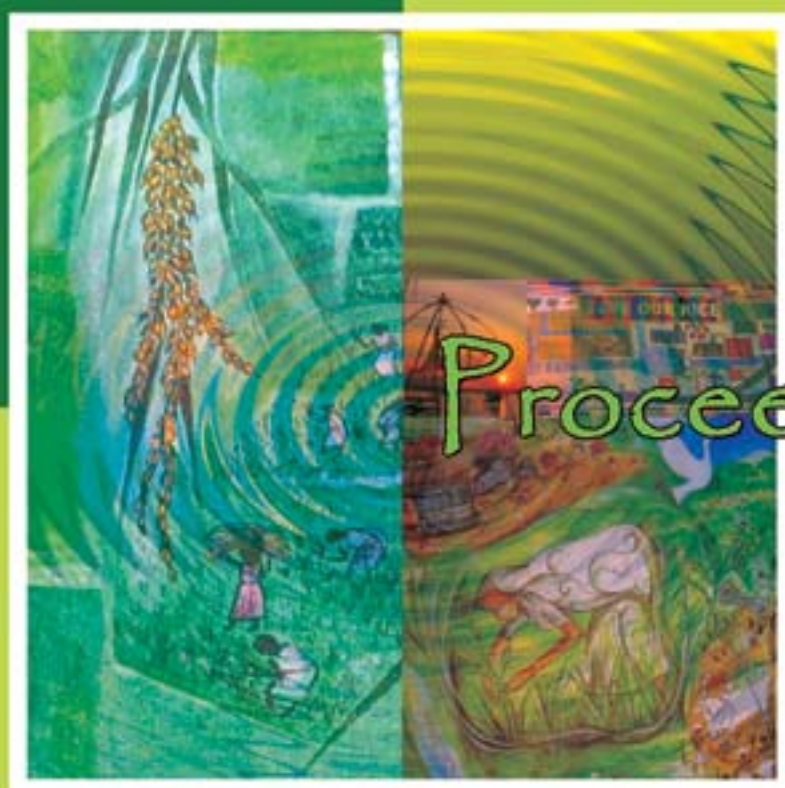




International Year of Rice Indian Workshop on Rice

9-11 December 2004



Kumbalangi, Keralam





International Year of Rice

Indian Workshop on Rice

Kumbalangi, Keralam December 9 -11, 2004

organised by



With the Support of



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Kumbalangi Declaration On Sustaining Rice

Declaration from the “Indian Workshop on Rice” December 9-11, 2004

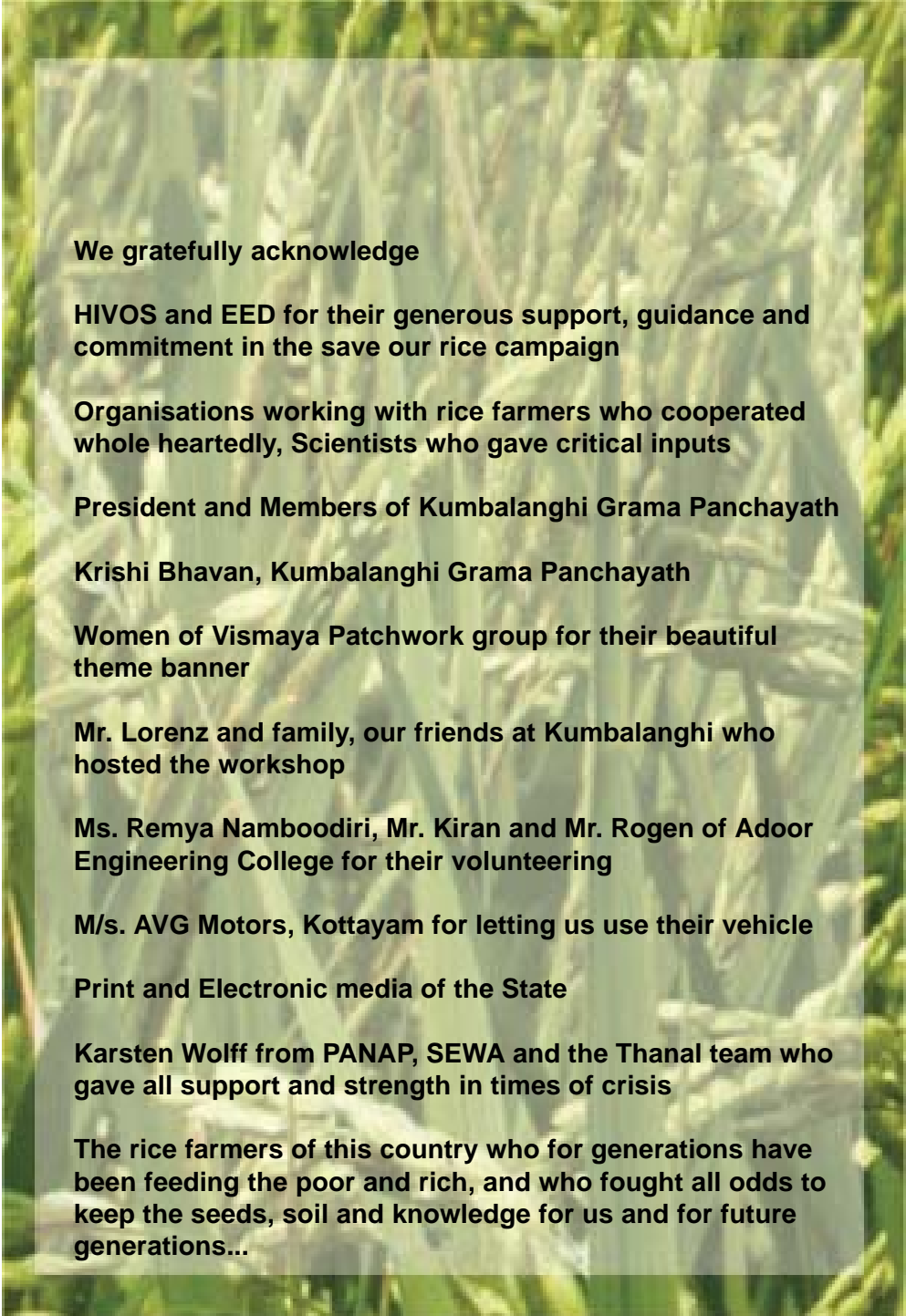
In the Second International Year of Rice, 2004, we, the participants representing 57 organisations, primarily from rice growing states of India, working on sustainable ways of farming, environment, policy, consumer rights, farm labour having come together on a discussion on rice as part of our culture, as a basis for food security, and as a community heritage and having deliberated on the traditional practices of rice cultivation, problems facing its sustenance and the various initiatives in sustaining rice hereby recognize that

1. Genetically modified rice and lab-hybrid rice have no role in ensuring food security and sustaining rice in the country. On the contrary these are known to threaten the food sovereignty of the farmer community.
2. The green revolution has resulted in the destruction of agriculture and rural communities and has miserably failed in providing sufficient safe food and dignity of life.
3. Given the declining yields and harmful effects on human beings, plants, animals and environment health and the heavy losses to farmers, the dependence on chemical inputs such as fertilizers and pesticides should be phased out. Moreover, it is now proven beyond doubt that to ensure safe food and to sustain rice, pesticides are not required.
4. The way forward is to work collectively on traditional, ecological and sustainable agricultural practices.
5. That such an approach has the potential to feed the country with sufficient and safe food.
6. That the food sufficiency of small and marginal farmer families is an important priority for us.
7. That farmers, women and tribals particularly with their traditional and proven indigenous wisdom and knowledge need visibility and recognition in agricultural decision making, research and extension work.
8. That livelihood and food sovereignty are essential for ensuring access to food.
9. That such an approach has the potential to address the food insecurity of landless labourers, indigenous communities, artisans, self-employed workers, small and marginal farmers.
10. That the traditional wealth of knowledge and practices are not properly documented and understood in the terrains of agriculture in the country.
11. That the traditional spaces of sharing and owning both experiences and resources without the influences of international trade, globalization and liberalization policies and market forces need to be protected.
12. That food sovereignty of the communities is at many a time met through the commons. The right to the common should belong to the community.
13. That there must be informed, conscious, collective action to sustain rice beyond the international year.

Hence, we declare

1. That the way forward is to adopt, protect, sustain and promote traditional, ecological agriculture, community wisdom and local specific practices and methods
2. That chemical inputs and pesticide use in rice cultivation be banned.
3. That incentives and supports be provided to support organic and traditional systems of farming.
4. That the introduction of genetically modified organisms and lab-hybrid varieties be banned.
5. That the germplasm of rice collected from farmers of this country in the last 40-50 years and preserved in the research institutes of the country and international should be given back to the communities and the information about this precious wealth should be put in the public domain.
6. That any forms of legislation at any levels intended to patent/monopolise life forms, products, processes, traditional knowledge and practices should not be allowed.
7. That agriculture should be excluded from all present and future trade agreements.
8. That we shall work collectively to sustain rice.





We gratefully acknowledge

HIVOS and EED for their generous support, guidance and commitment in the save our rice campaign

Organisations working with rice farmers who cooperated whole heartedly, Scientists who gave critical inputs

President and Members of Kumbalanghi Grama Panchayath

Krishi Bhavan, Kumbalanghi Grama Panchayath

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Ms. Remya Namboodiri, Mr. Kiran and Mr. Rogen of Adoor Engineering College for their volunteering

M/s. AVG Motors, Kottayam for letting us use their vehicle

Print and Electronic media of the State

Karsten Wolff from PANAP, SEWA and the Thanal team who gave all support and strength in times of crisis

The rice farmers of this country who for generations have been feeding the poor and rich, and who fought all odds to keep the seeds, soil and knowledge for us and for future generations...



The Indian Workshop on Rice – A background

Although rice is the staple diet and a means of livelihood of a large section of the Asians, farmers are facing increasing problems to sustain it. Since the beginning of the Green Revolution, agriculture, especially rice cultivation took a sharp turn from the traditional self sustaining practices. Along with this, support structures also changed including that for marketing. This made the farmers totally dependent on external systems - for seeds, other agricultural inputs, marketing and financial support. Any political or economical changes in the developed world started affecting the rice farmers, directly and immediately.

Since 1990, the situation got further worsened and following the economic liberalization that swept the Asian countries, farmers have been in the receiving end, and farmer suicides have become a regular phenomenon. In India, the situation has reached tragic levels, where farmers either commit suicide or migrate to cities. This is leading to a very dangerous situation, where a country like India might have to start depending on other countries for its food. This is really a humiliating situation for a country like India where natural resources and human resources are plenty and cultural diversity the foundation.

But since the nineteen eighties many farmers and agricultural experts gradually started realising the impact of this change and began experimenting with newer and traditional methods of ecological farming. Since 1990, these ideas found root in many parts of the country and spread to many farming communities. They started collecting indigenous seeds, cultivated it and protected it. Many of them now have seed banks of these varieties, which are accessible to the farmers. Their trials proved that it is possible to cultivate rice without using any costly inputs such as chemical fertilizers and pesticides.

These farmers have shown us a positive way. But their efforts are not properly recognized either by

the society, scientific community or by the governments. So, in the International Year of Rice, 2004 it was decided that these rice farmers should show the way by which the country should go forward in sustaining rice farming.

The Indian Workshop on Rice was conceived in the beginning of 2004 as a platform for sharing the experiments, experiences and concerns, and also to lay the foundation for working together towards sustaining rice. For the first time people working on the fields, farmers, gathered along with consumers, agriculture activists and scientists, exclusively to look at ways of sustaining rice. Thanal along with SEWA and PANAP organised this event.

The three- day workshop from 9th to 11th of December 2004, held in Kumbalangi, Kochi , Kerala was guided by four themes

- 1) Sustaining rice
- 2) Fighting GMOs
- 3) Ensuring safe food and
- 4) Protecting community wisdom

The primary objective was to 'Save Our Rice'. The main presentations of the workshop were divided into three categories

- 1) Traditions in rice
- 2) Threats, problems and issues in sustaining rice
- 3) Initiatives in sustaining rice.

There was a panel exhibition depicting the history of rice and another exhibition of different varieties of rice seeds and publications brought by the participants.

This document presents the proceedings of the three-day workshop that include the presentations, discussions and group interactions.





Lessons from the Workshop

Introduction

Recently tens of thousands of rice farmers in China have demonstrated that a simple form of polyculture – growing multiple varieties of rice in the same field- could double yields without the use of any synthetic chemicals (Anne Platt McGinn, Nov 2000, *Why Poison Ourselves? A Precautionary Approach to Synthetic Chemicals*, World Watch Paper- 153). This happened because of two reasons - one was the reduction in pest losses and second, the efficient uptake of nutrients. A study was conducted by the Food and Agriculture Organisation (FAO) in seven Asian countries where Integrated Pest Management (IPM) is practiced by farmers. It showed that IPM practices could cut down the use of pesticides by an average of 46% and increase the yield by an average of 10%.

Agriculture is approximately 10 million years old and farmers over these years have collected and built a vast knowledge about soil, seeds, insects and pests. In traditional agriculture, farmers have integrated both seed development and crop production. Plant breeding was done by the farmers themselves and the seeds were never purchased. The work of the farmers included not only production of food but preserving the seeds and other genetic wealth. This was done by careful selection of the seed, cultivation of different varieties of the same crop together, replanting with good seed etc.

