Working Paper No. 4
(July 1998)

Investigation of Gender Issues in Relation to Aquaculture Potential in Raichur District, Karnataka, India

Aquaculture in Small-scale Farmer-managed Irrigation Systems
Funded by DFID Aquaculture Research Programme

Institute of Aquaculture
University of Stirling
Scotland, UK

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List of Working Papers

Project Summary Report

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Project background

The arid and semi-arid tropics are areas in urgent need of development. As a home to a large proportion of the world's poor these regions face a future of scarcity of food and insufficient water for consumption and irrigation of crops. It has been predicted that India and Sri Lanka will face a fresh-water crisis in the near future, and as much water is currently wasted due to inadequate management and conservation practices there is a need for more integrated approaches to water management. The majority of India's surface water bodies are used primarily for irrigation. Although large-scale irrigation systems cover more surface area and supply a greater area of farmland, more farmers are dependent on small-scale systems for their daily livelihood. Irrigation systems are often very inefficient water distribution systems, and studies suggest that the efficiency of water use could be improved. The integration of aquaculture (which can be non-consumptive in terms of water use) has the potential to increase food production and improve the efficiency of the use of small-scale irrigation water resource.

These Working Papers are the first stage of the research project 'Small-scale farmer-managed aquaculture in engineered water systems' (DFID project R7064). The project aims to investigate the potential for integration of aquaculture into small-scale farmer-managed irrigation systems in arid and semi-arid regions of India and Sri Lanka. Intended beneficiaries include the rural poor, which in India belong to the Scheduled Castes (SCs)[1] and Scheduled Tribes (STs)[2]. This part of the project focuses on Karnataka State on the south west of the Indian peninsular.

During the research, the economic and technical feasibility and the social acceptability of the production of fish in such systems of arid and semi-arid regions of Karnataka were investigated. Field research took place from 6 April to 21 May 1998 and included a 'Rapid Rural Appraisal' of four villages in Raichur District, Karnataka, and semi-structured interviews with representatives from the Government Department of Fisheries, marketing organisations, academics and other relevant institutional sectors within the state.

All fieldwork was undertaken in collaboration with the NGO Samuha, an organisation undertaking wide-ranging activities in the arid and semi-arid areas of Karnataka State. Samuha has extensive experience within participatory development and its initiatives range across health, disabilities, women's development, HIV/AIDS, education, animal husbandry, drinking water and sanitation, irrigation and watershed development (Pradeep, 1994). The majority of the work of Samuha is carried out in the districts of Koppal and Raichur with a smaller project in Bangalore. The activities of Samuha are supported by a number of bodies: ActionAid; OXFAM; the Swiss Development Cooperation; the Government of Karnataka and the Government of India as well as individual donors.

The results and analysis are presented in the ten Working Papers listed above. For an overview of the content of each of the Working Papers, see the Summary Report. This series of working papers have been produced principally as a resource for a stakeholder workshop to be held in Coimbatore, 19th - 20th November 1998. Conclusions and the research agenda are therefore preliminary.

[1] SCs: lower castes identified by the Indian government as a means of classifying castes for the allocation of benefits.
[2] STs: all tribals. SCs and STs together constitute the 'socially and educationally backward classes of citizens'. The terms form the basis for policies of protection and positive discrimination.

Glossary

Community work	The collective organisation of social events and services such as ceremonies, community improvement activities, participtation in groups, and local political activities.
DFID	Department for International Development (formerly ODA)
Grama Samitis	
KWDP	Kanakanala Watershed Development Project (Samuha project)
Myrada	Mysore Rural Agri-cultural Development Agency
ODA	Overseas Development Agency (now DFID)
ODI	Overseas Development Institute
Panchayat	Development administrative body
PRA	Participatory Rural Appraisal
Productive work	The production of goods and services for consumption and trade.
Reproductive work	The care and maintenance of the household and its members, including bearing and caring for children, preparing food, collecting water and fuel, shopping, housekeeping and family healthcare
RRA	Rapid Rural Appraisal
Rs	Indian unit of currency
SC	Scheduled Caste
Sex-ratio	Ratio of women to men in a community, expressed as the number of women per 1000 men
ST	Scheduled Tribe
Walmikis	A common tribe in north Karnataka
Woni Gumpus	'Street groups' – women's groups responsible for savings within villages
1ha	2.4 acres

Summary

1. Any development of poverty focused aquatic resource management in Karnataka would occur in a context where rural women constitute a socially and economically marginal group. Women have not traditionally been included in rural development programmes. However, following the UN Decade of Women (1975-85) a number of international agencies now incorporate the specific targeting of women. Furthermore the Government of India now aim to include women as a target group into all anti-poverty programmes in the country.

2. Women are disadvantaged in Indian society. Problems currently facing women include: the practice of dowry; child marriages; lack of participation in politics; low literacy rates; female infanticide and foeticide and poor nutrition of female children and youths resulting in low ratios of women to men.

3. In the case study villages men own all the land, as well as all other resources. Men are also in charge of finances, and women have very limited decision-making powers both in the home and on the farm. The level of male literacy is far higher than that of women, and boys are educated in preference to girls. Women's knowledge of and participation in politics is low as is their access to credit. All project villages have low sex-ratios, with the lowest sex-ratio in the least developed village.

4. Women carry out the majority of *reproductive work* (cooking, cleaning, washing clothes and taking care of children). Men and women both work on the farm, where activities such as ploughing and irrigating are predominantly performed by men, but men and women share sowing. In the majority of families asked only women sow and weed the fields as well as fetch water. Both men and women work as farm labourers and both migrate to irrigated regions for rice harvesting work. For all work, men are paid between 1.5 to 2.5 times more than women. Because women carry out both *reproductive* and *productive work* their working day is between 2.5 and 5 hours longer than that of men (the time taken to perform *reproductive tasks*).

5. Villagers were asked to identify who would carry out aquaculture related tasks, and there was general agreement that only men would feed the fish, fertilise the pond, as well as harvest and sell the fish. The on-farm water body is commonly used by men for irrigation and watering livestock, and by women for fetching drinking water and washing clothes. In some circumstances the introduction of aquaculture may preclude the use of the water for human consumption and clothes washing, and as such may mean that women would have to walk further to collect water and wash clothes.

6. Men are in charge of all agricultural activities including irrigation and if on-growing of fish is introduced into individually owned small-scale irrigation water resources it is likely to fall under the domaine of men and may therefore not aid the empowerment of women. However several women's self help groups were active in the project villages, and it is possible that these could be targeted for the development of aquaculture in communal water bodies such as check dams or specific parts of the process of fish production such as hatchery operation or pond activities associated with homestead land irrigated by wells.

