

Women and Indigenous Technology

by Anoja Wickramasinghe

Les technologies indigènes ont évolué comme stratégies intermédiaires pour une utilisation efficace et productive de la nourriture. La capacité de transformer les aliments pour cause de pénuries saisonnières de vivres ont rendu les femmes pionnières dans ce domaine. Il importe d'intégrer la technologie indigène aux efforts de développement pour assurer la sécurité alimentaire de la maisonnée.

Introduction

Technologies have been either intentionally developed through experiments or built upon the experience of the people over generations. Indigenous technologies, passed down from one generation to another, are vanishing rapidly, largely because they are restricted to specific locations or communities, they rely on locally available materials, they are difficult to disseminate formally, and they are often not recorded. This is particularly true of the technologies developed and disseminated by women.

Consequently, there is a great imbalance between genders in our society, as well as between traditional and modern technologies. Traditional technologies practised by women are not formally recognized, while new innovations, which are supported by mass propaganda, are placed in the hands of men. For instance, with the arrival of transplanters, men were privileged in being trained as machine operators, ignoring the women who continued the back-breaking tasks of transplanting paddy in waterlogged fields. Similarly, with the introduction of winnowing fans, the manual winnowing of cereal harvests done by women has been taken over by men. Furthermore, the technologies which are of practical use in the household are excluded, largely due to the non-existence of a formal scientific base and the narrow and faulty view of technology as an application of scientific knowledge. Therefore, the techniques developed by women for the efficient utilization of products that ensure the family's survival are not recognized as technologies, and as such, they are devalued. In addition, our limited knowledge and awareness of these technologies has made it difficult to bring them back into use for efficient utilization of natural resources, and as an effective strategy for solving problems arising at household, community or local levels.

This article explores the technologies utilized by peasant women in Sri Lanka and the need to reevaluate them in a context of household survival.

Women and technology

Technology, as revealed in a study conducted in the northwestern part of the dry zone of Sri Lanka, is not new to women. Technologies have been developed to facilitate tasks related to the most efficient use of the many products gathered in their area. These technologies have helped to bridge periodic gaps in the availability of the products. Many of the technologies are gender sensitive and linked with the division of labour between the sexes. This has enabled women to develop technologies for processing food to ensure household food supplies in the event of any and all contingencies. Consequently, the activities related to these technologies are considered to be primarily part of women's domestic tasks.

Technologies that have been developed and used in the past by women were not meant to be "labour saving," but were primarily aimed at 1) eliminating drought-induced shortfalls of food availability; 2) ensuring the diversity of food supplies; 3) efficiently using products which are available in large quantities during specific seasons; 4) facilitating the storage of the products.

Over generations, indigenous solutions to food shortages have relied on traditional technologies and local resources. This is in contrast to modern solutions to food shortages which rely largely on external sources, food aids, and subsidies. The indigenous technologies which are widely used are related to processing tree products for: 1) supplementing the staple diet; 2) producing condiments; 3) increasing the diversity of available food; 4) extracting medicinal and edible oils.

The raw materials are freely collected. Tools are made out of locally available materials, and skills are inherited. The tools in use are not based on machine power but are manually operated. Many of the processing technologies follow procedures of sun-drying, smoke-drying, pounding, husking, steaming, extracting, and boiling etc. No artificial preservatives are added. Many of the processing technologies also involve lengthy, step-by-step procedures. Yet, because they are done in the home, it is possible to attend to them either between other domestic chores or after the farm work, permitting women to control the technology.