In the century that passed, it took hardly 50 years to change this approach and practices in farming. Farmers have now become slaves of the companies and markets. And in this process only big farmers benefited and it involved expansion of area under specific crops like rice, wheat, pulses and the like which needed more irrigation and other inputs. People lost common lands, which used to support large populations and their livelihood and in the long run this became a common tragedy to all and eventually to the country itself, in terms of real indices of progress. The main cultivated areas under big land ownerships lost most of its biodiversity due to monoculture.

Realizing the danger in the modern agriculture approach, many individuals started searching for alternatives and ways to bring back

the lost richness. They started interacting with their fellow farmers and found that some of the farmers, especially small and marginal farmers, still maintain some of the traditions in agriculture and also seeds. This then became the nucleus of another set of activities leading to the organic movement in the country. Some of the big farmers also joined this movement. Now everybody accepts that this is the way forward, but threats have reappeared even here, in the form of big corporates and farmers who are getting ready to take the profit. The genuine farmers and also their culture are never valued in this race for productivity and profit making by a few.

Rice in India

India is one of the centers of origin of rice and it cultivates rice in an area of 44,000,000 ha mainly in the south, central and eastern states. India occupies 29% of the world area and 23% of world production in rice. An average Indian gets 30% of her/his calorie intake from rice. India is believed to have had more than 2 lakh traditional varieties of rice before 1960, but at present only 30-40 high yielding varieties are under cultivation in the whole country. This shows the narrow genetic base upon which this very important crop stands. One of the largest collection of rice made by Dr. Richharia mainly from Madhya Pradesh, is in the Indira Gandhi Agricultural University, Raipur and this is the second largest collection of rice germplasm in the world(22,500 in number). But this collection is not accessible to the farmers. Similarly agriculture universities in the southern and eastern states have a collection of rice germplasm of locally suitable varieties. There are drought resistant and saline tolerant varieties





in this collection and also seeds with many other qualities. But this is also not accessible to the farmers. On the other hand, the government is spending crores of rupees for developing such types by hybridization, genetic engineering etc. Crores of rupees are also being spent for drought relief measures and other natural calamity relief measures like intrusion of salinity, pest outbreak etc. which is becoming a burden for the government. In this situation it is of utmost importance that the people of this country understand the issues and decision makers think about the need of the time and together do things which can sustain rice and through that ensure food security and food sovereignty. Sustaining rice denotes sustaining not only rice as a crop but a whole agro-ecosystem, biodiversity, cropping diversity, livelihood and culture.

But planners and scientists consider rice as a capsule to food security and eradication of poverty and the planning is done accordingly. This approach is actually undermining the food base of the country and food sovereignty because these capsules are valued only as tradable items in a market economy and the market is now being controlled by the multinational companies. They decide who should produce rice and who should buy and they also decide the price and quality of the produce. They say that farmers and consumers in the Asian region need to be worried only about making money, which means enhancing their purchasing capacities. There is an undeclared move to slowly kill rice in India, images of which can be seen in many states, especially in the contract farming policies, in the shift to commercial crops (mainly horticulture), in the procurement issues, in the forceful introduction of genetically modified varieties etc.



Important sharings from the workshop

- * The experience of farmers – how they were able to restore their seed, soil and animals during the last two decades.
- * The significance of small and marginal farmers in the agriculture production and how knowledgeable they are in producing food and preserving seeds under marginalised situations for the common good.
- * The capability of farmers in plant breeding and production of good seeds and varieties. A good example is the variety HMT developed by Sri. Dadaji Kobragade from Maharashtra, which became a source of inspiration for many.
- * People from different states could share and understand the problems of farmers in each state and could help each other by giving ideas, processes and methods for moving forward.
- * People understood that although the problems are locally specific, the root cause of the problems is the same and so it has to be addressed together.
- * The fact that the International Year of Rice was inaugurated in Switzerland, a country with no background in rice, was an eye opener to the participants. They also understood that Asian people have to unite to celebrate rice and rice culture.

Lessons from the workshop

The Indian Workshop on Rice held in Kochi clearly brought out the fact that rice can be cultivated organically and the support needed for rice cultivation is different from the conventional funding mode and it should be locally specific and hence flexible based on local situations. Although there were no presentations on topics like subsidy for rice, marketing of organic rice, women and rice etc, many presentations raised these concerns as well.

Policy on Organic farming:

Although the workshop clearly brought out the fact that rice can be grown totally organically without compromising on productivity, there is a long way to go if all rice farmers have to start producing rice organically. It needs a clear policy and governmental support as pointed out by many participants in the workshop. Majority of the participants were practitioners of SRI system, or other well developed methods of organic farming. Serious



questions were raised about the policy of the Indian government for the promotion of organic farming and specifically for the rice ecosystem.

If we look at the national policy we can see that there is no clear cut plan for the country to go organic within a specific time schedule and manner. Organic farming needs 1) awareness building not only among farmers but other sections of the society, 2) conducting research along these lines, 3) experimenting in the real situation(not in the lab), 4) providing financial support(which has to be worked out for locally specific needs) , and 5) promoting domestic markets.

If we look at the agriculture schemes prepared by the Ministry of Agriculture, we see that even now there is no holistic approach to organic farming. On the contrary ICAR seems unconvinced of the potential of organic farming and is more than willing to take the Biotechnology option. This clearly comes out from statements of eminent scientists like Dr. Mangala Rai , Director general of ICAR . In the International Year of Rice he said in a scientific conference in Hyderabad that ICAR is moving forward in functional genomics and would focus on the production of transgenic rice variety which would be resistant to yellow stem borer. On the other hand organic farmers have developed methods to resist stem borer attack in rice and this is not recognized and expanded. Another important programme which happened between 1998-2002 is development of Hybrid Rice technology for large scale adoption in India funded by UNDP as part of food security programme. This project was also undertaken by ICAR. Ironically, along with all these developments government has also started spending on expanding vermi composting in the country. Such programmes clearly show a lack of policy direction and a fragmented approach, not taking into account the agro-ecosystem approach, which is fundamental to organic farming.

Similarly there are programmes to protect the rice diversity in certain tracts in the country like Jeypore tract of Orissa, but there are no plans to include such conservation efforts in the organic farming agenda covering other areas where farmers have lost their traditional seeds. The National Institute of Organic Farming and Certification to be set up in the 10th plan is said to develop guidelines for declaring specific areas as organic zones which shows that the whole country is never going to be organic and it will be restricted to such zones. This is in a way violation of the farmers' right to cultivate crops of his/her own choice and sell it in the name that they desire.

Government also says in the national policy that the linkages between organic farming and biotechnology should be studied. For instance, one of the important national projects is for the development and use of biofertilisers and genetically modified seeds. It shows that, again, farming is not going to be under the control of farmers. This sort of compartmentalised approach is undermining the very fundamental principles of organic farming developed over the years by farmers. Organic farming is a process of developing self sufficiency and reducing external dependence, as put forward by many pioneers in organic farming.

In the case of rice, unlike in Indonesia or Vietnam or Sri Lanka , India has never sincerely tried to make Integrated Pest Management a success although it was introduced years back. So many of the pesticides, which are restricted in the rice fields in these countries, are still being used in India. Around 17% of the pesticides used in the country are used in the paddy fields.

Production Systems:

Rice has always been part of an integrated system of cultivation especially in the rain fed areas. Historical records show the crop rotation systems and crop mixing in the rice fields. This was presented in the workshop while explaining about the traditions in rice cultivation. This included 1-3 years of rotation of vegetables, pulses, tubers along with paddy. In many low lying areas (wetlands) rice-fish/ prawn was the practice. Most of these practices were abandoned when rice intensification was started. For example in the Kuttanad area in Kerala, rice used to be cultivated only once in two years. Later it became once in an year, before independence, and in the sixties two crops became the practice. Now it is realised that the changes made in the region to accommodate two crops of paddy has made the system totally polluted and infertile making even a single crop of paddy impossible and costly. Farmers are leaving the field fallow and are forced to migrate. Researches done about integrated systems of rice- fish cultivation and field trials show the viability of such rotational systems. But there is no support to expand this method so





far. There is even confusion among the farmers and also workers about its viability and employment opportunities.

As part of increasing production, area under rice has expanded over the last 30-40 years in India. In many such areas, especially the dry land areas, it has created problems. Definitely it has affected the biodiversity, including food diversity in the region as in northern Karnataka and parts of Andhra Pradesh. Many participants pointed out this problem. This has affected the nutritional intake of small and marginal farmers and also their economy based on diversity. So it is utmost important to look into the traditional crops and practices and culture of each region while introducing crops and new methods of cultivation. Such policies have affected the food security of the communities and now their food sovereignty as well.

Rice and Women

Although paddy cultivation and women are closely linked and the role played by women are really huge, it was discussed in one session only. But it highlighted some of the basic issues like displacement of women from the decision making process in agriculture. Everybody was of the opinion that women still play a major role in sustaining rice but their role is understated and they face a lot of inequalities. The introduction of modern technologies and chemicals has impacted women more than men. Now in the present context of contract farming and conversion of paddy fields for horticulture, women are put to more dangerous options of either quitting the field or taking up more hazardous work as pesticide applicators in floriculture for example. In any situation, the special needs of women are not taken into account while policy is framed and planning is done. This force the women to migrate to urban centers and work under exploitative conditions



which impact both mentally and physically. Even though many studies have been done about women in the country the loss of dignity which women face when she is taken out of her knowledge base, as in agriculture, is very less understood.

Procurement/ Marketing of paddy:

The whole idea of increasing productivity has been to ensure food security. Food security was primarily meant to supply basic food at reasonable rate which the poor people of the country can afford and also make food available in times of crisis like natural calamities, crop loss, epidemic etc without depending on other countries. So along with agriculture development, government built systems for procurement of paddy and supply of it to the people through public distribution systems.

In many parts of India, farmers are entirely dependent on the procurement machinery due to Minimum Support Price(MSP), lack of local storage and marketing facilities, lack of regional consumption of rice and poor purchasing power of the farmer. Farmers are often forced to distress sell their produce to the traders who are politically more powerful. This rice will then go to the Public Distribution System, which sells rice at higher prices. Rural poor with poor purchasing power, eventually is forced to buy rice that they help produce, at a price greater that they can afford. Apart from the traditional problems faced by the farmers the recent decision by the government to remove the inter-state transport of paddy has intensified the suffering as described by the farmers from Palakkad during the workshop.

Subsidies

Subsidies have become a controversial issue, especially since 1995 when WTO policy started influencing our national policies. There is a plan to slowly take out the subsidies for agriculture and farmers. If we look at the subsidy pattern during the last 30-40 years it can be seen that the subsidies were part and parcel of an agriculture development plan which pushed chemicals(fertilizers and pesticides), high yielding variety seeds, intensive irrigation and mechanisation. So this subsidy had a lot of attachments to it, and in reality this helped the industries, traders and other middle men rather than



farmers. Even after incurring crores of rupees as subsidy, our farmers(particularly small and marginal farmers) still remain economically poor. Thus it is understood that our farmers have been pushed in a special way with subsidies to increase productivity and thus help the nation achieve food security, but at their cost and also at the cost of the environment. All participants shared their concern about this sort of support to the farmers and also lack of support for sustainable agriculture.

Now suddenly these subsidies have become a burden on the government, not only in India but in other developing countries as well. And thus farming has become a burdensome venture. Should we not be asking our government why they started the subsidy programme in the first place and now why they discourage it? What will our farmers do now? What is their genuine demand?

If we look at the subsidy to the rice farmers, it is mostly subsidised availability of chemical fertilizers and pesticides, water and electricity. Farmers have switched over to the use of all these materials and have forgotten many of the traditional knowledge and materials. So a sudden withdrawal of subsidies can really upset the whole farming systems and structures. But in the long run, supports(not subsidies, since support can vary based on the season and crop, and also area) are needed which is to be established after discussing with farmers organisation, civil society groups, womens groups, consumer groups etc since rice is a concern of all these sections . The new agriculture policy is clearly market oriented and the support is for developing markets and hence only those crops that have economic importance will get the support.

In the changed circumstances farmers are asking for support to compensate the losses which might occur during the transition period from conventional to organic. This issue was brought out in the discussions on the third day of the workshop. Many farmers do not venture into organic farming fearing this loss. On one side there should be support, including financial to tide over this situation, and on the other side a campaign to promote organic farming among farmers and consumers is also essential. In Kerala recently the government made a promise to the farmers that there will be a support of Rs.1000/ha to compensate the loss while shifting to organic. But such decisions are only contextual and are not based on a sound policy. Apart from this financial institutions like banks and insurance companies should also change their policy, towards supporting organic agriculture.





proceedings

In the International Year of Rice 2004, more than 100 people from 57 organisations working in 10 states assembled at Kumbalangi, a picturesque rice and fish growing village in Kerala. There were organic farming groups, consumer rights organisations, womens' rights groups, environmental organisations, human rights organisations and people working on land rights, tribal rights and policy issues.

The workshop gave clarity to the issues affecting rice in diverse areas in the country. The impact of Green Revolution was highlighted through out the workshop. Loss of seeds, loss of fertility of the soil, increasing cost of cultivation, marketing issues and price fall were the main concerns brought out by the participants. Many of the participants were working on sustaining rice organically and their understanding about Green Revolution and their concerns about the introduction of Gene Revolution were discussed. The most significant outcome of the workshop was the confidence with which the participants declared that the single way to feed the country was through organic farming. This is good to the soil, labourer, consumer and farmer and ultimately for the country. Moreover, organic products have the real market potential – both domestic and global and hence benefit the country economically.



