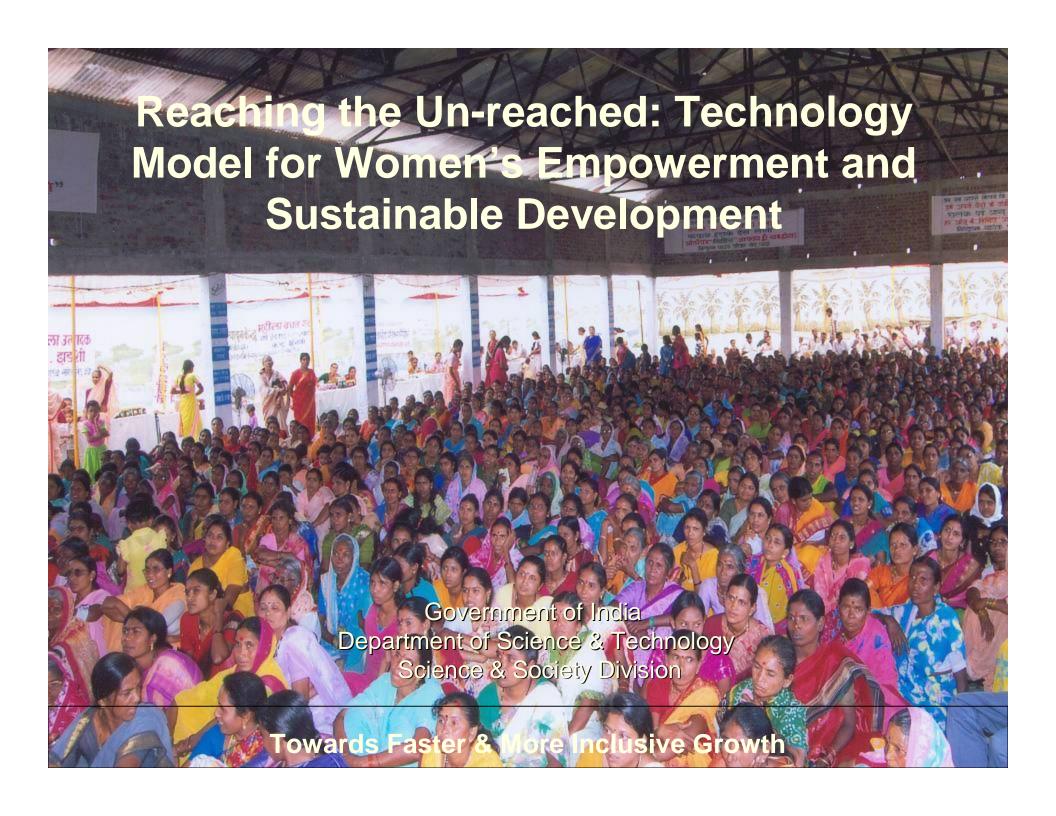
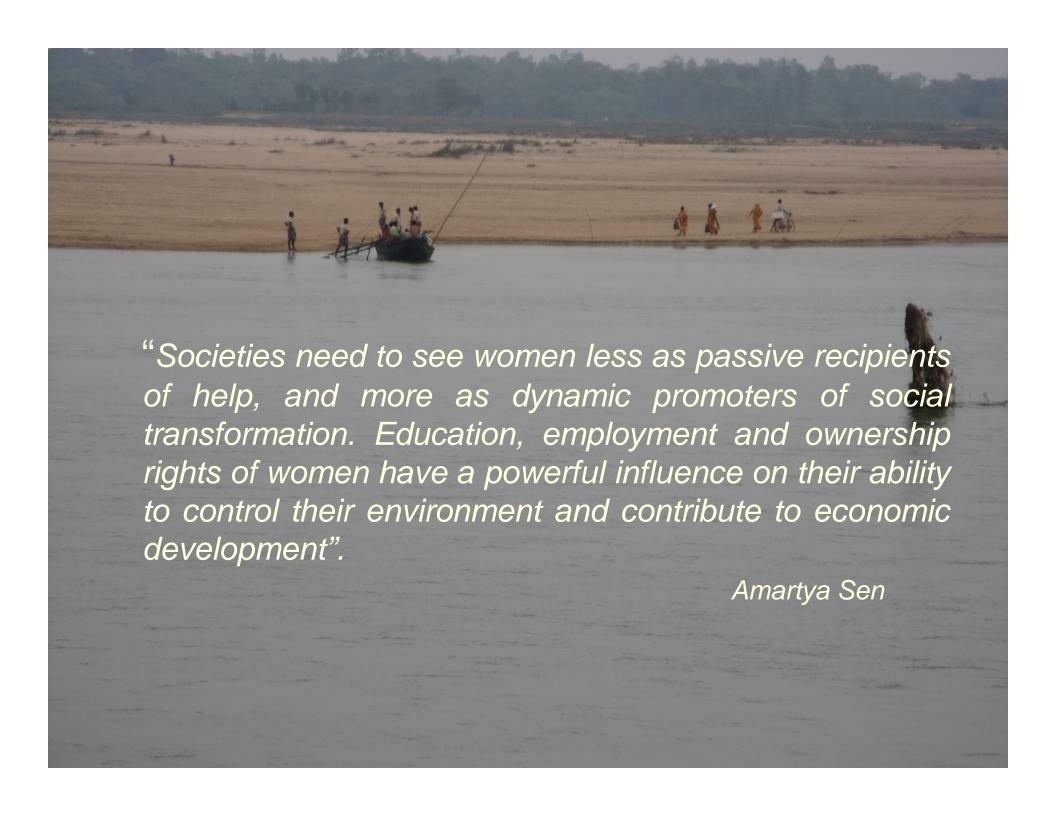


