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Hamdy A. (ed.), Sagardoy J.A. (ed.), El Kady M. (ed.), Quagliariello R. (ed.), Bogliotti C. (ed.).
Training of trainers in INtegration of Gender Dimension in water management in the Mediterranean region. INGEDI project

Bari : CIHEAM
Options Méditerranéennes : Série A. Séminaires Méditerranéens; n. 64

2004
pages 33-38

Article available on line / Article disponible en ligne à l'adresse :

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http://om.ciheam.org/article.php?IDPDF=6002372

To cite this article / Pour citer cet article

Sisto L. **FAO capacity building activities in socio-economic and gender analysis in water management.** In : Hamdy A. (ed.), Sagardoy J.A. (ed.), El Kady M. (ed.), Quagliariello R. (ed.), Bogliotti C. (ed.). *Training of trainers in INtegration of Gender Dimension in water management in the Mediterranean region. INGEDI project.* Bari : CIHEAM, 2004. p. 33-38 (Options Méditerranéennes : Série A. Séminaires Méditerranéens; n. 64)

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FAO CAPACITY BUILDING ACTIVITIES IN SOCIO-ECONOMIC AND GENDER ANALYSIS IN WATER MANAGEMENT

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"Advancing gender equality may be one of the best ways of saving the environment, and countering the dangers of overcrowding and other adversities associated with population pressure. The voice of women is critically important for the world's future – not just for women's future."
*(*Amartya Sen)

WATER: A CRITICAL RESOURCE FOR HUMANITY

Water is among the most precious of natural resources, essential for the survival of life. Fresh water accounts for only 2.5 percent of the Earth's surface. More than half of all available fresh water is used by the planet's 6.1 billion people. The global consumption of water doubles within a generation, and it is estimated that in 2025, if present rates of water consumption continue, 5 billion of the world's 8 billion people will be living in areas where it will be difficult to meet basic water requirements. As humans use more water, less remains to maintain vital river, lake and wetlands, critical ecosystems for people and wildlife.

Fresh water is distributed unevenly, with nearly 500 million people suffering water stress or serious water scarcity. In the year 2000, there were still 16 countries in the world where less than 50 percent of the population had access to "improved water sources", i.e. piped water, a public tap, a borehole with a pump, a protected well, a protected spring or rainwater. Vast regional disparities exist in the per capita water use: in Africa, household water use averages 47 liters per person per day, in Asia is 95 liters, in the United Kingdom the average is 334 liters and in the United States 578 liters. Conflicts over fresh water could erupt in coming decades, as populations grow and more countries face water stress and outright scarcity.

Not all fresh water is safe. At present, 1.1 billion people lack access to safe drinking water, and more than twice this number lack adequate sanitation. More than two million people in developing countries die from drinking unsafe water, inadequate sanitation, associated poor hygiene and water-borne diseases. Some 60 percent of infant mortality is linked to infectious and parasitic diseases, most of them water-related, such as diarrhoea and cholera. In developing countries, 90 to 95 percent of all sewage and 70 percent of industrial wastes are dumped untreated into surface waters; while in developed countries, chemical runoff and acid rain pollute streams and force investment in billions of dollars for water treatment.

FOOD SECURITY, POVERTY AND IRRIGATION

There is a strong and complex relationship between food security, poverty and environmental degradation. Millions of people are chronically undernourished and face food emergencies caused by natural and man-made disasters. About 20 percent of all cropland is irrigated and provides 40 percent of the world's food. Irrigated agriculture uses 70 percent of the world freshwater, and more water will be utilized for irrigation in the future. The main challenge for irrigated agriculture is to contribute to the world's food production and improve food security.

In 1999, 42 percent of arable land in Asia was irrigated, 31 percent in the Near East and North Africa, 14 percent in Latin America and the Caribbean, and only 4 percent in Sub-Saharan Africa. Irrigation increases yields of most crops by 100 to 400 percent. In the next 30 years, 70 percent of gains in cereal production are expected to come from irrigated land. FAO estimates that irrigated land in developing countries will have increased by 27 percent between 1996 and 2030, while the amount of water used by agriculture will increase by only 12 percent, due to improved irrigation efficiency.

Irrigation has increased food outputs and allowed for diversification into higher value crops, through the utilization of technologies aimed at increasing yield, and the provision of employment for the landless poor.