Investigation of Gender Issues in Relation to Aquaculture Potential in Raichur District, Karnataka, India

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1 Introduction

Rural women constitute a socially and economically marginal group, often forming the poorest sub-sector of marginal communities (Engle, 1987). Despite the fact that women account for more than half of the labour required to produce the food in Asia, and as much as three-quarters of the labour in Africa (SPPRGA, 1997), women are rarely targeted or included in the planning process in rural development programmes. Apart from not aiding the empowerment of women, this tendency to ignore women also renders many development projects unsustainable because development is planned with men for men, and usually by men, when much work in reality is carried out by women, who may have different inputs or ideas as well as different needs to men (Fatima, 1991). It is therefore increasingly recognised by development organisation around the world that women should be targeted in rural work, including aquaculture development (e.g. Goldey *et al.*, 1996; King, 1989). Furthermore it is important to mention that as resources are limiting in most development contexts, any change that will lead to any change in resource use may have negative effects on women and other disadvantaged groups in society. When conducting feasibility studies for development projects, it is therefore important to identify the potential impacts of activities on all groups in the local community.

In order to include women into a research or development programme, it is necessary to establish their position in society, their work patterns and responsibilities as well as their access to, and ownership of, resources. The investigation of gender issues is commonly a part of rural appraisals which seek to gain an understanding of the community of an area where development is planned. If appropriate, women may be integrated into aquaculture development (either on a household or a community level) once their role in local communities is understood. This should be done by careful planning and specific targeting, and may result in more sustainable development in the end. In this paper gender issues relevant to aquaculture development in Raichur District, Karnataka State in southern India, are investigated.

1.1 Women in development programmes

Since the UN Decade of Women 1975-85, a number of major initiatives have been launched by international organisations to draw attention to the contribution of women in rural development and agriculture, including fisheries (Baluyut, 1987). Box 1 outlines some of the reasons why it is important to include women in aquaculture development. The recognition of the problems listed in Box 1 has led to a number of recommendations as to how best increase the involvement of women in aquaculture activities. Some of these can be seen in Box 2.

It may be argued that women cannot be singled out as deserving special focus, since those women needing help are among the 'disadvantaged' sections of communities already catered for by existing development programs. But although critical to the survival of many communities, the activities of these 'disadvantaged' women remain largely marginalised (King, 1989). In the 6th 5 year plan of the Indian Government (1980-85) a chapter was included on women and development for the first time. This explicitly stated that economic independence, equal access to education, skill-training and family planning services for women was a must if the constitutional guarantee of equality should come true (Balasubramanian, 1991). After this all anti-poverty programmes in India were directed to include women as a target group. Furthermore this 5-year plan promised to endeavour to provide joint titles to husband and wife and to give priority to female headed households.

Box 1: Why rural women need special attention in aquaculture development.

- Rural women constitute a socially and economically marginal group. In sectors below the poverty line, women form the lowest, poorest sub-sector (Engle, 1987).
- Technology is often male oriented and implementation of new practices may displace female labour leading to a weaker position and further marginalisation of women (Myrada & IIRR, 1997).
- Women normally play a major role in subsistence production (Engle, 1987) and it is estimated that women account for more than half of the labour required to produce the food in Asia, and as much as three-quarters of the labour in Africa (SPPRGA, 1997).
- Despite the important role of women in aquaculture, their involvement has been ignored and no specific efforts have been made to integrate women into aquaculture extension and training programmes (Engle, 1987).
- In India the rate of literacy among rural women is very low, and prevailing social and cultural values limit their access to training opportunities and development assistance (Baluyut, 1987).
- For rural women, time is of great importance, and it is difficult to get women off the farm because they cannot leave for long periods of time. Time spent away from the household must be justified in terms of increased income, and demonstration farms located at training centres are often not accessible to women (Engle, 1987).
- Because of the traditional labour division in India, women's participation in aquaculture activities are limited to auxiliary functions (e.g. feed preparation, fish feeding, marketing and post-harvest handling etc.) (Baluyut, 1987).
- Lack of knowledge of the essential role played by women in the agricultural sector has led to the development of projects, which exclude women as participants or beneficiaries. Because of this denial of women's roles in agricultural activity projects have often failed to provide appropriate inputs or training or services for women as participants in the project, as producers and processors of food and cash crops (Fatima, 1991).

Box 2: Recommendations for women in aquaculture development.

- Women should be considered in the planning process of aquaculture and fisheries programs (King, 1989).
- Women need general education and training for a variety of skills (Kalpagam, 1991)
- Recommended areas for training of women are pond management (pond preparation, stocking, feeding, fertilisation, harvesting), handling, transport, and marketing (King, 1989).
- Empowerment of women can occur via the establishment of self-help groups, through which women gain confidence to assert themselves (Myrada & IIRR, 1997).
- Gender impact assessment of the technology to be introduced should be carried out before implementation. In this the existing gender roles and tasks and the benefits to men and women offered by the technology must be analysed, as must the affects of development on the decision making process of men and women in families (Myrada & IIRR, 1997).
- Because adoption of technology depends partly on the decision making processes in households, rural women should be considered in the context of their entire family/household relationships not as an isolated population on their own (Goldey *et al.*, 1996).

1.2 Women in Indian society

In order to assess how Indian women can best be included into aquaculture activities, it is necessary to understand fully the position of women in India. The following is a brief account of the status of women in the Hindu religion.

A prominent feature in Hindu society is the extreme social stratification in which women and the lower castes occupy the lowest levels. Chakravarti (1993) explains this as a result of the protection of the purity of castes. Mixing of castes results in 'polluted' individuals, and it is therefore important that children are borne of parents from the same caste. The most 'polluted' and lowest castes are the results of the mix of higher caste women and lower caste men, and until recently such relationships were punished by drowning the mother and the child (Sundari, 1991).