“...for each seed of rice is the seed of life
seed of hope arising from the horizon
for each seed of rice is a farmer
giving life to the world...”

From a Philippino song '*Bawet Butil NG Palay*'





The 'Indian Workshop on Rice' organized by Thanal, Self-Employed Women's Association (SEWA-Kerala) and the Pesticide Action Network-Asia Pacific (PANAP) was held at Kumbalangi, a village 16 km away from Ernakulam on 9-11th of December 2004. More than 100 people representing 57 organizations from the important rice-growing states across India participated in this three-day workshop. These representatives work in areas as varied as sustainable ways of farming, policy research, consumer rights, environment, human rights and tribal and land rights.

Introductory Session

The introductory session started at 2.30 pm and Chandini Krishnan of Thanal welcomed the participants.

S. Usha

Coordinator, 'Save Our Rice' Campaign

S. Usha of Thanal placed the agenda of the workshop with an introductory talk giving an overall objective of the workshop and the relevance of it in the present context. She said that rice is facing serious threat for its existence in the Asian region due to the new trade policies. She stressed on the fact that rice is life for the people of Asia and ironically the Second International Year of Rice (IYR) is celebrated not by the people of Asia but by the Food and Agriculture Organisation (FAO) and scientists and they push their agenda of GMOs and hybrid rice through the governments. The first IYR, in 1966, introduced the idea of Green Revolution in to the rice fields of Asia and through this IR-8 spread in the country. Over the years we have realised the impact of Green revolution and other developments in the agriculture field. However farmers and consumers are never consulted when such basic changes are made. She then spelt out the main objective of the workshop - "to highlight our concerns about rice and share our experience in sustaining rice and suggest ways to move forward.



Dr. Devinder Sharma

Chairman, Forum for Biotechnology and Food security, New Delhi

He joined the workshop as an agriculture journalist and expert on food and trade policy. He said that today is a world of high yields, economic growth and development but ironically the farmer has become the most hated person. It is the same everywhere, whether it is in Kerala, Andhra Pradesh, Malaysia or for that matter even in America. One needs to find out how this transformation has taken place.





He said that the best way to understand this issue is to compare a farmer in Kerala to a cow in California. To rear a cow in a rich country 10 hectares of land is needed and on the other hand 2 hectares of land can sustain a family and a cow in a country like India

Agriculture is now controlled by a few multinational companies like Monsanto and Cargil. 60% of the wheat trade is done by Cargil. MNCs like Monsanto are also bringing biotechnology in to agriculture. They join hands and work together to control the whole agri-business. They give seeds to the farmers, buy the product back and then super malls like Wall Mart come in rural areas and thus it becomes a complete circle. ITC in India is one such example. They are starting super market chains in the rural areas.

20 years back World Bank had started a scheme in developing countries where farmers were encouraged to grow cash crops instead of rice and wheat. They told us that the economic development brought by these changes will bring money to the farmers and they can gain more. The idea was that developed countries will produce the staple food for the whole world. Thus their agenda was very clear. Now our farmers face the problems of this change and they commit suicide in large numbers. This also shows the collapse of Green Revolution which led to the destruction of our natural resource base.

Since 1991 not one Prime Minister has visited rural India. Economic policies are against the farmers which is leading to suicides in rural India, but it is not really taken seriously by the government. Everybody is promoting the big corporates and agri business companies. Thus they gradually displace people from their livelihood. Another danger is the undue importance given to technology and by which politicians are trying to remove the farmer from the picture of India.

Thiru. G. Nammalvar

General Secretary, Tamizhina Vazhviyal Multiversity, Tamil Nadu

Thiru G. Nammalvar, an organic farmer and agriculture scientist from Tamil Nadu brought his experience into the introductory session by saying that this workshop will be an important moment in the history since it has brought together people working with rice in the International year of Rice. He gave a socio economic view to farmer's problems.

Many people are there to exploit farmers and our governments are also providing support to the exploiters. The main reason for being exploited is the excessive use of fertilizers and pesticides. Mother earth is spoiled by fertilizers. An interesting thing is that the use of more and more fertilizers didn't increase the outcome but only destroyed the soil. The concept of safe food is lost. The action of chemicals polluted the whole environment especially water which is the basis of all life.

He briefly explained his background by saying that his father was a farmer and he worked in an agriculture research station for 6 years in the nineteen sixties. He came out of this research institute because he realised then itself that by using chemicals in agriculture the soil is getting sterilized and the farmers are getting ruined. This is the time when Green Revolution was the in thing and nobody dared to question the reason behind such massive interventions. 21 researchers were working in this research station and they





all found that chemical fertilisers and pesticides are not able to provide the predicted yield. But these experiments were planned in Coimbatore and Delhi. Since most of the scientists were not ready to face this reality they continued their dangerous experiments till their retirement.

Now we see that traders of agriculture produce are flourishing. But the farmers are in debt. The fertilizer dealer, pesticide dealer, the person extracting oil from bran, the mill owner all have become millionaires, but the farmer who toiled the land never got a chance to flourish in this trade. This is an unfair trade. In this trade, farmer is not able to fix the price and it is a conspiracy. Farmers did not realise this for a long time, but now when they realise it and agitate, they are suppressed.

In this process, soil also became very bad; fertilizers and pesticides killed micro organisms. Mother earth was spoiled with chemicals and heavy machines. Farmers were forced to use more and more chemicals and thus the cost of cultivation increased and they became indebted and finally committed suicide. Now all our food is contaminated with pesticides and consumers are ignorant about this and they become unhealthy. Pesticides have even reached our ground water. Mothers' milk is also not spared. As a result more and more hospitals are coming up to cater to the new diseases.

Now farmers are finding more organic ways for cultivating crops and producing food. Earlier, the American scientists told us that our seeds are not good and they introduced new seeds which respond well to fertilizers. But organic farmers are now trying to protect our indigenous genetic stock. They realise that seeds are the fundamental rights of farmers and they nurture it through organic means. They share it with other farmers and they are starting seed banks.

His experience in this field taught him that more biological activities are needed in the soil and farmers need a systematic approach so that he will not be affected ecologically or economically. Agriculture is a location specific activity where farmer has to consider a lot of things like how much land he has, what is the kind of soil, what kind of animals he is having, how many people are there to work, how far is the market etc. before deciding on the crop. He told very specifically that government should not spend money on extension but they should spend money on education. Now our farmers spend a lot of money and time going to the cities to purchase agriculture inputs as well as medicine. But farmers who have shifted to organic farming have enough time to educate the villagers and children.

Concluding his speech he told that our country is rich in sunlight and if we can make use of this properly it will generate good food as well as a lot of employment opportunity for men as well as women. Nature has a lot of potential and we need to understand this.

Dr. Vanaja Ramaprasad,
Director, Green Foundation, Bangalore

She started her talk quoting Amartya Sen, who said that we are unique in the case of poverty and that we have hunger in the midst of plenty.

India's food production peaked in the year 2000 with 209 million tons of grains, yet about 42% of the rural population consumed less than what is required. Now the companies are convincing the farmers about Genetic Engineering. They came forward with the advertisement that 'Golden Rice' is rich in vitamin A. Vitamin A deficiency is seen in rice growing regions





where green revolution was most successful! Vitamin A deficiency is now followed by deficiencies of iron, iodine, and many other vitamins. Is Golden Rice the answer for all these?

If we ask people what deficiency they have they will have a lot to say. They are really knowledgeable about many things in their surroundings. Many plants which the scientists consider as weeds, they find use, and many such plants can make their food more nutritious. Many of these weeds are their main food in the lean season. But these are destroyed considering it as weeds and then they are given Vitamin A. Thus we create a situation of deficiency. Similarly we create a condition of salinity and then try to develop genetically modified varieties that are tolerant to such conditions. We traditionally had salt tolerant varieties also.

India is a center of mega diversity. But the agriculture development policies during the last few decades – green revolution, expansion of monoculture, mechanization etc.- has eroded this mega diversity greatly. If we take the example of rice, now through out India only 30- 40 varieties of rice are being cultivated. But now there is a lot of work done by individual farmers and organisations to conserve indigenous varieties of rice.

Now again, the trade policies and the corporatisation of agriculture are adversely affecting the farmers. We have big agriculture traders like Cargil who have the right to export rice from our country. Farmers have not fully understood the issue of this trade and how it is going to affect their agriculture and livelihood. It is utmost important hence to develop systems to counter such trade negotiations and also to support the farmers.

Karsten Wolff,

Coordinator of Save Our Rice campaign, PANAP

He started his talk by bringing the attention of the audience to biopiracy. Then he compared the rice and agriculture in Europe with ours. The salient points in his presentation were -

Europeans consume less than 10 kg of rice per year. It is mainly imported from Thailand and India. Only 1% of total population in Europe are farmers who produce food for the rest.

He told that Europe is trying to implement their system in Asia as well. They try to tell that whatever is good for Europe is good for India too. Then he mentioned about the green revolution and the first IYR in 1966. During this period the hybrid and high yielding varieties were introduced which were dwarf in character and can be cultivated only as monoculture. This increased the pest incidence like outbreak of stem borer and brown plant hoppers leading to more use of pesticides. He grouped his views on the impact of first IYR as:

- 1) Loss of biodiversity in rice. For example in Philippines only two varieties are cultivated in the whole country now.
- 2) Erosion of farmer's wisdom.
- 3) Mounting debts.

He highlighted how FAO and IRRI see the second IYR celebrations. According to them rice is the staple food for more than half of the world's population and there is a need to heighten awareness of the role of rice in alleviating poverty and malnutrition. Reason for hunger and malnutrition according to FAO and IRRI is a lack of productivity. Modern biotechnology is promoted to increase the productivity and provide protection against pests and diseases. And





big agrochemical corporations are the main developers of GE rice. All this result in loss of farmers control over seeds and loss of traditional varieties of rice.

He then explained the dangers behind the genetically engineered rice. The simple solutions proposed by him are as follows

- 1) Protect and develop our own seeds.
- 2) Exchange seeds and knowledge with neighbours.
- 3) Be careful about 'Miracle Rice' that others may say will yield more and profit if we sow more.
- 4) Join local or regional networks to sustain rice.

The session ended at 5 pm.

After the tea break all the participants gathered for the self introduction session in which Sridhar R of Thanal was the moderator. Through brief self introductions, all the participants got to know each other and also their activities and the activities of their groups, with specific emphasis on work related to sustaining rice. All the delegates introduced themselves and also gave a brief account of their organization and their major area of work. Three participants who had promised to come could not make it, but they sent their papers. This session took the rest of the day well into dinner time. Sridhar also gave a brief about the three sessions planned in the following days of the workshop and about the logistics.





10th December 2004

Session 1

Traditional Practices in Rice Cultivation

**Moderator: Dr. Vanaja Ramaprasad
Green Foundation, Bangalore.**

The first session of the workshop focussed on sharing the various traditional practices in rice cultivation in various states.

TRADITIONAL PEST MANAGEMENT PRACTICES IN RICE

Zakir Hussain, Centre for Sustainable Agriculture, Andhra Pradesh

Zakir Hussain started his presentation with a statement that the increased use of pesticides has caused the outbreak of pests. There are a lot of myths in the current pest management paradigm such as 1) all insects in the field are pests 2) the only way to control them is to kill them and 3) pest resistance is a genotypic issue rather than an environmental issue. The risks from the use of synthetic pesticides outweigh the benefits.

According to him "Nature makes the insects and human make them pests."

He highlighted some of the experience and outcome of their studies. He stated that traditional farming is proven to be sustainable despite growing crisis in agriculture. Many of the practices developed over centuries by farmers are still in use in many parts of the country successfully. But there is erosion of this knowledge among the farming community due to their dependence on external inputs, which were introduced as part of Green Revolution.

Studies show that High Yielding Varieties developed since 1960's have only benefited farmers with irrigation and about 40% of the area under rice in Asia is not irrigated. The studies also show that before the introduction of modern agriculture, the percentage of damage by pests was only 5-10% and now it has reached 35%. Economically unimportant non-target species have become serious pests. In paddy in 1920 there were 40 pests, but in 1992 it became 200.

Another impact perceived is in the diversity of varieties. India had 30,000 popular varieties of rice, but now 75% of rice production comes from 10 varieties. This is narrowing the genetic base of rice and it can create problem in times of crisis like drought, pest outbreak etc.

Traditional farmers know that insects damage the crop mainly in one stage-larval. According to them there are several options using local knowledge to control pests at this stage.

Some of the traditional methods which are still used by farmers are given below:

- 1) Farmers hang dead frogs in rice fields of Assam to repel Gundhi bugs
- 2) Farmers use bael leaf decoction to control rice blast
- 3) Farmers in some parts of India broadcast leaves of glyricidia one week after transplanting to control case worm.
- 4) Leaf extracts of *Ocimum basillicum* is used effectively against fungi that incites blast, brown spot and sheath blight.
- 5) Farmers make mixtures from various plant materials along with cow urine and cow dung to control BPH and GLH in Andhra pradesh.
- 6) Farmers use asafoetida in the irrigation channels to control blast and sheath blight in Andhra Pradesh
- 7) Farmers sprinkle nuxvomica seeds around the field to repel caseworm in paddy in Andhra Pradesh



- 8) Tribal farmers in Khammam use Madhuka seed extract for the control of insects on paddy
- 9) The use of Cowdung- cow urine-asafotida mixture for the control of rice blast
- 10) Spraying of cowdung slurry can minimize disease development in rice

This is only a few of the thousands of methods which the traditional farmers used and still continue to use in some parts of the country . Acknowledging this vast knowledge and skills of farming community and supporting them to expand this base is essential if the country wants to sustain agriculture in general and rice in particular.

