

## TWO DAY CAPACITY BUILDING PROGRAMME

A two-day Capacity Building Training Programme was conducted on “Water Harvesting and Management” on March 28-29, 2012 at Central Research Institute for Dryland Agriculture (CRIDA). The training was targeted at farmers, women and youth of the Ravirala and Aliabad villages.

### Day 1- March 28, 2012

22 participants from the Ravirala village reached Research in Environment, Education and Development Society (REEDS), Champapet where the training started with an introduction of the concept of a roof rainwater harvesting structure to the participants.

M. Venkatrangaiya Foundation (MVF) staff introduced Mr. Satya Bhoopal Reddy, President - Reeds Organization to Ravirala participants. He explained about roof rain water harvesting as a management strategy for water sources in India. The participants were told of the scarcity of drinking water and irrigation water with regard to Andhra Pradesh and Ranga Reddy district. He explained how people are forced to dig bore wells upto 500-600 feet depth, leading to further reduction in the ground water levels; as a result of which most of the farmers are forced to leave the agriculture and take up other non-farming activities.

He then demonstrated the roof rainwater harvesting structure built in his house in Champapet in the year 1992. He recalled that there were no MCH water lines or bore well water during that time. Hence, to utilize rain water for his home needs, he set up a roof rain water harvesting structure. Survived by 3 others in his family, he calculated that 36 litres of water would be consumed in a day for drinking and cooking purposes. This would amount to 1080 litres per month. The average rainfall in R.R. District is 600 mm to 700 mm and the frequency of the rain is about 100-150 days. Keeping in view of the above situation, he built 4 water storage tanks with a storage capacity of 800 - 3200 litres each. He spent Rs 4000/- for this arrangement and worked on it for 4 days. Later, he also built a filter for the purification of water.



Participants from Aliabad village joined the participants from Ravirala village at Krishi Vignana Kendra, CRIDA for the further sessions. Mr. I. Srinivas, Senior Scientist (Farm Machinery and Power) started the first session, where he stressed on the importance of mechanization of agriculture processes as labour is not available very easily in recent times. He suggested that everyone needs to move towards latest methods in agriculture. He told about the sanction of the 800 crores towards agriculture by the Central Agriculture Ministry. He pointed out that bullock ploughing is applied at very less places as people get joint pains by the age of 30-40. On an average, 7 of 10 women have undergone operations. So, the strength of an individual is decreasing.



As a solution, Mr. Srinivas told the villagers to follow new techniques and use machinery which is easy to be handled. Though this machinery is costly, subsidies are easily available from the government. So the villagers were asked to work with their local representative who can help them in getting the subsidies for the machinery. By using the machinery, about 30% of manure and 30% of seed can be saved. He told the participants to strengthen their team by forming groups. Each farmer was asked to monitor the quality of produce in agriculture. He explained about certain tools in agriculture and their uses and about solar dried products and their uses.

Mr. Srinivas pointed out that there are many women groups in villages, but each group is only concentrating on thrift and credit. More livelihood opportunities are provided through KVK. In case, if women manufacture certain products in large scale, they have a very good market. If they can grow tomato, ladies finger, curry leaf, henna plantation, etc in large scale, rates can be reduced.

### **Field visit-**

A field visit was organized for all participants. Mr. Satish, S.R.F, explained about rain water harvesting pond and also showed an experimental micro-watershed. Later MVF has also explained about some more water management schemes that have been implemented in the villages, where they have been working.

After this session, Mr. Srinivasa Reddy, Scientist, CRIDA, explained about dryland agriculture and watershed programme. Watershed is an area where rainwater is captured at a specific place after building field bunds; which can be used for the development of upto 5 to 8 villages. When it rains, the water flows on a slope. The minerals in the soil are washed away with the rainwater. In the process, the ploughing becomes tough in

such soils. In such cases, if plantation is done during rainy season, water sinks in. He also explained about importance of farm bunding. He also gave appropriate suggestions to do clay bundings and mentioned their uses. For such works, NREGS provides schemes.

### **Dry land and water management:-**

Each farmer was advised to prevent soil erosion by bunding across the land slope. Excess water can be flown through feeder channels and later stored in farm ponds. The deep canal water flow can be percolated to the ground through check dams, so farmers can grow crops with the stored water in check dams. These check dams are like percolation tanks and help in increasing water levels in bore wells & wells. These check dams are also called as masonry check dams. Farmers have to identify and build contour bunds. When farmers find 1% or 1.5 % of slope on their land, they should plough and sow seeds across the slope to prevent soil erosion. If the land slope is more than 0% or .1% they have to arrange –

- (1) Contour bunds
- (2) Farm bunds
- (3) Vegetative bunds
- (4) Legume crop plantation for binding the bunds.



### **Rain Water Harvest and Management methods:-**

During this session, an initial concept of hydrological cycle was explained to the community. The flow of the rain water is mainly due to the quality of soil, and quality of rain. The rainwater which falls on sand and red soil is not absorbed, whereas the rain water is absorbed by the black soil. In order to store rain water in villages, some works are needed to be done for a long term. They are to build-

- (1) Farm ponds
- (2) Percolation tanks
- (3) Check dams
- (4) Rock-fill dams.

