



Gender Issues for Technological Empowerment of Women in Agriculture

The National Research Centre for Women in Agriculture has made various efforts to identify gender issues and test the appropriateness of available farm-technologies/programmes/policies with women perspectives for promoting gender mainstreaming in research and extension for empowerment of farmwomen, and capacity building of scientists, planners and policy makers to respond to the needs of the farm women.

The project on **Database on Gender** was taken up to generate gender-disaggregated data in crop, animal husbandry, fisheries, forestry and agro-processing. A woman was engaged on an average for 138 days in a year in crop-related activities including post-harvest as against only 98 days for a man. In crop related activities, a clear cut division of labour was observed along gender lines with some common activities for both men and women. Men were at an advantageous position so far as access to agricultural implements were concerned. Poor access of households

- Database on Gender revealed farm women are in disadvantageous position from knowledge gaining and credit availing points of view
- Self-help Group served as a source of credit for individual women
- Women's access to productive farm resources and services should be increased
- Agricultural farm women labourers are unorganized leading to poor wages and nearly no participation in development process
- SWOT analysis of self-help group was made
- Low-cost and locally available feed material based weaning mix prepared
- Farm women were given training on improved implements and farm operations
- Aquaculture training helped in overall development of farm families



Participation in Self-help Group programmes gave woman decision making capacity and confidence



Aquaculture for rural women

Aquaculture projects Involving Rural Women in Aquaculture—A Step towards Ensuring Economic and Nutritional Security, Family based Economic Security of Backward Communities through Ornamental and Integrated Fish Farming, and Studies on Sustainable Aquaculture—A Practice' for Empowering Women in Rural Aquaculture, have been operating in different villages to test and disseminate aquaculture technologies to rural women for increasing the productivity of rural ponds, to empower the backward communities through integrated aquaculture systems and to standardize a sustainable aquaculture package for rural women. Under the project following activities were taken up:

- Training on fry production as an income generating activity for the women in their small backyard ponds
- Increasing the pond productivity by scientific management
- Promoting integrated fish farming and evaluating the income from fish-cum-duck integration in rural set up
- Introducing ornamental fish production as a small enterprise for rural women

The significant achievements of the projects are as follows:

- Establishment of fry production as an income generation activity for women in the villages
- Fry production units were (8) established in different villages, to ensure availability of quality fry in the locality
- The findings of the project revealed that the integration of fish-cum-duck farming could be an effective technology for resource poor farmers as they can generate income for building economic and nutritional security. In a pond of 1,500 m² women earned Rs 1,200 from sale of male ducks, Rs 4,875 from sale of duck eggs, Rs 665 from sale of vegetables, and Rs 12,500 from sale of fish within 1 year
- Average yield of fish from the project has gone up to 2.73 t/ha from pre-project average of 0.125 t/ha, which contributed to the economic and nutritional security of women



Fish harvest from backyard pond

and their families. As a result per family fish consumption increased by 44.4 kg and average cash income by Rs 2,763. Fish-cum-duck integration has gained popularity because of its additional economic gain

- The project has successfully demonstrated the aquaculture potential of derelict water bodies to the local people.

Impact on the community

- Skill training of farmwomen in fish fry production and nursery rearing in a pond of 0.02ha could yield an income of Rs 9,000 in 2 months taking 2 successive crops of nursery.
- Experiment with nursery technology has contributed to awareness building on nursery rearing technology and enhanced confidence with requisite knowledge and skill
- Enhanced availability of good quality fry at reasonable cost has increased area under aquaculture by over 10 ha, which increased fish production

to extension and training was clearly discernible. Women were quite aware of the health workers and benefited from them but not of agriculture extension agents. Men were quite aware of the institutional sources of credit, and 30% of men have availed institutional credit facilities. For individual woman, it was the self-help-groups that mostly serve as a source of credit.

Project entitled Approaches to Engendering Agricultural Research and Extension in 3 states – On Networking Mode focused on many gender related parameters for making gender mainstreaming more efficient. The study revealed that there is a need to give utmost attention for technological empowerment of the women who are mostly middle aged, educationally backward, malnourished and belonging to the schedule caste, schedule tribe and backward community. For time use efficiency the women in Kerala and Orissa need to be empowered in the technologies related to farm diversification activities. Poor farm mechanization

in Orissa is very common, which need urgent attention of scientists and extension functionaries. The policy and programme interventions are commonly needed to increase women's access to productive farm resources and services from development programme.