THE ROLE OF RICE IN TRADITIONAL SOCIETY

B. Bhagya, *Young India Project, Andhra Pradesh*

Two hundred years ago the structure of village was entirely different from the market based and profit based society existing now. At that time the major form of support extended by the farmers to people performing other services was in the form of rice and each village was independent even though there was the problem of discrimination and untouchability. All of them received their livelihood in the form of rice and other commodities and the major form of support was in the form of rice. Rice was considered to be a very important commodity of exchange for services. In all functions at home , among most communities rice was essential. But in the market-based society all people are expecting their reward as money and not as rice.

Young India Project (YIP) an activist organization working with agricultural labourers and marginal and small peasants has been addressing the above problems in 100 mandals of 5 districts in Andhra Pradesh . It has taken up implementation of land reforms, atrocities on women and scheduled castes and scheduled tribes, bonded labour, untouchability, discrimination of disabled people and most importantly poverty as a social issue. Not everything introduced by the market-oriented society has been healthy and harmless . In traditional agriculture the seeds of the various varieties of paddy were protected for planting in the next year and they were protected from pests and diseases using cow urine , curd, neem leaves or ash taken from the pottery kiln and women were very knowledgeable about protection of seeds and products. Land was fertilized with manure and compost that were non-toxic and non-damaging.

But the market oriented economy introduced hybrids and High Yielding Varieties which required chemical fertilizers and pesticides and all this came as a package with incentives. Though farmers who adopted this package could increase their profit for a while it progressively deteriorated and the farmers became confused as to which way to go. It is also because many have lost their traditional knowledge about soil management and crop protection.

Considering that rice will continue to play a very important role in the Indian context we must make every effort to understand better practices of the traditional society in growing and protecting rice. She concluded her presentation by recommending researches on growing rice using natural manures. She also raised two relevant questions to the group that how we will raise the funds for research and who will do it for us. The present institutional research focus is more on developing rice varieties which are dependent on chemicals. This is dictated by the interest of multinational companies.





KOLE LAND CULTIVATION IN KERALA

K.K. Kochumuhammed, *President, Cherpu Block Panchayath, Kerala*

K K Kochumuhammed shared his experience as a president of a Block Panchayath and as president of a Padashekara Committee.

Thrissur Kole land and Kuttanad are the two places in India where paddy cultivation is carried out after pumping out water. Kole cultivation includes pumping out the water from kole land and preparing the land to cultivate rice. These lands are 1-3 m below the sea level. Such lands are divided into three regions and the water is pumped out from one region to another for cultivation. Padasekhara samithi is responsible for assisting the farmers. The expense for the group farming is collected from farmers. Farmers get a good yield, from 4-7 tons per hectare.

Government gives subsidies and bonuses for the rice farmers. But the main problem they face is the low market value, high input value and poor technology. He concluded his presentation by the following suggestions.

- 1) The government has to survey the land and check where the paddy cultivation is essential and not to use these lands for any other cultivation.
- 2) Compensation for farmers who suffer from floods and other natural calamities.
- 3) Stabilize the paddy cultivation.

RICE CULTIVATION IN MALANADU AREA

M.G.Sathyanarayana, *Mangosan, Karnataka*

Malnadu area lies at the foot of the western ghats covered by deciduous forest with yearlong natural streams of water. Traditionally farmers used the gravity flow to irrigate their fields and finally the water is discharged in to the river. Farmers cultivated rice economically without any dependence on external inputs.

Malnadu area had a lot of indigenous varieties of rice some of which are aromatic varieties like Gandhasale which is a white variety. Farmers used to store this for years without any damage in containers called Mudi(paddy hay package). The seed size of this variety is so small that 2kg of seed is sufficient to cultivate in one acre field. The duration of this variety is 6 months. Farmers used to apply abundant quantity of green leaf, farm yard manure, wood ash and fired soil to paddy field. These ingredients created its own pleasant soil aroma which was taken as the indicator of correct field preparation and soil fertility and in turn expectation of a good yield.

The top 30% tender paddy seedlings plucked from seed bed is cut and strong sturdy ones are planted, two in one pit. Once or twice weeding is done and again manure is applied. Farmers had traditional methods to control lodging.

Some of the popular varieties which were under cultivation include kayama, rajakayama, mysore sanna, jeerige sanna. From 1965 onwards farmers started adopting new varieties and methods which contaminated not only the soil but their minds also, and the plants later. Realising the loss now many farmers have started collecting the traditional varieties and also the traditional practices They also try to share their experience to other farmers through newsletters, meetings, seminars and training programmes.





AN OBSERVANCE ON TODAY'S AGRICULTURE-A MICROREFERENCE ON PADDY

P. Gopal Reddy, VANA, Andhra Pradesh

He argued that every individual in the society have to raise their voice for paddy cultivation. He stressed that the air and water that we use should not be polluted. There is need to educate the farmers in all aspects pertaining to agriculture production to sale of the produce.

Farmers are the back bone of the nations' economy .The narrow minded attitude of the intellectuals, lack of honesty on the part of Government machinery are shattering the lives of the farmers, sometimes leading to suicides. The policies of the IMF, World Bank, LPG systems is ruining the lives of the farmers. It is time for the unorganized sector to be organized – the farmers, the scientists should question the rationale behind the use of hybrid and Bt seeds which created the imbalance in the environment which make soil infertile. If we don't react now, our agriculture sector will be wiped off from the screen and in turn we have to depend on the developed countries for food grains. So it is the time for us to keep up the traditional agriculture, to safeguard it.

Quoting the statement of economist Amartya Sen ,”in real democracy ,there shall be no droughts, starvations, death and insecurity”, he said that we have lost self sufficiency. He also told the ways for increasing the soil fertility by utilising waste. He also mentioned about the seed procurement, sowing, reaping and other intercultural practices in paddy cultivation. In modern agriculture, according to him the farmers and the government basically depend on other countries. Also in this , the agriculture labour is lessened due to mechanization leading to unemployment. Fertility of soil is degraded due to the use of hybrid seeds and fertilizers. Production cost is very much higher which will result in suicides and bankruptcy. He had the following suggestions to make –

1. Seed banks have to be implemented at village level and also exchange of seeds has to be done among the farmers.
2. Government has to purchase the products directly from farmers.
3. Traditional practices have to be recognized and implemented.
4. Only natural manures are to be applied to the crops and
5. Bt , Golden rice, and the chemical fertilizers and pesticides should be banned.
6. Contract farming should be banned.
7. Mechanization in agriculture should be controlled and, better procurement and warehousing facilities provided.
8. Farmers should be educated in such counts

TRIBAL COMMUNITY AND THE ROLE OF RICE IN THEIR SACRED TRADITIONS IN WAYANAD

Louis B.Figaredo, VOICE, Kerala



In the pre-colonial days Wayanad was inhabited by nomadic tribes who had their customary patterns of self-government, agricultural practices, traditional institutions and cultural heritage. However, from the 17th century onwards there were systematic and organized migration of farmers and planters from the plains. The ideal agro-climatic conditions suitable for growing cash crops like pepper and coffee was the real cause for migration.

The arrival of large number of settlers had adversely affected the tribal communities in the district, who were engaged in subsistence agriculture and hunting. Even now Wayanad is rich with diverse tribal groups who still maintain their age-old sacred traditions in which paddy and rice have a central role to play.



Session 1

The history of Wayanad, the land of paddy fields, date back to thousands of years with the history of diverse tribal communities, history of their land and the development and preservation of more than 100 varieties of native rice. They believe that seeds are the 'gifts of God'. In all important ceremonies rice play a vital role in all main tribal communities. They had more than 70 varieties of rice that can be cultivated in different agro climatic and soil conditions and these are varieties that can withstand both flood and drought. A unique cultivation method in Wayanad called 'Valicha' is the paddy cultivation in summer season.

As far as tribals in Wayanad is concerned paddy is much more than a grain. Rice is consumed to keep the body and soul together. It is the very soul of existence. At no stage of the cultivation of paddy do they ignore their Gods and ancestors and they remember and respect and acknowledge them. When they protected, preserved and developed the varieties they were protecting the rich biodiversity and Wayanad also. But they are facing a lot of challenges these days. Adequate incentives or support is not available to the tribal community to preserve and protect the varieties. They find it difficult to cultivate rice in the traditional manner using organic farming methods as the non-tribal farmers use chemical fertilizers and synthetic pesticides which ultimately end up in the fields and land of tribals and the fund allocated is also not adequate.

He concluded his presentation by the following suggestions

- First of all the presently available paddy varieties in Wayanad should be registered as farmer's variety under the Protection of Plant Varieties and Farmers Rights Act.
- The state or central government should take the responsibility to keep the seeds in seed bank on the behalf of the tribal farmers of Wayanad.
- Fund should be made available by the state or central government to tribal farmers to cultivate different varieties of rice and to market their product.
- Prevent biopiracy

AGRICULTURE AND RURAL ECONOMY IN WEST BENGAL

Alauddin Ahmed, SEVA, West Bengal

Land is the principal source of self employment in rural West Bengal and rice occupies a leading position in Bengal's cereals. He focused on the problems faced by the rural people due to changes brought in the rice cultivation in West Bengal. The rate of increase in wages, reduction in government subsidies in open market economy, free import, abolition of public distribution system, intense use of pesticides that requires more water and machineries all affected the rural economy to a wide extent. Slowly rice cultivation has become a burden for farmers due to low yield and high input cost and now they are turning to the production of cash crops.

But he reminded that it is not only the problem of West Bengal but of the whole country as it depends on the market forces. He expressed his dissatisfaction about the government policies as it takes no steps to improve rice cultivation but reduce water tax to help growing modern seed varieties. As the head of an organization his final word was "for our culture, integrity, rural stability and ecological balance, and for our future generations, it is important that rice cultivation is kept as a sustainable option".

CHANGING PATTERNS OF RICE CULTIVATION IN KUTTANADU REGION

Ajay P., Kottayam Nature Society, Kerala

In Kerala, Alappuzha occupies second place in the production of rice of which the major share is from Kuttanadu. He stated that the Kuttanadu people depend on back water for house hold needs but the high pollution of water sources has made this precious resource unfit for use.

Excessive use of pesticides and weedicides resulted in the vanishing of aqua plants and fishes. Some are under the verge of extinction. The increased use of pesticides and weedicides in Neelamperur



fields has destroyed the environment totally. The changing environment adversely affect the plant growth also.

Problems of Kuttanadu cultivation.

- 1) Increasing labor cost. and also non-availability of labourers
- 2) Land owners are not doing farming. As a result they are interested only in profits and not practicing the right way of farming.
- 3) Mechanization in ploughing.
- 4) Absence of integrated farming.

Above all, the main problem of Kuttanadu cultivation is the excess use of pesticides and weedicides. Use of tractors for ploughing instead of cattle has adversely affected the growth of aqua plants.

TRADITIONAL SUSTAINABLE CULTIVATION IN KANCHEEPURAM DISTRICT

R. Jayachandran, *Organic Farmer and Panchayath President, Tamilnadu*

Jayachandran is a farmer and also the president of a panchayath in Kancheepuram district in Tamilnadu.

Kancheepuram District lies in the northern Tamil Nadu and fall under the coastal plains. The rainfall received annually is about 1200 mm. For the storage of water every village has lakes and tanks which is used for irrigation. He presented the significance of rice in the rural village life in imparting health and welfare to the society. For example he said that the traditional rice variety called Chingleput Serumani is given to women after delivery from ancient times. Another variety called Arcat Kichlesamba is given to adolescent girls. White variety ponni which is a super fine rice is the most popular variety now.

He also narrated the impacts of green revolution in his village. He talked about the erosion of genetic wealth and farmers knowledge in his village due to the introduction of new HYV seeds and chemical fertilizers and pesticides. Recently the farmers have started to enquire about the indigenous seeds and knowledge and have started practicing it. They have formed the 'organic rice farmers association' with the help of an NGO which maintains community traditional rice seed bank. The seed bank is now a source of traditional seeds for farmers who wants to cultivate them. Farmers are now convinced about the economic benefits due to organic rice farming.

TRADITIONAL SUSTAINABLE CULTIVATION IN KANCHEEPURAM DISTRICT

P. Veerabhadran, *Organic Farmer, Kancheepuram, Tamil Nadu*

Veerabhadran explained about the traditional organic cultivation where the major input is human labour and he told that in this there is no input coming from outside. He explained that the green revolution destroyed the traditional farming systems that resulted in the usage of hybrid seeds and high energy input such as chemical fertilizers and pesticides and resulted in the loss of seed diversity.

The farmers are given loans for digging wells, install pump sets etc. which increase the cost for machinery and cost for electricity consumption and finally during the span of last thirty years they have become indebted to the financial institutions and have fallen into unredeemable poverty. The rich farmers have become richer and the poor have become more poor. He perceives an additional danger in using genetically modified food that is being promoted now. He said that GMOs will cause ill health and disease to humans and animals.