#### **Towards Faster & More Inclusive Growth**





### **Constitutional Provisions**

- Article 14 Men and women to have equal rights and opportunities in the political, economic and social spheres.
- Article 15(1) Prohibits discrimination against any citizen on the grounds of religion, race, caste, sex etc.
- Article 15(3) Special provision enabling the State to make affirmative discriminations in favour of women.
- Article 16 Equality of opportunities in matter of public appointments for all citizens.
- Article 39(a) The State shall direct its policy towards securing all citizens men and women, equally, the right to means of livelihood.
- Article 39(d) Equal pay for equal work for both men and women.
- Article 42 The State to make provision for ensuring just and humane conditions of work and maternity relief.
- Article 51 (A)(e) —To renounce the practices derogatory to the dignity of women.

### Science and Society Interface

"Special emphasis will be placed on equity in development, so that the benefits of technological growth reach the majority of the population, particularly the women, leading to an improved quality of life for every citizen of the country"

- Science & Technology Policy - 2003 (Technology Development, Transfer and Diffusion)

### Science, Society & Gender Interface

#### **Issues**

- Remote and dispersed communities
- Low end of economic structure
- **■** Gross regional differences
- Disadvantaged in terms of capacity and resources
- **■** Facing the brunt of liberalization
- Few competent agents of change
- **■** Limitations of project approach
- Tribal groups, adolescent girls, elderly /disabled need special interventions

# Approach

- Pro-active approach
- A co-ordinated goal-oriented time-bound programmes - to catalyze and support (financially and managerially) technology packages & enterprise development projects
- Leverage the capabilities and experience of S&T based field groups/other partners
- Catalyze and promote collaborative linkages

### Outcome

- Benefits to small & marginal women farmers, landless labourers, and artisans – community based approach.
- Value-addition at local level.
- State of art technology constant upgrading based on latest developments.
- Sustainability and replicability potential

# Appropriate Technology - Technology that fits people centered economics

#### **Technology Selection – Checklist**

- Benefit from it within their own situation.
- Based on local resources and local markets
- **■** Capability to Remove drudgery
- Enhance efficiency
- Removes hazards
- **■** Empowers/enhances status/creates leisure for them.
- Flexibility to change with each situation- Delivery, time frames
- Adaptable

#### **Broad Sectors**

- **■** Fuel & Energy
- Health & Nutrition
- Upgradation of Tools/ implements- agriculture/ artisans
- Post harvest technology
- Water quality and management
- Agriculture/Horticulture diversification
- Organic farming/Certification
- Soil fertility management/Biological control of Pest
- Value addition to agricultural produce

### Case Study 1:

#### Tissue Culture and Hardening techniques – Suderbans Experience

Hardening unit for the micro propagated banana plants at the village level

A simple hardening process standardized suitable for this agro climatic zone, using the local potting mixture and VAM inoculum.

#### **FEATURES**

Involvement of rural women
Power consumption is nil
Minimum infrastructure required
Semi skilled womanpower for maintenance



#### Economics of hardening

Cost of bottled plantlets (>200 plantlets)

Rs.3 /plantlet Cost of hardened plantlet Rs. 8 / plantlet

Profit - Rs. 5 / plantlet

### Case Study 2

#### Fruit & Vegetable Processing with Network Approach

#### **Need/Problem**

- India largest producer of fruits/vegetables in world.
- 30% goes waste: inadequate facilities for preservation, lack of efficient transportation.
- Small/marginal growers produce larger proportion of fruits/vegetables: Growing demand for processed products.