Techniques like winnowing, sun-drying, sorting, and storing of grains are widely applied in preparing the cereal harvests like sesame, coracana, mung-beans, cowpea, and black-grams either for home consumption or marketing. All the others, particularly the processing of tree products, use a number of complex procedures. This is mainly due to the use of tools in some cases, in combination with skills and indigenous knowledge. The tree

products to be used as substitutes for the staple diet of rice include *Artocarpus heterophyllus* (jackfruit), *Artocarpus altilis* (bread-fruit), and *Artocarpus nobilis* (wild breadfruit). In the case of jackfruit, the processed parts are seeds and flakes, while in the case of bread-fruit, it is the unskinned pulp that is cut into pieces. In the case of wild breadfruit, both the cleaned fruit and seeds are used. The seeds of the jackfruit are often graded by separating the damaged and immature ones from the mature ones. The mature ones are stored in pots or in tins covered with dried sand while the others are boiled, sun-dried, and packed in sacks. They are kept in smoke trays above the kitchen hearths in large quantities. The flakes, which are soaked in boiled water and then sun-dried, are stored in the same way. In the case of other two varieties, the processing involves sun-drying the thinly sliced fruit and then storing it in sacks.

By processing these three products which are available in large quantities during one season for use in the off-season, women benefit in a number of ways. It has enabled women to keep their authority over household food availability, overcome possible food shortages and famines, and ensure the diversity of the food stocks. Although there is no formal scientific base for these technologies, their science has evolved through experience and practice.

The most interesting technology used by women is associated with extracting oil from the gathered tree products, which in most cases is edible or medicinal. Three tree crops, predominant in the country, are used for this purpose. They are *Maduca longifolia* (mee), *Azadiracta indica* (neem) and *Artocarpus nobilis* (wild bread-fruit). The seeds or the kernels of these trees are the preferred product. In the process of extracting oil of mee and neem, women crush the kernels and take the pulp out. After pounding them by hand, they steam the pulp to settle the wax and then squeeze it, placing it in sacks made out of grass. Extracted oil of mee is the most widely used edible oil in the dry zone areas of Sri Lanka where mee trees are widespread. On average, women in the studied villages extract nearly 20 to 30 pints of oil per family each year. Out of this about 50 per cent goes to market. The use of mee oil in 'Ayurvedic' medicine and by local physicians, particularly in treating problems of rheumatism and sprains, places a precious value on this tree. The wide use of oils of neem in curing chronic skin diseases and in rheumatism, leprosy and sprains, ensures a market for neem oil. For women in the dry zone areas the production of these oils is a good source of income.

The technology used in extracting oil out of the seeds of wild breadfruit is quite different. The procedure depends on boiling the seeds until the oils gradually settle. As the quantity of this product is extremely low, it is costly and only an insignificant amount goes to market. It is therefore mainly used at a household level to treat rheumatism.

Women have developed techniques to preserve and season food using products which are also available during one season of a year. The fruits of *Garcinia cambogia* are collected and sun-dried, not only for preserving fish, but also to give a savoury flavour to curries. Pulp of the pods of *Tamannus indica* (Tamarind) is another product widely preserved by women through sun-drying and used in flavouring curries.

The indigenous technologies used by women are numerous and have a number of practical applications. The possibility of

replicating these technologies for use with other products without cost indicates their adaptability and usefulness in enhancing household food security.

Patterns of dissemination

The indigenous technologies used by women are often not formally documented, so dissemination depends largely on intergenerational relationships and social interaction. As has been revealed in this study, according to the experience of nearly 32 women interviewed, the technologies are not simple. The quality of the products is very much affected by the experience and knowledge of the women, and their ability to follow the step-by-step procedures. These technologies have been developed by trial and error and passed down from mother to daughter, from one household to another. Rather than following a procedure of teaching, the technology is learnt by assisting, observing, and practicing. The flow of information from one household to another also includes sharing new developments and techniques. This type of communication has been the only medium for the dissemination of indigenous technology.

While there is greater flexibility in transmitting information in this way, at the same time it makes the technologies more likely to disappear with changes in the environment, with the diminishing availability of raw materials, or with changes in attitudes and interest of the users of these technologies. Indigenous technologies have thus not been integrated into modern development strategies, resulting in deepening food scarcities and the displacement of women's control over the family's food availability.