Issue	Nature of problem
Dowry	Payment or presents given by parents of bride to grooms family at the time of marriage. Normally ranges from Rs. 10,000 to as much as Rs. 2.5-5 million for high class Hindus (Srinivasan, 1991). Effects of dowry range from delay of marriage for girls of poor parents to female infanticide and 'dowry deaths'. Cruelty to or even killing of women by their husbands or their husband's family because of inadequate dowry payments is commonplace (Srinivasan, 1991). At present, one dowry death is reported every 101 minutes in India, or more than 5,000 per year (Deccan Herald, May 1998), but it is oficially recognised that this is a gross underestimate, and that the real value may range from 15,000 to 170,000 deaths per year (Times of India, May 1998). Despite the all anti-dowry propaganda, the values of dowries continue to escalate as does the annual death toll (officially the toatal number of dowry deaths in India rose from 1,912 in 1987 to 5,199 in 1994) (Times of India, May 1998). In tribal communities dowry was normally given by the man to the family of the woman, but these practices are slowly changing as more and more tribals become Hindus. Impacts are mostly felt by lower caste Hindus who have trouble affording the dowry. Various laws have been passed to terminate the practice of dowry, but so far these have failed to be effective.
Child marriages	According to Chakravarti (1993) very early on the need to guard the purity of castes led to the recommendation of pre-puberty marriages for upper castes. Child marriages are very common in rural areas, especially amongst people of lower castes, and despite several laws to prevent them the number of minors married show only slight decline.
Female foeticide and infanticide	Sex determination test followed by abortion of females (Agnohotri & Mazumdar, 1995). Female foeticide and infanticide is illegal but still flourishes, especially in rural areas amongst lower caste individuals. Female children are unwanted mainly because of the dowry system (Times of India, May 1998), and in certain villages, no female children are allowed to survive at all (Indian Express, May 1998).
'Sati'	The ritual burning of widows on their late husband's funeral pyre (Agnohotri & Mazumdar, 1995).
Low sex ratio	A matter of great concern in India is the low sex ratios of certain less developed rural areas. This is thought partly to be caused by poorer nutrition for girls and high levels of maternal and female infant mortality, and partly by female foeticide and infanticide. Thus in India 28.4% of the total mortality of females are of girls of less than 15 years of age (Kothari *et al.*, 1995) and there are reports of villages where no females have survived to adulthood for more than 100 years (Indian Express, May 1998).
Lack of female knowledge of and participation in politics	Rural women in general have a very poor knowledge of politics. This means that they are unaware of their constitutional and political rights, and commonly do not vote in favour of politicians supporting their interests (Srivastava, 1992). In total there are 9% women in the Indian Government, compared to the 12% average of developed countries (Indian Times, April 1998). For decades there have been discussion about the Women's Reservation Bill (securing 33% of Parliament seats for women), and the Bill has not yet been passed (The Hindu, April 1998).
Low literacy levels of women	Rural girls of poor families often do not get educated because their workforce is needed on the farm. Thus literacy levels of women is half that of men in many areas of India. Without education women become greatly disadvantaged in terms of access to knowledge, technology and development.

Table 1: Issues of women's rights in India.

The suppression of women in Hinduism is thus thought to originate in men's attempts to control and restrict the movements of women in order to prevent them threatening the order of the society by bringing on the mixing of castes. Whether this is correct or not, the fact remains that women in India are in a very weak position and in far greater risk of becoming marginalised than men. Especially vulnerable are women from the lower strata of society, i.e. from the Scheduled Castes (SCs) or Scheduled Tribes (STs).

A brief account of some of the more specific problems currently facing women in Indian society can be found in Table 1. A lot of efforts are currently made in Indian society to increase gender equality. Some of the legal framework ensuring and protecting women's rights is shown in Table 2.

Table 2: Legal framework protecting the rights of women in India.

Legal statement	Content
Constitution of India	Equal rights to men and women in India. No discrimination against any citizen on the ground of sex is allowed (Jesudurai, 1991).
Fundamental Rights Resolution of the Indian National Congress, 1931.	Proclaimed freedom, justice, dignity and equality for women (Agnohotri & Mazumdar, 1995).
UN Convention on Elimination of All Forms of Discrimination Against Women (CEDAW) ratified by India in 1993.	The Indian State has acknowledged it's obligation to correct inequality and discrimination against women in it's laws and policies, and has also agreed to be accountable under the Convention for implementation and results of such laws and policies (Government of India, 1998).
The 73rd and 74th Amendments	33% reservation to women in Panchayat[3] bodies. Karnataka was the first state to implement these amendments (Kothari *et al.*, 1995).
Bill for the reservation for women in the parliament	First introduced in 1996, but not put through yet (Deccan Herald, May 1998).

Sources as indicated in table.

2 Methodology

Field research took place from 6 April to 21 May 1998 and included the 'Rapid Rural Appraisal' of four villages in Raichur District, Karnataka, and semi-structured interviews with representatives from the fisheries, marketing and other relevant institutional sectors within the state. The villages can be seen in Box 3.

Box 3: Research villages in Raichur District.

Village name	Taluk[4]
Jumlapur & Ainapur	Kushtagi
Chikkawankalakunta	Yelbarga
Pai Doddi	Lingsugur
Mallapur	Deodurg

Following the recommendations of Shah *et al.* (1991), and Gosling & Edwards (1995) Samuha (see project background) staff arranged a group meeting and discussion as the first activity in all villages. In these group meetings important parameters such as key constraints to aquaculture in the region, resources and their major uses, seasonal patterns and organisational structure within the village were identified. Present at the village meetings were the key opinion creators[5] of the village – i.e. members of important village committes (the *Gram*[6] and *Jana Samiti*[7]) as well as the women's self help groups. The criteria identified at these group meetings were later ranked or scored in order of importance by individual villagers.

[3] Panchayat: development administrative body

[4] Taluk: administrative sub-region in a district.

[5] Opinion creators: influential members of the local community.

[6] Gram Samiti: literally 'village committee' with women members only representing the households of the village. Makes decisions about credit and savings activities in the village.

[7] Jana Samiti: literally 'people's committee' with male members only representing landowners of the village. Makes decisions about farming activities in the village.

Although both men and women would be invited to the meeting by Samuha field staff, often only men would attend. Women would sometimes turn up and sit on the outskirts of the meeting place for 10 to 15 minutes before leaving. Initially the group was separated into men and women groups sitting in two different areas of the meeting place. However even then the men would often interrupt the discussion in the women's group and to overcome this obstacle it was decided to hold separate men and women's group meetings, so that the ranking and scoring criteria could be elicited from both groups.

Focus group discussions were held with women's self help groups[8] and semi-structured interviews were carried out with village midwives (government trained) as well as with individual women from all strata of society. Farm walks were conducted and seasonal charts and resource flow diagrams constructed as well as daily activity charts for both men and women. Furthermore individual men and women were asked to score or rank criteria such as preferential characteristics in fish or key constraints to aqauaculture in order of importance. For further details on the statistical analysis of ranking and scoring data, see Working Paper 2.