#### **Technology**

- A unit having suitably scaled equipment/machinery is set up where raw fruits and vegetables are converted into juices, squashes, jams, jellies, pickles, powders.
- Packed and marketed locally and in nearby towns/cities.
- Some pre- or semi-processing done at household or village level.
- The Unit and all processes, labels etc. are as per FPO requirements.

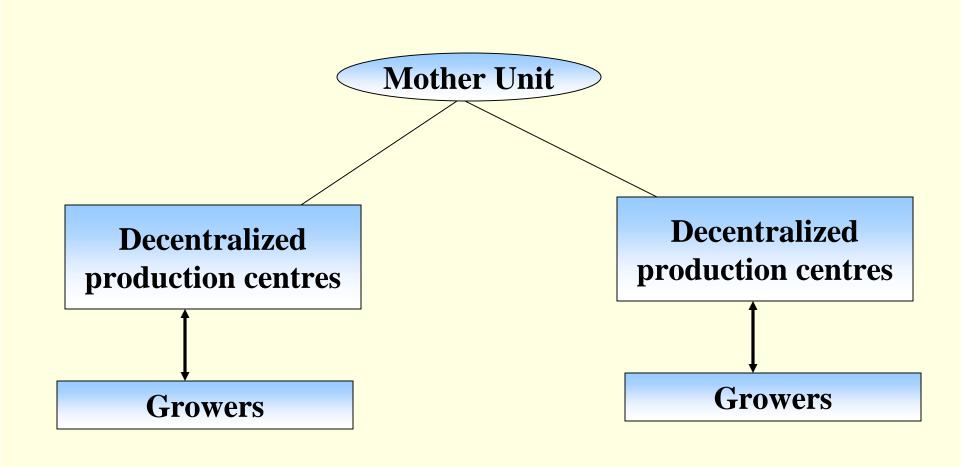
### Case Study 2

Fruit & Vegetable Processing with Network Approach ......

#### **Organizational System**

- Network of 100-150 small growers covering ~ 15 villages supplies the unit with raw produce round the year, getting better prices as compared to traders in the open market.
- 10-15 women are employed full-time at the unit.
- 40-50 women get additional part-time employment during peak season.
- Satellite units and home-scale pre-processing to be scaled up and linked to the main unit, increasing production/providing additional employment.

# Primary Producers & Secondary Processing Units



#### **Costs**

Approximately \$ 30,000-36,000 including capital costs, building, training and capacity-building (excluding land).

# **DST's role in Development & Dissemination**

- Technology package evolved under SSD/DST-supported All India Coordinated Programme;
- Technology up-take by different Departments
- 50 units set up spread over 19 States



### **Entrepreneurs Details: Fruit Processing**

Name: Smt. Kala Bisht

Age: 32 years

**Qualification: Intermediate** 

Village: Ambiwala (Dehradun)
Earning: about \$ 200 Per Month

Product: Pickle, Squash etc.

#### **Specific Features**

\*Training from WTP, Dehradun.

- \*Loan of \$2000 from KVIC.
- \*Employed 13 women.



# Case Study 3 Rural Women Technology Park

#### **Objectives**

- Serve as a common platform for the cause of developing/upgradation of location specific technologies for women.
- Establish inter linkages with R&D institutes for promotion & development of appropriate technologies.
- Provide training, backward and foreword linkages leading to individual and group entrepreneurship.
- Create network of women groups and facilitate income generation programmes.
- Organize discussion/workshop on women's problem & Highlight issues related to women's technology needs.

# Income generation

#### Organic Farming

More than 1500 trained farmers practicing organic farming





# Alternative Energy

- Arti Cooker
- Arti Biogas plant
- Solar Drier
- Improved Chulha
- Transparent Roof tile







# Khadi

- Khadi Fiber
- Embroidery on Khadi Clothes



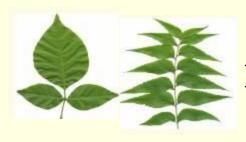
### Products from Forest Produce



- Organic Dyes
- Mahua Products
- Palash Leaf Cup
- Palash Sharbat
- Lac Production
- Honey Products