As biotechnology introduced hybrid seeds into the field, the South Indian farmers should be conscious and keep the traditional rice seeds and cultivate them and produce organic rice for our consumption to prevent ill health. He concluded his presentation by giving this advise to all farmers.



Session 1

The presentations of the first session were summed up by the moderator **Dr. Vanaja Ramaprasad** and she concluded the session. It was followed by a discussion session where the participants asked questions and also added some more of their experience.

Thiru Nammalvar raised the issues of how we are spoiling the employment opportunity and the soil fertility by adopting new technologies, chemicals and seeds. And how the increase in use of chemicals is adversely affecting us.

Dr. Padmakumar focused on the increase in cost of production in Kerala and the lack of initiatives in addressing this issue. He said that cost of production in Kerala comes to around Rs.522/ quintal where as it is only Rs.128 in Punjab and Rs.100 in U.P. He told one example from Kuttanad where farmers spend a lot on controlling weeds and where scientists tried to intervene in a positive way. What they suggested was to flood the field for two weeks to destroy the weeds. But this has not been tried and promoted because people are really confused and have lost faith. This attitude is leading to loss of interest in farming itself. He also mentioned about the disappearance of earthworms from the field and the gradual decline of rice-duck farming system in Kuttanad.

Jacob Nellithanam said that the myth of green revolution still persists and we have to crush it. Now the quality of food is worse due to the chemical residues present in the food. As a result of this erosion of nutrition, the Body Mass Index(BMI) is very much reduced which will affect one's health very much. He added that we have enough potential, but have to use it properly in the right manner.

Azrah Mohammed raised the practical problem in collection of cow dung as the cows are allowed to graze by wandering.

Durga Jha replied that in Chattisgarh there are communities for collecting the cow dung. Cow dung cake is used as a good fuel and the ashes resulting from it can be used for farming.

Murugappan suggested the rotational cropping system to maintain soil fertility. If we cultivate rice once, we have to cultivate ground nut for the next time and so on.

Neju raised a doubt that if some farmer cultivate golden rice by organic methods whether that will be considered organic. He said he is confused about the organic integrity. He also told that in his part of the country farmers suffer because of paddy cultivation since traditionally this area had millets and it was the staple food for a large section of the society. Now due to the introduction of paddy, millets are no more a preferred item and since it is a drought prone area farmers find it difficult to sustain rice.

Usha, by responding to Neju's question said that organic farmers do not go for Golden Rice. She also raised the issue of where one should encourage and grow rice and this is a policy issue. We should be clear about where we can grow rice and planning should be based on that.

Dr. Devinder Sharma enlightened the participants on a specific argument as part of a concerted effort from various quarters to destroy rice in Asia and the economies related to it. An argument is that in U.S to produce 1 kg of rice 5000 lit of water is needed. But he said that to produce 1 kg of beef 7000 lit of water is needed. In India to produce 1kg of rice farmers use 3000 lit of water, but most of this water is diverted back to the streams or ground water. Another campaign against rice is that paddy fields generate high amounts of methane gas.

Later he narrated the experience of Indonesia where in 1987 due to the Brown Plant Hopper attack scientists advised the government to ban 57 pesticides that were in use there. Production increased 20% after this and pesticide consumption decreased 65%.





10th December 2004

Threats, Problems and Issues in Sustaining Rice

**Moderator: Prof. M.K. Prasad
KSSP, Kerala**

The post noon session had presentations on the threats, problems and issues facing rice cultivation in the country and broadly in the Asian region. This session was moderated by Prof. M K Prasad. This session went on till the evening tea break.

THREATS FOR RICE IN THE ASIAN REGION, ROLE OF IRRI AND OTHER ISSUES

Wilhemina Pelegrina, SEARICE, Philippines

Wilhemina Pelegrina started her presentation by referring to the International Year of Rice as the next 'Trojan Horse'. She explained about the first Trojan Horse in 1966, the First International Year of Rice followed by the Green Revolution. She shared with the participants how IRRI played a major role in this. First IYR was celebrated with the introduction of IR8 which was the beginning of green revolution in Asia. IRRI's second Trojan Horse is second IYR which is known as Gene Revolution.

In the second IYR their agenda include

- 1) Increased productivity must be accompanied by environmental sustainability with green and improved technologies
- 2) Genetic diversification - eg: strip cropping with hybrid rice(later GE rice)
- 3) Developing ecology based and non-chemical approaches to pest control
- 4) Alternate wetting and drying of the soil(SRI principle)
- 5) Developing aerobic rice(SRI)
- 6) Community led conservation of rice genetic resources
- 7) GE rice - screening for naturally occurring nutrient rich traits in rice germplasm

Next Trojan Horse according to her is the experiments on New Plant Types which is changing the archetype of rice for efficient grain production instead of changing the farming system. This will be available by 2005. Hybrid rice is the next Trojan Horse. There is massive promotion of hybrid rice by East Asian governments through subsidies, credit support and other extension services. Farmers will be forced to buy F1 seeds every season once they start using it which is in the interest of seed companies. She explained to the audience about the GE rice which is under trial. This is the first time that genes from a dicot plant (potato) is transferred to a monocot plant (rice). The argument from the scientific community is that this will hasten the evolution of rice! Biofortified rice like Iron rice and vitamin A rice are the other targets, focussing on countries with iron and vitamin A deficiency. Another experiment is about biopharmaceutical rice which is estimated to be available by 2007 in Japan. While such experiments are being carried out there are no studies done to understand the impact of such food on environment and human lives.

Nanotechnology is also promoted by the industry, which is manipulating a plant at the atomic and sub atomic levels to create new products. Jasmine rice, one of the most important commercial variety of rice, is also being manipulated to make it photo insensitive so that it can be cultivated throughout the year





She concluded by saying that in the second IYR

- 1) technology is now associated with monopoly rights
- 2) corporations are taking control over food
- 3) agriculture extension systems in asia are used to promote the Trojan Horses and
- 4) there is a clear shift in planning from production base to trade in rice.

In this context she said that the celebrations by the rice farmers and consumers about the sustainable practices of rice cultivation means a lot and it is really significant because rice is life for us. FAO and IIRI also send across the message that rice is life, but she asked 'whose life they count?'

THE PROBLEM OF RICE CULTIVATION IN KERALA

Pandiyode Prabhakaran, *National Farmers Protection Committee, Kerala*

The debacle of paddy in Kerala has created severe food deficit in Kerala. The Land Reforms Act (1970) which fragmented the land holdings caused serious impact on rice farming systems. Paddy area came down from its peak of 8.75 lakh hectares to around 3 lakh hectares. The loss in family labour, which was essential in farming, was a serious after effect. Along with this situation the large scale migration of people to gulf and consequent rushing in of NRI money had its effects on the conversion of paddy lands mainly for construction purposes and cash crops. The increase in farming cost and shortage of farm labour were serious threats to paddy in the state. The higher education, awareness, new opportunities and political awareness has caused a shift of labour from rice to other sectors. The trade in the state has also done its damage. Since rice is coming from other states at a lower price, rice mill owners prefer to buy this rather than from farmers of Kerala.

When every year rice cultivation is coming down, more money is spent on research institutions and bureaucrats. No government or scientist in the state has been able to support rice farmers and sustain rice cultivation. If rice farming is to be sustained, government should take some immediate steps like providing good support price based on the cost of cultivation. Rice farming should be able to provide profits comparable to that from cash crops. Crop insurance schemes, prompt procurement, reservation for descendants of farmers in academic institutions like agricultural university are some of the immediate needs of the hour. Farmers also should come together to collect and store, process and distribute good seeds to the farmers. If there is a just price for rice and support from various agencies then farmers will have the strength to sustain rice. This will also help in solving the issue of unemployment in the state.

MINING IN RICE FIELDS OF KERALA

Baiju .G, *CENSE, Kerala*

Baiju.G focused on the clay mining issue in Thrissur district and said that his is a one man struggle to address this issue. The first essential need for the cultivation of rice is the fertile paddy land, in which the crop grows. As clay mining increases, more and more paddy fields are turned to deep holes which cannot be reclaimed.

He explained the history of clay mining which started with Britishers before independence. They started tile factories in and around Thrissur. In the eighties when the construction boom started in the state many paddy lands were given for clay mining and brick making. This provided a good labour market and there was an exodus of labourers from agriculture to brick industry. Lots of paddy fields got converted and later abandoned when it was no more possible to economically exploit the clay. But it got spread





to other areas and it had a good political support also. Even though a law exist in the state which can prevent the conversion of paddy land to industrial activity it was never implemented . At a time in one panchayath in Thrissur around 450 companies were working which show the enormity of the problem.

This uncontrolled clay mining resulted in

- 1) Water scarcity .
- 2) Temperature rise in those areas .
- 3)Wide destruction of agricultural diversity and food security
- 4)Destruction of the ecosystem

Because of the struggle by few concerned individuals they could stop mining in some areas and in some regions abandoned by the companies farmers are trying to bring back paddy cultivation. Baiju told that only a clear policy and political will can sustain paddy in Kerala.

THE BIOTECHNOLOGY TASK FORCE REPORT - A CRITIQUE

Harikrishnan V R, Thanal, Kerala

The agriculture sector in the world has taken a new step towards the introduction of genetically modified organisms, crops and animals. World over GM is heavily contested for its ecological and socio – economical implications. In India, the government has allowed cultivation of GM seeds in cotton even while it lacks a strong biotechnology policy. The recent developments, experiments and field trials of a number of GM varieties in India warrants caution . In 2003, a Task Force was appointed by the Government of India to frame a guideline for formulating a policy for bio-technology in agriculture. The Task Force report show a clear pro-GM attitude . Very casual framing of sentences is intended for the introduction and promotion of genetic engineering in India, without considering the serious consequences of the technology. The whole report is a tailor made one, suiting the corporate interest. NGOs, farmers or other groups are not consulted by the Task Force. The Task Force constitution itself is suspicious with only technocrats as its members with Dr. M. S . Swaminathan as its Chairman. Other experts like wild life scientists, natural historians, legal experts etc are not included in the Task Force. The situation being such that GM products are not having any demand in the world market or domestic market, while this technology is being pushed into India, which is the largest non-GM country in the world reduces India's chances of utilising the opportunity of ever growing demand for organic products - both in the domestic and global market. Evidently the pro-GM bodies like the International Rice Research Institute and pro-GM technocrats are lobbying hard for turning the International Year of Rice into the inaugural year of GM rice. The Task Force report caters to the needs of such organizations and multi national corporations who are developing the technology. The regulations recommended in the report if accepted will be dividing the country into two – an organic zone and GM zone . Such an important report needs careful analysis and should be discussed in public domain for protecting our farming rights, dignity, environmental and community health.

Dr. R.H. RICHHARIA'S WORK AND ITS RELEVANCE TO THE FUTURE OF THE RICE FARMING REGIONS

Jacob Nellithanam, Richharia Campaign, Chattisgarh

Jacob Nellithanam emphasized the decline in the farmers' control over agriculture due to the increase in private investments. He began by saying that history of rice research starts with Imperial Council of Agriculture Research(ICAR). Ford and Rockefeller Foundation were behind Green Revolution and they expanded the boundaries of U.S to Asia through establishing IRRI.

Prior to Green Revolution , in 1961 , in India , per capita food intake was 468g/day and after 20 years it became 472.6g/day at the cost of polluting the land and water , reducing food diversity and good food and reducing the sustainability of the systems. Punjab, which is not a rice consuming state started producing





rice. Cost of production in Punjab was high. People there used to eat 119g of dry cereals per day, but they shifted to eating rice and wheat.

He said that already more than 26,000 varieties of Indian rice was collected and kept in the rice research institute. Of this 8% is highly productive and yield up to 9 tons per hectare. The duration of the varieties range from 90-180 days. He said that not even a single document of this is published in the public domain even though all these seeds belong to the local farming community. He talked about the farmers' rights over seeds which they have developed through generations. But now farmers cannot access them. He said that even now farmers continue to produce seeds that are highly productive and they share it with other farmers. We can be proud that it is a farmer who produced the variety- HMT recently which is very popular now in Maharashtra and Madhya Pradesh. It fetches Rs.800/ quintal when other varieties give the farmers only Rs. 300-500/ quintal. But the farmer did not get any recognition until very recently. He also explained that in the SRI system farmers even get up to 15tons /hectare.

Jacob also told about the GM rice issue and the myth about poverty eradication. He said that people in India are eating less over the years even though we claim that the production has increased. He quoted from NSSO data that per day calorie intake in India has decreased from 2400calorie to 1600-1800 calorie. This shows that our health is getting compromised and added to this is the issue of GM rice. He reaffirmed the significance of farmers' wisdom in protecting resources and also the role they play in feeding the country. So we cannot lose control over our resources. He also said that knowledge is something to be shared and not to be monopolized.

RICE CULTIVATION IN NORTH EAST INDIA IN THE CONTEXT OF GLOBALISATION

Lalrindiki Ralte, Mizoram

The Mizoram women are mainly interested in Jhum cultivation. In this, rice is cultivated along with other crops. North east India has a lot of indigenous varieties and women are the rice cultivators. Garo has 300 indigenous varieties of rice, Tripura has 42 varieties. Women have a good knowledge of breeding and other management practices in rice cultivation. Without acknowledging the participation of women, it is not possible to protect or sustain agriculture.