3 Status of women

3.1 The accessibility of women

As described in section 2, gaining access to women during the village research was often complicated because they were over-shadowed by more dominant male members of the community. Mosse (1993a) notes that women are often considered difficult to reach in participatory research, but states that it is 'increasingly recognised... 'that dominant male models are incomplete; they do not, and perhaps cannot, express important aspects of women's experience and interests'. The dominant role of men in many societies means that in many cases women can only be heard if they are separated from the men. Due to social constraints women are often excluded from public spaces or activities, which restricts their participation in group activities during participatory appraisals (Mosse, 1993a). The project villages differed in this respect. In Jumlapur, Ainapur and Chikkawankalakunta women were free to enter a school building where the village meetings were held. However in the village Pai Doddi the village meeting was held in a temple, and no village women would enter the meeting area but instead sat outside the temple, where they had difficulties hearing or contributing to the discussions. The problem was only solved when the women were separated from the men and the meeting moved to a private house. In the village Mallapur separate venues for meetings with men and women were arranged immediately after entering the village, thus ensuring that everybody could participate.

Another constraint to the participation of women in RRAs or PRAs is the requirement that women are available collectively at central locations (away from the work sites of the home and field) for continuous periods of time. Thus Mosse (1993a) describes a project in west India, where women had problems participating in the participatory exercises because the PRA was taking place at the time of the year when women were most busy. Careful consideration as to how best include women in project appraisals and planning activities is therefore often needed. Recommendations include PRAs which involve shorter periods of time and incorporating activities which are compatible with continuing work. If these methods can help increase the participation of women, PRAs provide one means by which women's knowledge and activities can be given formal recognition, support and status (Mosse, 1993a).

3.2 Ownership and access

In all villages men own the land as well as water bodies present on the land. Thus in total only two female landowners were interviewed, and these were both widows. Research shows that it is very important for women to have access to and control over key productive assets since these offer security against loans and reduces the dependence of women on men (Mosse, 1993b). Community water resources, e.g. check dams and nala bunds, (see Working Paper 7) are managed by farmers living adjacent to the water or by the government.

3.3 Finances

In 24 out of 28 families asked, men were in charge of finances in the home. In one family the responsibility was shared between a widow and her oldest son. In two families the wife was literate and the husband not, and she was therefore in charge of money, and in one family there were no male

[8] Women's self help groups: groups set up by Samuha, usually operating as credit and savings groups or running activities such as tree nurseries etc.

family members, so the woman (widow) controlled finances. Both men and women borrow money, normally men from men and women from women.

According to Viswanath (1993) men traditionally borrow money in rural societies, and when women approach banks their credit standing is based on the income of and land owned by their husbands. Most of the villagers in Mallapur borrow money from village lenders at high interest rates, and here it was found that the women of Mallapur borrow money just as often as men.

3.4 Education

Children go to school but also help out in the home (girls) and with minor tasks on the farm (both girls and boys). Although there are no formal tuition fees for school, some children do not attend, and these normally spend all their time working with the parents. According to the women's groups in the four villages, if the family can only afford to send some of the children to school (because the others are needed for labour), boys are sent to school in preference to girls. This results in lower literacy rates for females than for males. Table 3 shows the level of male and female literacy of the project villages.

Table 3: Literacy levels in the project villages.

Literacy (%)	Jumlapur & Ainapur	Chikkawankalakunta	Pai Doddi	Mallapur
Male	35	21	17	7
Female	7	3	3	2

Source: Village social maps and Samuha field staff.

3.5 Decision making powers

In all Samuha project villages efforts are made to integrate women into decision-making in the village. In all villages women are organised into 'Street Groups' (*Woni Gumpus*), 'Village Committees' (*Grama Samitis*) and self help groups, and are secured representation in the various development bodies. The self help groups are responsible for tree nursery projects as well as acting as village savings groups. Jumlapur/Ainapur and Chikkawankalakunta had one self help group each, whereas there were two in each of Paid Doddi and Mallapur. In general the groups have successfully increased the power of women in the villages by making them responsible for financial matters. For an account of village institutions, see Working Paper 9.

In Jumlapur, Ainapur, Chikkawankalakunta and Pai Doddi women from self help groups stated that they were not allowed to leave the village without asking their husbands or other male family members for permission first. In some cases women were not allowed to leave the village without male accompaniment.

It was observed that tribal women were more outspoken than 'caste'-women, and that women in Mallapur seemed to have more power than in any of the other villages. Often 'caste'-women (from Jumlapur) would be very reluctant to be interviewed, and any man nearby would tend to take over the conversation. Tribal women in Chikkawankalakunta and Pai Doddi would generally agree to speak to researchers, but would often insist that their husband or other male family members were present. In Mallapur however there were no difficulties with getting to speak to women alone and if men were present they generally would not interfere in the conversation. Amongst Walmikis, the dominant tribe in Mallapur, men pay the dowry contrary to in all other communities in India where dowry is normally paid by the bride's family. The fact that Walmiki men pay the family of the bride to marry her may indicate a higher status of women in this society.

Dutta *et al.* (1998) report that women of villages in Purulia, West Bengal, are allowed to move freely within the village boundaries but cannot go outside the village without permission from male family members. As described above the same was true for women from some of the villages of this project. The women in Mallapur were not asked if they had to seek male permission to leave the village, but as stated they generally seemed to have more power than the women of the other three villages. However the very low sex-ratio in Mallapur (Table 4) may indicate the opposite since low sex-ratios normally indicate a devaluation of women resulting in poor nutrition as well as female infanticide or foeticide in some instances. Dutta *et al.* (1998) report that tribal women in West Bengal are dominant in decision-making processes in certain villages, but this is mainly because the men of the village have taken to drinking. However according to Dube (1997) most tribal societies were originally matriarchal, with property belonging to men but being inherited by women only. Furthermore female dowries were never

originally part of tribal society. The high decision making powers of women in these societies are thought to stem from a tradition of both men and women working and thus sharing the responsibility of income generation. According to the same source women do not work outside the house among higher caste Hindus, and therefore have correspondingly less power. However as tribals are being increasingly 'developed' and integrated into Hindu society, these original characteristics of tribal society are vanishing and increasingly Hindu values are adopted.

Of the villages of the current project, it can be argued that Mallapur was the most isolated and least developed one (judging on sizes of landholdings, extent of irrigation and literacy levels of population, see also Working Paper 3). It is therefore likely that original tribal values and customs are more intact here than amongst STs of the other villages. The observed greater freedom of women in Mallapur than in the other villages, and the fact that men pay the dowry in this society, could thus be a reflection of the lower level of adoption of traditional Hindu values in this village.