### Herbal Products

#### **20 Herbal Medicines**



**Herbal Pesticides** 



7 Pickles





# Products from Local Fruits & Vegetables











- Goose Berry
- Tamarind
- Ber
- Ambadi
- Papaya
- Tomato
- Chilly

- Lemon
- Mango
- Bhokra
- Guava
- Jamun
- Jimikand
- Jack fruit
- Bel

# **Utility Products**





- Honey Hunter Dress
- Roti Pad
- Banana Fiber
- Travel Bag
- File Cover
- Paper Products
- Apron for BananaFarmer

# Soya Bean Products



Tofu, Soya Sauce, Soya nut, Biscuits, Shrikhand

# Bakery Products



Biscuits, Bread, Cake from Local Grains

# Improved Coconut Post-harvest Technologies for Empowering the Women





## Solar Tunnel Dryer

- Community model solar tunnel dryer of size
- 4 m (w) x 10m(L) x 3m (H) installed
- Hybrid version of open sun drying and mechanical drying
- 200 micron UV- stabilized polyethylene film used
- Concrete flooring inside dryer
- Multitier metallic rack for placing coconuts
- Quality copra at lesser cost and duration
- Environmental- friendly technology
- Instrumentation for measurement of temperature, relative humidity, solar intensity & sunshine hours

#### **SOLAR TUNNEL DRYER**









## INNOVATIVE HAND OPERATED SABAI ROPE MAKING MACHINE Developed by IIT, Kharagpur

PRODUCTION EFFICIENCY: 10.5 times of HAND TWISTED OUTPUT



#### TRAINING SESSIONS FOR NURSERY RAISING









#### **TECHNOLOGY TAKEN TO VILLAGES AFTER TRAINING**









# VALUE ADDITION IN LOCAL MILLETS



# Case Study 4 Integrated community based approach for management of anemia among young rural women in India

- Prevalence of anemia in 16 districts of India over 80% in pregnant women & about 90% in adolescent girls
- Maternal diets across different states
  - are deficient in iron
  - consumption of micronutrient rich foods such as such as GLVs, fruits is very low,
  - Health seeking behavior of mothers is poor
- Poor nutritional status (anthropometry)
- Low priority for self health care
- NACP is in existence over two decades.
- Need for improving nutritional knowledge is beyond doubt

(Toteja et al, Food & Nutrition Bulletin, 2006, 27(4), 311 et al, 311-315)

### **Approach – Management of Anemia**

- Socio-culturally suitable
- Involving women / young girls, elderly, school children, teachers, home science colleges, nutritionists, gynecologists
- Informal meetings
- Kitchen garden activity
- Live demonstrations of GLV recipes
- Simple methods of preservation of GLVs
- Consecutive rounds of Hb estimation
- Booklet of recipes from GLVs, in local language
- Sustainable impact through improving knowledge & awareness