An integrated and sustainable approach for land and water use management is required to enhance water saving and soil conservation that is environmentally not degrading, technically appropriate, economically viable and socially acceptable. Large-scale technological solutions to water scarcity, such as desalinisation, are not able to meet alone the growing need. Low-cost water and labour-saving irrigation technologies should also be adopted to assist smallholder agriculture in developing countries. Special efforts are necessary to ensure the equitable and fair access to water and other resources for improving food security at household and community levels.

In many developing countries, the direct beneficiaries and the main actors in food production and food security are still not sufficiently involved in the planning and implementation of irrigation schemes and projects. The poorest and most vulnerable rural people, mainly women, often do not have access to training and extension activities.

As part of its contribution to meeting the first UN Millennium Development Goal of eradicating extreme poverty and hunger by 2015, FAO is placing increased emphasis on the provision of water for food security, and has identified three basic concerns: to produce more food with less water; to protect water quality and the environment, including human health; and to close the food consumption requirement and production gap. FAO Special Programme for Food Security (SPFS) is based, among others, on the participatory approach and the recognition of women's role, with emphasis on the improvement in on-farm water control, crop intensification, diversification of production systems, and constraints analysis and resolution.

WOMEN AND WATER

In the past 30 years women have been over-represented among the poor in both rural and urban settings. They have less access to land and productive resources. When they work in paid employment, they receive lower wages than men. At the same time, experience has shown that women play important roles in agriculture, food production and water management in most parts of the world.

Women are most often the collectors, users and managers of water in the household, and of irrigated and rainfed crops. Women and often their children are therefore most affected by environmental change and by water shortage and poor quality. On average, women in developing countries walk six kilometers each day to collect water. One third of rural women in Egypt walk more than an hour a day for water; while in other parts of Africa, this task consumes as much as eight hours. When supplies become contaminated or scarce, women must spend more time and energy collecting water they regard as safe for household use. Women are the primary caretakers for those who fall ill from water-related diseases, reducing their time available for education and productive economic efforts.

Nevertheless, women and the other most vulnerable members of societies – the landless and the poor – often have no voice in decision-making about water and their needs may be given little priority.

In many parts of the world, women's agricultural work is especially important in rainfed areas. For example, a study carried out by FAO in Lebanon showed that women were responsible for sowing, weeding, harvesting and processing, but often had little influence on the decision-making process, especially in the planning and implementation of farm activities. This pivotal role of women has seldom been reflected in institutional arrangements for the development and management of water resources. Positive policies to address women's specific needs and to empower them to participate at all levels in water resources programmes, including decision-making and implementation, are required.

In Asia and Africa women are also active in fishing and in the development of aquaculture. Women in Egypt, Sudan and Cyprus are engaged in marketing of fish and fish products, while in Morocco, Egypt and Turkey they are involved to a limited extent in processing fish. Women also have an increasing role in watershed management.

GENDER ANALYSIS IN IRRIGATION

Worldwide irrigation projects tend to favour richer farmers; with little benefits for poor men and women. The expansion of irrigation schemes often implies evicting tenant farmers, buying out marginal farmers and expropriating land formerly used by the poor. In the past many irrigation projects were implemented without consideration for existing social and cultural practices and knowledge of the gendered division of labour and responsibilities. Women and men have differential incentives for investing time, labour and capital in irrigation related activities, reflecting gender differences in responsibilities, their access to and control over productive resources, including water and the benefits from irrigated agriculture.

Irrigation schemes often upset the balance of local conditions, rights and customs, and can even devalue the environmental and agricultural knowledge and expertise that women and men have built up over generations. For example, traditional swamp rice farming practices and knowledge are being lost as more land is pushed into irrigated fruit and vegetable production for export purposes.

Water resource policies and programmes have often proven detrimental to women's water rights and to their sustainable management and use of water; often overlooking their needs. By raising the value of land, irrigation brings about social change which usually favours men. Irrigation systems also tend to favour mono-cropping, often for the production of cash crops, and may exclude provisions for a more diversified cropping pattern supporting a variety of food crops. As cash crops are usually controlled by men, decisions regarding the scheduling of irrigation water tend to be made without consideration for women's activities in the farm and the household.

Women's entitlement to water is often precarious. Since they must depend on small scale or hand irrigation, they have difficulties coping with drought. Often technologies available to women do not respond to their needs, such as pumps with handles they cannot reach or manipulate, or they have not been trained to repair. Night irrigation for example can also create problems for women. Several studies have shown that women are often not active members of water users' associations and those who attend meetings may not be allowed to speak before men or to express opinions in opposition to men, as their needs and priorities sometimes differ.