In all families asked (17, with all four villages represented) the men made all decisions regarding land use, the planting of crops, purchasing of fertilisers, pesticides and livestock. The only exception to this was two families where there were no adult male members of the family and the widow owned the land.

The *Woni* (street) *Gumpus* (groups) of the villages act as savings groups. As such they are responsible for the collection and administration of finances from each of the households present in the street. As outlined in Working Paper 9, these groups are composed of one female representative from each household. When a member of the savings group needs money for weddings, purchases for the farm and the like, she can borrow money free of interest from the group. Women are also represented in the different institutional bodies of the villages (see Working Paper 9).

3.6 Political activity and access to information

In every village women's groups were asked about their participation in politics. All women asked, without exception, said that they vote, but that they do not know anything about politics and have no interest in it. All stated that they follow the advice of their husband when it comes to political matters. In Jumlapur and Chikkawankalakunta, women thought that men generally watch more television than women do and listen more to the radio, mainly to news and programmes about farming. In all the villages there were less than five televisions, and women's access to these is often restricted because they do not gather in the evening like men do. Furthermore televisions and radios are often present in 'hotels' (local tea-bars), which are normally only visited by men. Thus only men have access to political information as well as information about advances in farming techniques etc. However as part of Samuha's work in the villages, women's self help groups are instructed in tree nursery activities, for which they are responsible.

The rural women interviewed were not participating actively in any political activity and nor were they generally aware of political issues. According to Jayalakshmi (1994), in rural India although both men and women are often illiterate, men have the advantage of participating in discussions of the village politics, whereas women are normally confined to the homes. As shown in Table 3 the female literacy levels in the villages visited are extremely low, ranging between 2 and 7%, compared to male literacy ranging from 7 to 35%. This means that a very small proportion of the total village population and an even smaller percentage of village women can read newspapers and access information about politics via this source. 'Real' literacy levels may be considerably lower; according to Viswanath (1993) the census figures are based on a definition of literacy, which gives no indication of levels of education, but only whether the respondent can read and write anything at all.

According to Srivastava (1992) 96% of rural women in India do not know about women politicians, and most have no clear idea of what the word 'politics' means. Furthermore the majority of women in rural areas simply do not know about the laws passed in their favour or how to use their rights (Mosse, 1993b). The disconnection of rural women from the political system is thought to be caused partly by their lack of exposure to the outside world (Srivastava, 1992), and the data from the present study supports this.

3.7 Sex-ratio of project villages

Table 4 shows the gender composition of the samples from the different villages. In general during the research getting access to women was often difficult (see section 2 and section 3.1) and so overall fewer women than men were interviewed. The generally very low position of women in India and the practice of dowry has led to a preference for and favouritism of male children. The Indian proverb 'raising a daughter is like watering a shady tree in someone else's courtyard' clearly illustrates the low perceived value of female children in India, where daughters will leave home taking dowry whereas sons will give future autonomy and authority over daughters-in-law and grandchildren (Mosse, 1993b). This preference for sons over daughters is so pronounced in India that it has had a significant effect on the sex-ratio (ratio of women to men, expressed as the number of females for every 1,000 males in the population). As outlined in Table 1 dowry values continue to rise, and sex-ratios in the country show a falling trend as can be seen from Figure 1.

Table 4: The sex-ratio (ratio of women to men in the population, expressed as the number of females per 1000 males) in the project villages and the number of women and men interviewed in each village.

Village	Sex-ratio	Women	Men
Jumlapur & Ainapur	949	10	12
Chikkawankalakunta	956	9	10
Pai Doddi	953	5	8
Mallapur	868	11	9

Source: village research and Government 1991 Census.

In Jumlapur/Ainapur, Chikkawankalakunta and Mallapur the midwives of the village were interviewed in order to get an idea of the level of maternal and infant mortalities as these are commonly high in less developed areas. In all villages midwives could recall only one or two infant deaths and no maternal deaths within the last two to three years. However nowadays the midwives refer 'complicated cases' to the hospitals of nearby larger villages and it is therefore unlikely that they would experience many deaths.

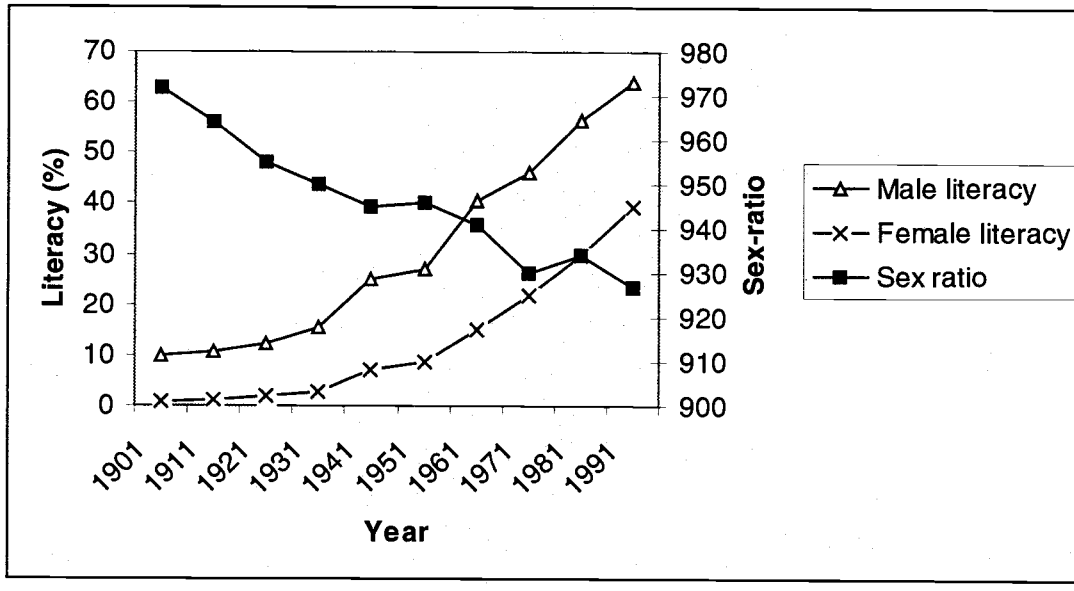

Figure 1: Male and female literacy levels and sex-ratio of India from 1901-1991. Source: Government of India (1991).