The study on **Efficient Resource Management of Women Agricultural Labourers** in Orissa and Andhra Pradesh was taken up in both irrigated and non-irrigated farming system. In the study area women agricultural labourers were mostly from the backward caste and illiterate and landless. Their part time activities in Andhra Pradesh were collection of fodder for the livestock and fuel, and in Orissa mainly fuel and collection for par boiling of rice, winnowing of milled rice, rearing animals, preparation of cow dung cake, calf rearing and cleaning of cowshed. Almost all the woman agricultural labourers live in *kutchha* houses in Orissa, whereas in Andhra Pradesh they lived in better houses (36% living



Participants on the occasion of Kisan mela



Training to tribal woman on balanced diet

Krishi Vigyan Kendra (KVK)

The KVKs organized training programme on crop production, horticulture, home science, livestock production/management, etc., in which nearly 2.12 lakh farm women, and 64,394 rural girls were trained.

In addition, 27,076 farmwomen and rural girls were also trained through sponsored training programmes on several frontier areas of agriculture. NABARD, DRDA, CAPART, ATMA, DBT, DST, State Department of Animal Husbandry, Agriculture, Women and Child Welfare and Horticulture, sponsored such training programmes.

in *pucca* houses). The wage disparity between male and female labourers was more in Andhra Pradesh compared to Orissa. In these states the labourers get plenty of work during peak farming operations, with no rest even during the lean period as they have to travel long distances in search of off-farm works. Their hard physical work in farm for 8–9 hr/day in rain, heat and cold, caused various health problems including common cold, fever and throat infections. They have no interaction with any government/private organizations and were unorganized, which resulted in very poor participation of women in developmental programmes.

The project on **Development of Modules for Mobilization of Rural Women for Sustainable Livelihood through Women Self Help Groups** was taken up to analyze the entrepreneurial activities undertaken by women SHGs related to different production systems. The SWOT analysis of the successful groups was made in the first phase of the project. The rural woman perceived the woman self help groups advantageous in terms of co-operation, self confidence and special recognition.

The project on **Popularization of Eco-friendly Pest Management Technologies for Vegetables among Farm Women in Homestead Lands** was initiated to validate the available eco-friendly pest management technologies. Eco-friendly pest management technologies and ITKs related to vegetables farming were documented. It was found that nearly 74–95% women lacked knowledge in bio-pesticides, seed treatment and botanical pesticides.

Proper weaning practices are not followed in different localities, hence standardization of a low cost weaning mix was initiated for

the children utilizing the locally available food materials under the project **Standardization of Weaning Mix Using Different Proportions of Sweet Potato**. The low cost and abundant local food materials are rice, moong, gram, til, groundnut, ragi, green leafy vegetables, banana, papaya, yam, sweet potato, potato etc. Dehydrated material of sweet potato, green leaves and potato were prepared and kept in airtight containers and polythene bags for evaluating the shelf life. Broad based food materials rice, moong, gram and til, were selected based on the criteria of palatability for mixing with sweet potato powder at different proportions.

Assessment of extent of deterioration in quality of the seeds saved by the farm families and collection of various invigoration techniques available and determination of potentiality of its



Practical training for participants on use of improved farm equipment



Processing of Aonla



Training on fruit preservation

application by farmwomen were taken up in project on **Refinement of Invigoration Techniques as Suitable to Farmwomen for Enhancing Planting Value of Finger Millet (*Eluesine coracana*) seeds.** Invigoration process as followed by the local people for cucurbits and paddy seeds was recorded for bringing improvement in the techniques. Locally available materials were used to make this process effective.

Under the project on **Empowerment of Women in Agriculture** the women beneficiaries acquired knowledge for using improved implements and performing farm operations. Custom hiring of the improved implements was on demand among the farmwomen. The impact of the project was assessed through various indicators

of drudgery reduction. The ergonomic assessment of the technologies indicated that technologies had contributed in reducing the physiological cost of work by reducing heart rate and energy expenditure during the agricultural operations and increasing output and reducing the postural discomfort. Organizing Self-help Group followed by skill development trainings helped the farm women to set-up different enterprises in aquaculture, floriculture, vegetable cultivation, mushroom cultivation, agro-processing, coir rope, yarn and doormat making.

Family nutrition, confidence and decision-making ability, improved along with their social empowerment among members of the project and members of SHGs through technological

Ergonomical evaluation of manually operated equipment

The project Ergonomical Evaluation of Manually Operated Cleaner Grader, Seed Drill, Fertilizer Broadcaster and Ridger with Women Workers, was undertaken to assess the drudgery in manually operated cleaner grader, seed drill, fertilizer broadcaster and ridger with women workers. Seed treatment drum, naven dibbler, wheel hoe, improved sickle, tubular maize sheller, sitting type groundnut decorticator, hanging type cleaner, fertilizer broadcaster, CIAE seed-cum-fertilizer drill, PAU seed drill and hand ridger were suitable for women. There was a need of rubber grip over mild steel handle of the equipment to avoid blisters on farmwomen's palm during the farm operation.