It is important to note that gender is now recognised as one of the emerging principles on the sustainable management of water resources and is becoming an integral part of programme planning, appraisal, monitoring and evaluation. Several international meetings have made specific policy recommendations for gender-balanced development to ensure gender visibility in technical development activities. A number of countries has also started promoting the participation of women in water management in their national legislation on water and creating awards to celebrate their role in poverty eradication, education and sustainable development, in urban and rural settings.

Three broad areas in irrigated agricultural production systems were identified where gender analysis can help create more effective, equitable and sustainable irrigation policies and programmes:

1) **Irrigation design:** identify who will use the water, amounts needed, at what times and for what purpose;

2) **Legal, administrative and organizational arrangements:** women's use and control of land and irrigation water. Land should be allocated to individual farmers rather than to households. All farmers who own, rent or work on irrigated plots should be members of water users' associations, and women be guaranteed leadership positions;

3) **Implementation of irrigation projects:** water delivery schedules should accommodate both men and women's needs with respect to quantity, timing and quality of water. Access to training, technology and credit should be ensured to both.

CAPACITY BUILDING IN GENDER ANALYSIS IN FARMERS' WATER MANAGEMENT

FAO Gender and Development Service is seeking to raise awareness about gender concerns and has developed tools and methodologies that integrate gender issues in water management programmes, in order to increase household income and food security. In 2001 the Service has developed, under its Socio-economic and Gender Analysis (SEAGA) Programme, an Irrigation Sector Guide for use by irrigation engineers, multidisciplinary identification and formulation missions, staff of rural development projects, government employees, staff of NGOs, and engineering and consulting

firms. The Guide supports gender-responsive participatory planning of irrigation schemes and the integration of socio-economic and gender issues. Its goal is to improve irrigation scheme performance while strengthening the position of rural women and disadvantaged groups.

A network of development specialists familiar with SEAGA was established to exchange views and experiences on integrating gender issues in the development of strategies and activities. SEAGA has also contributed to the establishment of a series of regional and national networks in Cape Verde, Ivory Cost, Madagascar, Mali, The Philippines, Spain, Uganda. In the Near East SEAGA supported the creation in Tunisia of the Centre de recherches, d'études et d'information sur la femme (CREDIF), as a result of a training of trainers workshop on SEAGA held in Arabic in 2002.

Moreover, FAO Water Resources, Development and Management Service has developed some Guidelines and Farmers' Training Manual for Participatory Training and Extension in Farmers' Water Management. These documents provide an approach and tools to improve farmers' water management by involving and supporting farmers with a focus on participatory planning, and by training farmers and extension workers.

In 2000 the Istituto Agronomico Mediterraneo of Bari (IAM-B), which is part of the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM), and FAO organized an **International Training Workshop on Participatory training methodologies for the empowerment of rural women in the Mediterranean area for sustainable irrigated crop production**, with the assistance of the International Commission on Irrigation and Drainage. The workshop was part of the Institute's Master of Science programme on "Land and water resources management: irrigated agriculture", and 23 experts from Albania, Algeria, China, Egypt, Jordan, Lebanon, Morocco, Palestine, Syria, Tunisia and Turkey, attended the workshop.

Training material was prepared based on the methodology developed by SEAGA, in particular the Sector guide on irrigation, and the Participatory Training and Extension in On-Farm water management, applying the adult learning approach and participative rural appraisal techniques for farmers' training and in-service training programmes.

The immediate objective of the workshop was to familiarize professionals from Mediterranean countries with the approaches to and development of participatory training methodologies adapted to rural women at grassroots level and ensure the successful introduction of appropriate low-cost irrigation technologies.

In 2002 the Government of Italy decided to fund an **International project on "Gender analysis in farmers' water management".** The project responded to the urgent need of the national teams working in FAO's Special Programme for Food Security for training in gender and participatory tools to more actively involve the different socio-economic groups in the irrigation schemes and assist both technical experts and farmers in irrigation planning.

The training workshops were organized in collaboration with the FAO South-South Cooperation Programme, promoting the exchange of experience among developing countries; and the FAO Project on "Empowerment of women in irrigation and water resources management for improved household food security, nutrition and health" (Cambodia, Nepal and Zambia), funded by the UN Fund for International Partnership Programme.