Further, some management techniques which could be of temporary use to farmers are-

1. Ploughing across the slope
2. Cultivating across the slope.

The session concluded at 5.00 PM. The farmers were trained on water management and agriculture methods and were taken on a field trip to see the water harvesting structures and research crops. Scientists were with them to explain each structure and about the research crop. They also were given demonstration about the agricultural equipments at their workshop. It was a comprehensive and interactive workshop.



### **Day 2 – March 29, 2012**

On the second day of the training programme soil conservation methods were taught by Mr. Ramappa, technical assistant, CRIDA. He told the farmers about how to sow seeds across a slope. He asked the farmers to build buds within 50-60 feet so that there is no run off of the rain water. Farm bunds help in retaining the moisture content in the soil. Plantation of fodder species like Anjan grass, Glaricidia, will help in preventing soil erosion. Also, the farm bunds can hold 2-3 varieties of grasses & shrubs. In reply to a farmer's query about the size of a farm bund, Mr. Ramappa answered that a farm bund can be of 12 x 8 yards. Farm bunds in dry lands will be advantageous. Later, participants were taken for a field visit.

Dr. T. R. Tyagaraj took over after tea break and explained Global Warming and Drought – Implications for Water Management and Irrigation. He mentioned that 2% of water is used by farmers for agriculture needs. Existence of factories and vehicles leads to pollution; where gases like carbon dioxide, etc increase global warming. Trees and water have close relation. Crops like red gram and castor suck water from 2 feet depth. Trees like mango and pomegranate suck water from 20 feet depth. Further, old trees of 50 to 80 years old suck water from 50 to 60 feet depth. Now a days, farmers are using more water for crops, so water consumption should be reduced. Hence, farmers are suggested to grow crops like vegetables, leafy vegetables, instead of paddy. Crops like paddy and sugarcane are water-intensive. Further, while going crops, drip system and sprinklers should be used. If crops are grown through water canals, they will use more water, so each farmer should use water according to requirement. Drip system facility can be obtained from Andhra Pradesh Micro Irrigation Project. In case if farmers consult with Agricultural Officer at the mandal level, they will be informed about all the details. In case if farmer gives more water to crops, he sustains loss, crop leaves become reddish, loses resistance, and the taste of crop yield is also not good. So each farmer should use water according to proper requirement, if not the percentage of nitrogen reduces, and bunds fall away.

#### Benefits through Drip Irrigation:-

1. Water can be saved.

Kinds of drip system:- 1. Avalyne 2. Inalyne

In one hour water can be given to crop either in one line or in three lines.

It was learnt that all the participants grow vegetables, leafy vegetables, and various fodder species. For example tomato crop has ability to be grown in any season. Crops can be grown through various kinds of seeds. Fertilization helps to grow crop properly in any season. Crops can also be grown through rain water harvesting methods. A farmer should know about the market for his crop and also latest agricultural techniques in producing it.

Farmers cooperation is must in community. If farmers get registration of their committee, village wise, mandal wise, district wise, it would be very easy to get seeds, fertilizers, seeds of vegetables, and flowers of quality. There is a system of balance rates is in other countries, but not in ours. In other countries, product and market rates are in balance, but in India, there is alot of involvement of middlemen and brokers, and as a result, the farmer tends to become poor and agriculture also suffers. Each farmer should have knowledge on field and marketing. In countries like Denmark and Holland, farmers get registration through organization in village, mandal and district level, and the process of purchases and sales is conducted through tenders. Ultimately farmers get good benefit in those countries. This system should be implemented in our country too. If a farmer gets benefit, country is benefitted too. If a farmer keeps interest on market, he will certainly benefit financially.



Assistant Coordinator, M.V.F, told the participants that the reason M. V. Foundation and SaciWATERS organized this workshop on sustainable livelihoods is for the farmers to get practical knowledge on technology and to gain more awareness of the management practices that they can apply for better adaptation to climate change and urbanization, which has implication on water availability.

Mr. Raj Kumar, SaciWATERS, told that he is working with SaciWATERS and has been helping M.V. Foundation for a few months to organize this workshop and interact with the communities interested in this process. He was happy to see the number of women who turned up for the training.

Mr. Dasarathrami Reddy, Plant protection –SMS - CRIDA:

Speaking about pest control, he suggested all participants to take appropriate interest in pest control. He told about neem powder application in the field which helps in some kinds of pest control. Each farmer must come forward to build vermi-compost pit, so that the compost shall be more helpful in growing his crops and will work as organic manure. Moreover, the method of vermi-compost is also easy. In order to reduce costs of agriculture, each one should follow the methods of organic manure application. Neem decoction is also more useful in crop growth. He also explained stepwise, the method of controlling pests with wings.

1. Start a bond fire after 7.00 pm.
2. This sort of fire should be lighted in 4 acres of the field (/acre for ½ hour).
3. It is better to start a fire at some places.

Mr. Joseph, S.M.S – Agriculture Extension:-

Communication Skill Training:

Communication is a means of gathering information through words, expressions, and discussions. For example, one may have good knowledge, but if he does not have good communication skills, it will not be of any use.