#### Besides live demonstrations,

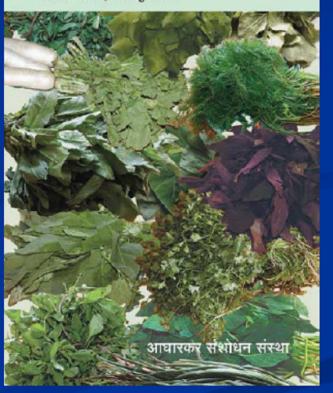


recipes were pictorially depicted in the form of a calendar

and finally in the book form and were given to each woman enrolled in the study

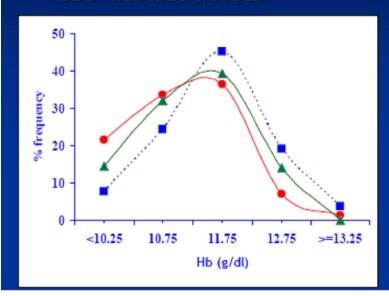
#### बहुगुणी पालेभाज्या

शोभा राव, रिमता जोशी, प्रज्ञा भिडे आसावरी कानडे, भैरवी पुराणिक



### Results for non-pregnant women

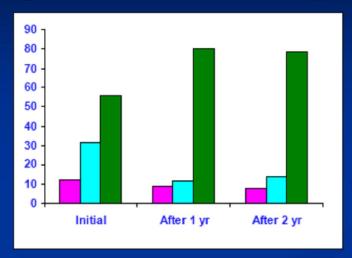
#### Hb distribution



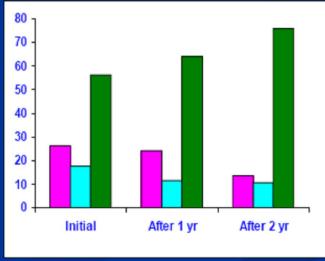


Hb distribution showed right shift in successive years

#### Improvement in consumption



**GLV** 



fruit

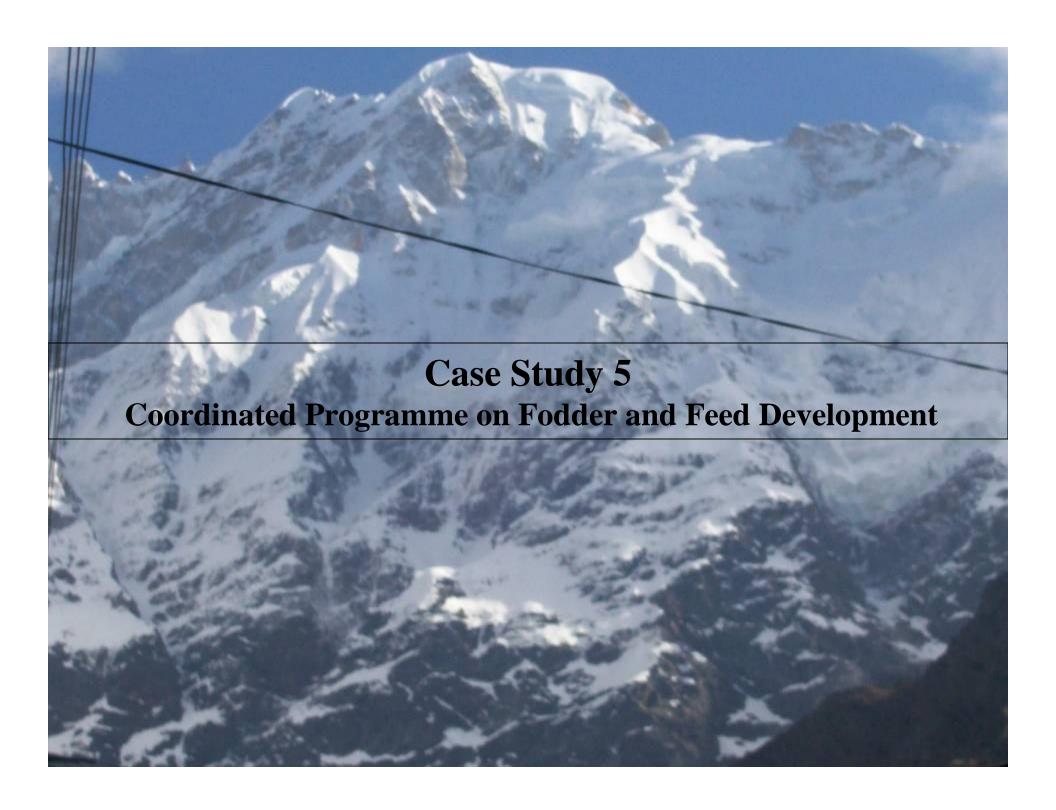
■ < Once a week ■ <twice a week ■ >= twice a week

### **Results**

- Very good response for nutrition and health education through participatory research.
- Prevalence reduced significantly (almost by 50%) in the first year.
- Reduction in prevalence was sustained in second year too.

# Future initiative- All India coordinated Programme on community based approach for management of anaemia through nutritional inputs/ awareness among young rural women

- Duration 2 years
- Number of states 6 states
- Sample size (per site) 500 to 1000
- Total sample studied will be about 10000 adolescents & 2000 women assuming 10 sites)









## **IMPACTS**

#### **ECONOMICAL IMPACT:**

- 1- Due to easy availability of fodder and fuel work load of women has reduced.
- 2- Planted grass are comparatively more nutritive than local grasses which produced better health and production affect on live stock increasing milk yield.

## **Highlights**

- 350 ha of Vanpanchyat (Community land) has been successfully converted into community Silvipasture through effective people's participation.
- Linkages with various organizations & taken their support.
- Good growth of Fodder Plants & Grasses in wild conditions.
- Good effect of Water conservation trenches on growth of plants and grasses
- During current year 15% to 20% increase in dry fodder production is expected.
- Women have earned Rs.4,78,117.00 as wages.(31% of total project cost).
- The fuel requirement of the Participants was partially fulfilled from Vanpanchyat through lopping and shaping of trees thus resulting in reduced drudgery of the women.