Although they cultivate vegetables, rice is their major crop. Jhum means 'slash and burn' which is the symbolic meaning of cultivation. They are going with the integrated farming system. According to her, the reasons for reduction in rice cultivation in Mizoram are

- 1) Intensive labour involved in Jhum cultivation
- 2) Once educated the young people lose interest in working in the paddy fields.
- 3) Availability of cheap rice in the market
- 4) Introduction of cash crops and the displacement of women
- 5) Loss of indigenous varieties.
- 6) Development of roads

She also told about the official view about organic farming which is intended only for export market. She also warned about the co-opting of ideas like seed bank, gender, organic farming etc. by companies and scientific community.



Asha Kachru, *Strainatha, Andhra Pradesh*

Asha Kachru gave a macroscopic view on the aspect of the developed and developing countries in the world. She explained her holistic view of nature, human beings and animals and she said about the need for being humble (spiritually) since we human beings do not know and understand everything.

She then brought the attention to gender and development issues. . She told that approach in the 'Third world' towards agriculture development is feminine, spiritual, labour based and also based on love and sustenance rather than cash and power centered as in the 'First world'. Agriculture is the main stay of developing countries whereas industry is the main stay of developed countries. Also agriculture in the third world is family oriented where as in the first world it is state oriented . While we are focusing on low cost organic agriculture, why should we have the inorganic industry?, She asked.

The seeds of 3rd world are feminine ,Yin, and that of 1st world is masculine ,Yang according to her. She concluded by raising the question that "how much masculine /first world values are we the third world people representing?"

CHALLENGES TO RICE IN CHATTISGARH

Durga Jha, *Dalit Study Circle, Chattisgarh*

According to **Durga Jha**, threats faced by farmers are not natural but it is a part of a conspiracy of vested interests for their private benefits. Drought was caused by the earlier planned 'development' by the Britishers and later by our own government. It will continue if there is no effective planning and will destroy the traditional system also. One example she quoted is the introduction of high yielding varieties and leveling of the land which caused drought in her area.

Water scarcity is a major issue in Raipur. Water is taken for development purposes. To avoid the water scarcity, leveling of land should be prohibited. Secondly the chemicals are to be controlled for maintaining good health. Cow dung is a good manure and fuel and is used for farming and should be promoted.

PROBLEMS OF RICE FARMERS IN ORISSA

Anantkar, *OMAPAN, Orissa*



Anantkar said that rice is the only solution for poverty eradication and is responsible for bringing peace in the world. Orissa is the second largest poor state in India while being the second largest producer of rice! Rice is also related to the festivals of Orissa. But the farmers are facing a number of challenges. The fumes and acid water from OSWAL chemical fertilizer factory is a big problem for the farmers in that area. Share-cropping and land issue is a vital thing to be settled in Orissa. The land is owned by brahmins and other upper caste people and they come to only 5% of total population. The interesting thing is that they are not farmers. Another problem is of hybrid seeds. Low grade seeds also are creating more problems. Along with these there are permanent problems like cyclone, drought and flood. He concluded with the opinion that if we want to sustain rice and agriculture we should start thinking 'we are for the land and not land for us.' We should serve the land as our mother.

After the presentations, the second session concluded and it was summed up by Prof.M.K.Prasad.



Initiatives in Sustaining Rice

Moderator: Wilhemina Pelegrina
SEARICE, Philippines



10th December 2004

The third and the last subject session - '**Initiatives in sustaining rice**' started late at dusk and went on till the dinner time. The session was moderated by Wilhemina Pelegrina.

ORGANIC RICE FARMING EXPERIMENTS IN NARISHO

Natabar Sarang, SPARD, Orissa

The current agricultural support packages prevalent in most parts of the country like free power to farmers, increasing subsidies and other financial support are welcome but the reality is that majority of farmers are either not eligible to be covered under or simply have no access to these schemes.

Agriculture across the state of Orissa and in fact the whole country is passing through a period of great crisis. While the cost of cultivation has been steadily rising, productivity of all major crops is on the decline. While the high yielding varieties are no more responding to high doses of fertilizers and pesticides, the soil fertility has fallen substantially. Prices of major agricultural commodities are far below minimum support prices declared by the Government, which has put the farmers of Orissa into a dilemma. In the coastal districts, the entire burden of unremunerative agriculture is being borne mainly by small and marginal farmers and share croppers. Most farmers are dependent upon the government for paddy seeds and for other seeds they depend upon the market. Slowly and slowly the control over seeds seem to be shifting. Agriculture in Orissa can be summed up as unsustainable from both the point of view of production and economics. It is also the case of complete lack of control over seeds by the farmers.

The 'Society for Peoples Awareness and Rural Development' (SPARD), Narisho has been engaged for the last four years in collecting, multiplying, distributing and conserving traditional paddy seeds. SPARD has launched a programme 'BACK TO TRADITIONAL SEEDS', through which the following activities have been initiated:

- 1) Distribution of seed kits- on seed exchange basis and on sale.
- 2) Spreading awareness on organic farming and traditional seeds.
- 3) Training of farmers and facilitators.
- 4) Seed multiplication.
- 5) On farm organic farming experiments.
- 6) Seed collection.
- 7) Consultations and Workshops.
- 8) Process initiated to establish on organic farmers co-operative.

While there is a general fall in productivity and rising cost of cultivation of all major food crops, the farmers are beginning to understand that this is due to the adoption of the so-called green revolution technologies which involves HYV seeds, fertilizers, pesticides, intensive irrigation, etc. In this context the success achieved by few farmers by adopting organic farming is an encouraging phenomenon. He concluded his presentation by the practices used in organic farming which are as follows.



- 1) Use of Organic manures and organic pesticides.
- 2) Use of cattle for ploughing.
- 3) Broadcasting of seeds.
- 4) Less use of water.
- 5) Two times weeding, that controls weed growth and aerate the soil that helps in rapid root growth.
- 6) Use of high yielding traditional seeds.

He said that there needs to be support for the farmers to change from the present system of cultivation to the organic one.

BIODIVERSITY CONSERVATION IN FIELD

B.K. Parameshwara Rao, *Nagarika Seva Trust, Karnataka*

Parameshwara Rao shared his experience of conserving the paddy varieties in the field. He told that depending up on the season of cultivation the crop is called by different names. Paddy is the main crop in his area covering about 500 acres, in the foot of the western ghats. This is purely rain fed crop from April-October, called Enelu. Most of the farmers use local variety of seeds.

In the other seasons farmers make temporary checks in the hallas (nala) and thus irrigate their field. 2-4 labourers can make a small check (called katta) within half a day. This is a very efficient and low cost practice. It does not get damaged easily. This also helps in water recharge, keeping the farmers' unity, provide employment opportunity for local people and there is no need for external energy support for lifting water.

In 1990 Nagarika Seva Trust (NST) surveyed and promoted local paddy varieties . 52 varieties were enlisted. 20 varieties have already been lost. Later they encouraged seed exchange programmes. One farmer alone conserved 42 varieties of paddy during last kharif(Enelu) , 26 in his field. He did not use any chemical inputs. He was given an award for the local seed conservation last year. NST has established 2 seed banks which is managed by the local farmers.

NST also prepared a biodiversity register in 11 villages and the local panchayaths declared the rights on these registers. NST also calculated that minimum support price for paddy per quintal should be Rs. 1200/-. If it is given, farmers will be able to sustain rice organically using local varieties. Subsidy should be given to the farmers directly and not to the chemical companies that is artificially maintaining a low price for fertilizers and pesticides. He also said that farmers should be supported for developing locally specific implements and technologies.

GROUP FARMING IN PADDY

T.A.Viswanathan, *Paruthikkavu Nellulpadaka Padasekhara Samithy, Palakkad*

The ' Karshaka Charcha Samithi' which is a group of farmers who have organized as a self help group for the successful running of agriculture in the state was formed in Chittoor. The 'Paruthikkavu



Nellulpadaka Padasekhara Samithi' (Rice producers committee of Paruthikavu) won the first 'Nel Kathir' award for the best rice group farming society in the state. The samithi identified some of the traditional practices which are forgotten and decided to implement them in their padasekharam. They found that the implementation of the community nursery in the padasekharam reduces the economic loss remarkably. The samithi also took up measures for the conservation of water bodies in the field and laying



of new channel to make single crop paddy fields to double crop. The activities of the samithi include testing of soil at regular intervals, the application of fertilizers at the right time, encouraging the cultivation of daincha, a green manure crop, in the field to reduce the dependence of organic manures from outside.

The Samithi is moving towards the concept of liability free self sufficient farming making use of latest technological input. The goal is 'Oru Nello Vilayunnidathu randu nello vilayichal nammude nadinu nettavum sevanavum ayirikkum' (if we can produce two crops of paddy instead of one it will be a service to the society and also beneficial to our country).

He explained the positive aspects of group farming in paddy in Palakkad, Kerala. He said that it can bring back the unity among farmers and thus can make paddy cultivation sustainable.

TRADITIONAL WISDOM IN RICE CULTIVATION

Thiru G. Nammalvar, *Tamizhina Vazhviyal Multiversity, Tamil Nadu*

Historically it is believed that the civilization originated in the river belt. Also it is believed that rice is being cultivated for the last 15,000 years. That means the tradition of our region is Rice tradition. The principles followed by our ancestors were 1) Seasonal operations and culture 2) Crop-tree-animal integration 3) Rain water harvesting 4) Water management 5) Crop rotation 6) Multiple use of straw 7) Traditional grain storage and 8) Seeds as common property.

As a pioneer in organic farming he pointed out that water resources, birds, cattles- all are the symbols of bio-diversity. He mentioned about a medicinal plant which is very good for human health. We should learn from nature that not only us but plants also wish to live in unity. He introduced a new herbal tonic called Amritha pani which can be prepared within 24 hrs. He shared the importance of conserving seeds and conducting exhibitions and thus educating the farmers. He gave a warning that bio-diversity will be lost if we continue to use genetically modified seed varieties or machineries.

INTEGRATION OF AQUA FARMING : A strategy to save rice in the coastal 'Rice Bowl'

Dr Padmakumar, Professor, Regional Agricultural Research Station-Kumarakom, Kerala

Kuttanad, a deltaic region of 4 riverine system in Kerala, is a unique paddy farming region where rice fields were formed by binding of the shallow parts of the lagoon. Replenished by silt brought in by rivers, the fields lie below sea level. Saline water incursion occurs regularly, and this region serves as the abode of estuarine and migrant fish and molluscan species. The green revolution technologies replaced all the traditional saline and flood tolerant rice varieties. The construction works to check saline water incursion coupled with the massive fertilizer and pesticides disturbed the environmental systems, and new water weeds, fall in fertility levels, increased incidence of pests, various diseases and water scarcity are serious issues which emerged as a result. It also affected the growth of fish and other aquatic organisms.

He started by saying that paddy cultivation is important not only for food security but also for recharge of ground water and paddy land is the biggest fresh water reservoir in the state. Wetland is synonymous to rice fields. He also pointed at the recent paddy reclamation phenomenon in Kerala which also cause the destruction of midland hills.

Dr. Padmakumar stated that green revolution paradigm facilitated rapid increase in productivity in dry tropical and irrigated areas, but was inappropriate to Kerala because of its ecoclimatic and geographical factors.

Kuttanad is connected to the mountains through rivers and contiguous to the Lakshadweep sea through Vembanad lake. Paddy field is prepared every season by pumping out water from part of the lake which is replenished every rainy season by silt. When cultivation began in Kuttanad it was done once in two years. Later in the 1940s it became once in an year and in the 1950s double cropping started. During green revolution Kuttanad was selected for intensive agriculture development programme and a series of things came up like Thottappilly spillway to drain off flood waters, Thanneermukkom barrage to ward off salinity intrusion and ring bunds around polders for protection from flash floods. These helped to



increase the cropping intensity marginally, but the environmental consequences were not marginal! It resulted in the

- emergence and proliferation of new water weeds
- fall in fertility status of the soil
- resurgence of pests and diseases caused by indisciplined cultivation practices
- non-judicious use of agro-chemicals.

All these resulted in the increased cost of cultivation.

One of the most serious issue that resulted was the disruption of physical and biological continuity with coastal waters which fuelled the decline of one endemic prawn in its home ground . Due to salinity deprivation annual catch came down from 400tons (1960s) to 40 tons in 1980s and 27 tons in 2001. Similarly black clam is facing extinction because of salinity fluctuation and chemicals from the paddy fields.

By late 1970s paddy cultivation became uneconomical . This was mainly due to increase in cost of production and low price for paddy. Farmers started losing interest in paddy after this .In 1988 the cost of cultivation was Rs. 4500/ha which became Rs. 16131 in 1998. Net return during the same periods were Rs. +3087 and –247. Average yields were 3266kg/ha and 3320kg /ha respectively.

In Kuttanad there is a need to develop a sustainable rice based farming system thus making rice farming a profitable one. Rice-fish integration is the age old practice in low land paddy cultivation. Here the farmer is a fisherman also. Regional Agriculture Research Station , Kumarakom experimented on this idea for a while and found it very useful . But the attitude and politics if remain unchanged then nothing can be done. In this experiment they found

- 1) reduction in pest incidence due to various reasons
- 2) better yield, up to 4.21tons per hectare
- 3) weed control programme prodigious and perceptible
- 4) additional benefit of more fish yield and
- 5) cost of production reduced.