The development objective of the project was to enhance the opportunities for rural women to improve household food security and raise income, by introducing low-cost and water-saving technologies for irrigated crop production. The immediate objective was to introduce, within the SPFS framework, a participatory training and extension programme to increase its impact by ensuring women's involvement in the main stream activities and facilitate their access to productive resources and appropriate irrigation technologies.

The capacity building process consisted of three essential steps: 1) A two-week training workshop to introduce gender issues in water control and in the SPFS programmes and prepare an outline for a national gender training programme; 2) Elaboration of the training programme and organization of a gender workshop for SPFS teams and partner institutions in each selected country; and 3) A one-

week follow-up workshop to present the detailed gender training programmes and agree on the implementation modalities.

Four regional workshops were organised respectively in South Africa and in Cambodia for a total of 68 national experts from 21 countries from Africa and Asia. Two Regional training of trainers workshops were organized in collaboration with the Water Research Commission and the National Department of Agriculture in South Africa, for irrigation experts from 9 African countries (Ethiopia, Malawi, Mozambique, Nigeria, Republic of South Africa, Sudan, Swaziland, Tanzania and Zambia); and in Cambodia, with the national Ministry of Agriculture, Forestry and Fisheries for specialists from 12 Asian countries (Afghanistan, Bangladesh, Cambodia, China, India, Indonesia, Laos, Mongolia, Nepal, Pakistan, Sri Lanka and Vietnam).

The regional workshops had the double purpose of training and promoting networking between different countries, allowing participants to discuss on the similar successes and constraints, but also some differences in the SPFS implementation. It was the first time that the SPFS national teams met and exchanged experiences. The material used in the training workshops was the SEAGA Programme and the Participatory training and extension programme in farmers' water management.

In our workshops we used participatory training techniques, based on the adult learning's theory, like role plays, demonstrations, small group discussions, case studies and brainstorming. Participants were allowed to practice all these techniques and thus each workshop was considered as a training of trainers. Several field visits to project sites were organized, as an insight into water management and gender situation, offering the opportunity to participants of practicising some tools and methods with the farmers.

The specific outputs were as follows: a) Increased capacity to address the issues of socio-economic and gender analysis and use participatory methodologies to support the participatory planning of irrigation schemes among SPFS experts from Africa and Asia; b) Training material produced and widely distributed on gender analysis in farmers' water management; c) Detailed procedures adapted to regional and national specificities to involve more actively women in the water control component of the SPFS Programme; d) Prepared a gender-sensitive training programme to be implemented within the SPFS framework; and e) Strengthened the horizontal collaboration between the three FAO Departments of Agriculture, Sustainable development and Technical cooperation.

At the end, the workshops' participants and facilitators, with the full support of FAO, highly recommended to further disseminate the methodology and materials and organize new regional training activities in gender analysis and participatory tools. Special interest in this process has been shown by French-speaking and other English-speaking countries in Africa and possibly in other regions.

In June 2004 FAO was also invited at the International Workshop on the Integration of gender dimension in water management in the Mediterranean Region, organized in Bari by the IAM-B under a Gender project called INGEDI (INtegration of Gender Dimension in water management in the Mediterranean Region). The project was funded by the European Union, under the Sixth framework priority specific support. A total of 50 international and national experts (respectively from Albania, Algeria, Cyprus, Egypt, Jordan, Italy, Lebanon, Malta, Palestine, Spain, Sweden, Tunisia and Turkey) and representative of different international and national organizations attended the workshop.

IMPORTANCE OF NETWORKING

Before ending my presentation I would like to share with you some of the ideas discussed during the different training workshops and seminars to promote networking at three different levels: community-village, institutional and policy levels. At community level we should assist farmers and community's associations; organize formal and informal discussions with different stakeholders (farmers, extension staff and technicians); encourage the exchange of information through different media; organize demonstrations and field visits and create specific women farmers' schools. At institutional level meetings should be organized between ministry departments, NGOs, community members, professional associations, etc; plan capacity building activities; disseminate information through newsletters and journals; and organize seminars for staff of different sectors. At policy level, it

is of fundamental importance to share experiences between different countries; participate in international meetings, workshops and tours; organize awareness campaigns; and share information on national policies and regulations.

There is still much to be done and we hope that each one of us can be a “good ambassador” in our country in raising awareness and organizing training activities at field, institutional and macro levels, on gender analysis and participatory tools to be integrated in each phase of any irrigation activity. Only working together we can enhance the opportunities for rural women and men to improve household food security and alleviate poverty.