As can be seen from Table 4, in all villages there are fewer women than men. The state average sex ratio at the time of the 1991 Government Census was 960 women per 1000 men, and that of Raichur District was 978, which show all the project villages to lie below District and State averages. Particularly low is the sex ratio of Mallapur, in fact this village has the lowest average of all Samuha project villages (see Appendix 1). As outlined in Table 1 low sex-ratios are common in less developed rural areas, and are the results of poor female nutrition, high maternal and female infant mortalities and female infanticide or foeticide. Thus according to Mosse (1993b), there is widespread evidence that boys are breast-fed more often and for longer than their sisters, are taken to the doctor more promptly, are fed before their sisters and are educated to higher levels. As mentioned above, the midwives of all

villages state that the levels of maternal and infant mortality are low, so perhaps the low sex ratio in Mallapur is caused by poor nutrition or female foeticide or infanticide. In the early 1980s the use of sex-determination tests became popular in urban India, where it was advertised as 'humane services for women who do not want any more daughters' (Mosse, 1993b). However according to the midwives interviewed village women rarely have access to sex-determination tests, and it is therefore unlikely that the low sex-ratios are caused by abortion of female children. It is very difficult for outsiders to gain insight into issues such as abortion and infanticide, and as there was a general reluctance to discuss such matters amongst the women interviewed the issue was not pursued further. It suffices to say that whatever the reason for the low sex ratio of Mallapur is, it indicates that this village is less developed than the other project villages. As for poorer nutrition of female children, men and children eat before women at all meals, but most people interviewed insisted that this did not imply that women get less food or food of worse quality. Women only eat in the house, whereas men can eat in the market or in local 'hotels' as well as in the home.

4 Gender division of labour

All societies show gender division of labour but what work is carried out by men and women differs between different cultures. Indeed studies show that there are very few activities which are always performed by men and even fewer always performed by women (Mosse, 1993b).
Work performed by men and women can be divided into *reproductive, productive* and *community work.* These terms are defined in Box 4.

Box 4: Different types of work. Source: Van Veldhuizen *et al.* (1997).

- **Productive work:** the production of goods and services for consumption and trade.
- **Reproductive work:** the care and maintenance of the household and its members, including bearing and caring for children, preparing food, collecting water and fuel, shopping, housekeeping and family healthcare.
- **Community work:** the collective organisation of social events and services such as ceremonies, community improvement activities, participtation in groups, and local political activities.

4.1 On-farm productive work

In each of the villages a number of men and women were asked about gender division of labour. Reproductive tasks (such as looking after children, cooking, cleaning and washing clothes) were the sole responsibilities of women in all the villages (N=35), whereas in most families both men and women carry out productive activities (working on the farm). In the majority of households (21 out of the 26 asked) women collect firewood and fetch water for the household (men fetch water for the livestock if needed). A number of individuals were asked about the gender division of farm work and the results can be seen in Figure 2.

For some activities (e.g. spreading pesticides and minding goats and sheep) only a few individuals were asked, and not much significance can be attached to the results. Generally men carry out the harder physical tasks, but on several occasions tribal women were observed carrying out road-work which included crushing larger stones and carrying large quantities of stones long distances.

Men and women were also asked who would carry out the tasks associated with aquaculture, if aquaculture was introduced to the villages. The results can be seen in Figure 3.

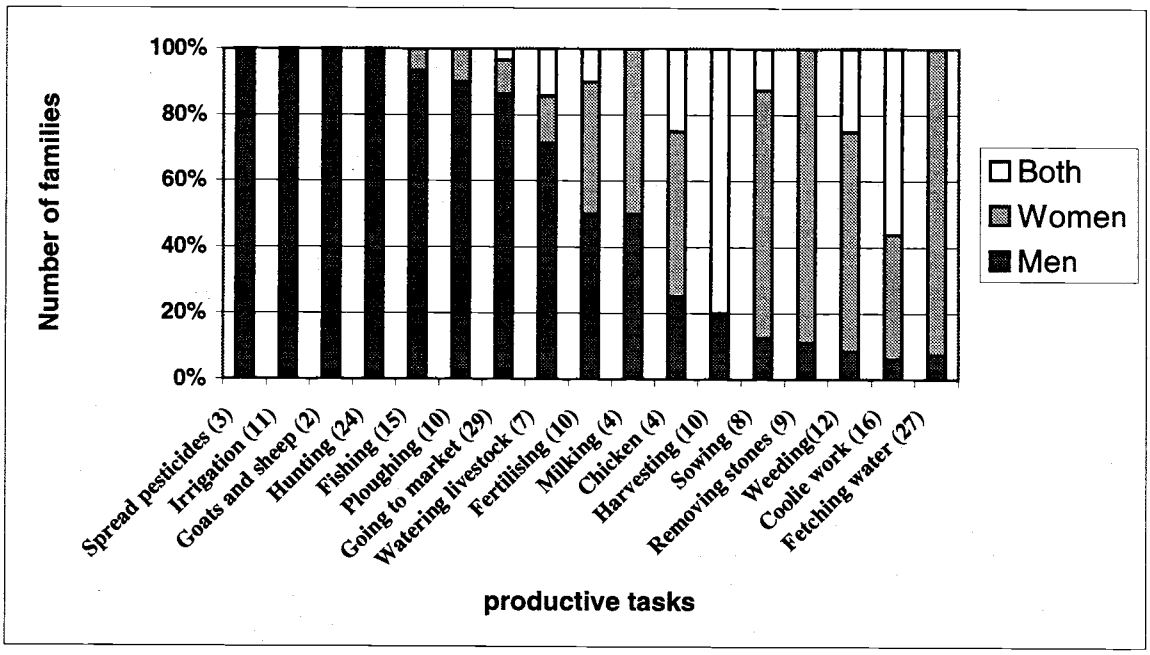

Figure 2: The labour division of productive tasks between men and women. Irrigation refers to the working of the pumps when irrigation is carried out; chicken and goat & sheep denotes taking care of these (feeding etc.); milking refers to the milking of cows and goats; removing stones means clearing larger and smaller stones away from the fields; going to market is for both selling and buying purposes. The number of individuals asked (N) is shown in brackets after each task. In all cases both men and women were asked, and the answers from men and women from the same family were checked and found to be identical.