Rice-fish-duck integration is another ecologic and economic way forward . Fish is being fed on weeds which is a menace in Kuttanad. Fish also feed on water hyacinth. and net returns increased to Rs. 24057/ ha

Due to many issues related to rice farming, rice became less economical in Kuttanad. In such a situation a rice based farming system has been demonstrated to reverse the trend of modernization and non

utilization of rice lands and make rice profitable. The need to adopt and popularize locally adaptable paradigms with the integration of fish with rice farming should be brought in to save rice in Kuttanad.



Dadaji Khobragade - Rice Farmer and breeder





A DECADE OF FOOT STEPS OF ORGANIC FARMING

Moghanraj Yadav, VAANGHAI, Tamil Nadu

Organic agriculture as defined by 'Vaanghai' includes all agricultural systems that promote natural food and fibers. Recycling nutrients and strengthening natural processes helps to maintain soil enrichment and ensure successful production. Pests and diseases are controlled by natural means and substances according to both traditional as well as modern scientific knowledge. In organic agriculture, synthetic fertilizers, pesticides and genetically modified organisms are excluded. They distribute the seeds of indigenous varieties of rice after the seed is processed to the farmers and then farmer to farmer seed movement for multiplication and for natural spread is encouraged. The club started a farmer's participatory breeding center because of the fact that seed is the first link in the food chain and is the ultimate symbol of food security. Conservation of seed is conserving biodiversity, conserving knowledge of the seed and its utilization, conserving culture and sustainability.

He said that they have 32 rice varieties in their farmers' breeding center. These seeds are distributed in the name of 'Seeds India'. They also have a unit for bio-production and training to the farmers. They produce vermi castings and vermi wash and are using it in their field.

REVIVAL OF TRADITIONAL POPULAR PADDY VARIETIES

K. Velan, LEISA, Tamil Nadu

Mr. Velan started with the following background about present agriculture

Once India was rich in diverse trees, herbs and crops. But most of the traditional varieties are now at the verge of extinction due to the continuous use of fertilizers and pesticides. He pointed to the main issues that a farmer face today.

- 1) They do not have their own seeds.
- 2) They have forgotten the traditional cultivation methods.
- 3) External inputs are beyond the purchasing capacity of farmers
- 4) HYV seeds are high water and solar demanding
- 5) Monocrop, depletion of soil life, destruction of farm ecology threatens the very survival of the resource poor farmers.

The main objective of their work is the rejuvenation of traditional popular paddy varieties in Tamilnadu. They include as a strategy the identification of the most popular traditional paddy varieties and to establish community seed banks. In the workshop for facilitating multiplication of popular traditional paddy varieties, characteristics of popular varieties, method of cultivation, yield performance of each variety are discussed. They have found that among the different varieties of paddy 'Pulunthikar' is drought, pest and disease resistant and will yield 1785 kg per acre.

He concluded the presentation by saying that they are continuing the experiments with indigenous varieties of paddy since they have found that they perform better than high yielding or hybrid varieties and also more economical. They hope to expand the study to more areas and varieties to further strengthen this finding.





ORGANIC FARMING IN CONSUMER PERCEPTION

R Ponnambalam, FEDCOT, Tamil Nadu

The emphasis given to food security in developing countries including India, during the green revolution years had addicted our farmers to chemical fertilizers and pesticides. This in turn led to environmental pollution and degradation of natural resources, particularly in rice farming. FEDCOT perceives organic or ecofriendly agriculture as an alternative to chemical farming for the safe and conservative production.

Food security and food safety have to be the major factors in deciding the Food Policy of any government. In developing countries highest emphasis is given for food security rather than food safety. In the Indian context sometimes even the fate of a government is decided by its food policy. Anyhow, when the economy develops and the consumers become aware, the need for safety and superior nutritional quality of food is increasingly realised. The situation has so changed that there is no farming without the use of synthetic fertilizers and pesticides. Green Revolution has made our farmers addicts to chemicals and penetrated deeply into our farming culture. As a result chemical toxicity in agricultural products, associated with environment pollution and degradation of natural resources is the common features of Indian agriculture, particularly of rice farming. Therefore organic or eco-friendly farming is an alternative for production of crops. They are pure, safe and compatible with environment conservation. The system provides necessary care and measures for conserving soil, water, protecting plants, livestock etc. It also encourages farmers to keep up and develop traditional ploughing practices and seed varieties.

FEDCOT is focusing on and designing programmes with emphasis on food rights, consumer rights, right to choose, right to inform, right to education etc. The agricultural directorate of FEDCOT focuses on sustainable agricultural development. Training on bio-farming and awareness programmes are conducted at the district level. FEDCOT works in line with organizations like the International Federation for Organic Agricultural Movements (IFOAM). It is recommended for providing premium prices to the products. Government involvement in popularizing the system is required. Suitable certification and labeling procedures, for maintaining the identity and credibility is essential for ensuring the success of organic farming and marketing system. The importance of live stock and its management in organic farming needs to be stressed.

At present FEDCOT has mobilized around 300 farmers in Thanjavore district and have covered 1750 hectares of paddy under organic system. By 2005-06 they plan to expand this to 3000 farmers including marketing support. Consumers have a serious role to play in sustaining agriculture, particularly rice.

ORGANIC RICE PRODUCTION IN TAMIL NADU

M. Revathy, Tamizhina Vazhviyal Multiversity, Tamil Nadu

Revathi started with a brief introduction to the history and tradition of Indian agriculture and also narrated how it was manipulated by the multinational companies and financial institutions.

The chemicalization of agriculture has spoiled the soil and indirectly caused the outbreak of pests and diseases which push the farmers to commit suicide. 40 years of green revolution has made both our land and our farmer fatigued. At present a silent revolution is going on in our farming practices to counter this impact. The organic farming which they promote is more based on principles rather than on practices.

For the increase in soil fertility vermi compost is being made in every farm, and farmers are trained to prepare it. Vermi compost is treated as Black Gold by the farmers. The vermi culture generates employment for local people. Farmers also discover new organic inputs which will improve soil life. They were looking for experiences from outside and that is how they came to know about straw revolution and Madagascar method.



Continuous work on building soil health have given very good yield without any external input to the organic farmers. Heavy seed rate of 48 kg/ acre is replaced by 2 kg seeds per acre. The straw revolution is followed by throwing paddy straw back to the soil. The straw mulch farms shelter earthworms. Here earth worms take care of ploughing and manuring, and it replaces the use of chemical fertilizers.

Farmers have conducted trials in spacing. They succeeded in getting maximum yield with the spacing of 50x50 cm. By this 100 tillers were produced out of a single seedling. The farmers are able to produce 4 tonnes of grain per acre by using only 1 kg of seeds.

This experience of Tamilnadu farmers is a ray of hope for all farmers who are in distress.

SUSTAINING RICE BIODIVERSITY IN DIVERSE ECOSYSTEM

Krishna Prasad, *Green Foundation, Bangalore*

The Green Foundation was started in 1992 with only 10 women and a handful of seeds. Now this foundation has spread to about 2000 villages. Different activities of Green Foundation are seed purification, conservation of traditional knowledge of farmers, education of farmers including women.

Rice is one of the major food crops of southern part of India. Rice is being grown in different agro-eco regions of Karnataka and Tamilnadu. In Thalli region rainfed upland rice plays a major role in sustaining farming and securing the food/ diet of the rural poor. There paddy is grown in a part of land where water from the upper reaches get collected. It provides sustainable yield of paddy and fodder for livestock under marginal lands. The diversity in paddy ranges from short duration to long duration, drought resistance, pest and disease resistance, resistance to lodging, fine to coarse grains, scented varieties and those with good cooking quality.

History of rice diversity shows that traditional knowledge of farmers has played a major role in seed conservation, seed management and improvement of rice varieties. Farmers in Malnad region practice a unique seed selection to maintain the quality of seeds and yield levels. Many farmers in this region are now practicing organic rice cultivation with indigenous varieties and efficient use of water. One farmer has developed a variety in southern Karnataka which is suitable to low input management with optimum yield.

According to the experience of Green Foundation integration of organic farming with indigenous knowledge of farmers is the key to sustenance of paddy cultivation.

ORGANIC FARMING PRACTICE IN KUTTANAD

Jacob Sebastian, *Organic Farmer, Kerala*

Jacob Sebastian, one of the pioneer in organic farming from Kuttanad explained the agricultural methods practiced in Kuttanad. He also explained the preparation of a special organic manure. He demonstrated his own product 'Annam'. He recommended more technical advice for farmers.

The presentations were summed up by Wilhemina Pelegrina. The subject sessions ended on the second day. After the dinner there was a small interaction among the delegates.





11th December 2004

Save Our Rice Campaign in Context

Moderator: C. Jayakumar
Thanal, Kerala

On the third day, **Session 4** started at 9:20 am . The '**Save Our Rice**' campaign placed in context in this session. The moderator for the session was C.Jayakumar. The main agenda of this session was the drafting of the declaration of the "Save our Rice" Campaign. A draft declaration was prepared based on the sessions and discussions of the previous days and it was presented before the workshop by Sridhar. The declaration was then put to discussion.

Responses to the declaration.

1. Karsten Wolf

PANAP, Malaysia

He started with appreciating the farmers of Kumbalangi for their traditional knowledge in sustaining mangroves, fish and rice together. He said that PANAP had started an Asia wide campaign and similar activities like Save Our Rice in different countries because of the threat to rice, the staple food and life of Asians. Even though there are differences in farming systems in different regions of Asia as well as similarities, the importance to sustain rice is there all over Asia. Similarly there is work towards elimination of pesticides all over Asia and small farmers oppose genetically modified rice and hybrid rice.

Another important area of work is documenting the rice cultivation which LEISA network in Tamilnadu has started. Also the documentation is started in Indonesia and Philippines. It is important to scientifically document the process so that we can really tell the scientists, farmers and decision makers that hybrids and genetically modified seeds are not essential to improve productivity.

It is really important for the farmers to exchange their problems and also solutions and it is happening. He pointed out that in this workshop farmers from different parts of the country came and exchanged their ideas which is very relevant especially in the context of IYR.

Proper education must be done at the local level and there is need to convince the politicians. He told that recently FAO has come up with a report hailing GMOs which is a paradigm change in the policy of FAO, especially about food crops.

2. Gomathinayakam

Vivasaya Seva Sangam, Tamil Nadu

His focus is on cattle based agriculture. He told that during the last 12 years his profit has increased because of organic farming based on cattle. He said that even if we do not sell milk it is profitable to keep cattle. The expenditure for growing paddy cultivation can be brought down by using the cow dung slurry. Farming can be made a self-reliant occupation by keeping cattle. He told that farmers have to be made aware about the issues of WTO, globalisation etc.

He quoted one old saying in tamil 'A man who has no debts is rich. A man who has no disease is young'. He said that he is 71 years old now and still he is able to work in the field for 8 hours and every day he bicycles 12 km . He suggested that organic farming not only saves money but also increase our health conditions.





3. Dr. Devinder Sharma

Forum for Biotechnology and Food Security, New Delhi

He said that he attended a conference 22 years back and there was discussion on rice and poverty. Even today the same problem is talked about and rice farmers remain poor. He raised a question 'is rice and poverty really linked and when exactly did it start?' The most important thing this workshop brought out is that we could emerge out of this poverty trap and this crisis started only after Second World War.

He explained about the experiments done in the field of genetic engineering about which we have to be worried about. May be we will have to start a 'save our mothers' campaign 10 years from here because experiments are being thought of about transferring human genes to cow so that people can buy mothers milk from the super markets. World is moving along these lines now a days.

He replied to the question from many sides 'why discuss about rice'. He told that environmentalists talk about protecting tiger, but this is also about protecting a system which sustain tiger and it is not just protecting tiger alone. Similarly conserving and protecting rice indicates protecting a larger agricultural system.

But now while discussing about rice it is treated as a food capsule and not as a system about which we have to worry. In India we had a surplus of 65 million tonnes of wheat and rice but people went hungry. This attitude is creating a situation in which rice and rice farmers are getting exploited and through that Asian consumers also. One example is the patenting of rice bran by a company called Ricetex which is an American company who wants to convert rice bran to nutritious food. Government of India allowed Monsanto and Ricetex to patent rice bran. And they decided to set up a plant in Karnataka. Rice bran is traditionally used as a cattle feed in India and we used to get good quality milk. This is how our food system worked in a cyclic manner and we need to conserve it. If we conserve it there is enough to feed the country.

While talking about documentation of traditional knowledge he said that there is a danger in documenting the traditional knowledge without having any legal protection for it. During the green revolution period it was thought that unless we collect and preserve our genetic resources it will be lost and now all the germplasm is sitting with IRRI, Manila. And they gave a copy of all germplasm to U.S. There are 6,00,000 plant species now in U.S and this is outside the perview of Biodiversity Convention. This sort of shrewd calculation we do not have. Now they say we have to document the traditional knowledge, otherwise it is lost. U.S is getting a copy of it and there is no benefit sharing as told. One example is 'Arogyapacha', medicinal plant from Kerala and the plight of Kani tribals and their common resource. So challenge before us is to have a legal protection even before we document it.