## **Demonstration of Maize Fodder**



African Tall Traditional Maize



## Growth of Planted Grasses



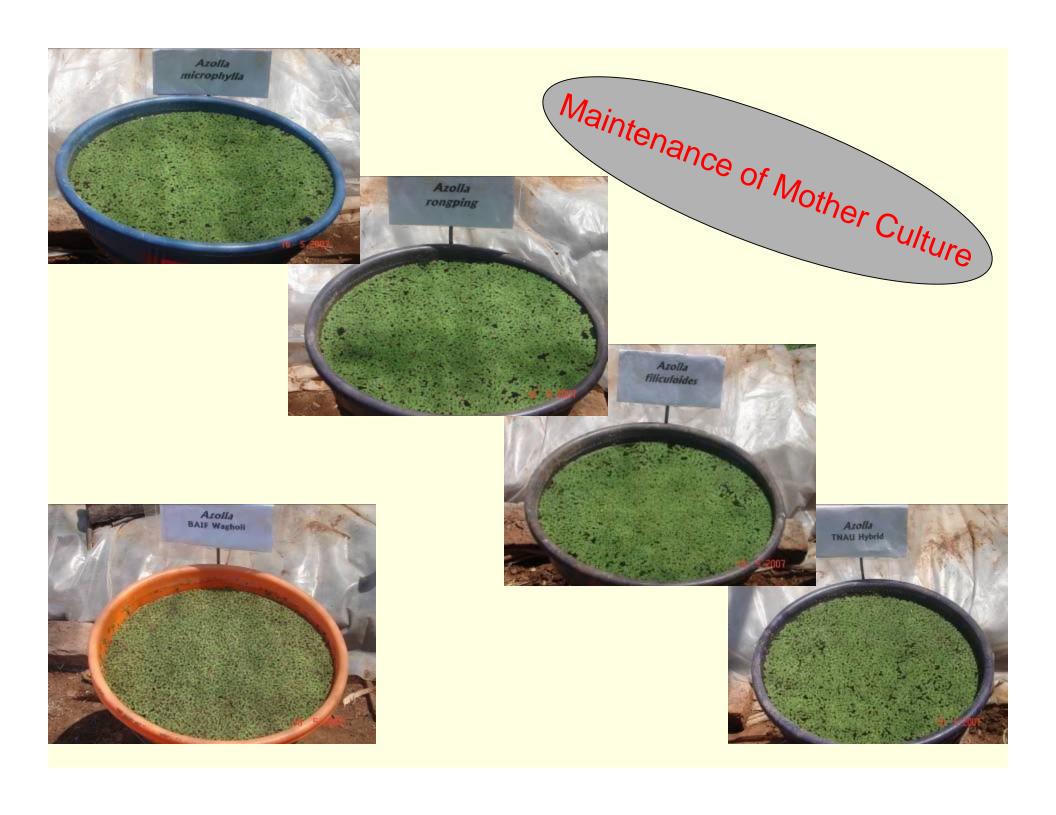


Developed Silvipasture on Vanpanchyat Land of Gambhirgaon



## **Cowpea – EC 4216**







## Present areas of intervention

- Manufacture of low cost disposable health and hygiene products for women.
- Use of low cost kits for detection of reproductive tract disorders in women.
- Nutritional supplements for women of reproductive and post menopausal age.
- Development of a set of ergonomically suitable hand held tools for use of women in agriculture.
- Fodder management

## **Technology Development and Transfers.....**

- S&T based programmes should involve field level institutions (VO's)
- Networking at field level
- Interface with R&D/ S&T institutions
- Social engineering
- Gender issues to be addressed along side
- Economically viable, ecologically sustainable and socially acceptable development

## The Problematic

- Stagnant basket of replicable technologies and enterprise models
- Not many Scientists/Technologist keen to work at grass root level
- Very few projects directed towards issues in rural areas especially for non-farm rural enterprises
- Technology transfer of technology developed at premium institutions is low
- Problems of liberalization of the economy

## A Closer look

- Traditional knowledge and creativity of people is important
- S & T can make a difference
- S & T inputs are not available off-the-shelf
- Issues often span many disciplines
- Appropriate Technology development is the need of the hour
- Handholding during in transition from technology training to enterprise development
- Enterprises may require modification in technologies, thus need for generic technologies and variations

#### **How We Work**

Go To The People

Live Among the People

Learn from the People

Plan with the People

Work with the People

Start with What the People Know

Build on What the People Know

**Teach By Showing** 

Learn by Doing

Not a Showcase but a system pattern

Not odds and ends but a system

Not piece meal but integrated approach

Not to conform but to transform

Not relief but release