A return to indigenous technologies

The need to bring back the technologies carried out by women, particularly food processing, can be contextualized by examining problems which are becoming more serious in developing countries. For instance, the overall situation in Sri Lanka is that more than one half of the population lives below the poverty line and is eligible to receive food subsidies. Many are vulnerable to starvation. In most cases, this in fact is not a rigid phenomenon, but is characterized by seasonal food shortages. As has been discussed by Masser, periodic food shortages are due to a number of factors including male migration, cash crop production, and deterioration of the environment. In the case of Sri Lanka, in most of the rural areas the disappearance of food processing technologies has contributed to this situation. Often the tree food products are not efficiently used, leaving rural households vulnerable to off-season food shortages.

One of the benefits of food processing technology is that it can be practised in the home to make the best use of available products. This contributes to a household's self-sufficiency. By adding the processed products, women are able to increase the food intake of the household, as well as the diversity of food available. In most cases these products contribute the protein, starch, and fat necessary to cope with droughts and off-season food shortages.

With modern development associated with advanced machinery and monocultures, attempts have been made to initiate

income generation opportunities for the peasantry, overlooking the ways in which women secured food for their households. In contrast to motor powered machinery which is operated by men, with indigenous technologies women are in control. They are able to develop self-reliance, and the skills required do not destroy the environment. These are reasons enough to revive indigenous technology in the interest of household survival.

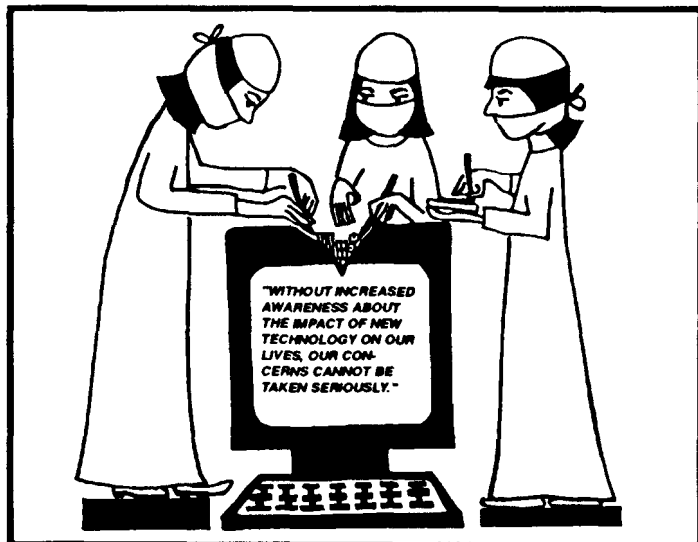
Conclusion

The indigenous technologies used by women have enabled them to make use of the products at their disposal in meeting the family's food requirements. In the past, these technologies were able to balance family food security and environmental availability. Women's commitment to ensuring household food security has been conducive to the performance of these technical tasks. They are appropriate to their locations, and to the domestic, social, cultural, and physical environments, as well as to local food habits. Women in rural areas are able to attend to these tasks without disrupting their normal domestic chores, and without cost. The social and environmental changes that are taking place in these communities have not improved the lives of women. Instead, they have kept these technologies in isolation, and have not recognized their importance in ensuring household food security.

Anoja Wickramsinghe is an Associate Professor in the Department of Geography at the University of Peradeniya, Sri Lanka. She was recently the Sabbatical Scholar at the Centre for Research in Women's Studies and Gender Relations at The University of British Columbia.

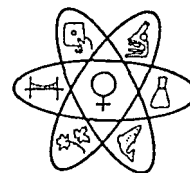
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The Society for Canadian Women in Science and Technology (SCWIST) is a non-profit association established to:

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For further information

SCWIST Resource Centre
2423 - 515 West Hastings Street
Vancouver, British Columbia
Canada V6B 5K3
Telephone (604) 291-5163
E-Mail (InterNet) scwist@sfu.ca
Fax (604) 291-5112