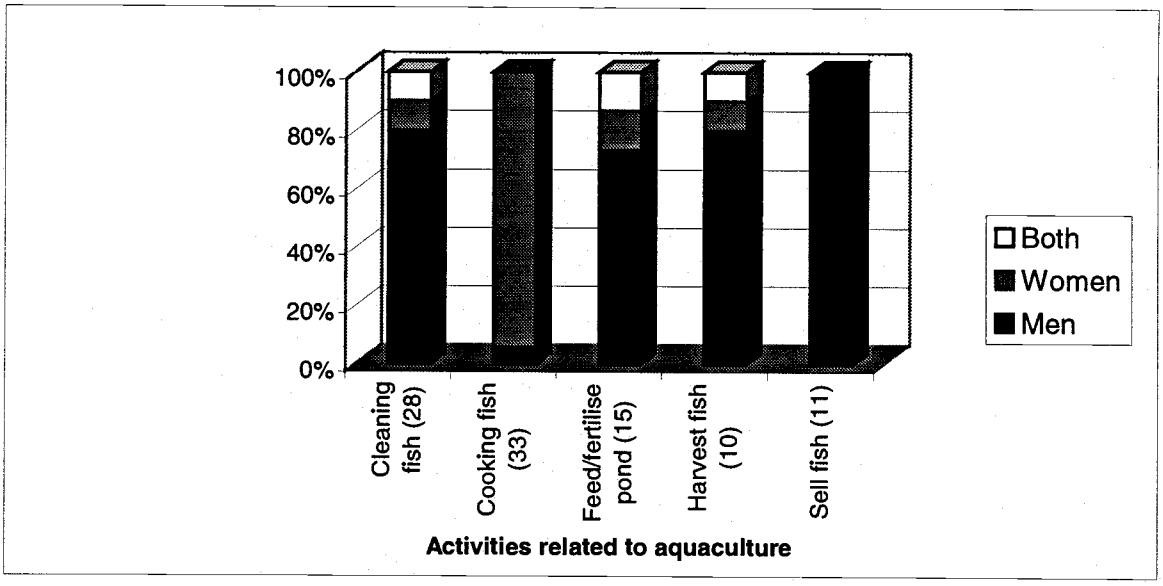

Figure 3: Labour division of aquaculture related tasks. Individuals from all four villages were asked who cleans and cooks fish at present in the family, and who would carry out feeding of the fish, fertilising the pond, harvesting and selling the fish if the family had aquaculture. Numbers in brackets denote the number of people asked (N). In total 13 men and 20 women were asked. For cleaning the fish, only women replied that women clean the fish, all men answered that men or both men and women carry out this activity. In two families women reported that men cook the fish because she does not know how to or does not like fish. All respondents who thought that women or both men and women would feed the fish, fertilise the pond or harvest the fish were women.

Clearly men clean and women cook fish in the majority of households. With regards to who would carry out the different tasks associated with aquaculture, the majority of people seem to think that men would feed the fish, fertilise the pond as well as harvest and sell the fish.

4.2 Off-farm productive work

Both men and women work as farm labourers, but whereas men are paid about Rs. 15-30 per day, women are paid only Rs. 10-20 per day (current exchange rate: approx. Rs 60 for £1). Some farm labourers are paid in grains and others cultivate a certain amount of land for a land-owner and get a share of the crop (usually one large bag of grains per harvest). Men and women migrate, both to the irrigated taluks (Sindnur, Manvi and Gangawati) of Raichur for the paddy harvest. For this work they are commonly gone for about 20 to 30 days, for which they earn Rs. 800 to 1,400. Normally the pay for contract work is about Rs. 700 per acre for paddy harvesting. Furthermore men seek off-farm work in Karwar district (coastal Karnataka) or Goa State, doing construction work or go to Mangalore to work as pipe-layers. According to the village self help groups men find it easier to find longer-lasting employment despite the lower wagers paid for female farm labourers. Thus men generally have more security in their jobs, as well as higher wages.

4.3 Daily activities and reproductive work

A number of male and female activity charts were constructed in each village. The charts showed no real variation between villages, and Boxes 5 and 6 show typical female and male activity charts.

Box 5: Female activity chart constructed from information from interviews with 8 women in Jumlapur, Ainapur, Chikkawankalakunta, Pai Doddi and Mallapur. All women estimated that the busiest times were during the winter because this is the time of harvest. The summer is the time of least work. Time spent on activities such as childcare naturally vary from woman to women. Commonly household duties are divided amongst the women of the family, so that one washes the clothes, another one cooks, and a third collects water and firewood. In most families young mothers do not work in the fields but act as babysitters for the children of the family

Winter (Oct.-Dec.):	Summer (Jan-May):	Rainy season (June-Sep):
	5-6: get up sweep floor wash dishes clean house childcare	4-5: get up sweep floor wash dishes clean house childcare
6-7: get up sweep floor wash dishes clean house wash clothes childcare	6.30: prepare breakfast & lunch	
7:30: prepare breakfast & lunch	7: eat breakfast	7: prepare breakfast & lunch eat breakfast
8: eat breakfast		
8:30: go to farm	7.30-8: go to farm	8-10: go to farm
Work on farm until	Work on farm until	Work on farm until
12-1: break for lunch	12-1: returns to house eat lunch collect water collect firewood childcare wash clothes meetings	12-1: break for lunch
Work on farm until		Work on farm until
6-7: return to house collect firewood collect water childcare meeetings		5-7: return to house collect water collect firewood childcare wash clothes meetings
7-8: prepare dinner	8: prepare dinner	7: prepare dinner
8-9.30: eat	8-9: eat dinner	8-9: eat dinner
10: go to sleep	10: go to sleep	10: go to sleep

Box 6: Male activity chart composed from interviews with 5 men in Jumlapur, Ainapur and Mallapur villages. In their leisure time men are often seen in the local 'hotel' where they drink tea and discuss farming and politics. In many families the tasks are divided so that some men go to the markets and others do not, and some may spend longer in the field than others. Some men work on the farm late in the afternoon (4-6 PM) in the summer season. All men reported to be most busy in the winter season (particularly at the time of harvest) and least busy in the summer.

Winter (Oct.-Dec.):	Summer (Jan.-May):	Rainy season (June-Sep.):
6-7: get up	6: get up	7: get up
8: eat breakfast	7-8: eat breakfast	7.30: eat breakfast
		8: go to farm
9-10: go to farm	9-10: go to farm	Work on farm
Work on farm	Work on farm	12-1: eat lunch
12-1: eat lunch	12-1: returns to house	Work on farm
Work on farm	eat lunch	
	meetings	
	leisure time	
5: return to house	go to market	
meetings		6-7: return to house
leisure time		meetings
		leisure time
		go to market
8-9: eat dinner	8-9: eat dinner	8: eat dinner
9-10: go to sleep	9-10: go to sleep	9-10: go to sleep

The time typically allocated to different household duties by women can be seen from Figure 4.