Another important thing is how to bring together the efforts taken in different states by different people and how to take it further. We have to be pro- active if we want to change the policy. The industries have a pro-active action plan and they get things done with the government. We have now the capacity to judge locally specific varieties, and hence it is possible to recommend this to the government and create a policy to cultivate and protect such varieties. This should then be put in the public domain and got approved by the people so that no body can challenge this.

Since now we know what is wrong with the present system, we can really be pro-active.

4. Jacob Nellithanam

Richharia Campaign, Chatisgarh

He responded to Mr. Devinder Sharma that our data are already documented. The problem is that the government will never give this back to the farmers. Therefore the wide varieties of documents which are in the hands of government should go back to the community. This according to him is the only way to resist the paradigm of intellectual property.



He mentioned about the Raipur collection of paddy varieties made by Dr. Richharia and the present plight of people to look after this collection which is with the agriculture university by not allowing them to sell it to some multinational company. Scientists in this country have already documented 10 lakhs accessions of plant and animal varieties and either the material or the knowledge of it has not come back to the community. How can we believe them again. So our aim should be to put them back to the community since farmers are the true researchers. Now the new policies talk about plant breeder rights, but it is equal to patenting and the biodiversity law encourages legalizing access to commercial exploitation of common resources without giving any protection to community rights.

He narrated the experience of Dadaji Khobragade and said that even after 40 years of green revolution it has not been possible to bring out seeds which is economical to the farmers, but a farmer like him could do that and there are similar examples like him in the country. It is a sad state that government is going ahead with private companies without understanding and acknowledging farmers' knowledge base. He also told that only farmers can develop locally suitable varieties and he narrated the example of 'Cheradi' a traditional paddy variety of Kerala and the preference of people to this variety. Now one of the research station in Kerala has developed two pure line selections of seeds from this variety. Farmers also do the same thing but they are ready to share it with other farmers.

5. Dr. Vanaja Ramaprasad

Green Foundation, Bangalore

She told that India has passed Biodiversity Act and in the process of formulating the Rules. She said that it has to be discussed and should be followed up at the panchayath level. Each state has to take the lead in forming biodiversity management committee and Karnataka has already taken the initiative. It should have representatives from the locality and also groups working on this issue. She told that legal protection is essential and it does not come automatically. Unless there is legal protection for the common resources and biodiversity even if it is put in the public domain it cannot be protected. She pointed at the biodiversity rules and amendments. She pointed at some good work happening at the panchayath level in Kerala.

6. M.V. Murugappan

MCRC, Tamil Nadu

He pointed at only two things:

- (i) Agriculture is the backbone of industries.
- (ii) Corporate (contract) farming should be avoided.

He also mentioned strongly about attacking the macro policies which is killing the farmers and rice.

7. Asha Kachru

Strainatha, Andhra Pradesh

She focussed on the points that we should give a representation to the government in which all the organic farmers have signed. We also have to incorporate women farmers and their issues.

8. Thiru G. Nammalvar

Tamizhina Vazhviyal Multiversity, Tamil Nadu

He said that the idea of rice-fish farming and rice-cattle farming are the real answers to many of the problems including economic problems to the farmers of this country. In rice-fish farming, no pesticides and weedicides are used and in rice-cattle farming, the cow dung and the slurry from it is used for rice cultivation. He also said that we have to feed the cattle with grass and straw and it will give us good manure and nutritious milk. He told that biodiversity based farming is helpful for the farmers but for the traders monoculture is profitable.





The “Save our Rice” Declaration to be called the “Kumbalangi Declaration” was then finalized with the participants approving the changes that were discussed.

At this point, the workshop was visited by the **Honorable Minister for Fisheries of the Government of Kerala, Mr. Dominic Presentation**. He is a native of Kumbalangi and consented to join the workshop and felicitate Dadaji Khobragade. Jacob Nellithanam gave a small introduction to the Minister about the works of Dadaji Khobragade. He said that only a true farmer can produce a wide variety of seeds which is locally suitable. Farmer is thus a breeder also and the difference is that the seeds developed by farmers are accessible to the community. He narrated the importance of work by farmers like Dadaji and said that now the variety is cultivated in a large area and the rice fetches double the price of other varieties because of its good quality. But this is not recognized as a scientific work. He continued by saying that our scientists have become slaves to the multinational companies and their policies are followed in the country and that is how we lost our indigenous seeds and are forced to depend on foreign seeds.

After this introduction, the Minister presented Dadaji with indigenous seed- Kochuvithu placed in a carved coconut shell container- from Kerala honouring his work. After this he spoke to the participants.

8. Dominic Presentation

Hon'ble Minister for Fisheries, Govt. of Kerala

He started by saying that in Kerala the farmers are not interested in rice farming. He said that the government is trying to give a lot of support to the rice farmers but it does not work. He mentioned about the labour problem in Kerala and how the government is trying to help the farmers by supporting mechanization. He also said that to help the rice farmers government has put a good procurement system. He disagreed with Jacob by saying that in Kerala, the government does not insist on a particular variety of seed and farmers are free to choose the seed. He quoted the example of Pokkali farmers of Ernakulam district and said that they use only indigenous seed and even the scientists of the Rice Research Station in Vyttila produce only indigenous seeds. He also said that this type of cultivation (rice-fish) is totally organic and the rice fetches more price. But the recent trend is to stick to fish farming alone since it does not need much labour and fish has a ready market.

He appreciated the idea of developing our own seeds and not to depend upon foreign seeds. He asked the delegates to advise the people of Kerala to take up farming and bring dignity to farm work.

The great problem according to him is that people in Kerala want only white collar jobs and thus the youth who are educated and professionally skilled are going outside the state. This is a peculiarity of Kerala where once people are educated then they do not go for farming as an occupation. He suggested that an integrated farming system with paddy and fish is ideal for Kerala.

Dr. Devinder Sharma responded to the Minister by saying that if the government of Kerala is keen on sustaining rice they can follow the model of Punjab where the labour come from other states since they have made farming a profitable occupation. He also told that may be the government of Kerala does not insist on using hybrid seeds but the reality is that the research in this country is focused on developing some particular types of seeds and the financial support is only towards cultivating such varieties. He quoted the example of support for hybrid cattle. If a farmer wants to get some loan for buying a cattle then they have to go for hybrids. Government may not be aware of it, but this is the reality. He suggested that Kerala can show the way by changing such policies and there are organizations like Jaiva Karshaka Samithi and Thanal in this state and government can take their inputs in the planning process.



*Minister for Fisheries, local MLA
falicitating the Workshop participants*



The morning session ended with this function. Post-tea, was a strategy / way forward session with the participants divided into three groups for group discussion.

The topics of the strategy discussion were

1. **Livelihood and food security.**
2. **Traditional and ecological activities**
3. **Civil society, role, action, policy.**

The groups discussed on these topics for more than hour and they came back with suggestions which they presented before other participants. There was discussions on these suggestions.

The points put forward by each group were :

Group 1 – Livelihood and Food security

1. Export oriented growth has harmed the livelihood of farmers/ landless workers/ tribals/ marginal communities/ indigenous people among others.
2. Farmers find it difficult to access independent markets. Markets are not controlled by the farmer. The issue of landless labourers and their know-how were discussed. Often they are the most marginalized. In the case of rice the cardinal issues the group identified are
 - Farmers do not control milling
 - Farmers do not control marketing.
3. To achieve food sovereignty the key issue of landless labourers needs to be addressed. Land accumulated (under all surplus land) should be distributed to the landless. The Land Ceiling Act should be implemented.

They recommended the following things:

- 1) Consumer rights have to be protected. Consumers have to be made aware of the safety of food and also their role to make it a reality.
- 2) Not only rice but issues in other important food crops(livelihood crops) have to be addressed.
- 3) Use of chemical fertilizers have to be eliminated from agriculture.
- 4) It is again proven that traditional practices can produce good and nutritious food and hence support should be given to spread this to the entire country and research support should focus on it.
- 5) As a policy Food sovereignty should be put in place instead of Food security. This is recommended because this change can address the food insecurity of landless labourers, indigenous communities, artisans, self-employed workers, small and marginal farmers etc.
- 6) Exclude agriculture from all future trade agreements.

The group finally put forward the suggestion that given the declining yields and harmful effects on human, plant, animal and environmental health, high losses to farmers, the dependence on chemical fertilizers and pesticides should be phased out. The government has the responsibility to provide extension services that promote traditional agriculture. Incentives have to be given to farmers to promote traditional organic poison-free food. This will also help the farmers to spread their knowledge. Support has to be given for developing locally specific technologies.



Session 4



Group 2 - Traditional and Ecological Activities

The suggestions from the second group were

1. Ecological farming should be location specific.
2. A network system to support ecological farmers should be developed.
3. Encourage farmer scientists/grass-root innovations
4. Promote and support integrated paddy eco-systems.
5. Encouraging ecological farmers' networks to document on-farm experiments and disseminate farmers' practices.
6. Promoting paddy heritage locations.
7. Strengthening farmers' Seed Bank and encourage farmer to farmer seed exchange.
8. Organic Farmer's representation in the policy making bodies.
9. Support community seed banks.
10. Encourage family farming and through that economic stability.
11. Direct linkage with producer and consumer with out middlemen in marketing.



Group 3 : Civil Society, role, action, policy

The idea behind this group discussion was to develop strategies to bring in policy changes in agriculture (in general) and rice (in particular) to sustain farming in the country and support rice farmers. The following were broadly discussed

- 1) Strengthening the producer-consumer linkage.
- 2) Role of civil society in changing the policy has to be made clear. There was discussion about civil society vs. people also.
- 3) Future work and strategy should involve gender and youth.
- 4) Corporate sector coming in to the rural business and formation of genomic clubs has to be understood and addressed.
- 5) Conventions and laws alongside policies.
- 6) Difference between law and policy has to be defined.

Some strategies identified were to

1. Organise Public debates
2. Organise Media workshops
3. Reach out to IIT students and other college students
4. Reach out to Religion and religious institutions
5. Use Street theatre
6. Inter state solidarity between farmers and organisations
7. Curricula change in the agriculture universities

The Indian Workshop on Rice ended with the declaration being adopted and the participants resolving to work towards the principles of the 'Kumbalangi' declaration.





Annexure.1

Display of Paddy seeds brought by participants

Most participants had brought seeds from their region for display and it showed the diversity of seeds and culture of the paddy system in India. Most of them were

The names and regions from where the seeds came are given below. This is only a very small percentage of what was there before green revolution.

- Kyame, Rajakayme, Gandhasala—South Karnataka
- Gandhakasala, Thondy, Kodagu veliyan, kayama, Chettu veliyan, Chomala, Thychingu, Echipor, veliyan, Sundari, Chennellu, valichuri, Chenthady—Wayanad, Kerala
- Jeerasamba, Allur Sanna, Salem Sanna, Mungesary, Mallige, Mysore Mallige, Gandhasalae, Joluga, Sugadas, Rathnachudi, Rajkamal, Thooyamalli, Oldisapuradhan, Ragulechidhan, Agigga, Chinnaponni, Rathnachudi, Chambavu, Tringadalu—many places in south India collected in Karnataka
- Meghi, Patna-1, Ashpal, Gabindha Bhog—West Bengal
- Buddalu, Jilakara masuri—Andhra Pradesh
- Mottai Kuruvai, Kochi samba, Katti samba, Veeradankan—Tamilnadu
- Banda palakodlu, Chinta poovodlu, Pesanalu, Thella chennangi, Thelle pichotlu, Erra chennangi, Nalla chennangi odlu, Ganga saarodlu, Pedda combatore vadlu, Bayatodlu, Vankodlu, Joukodlu—Ananthpur district, AP
- Kochu vithu, Thulunadan- Thiruvananthapuram, Kerala
- Kullakar, Pizhini, Seeraga samba, Samba mosanam, Super ponni—Kanchipuram district, Tamilnadu
- Mizoram Buh Tai Buhpui, Mizoram Buh Tai Buhban—Mizoram
- Dadaji Dambara, Kichadi samba, Padhma Rekhyae— Maharashtra
- Kichali samba, Maduva muzhulungi, Kattai samba, Seeraga samba, Kuzhiyadichaan, Black seeraga samba, Kai viral samba, Mapillai samba, Basumathi, Kaapa kar, Thangam samba, Samba, Kacha koompala—Trichy, Tamilnadu
- Masuri, Gandhasala, Rajakayme, kavalakannu, Peetsale, Alyande, kayame, Basumathi, Mysore mallige, Choman/ kalame, Muskathi, Ajjiga, rathna choody, karidady, Gulvadi sanna, Adenkelthe, Kundapullan, Hallinga, Bilinellu, Meesebattha, kolake bodra, Ajjipasale, Chawre, KKP, Raskadam, Moradda, Annapoorna, Thonnuru, Giddabattha, Athikaraya, Sanna Athikara, Kandrekutto, Kariya Jebi, Sugyikayame, Kulture, Kutti kayame, Jaya, IR8—South Karnataka
- Red rice, Vaanghai, White ponni, Bapatla ponni, Adisaya ponni, Selection(MP)—Nagapattinam, Tamilnadu
- Bagniya, Athur samba rice, Jeeraga samba rice, White ponni, IR-64—Kancheepuram, Tamilnadu
- Mansuri, Chankchur, Ramde, Siki, Kanak, Bhnta phool—Chhattisgarh

Some varieties are common in many regions, but even then carry different names . Names carry meanings which shows the character of the variety-colour, taste etc. or the place where it is found or cultivated etc.





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Annexure. 2

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