Government of India
Department of Science & Technology
Science & Society Division

Towards Faster & More Inclusive Growth
Reaching the Un-reached: Technology Model for Women’s Empowerment and Sustainable Development

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Towards Faster & More Inclusive Growth
“Societies need to see women less as passive recipients of help, and more as dynamic promoters of social transformation. Education, employment and ownership rights of women have a powerful influence on their ability to control their environment and contribute to economic development”.

Amartya Sen
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.
“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.

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<td>Power consumption is nil</td>
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<td>Minimum infrastructure required</td>
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<td>Semi skilled womanpower for maintenance</td>
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<th>Economics of hardening</th>
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<td>Cost of bottled plantlets (&gt;200 plantlets)</td>
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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.
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

Mother Unit

- Decentralized production centres
  - Growers

- Decentralized production centres
  - Growers
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
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

15 Spices

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 Banana Farmer
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

Nutri Sweets

COOKIES

CAKE
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

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.
Results for non-pregnant women

Hb distribution showed right shift in successive years

Improvement in consumption

- GLV
- Fruits

Hb distribution showed right shift in successive years.
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)
Case Study 5
Coordinated Programme on Fodder and Feed Development
Training of Participants
Protection of planted trees from frost
Water conservation trench
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 Vanpanchayat (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 Vanpanchayat through lopping and shaping of trees thus resulting in reduced drudgery of the women.
Harvesting of grasses on Steep slopes
Demonstration of Maize Fodder

African Tall

Traditional Maize
Growth of local grasses
Growth of Planted Grasses
Developed Silvipasture on Vanpanchayat Land of Gambhirgaon
Cowpea – EC 4216
Maintenance of Mother Culture
Azolla in Paddy Field
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
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
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
Dare.... Dream.... & Do..... the success is yours!

Sarve Santu Niramaya!