The drudgery in manually operated equipment was studied



SUCCESS STORY

Dissemination of beekeeping technology through lead farmwoman

Ms Gian Kaur of village Makha in district Mansa, Punjab, adopted scientific beekeeping through the concerted guidance of KVK, Bhatinda. After getting 1 week's training in bee keeping, the KVK helped her in getting loan of Rs 54,000 from Mansa Co-operative Development Bank to start the enterprise. She started with 12 bee colonies and added subsequently another 15 colonies within 1 month, which increased to 54 in a year. Though her main interest was sale of honeybees by bee breeding rather than sale of honey, she sold 1 q of honey in 5 months. She had also sold 49 framers with honeybees till March 2004. The strength of her apiary rose to 90 by September 2004. The economics of bee keeping by Ms Gian Kaur is given below:

Economics of beekeeping

Details of expenditure:

(i) Cost of 27 bee colonies (@ Rs 800/unit)	Rs 21,600
(ii) Cost of bee accessories (bee veil, gloves, hive tool, smoker, queen cage)	Rs 1,000
(iii) Cost of artificial diet (40 kg sugar @ Rs 16/kg)	Rs 640
(iv) Cost incurred for raising the strength of bee colonies to 90:	
Cost of 30 kg foundation sheets of wax	Rs 9,000
Cost of 60 wooden boxes	Rs 24,000
Miscellaneous expenditure	Rs 500
Total	Rs 56,740

Details of income

Sale of 100 kg of honey	Rs 10,000
Sale of 94 frames with honeybees	Rs 37,600
Sale of 60 bee colonies	Rs 1,20,000
Gross Income	Rs 1,67,600
Net profit	Rs 1,10,860
Profit/colony/year	Rs 2,771

She has been now imparting training to other women in bee keeping.

empowerment. The feedback received from the SHG indicated that 4 SHGs have started availing the micro credit facilities from the banks and they have been sanctioned a loan of Rs 2.50 lakh for expanding their enterprises.

Under the project **Empowerment of Farmwomen in Post-harvest Handling of Vegetables**, the performance of the zero energy cool chamber (ZECC) and bamboo iceless refrigerator (BIR) was tested in 4 villages. Quality of the tomato could be maintained for 3 weeks at low temperature as compared to 3-4 days at ambient conditions.

SUCCESS STORY

Success of Self-help Groups

The KVK, Srikakulam, Andhra Pradesh conducted training programme on dairying for 11 members of a Self Help Group called Santhoshimatha. These SHG women were basically fruit vendors with a monthly income of Rs 300-450. The KVK conducted a 7-day training programme on improved dairy practices for the women, under finance of ABIRD (Andhra Bank Institute of Rural Development) besides method demonstrations (fat and SNF estimation, and chopping of fodder) and exposure visits to instill confidence in the trainees to take up dairying. The SHG group established crossbred units (2 crossbred cows/unit) at Uppinivalasa village of Burja mandal with finance from IOM (International Organization for Migration) through ARTS. The KVK scientists visited these units at regular intervals to solve their problems and conducted various programmes on animal health, vaccination and deworming and provided fodder seed during monsoon season.

Dairying through SHG has also been taken up by several other KVKs for the women farmers. Besides, most of the SHGs also started establishment of other enterprises like backyard poultry, goatry, production and sale of vermicompost, tailoring, rural crafts, food processing, and production and sale of vegetables.



Vermicomposting on income generating enterprise

Drudgery reduction

Involvement of farm women in agricultural activities, types of tools/equipment/machine used by them, their working pattern and drudgery status were studied through the project on **Involvement of Farm Women in Agriculture and Allied Activities in the Madhya Pradesh**. It revealed maximum involvement of farmwomen in drying and storage (77.3%) followed by inter culture (73%) and harvesting operation (72.1%). Nearly 19% households were having wheel hoes and 15% farmwomen operated the wheel hoe. About 53% of the farmwomen were interested in composite training on agriculture, whereas only 19.3% women visited agricultural fair. The farmwomen were utilizing 5.3 hr/day in agricultural activities. The utilization of



time in agriculture varied from 3.5 to 7.3 hr during lean to active seasons. The farmwomen perceived maximum drudgery in harvesting and paddy transplanting operations.

Training programmes for women in-service personnel

A large number of training programmes were organized by the KVK for upgrading the knowledge and skill of women in-service extension personnel. These training programmes were organized

mainly for extension functionaries working in government and non-government organizations related directly or indirectly with the development of agriculture.

Extension activities: The KVKs have organized several extension programmes including *Kisan Melas*, Field Days, *Kisan Goshties*, Exhibitions, Advisory services, etc., in which 5.75 lakh farm women participated.