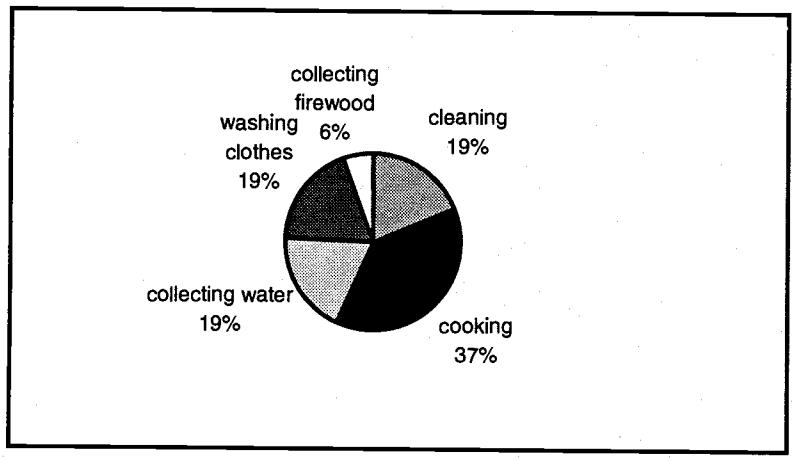

Figure 4: Time typically allocated to different reproductive tasks by women of Jumlapur and Chikkawankalakunta (N=8).

Figure 5 shows the total time allocated to different household tasks by five women in Jumlapur.

As can be seen the time spent on different activities vary from woman to woman, and as explained in Box 5 there is often division of responsibilities within the women of the family.

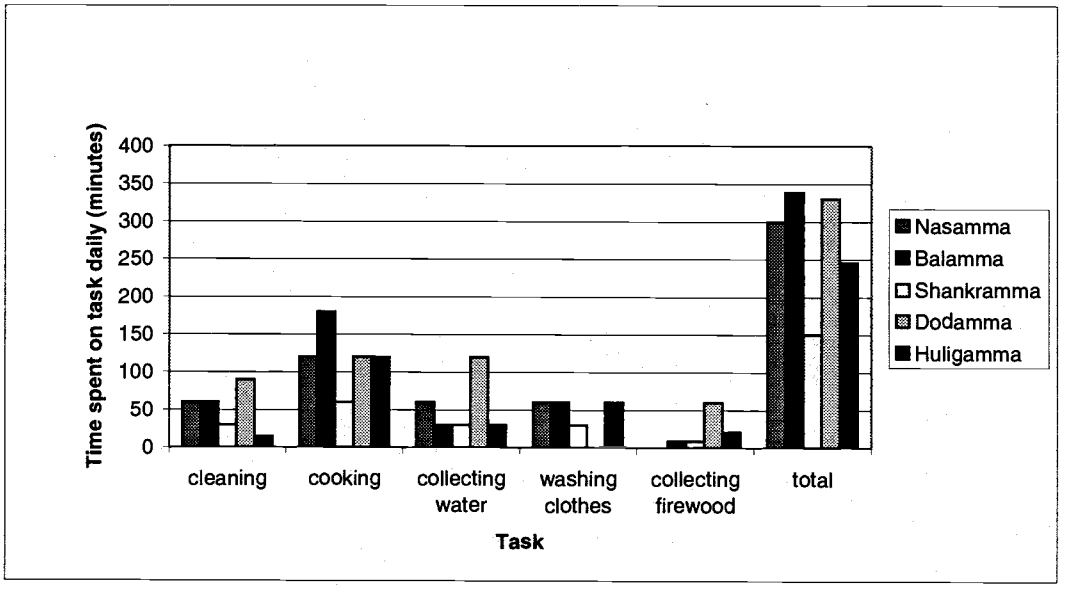

Figure 5: Bar chart showing the typical allocation of time to different household tasks for 5 different women in the village of Jumlapur.

4.4 Gender related work patterns

Activities can be divided into reproductive and productive tasks (Box 4). In the communities investigated, women's reproductive roles encompass childbirth and lactation as well as cooking, cleaning, clothes washing and child-minding. Men's reproductive tasks include house building, house maintenance and going to the markets.

Of the productive roles of men and women (Figure 2) the physically harder tasks, such as ploughing, are carried out by men, but women perform strenuous activities such as harvesting as well as physically hard labourer work (e.g. road construction work). According to Ramamurthy (1991) women in the south of India have always participated in farm work (in contrast to the north of India where women do not work on the land).

From Boxes 5 and 6 it would seem that women generally work harder than men do. Whereas many women voiced this during the interviews, a number of women disagreed, because the tasks carried out by men are physically harder and typical women's work like child-minding or cooking is not considered to be 'real' work. Without exception all men asked said that they work harder than women. Thus it seems that female reproductive work (which according to Figure 5 takes between two and a half to more than five and a half hours per day per woman, not including child minding) is not valued in the society. According to a report by UNICEF and the WWF it is not uncommon for Indian rural women and girls to spend up to four hours in fetching water from remote sources (Nigam *et al.*, 1998). Naturally this 'additional' but unvalued work carried out by women means that they have correspondingly less time to participate in village activities, to discuss political matters or learn about new farming techniques or strategies. Furthermore the fact that the women are so busy encourages them to seek help in their tasks from female children, which means that if only some children go to school it is usually boys and not girls (see section 3.4).

Most women interviewed worked on the family farm regardless of age or caste. According to Ramamurthy (1991) certain castes in Andhra Pradesh regard it important for a man's status and prestige in society that he does not need his wife to work in the fields. However this did not seem to be the case for the high caste people interviewed, namely the Lingayats in Jumlapur or the Brahmins in Pai Doddi (though these constituted a rather small proportion of the overall sample).

According to Ramamurthy (1991) women of the lowest class and castes in southern India have worked as agricultural labourers for generations. Citing examples from Andhra Pradesh this author states that the most frequent form of employment is seasonal casual work for which individual women may receive a daily wage or a piece rate, which means that on days when a woman does not find work, she receives no income. This situation is true both for men and women working as casual labourers in the villages of the research.

Using examples from Africa, Goldey *et al.* (1996) report that as men take up off-farm employment, more women take on farming (originally a male activity only) as a primary occupation. In rural India women have always worked on the farms, so the introduction of male off-farm work does not alter the work pattern significantly. Traditionally men have always made all decisions regarding the farm (Ramamurthy, 1991), and this decision-making role may increasingly fall on women as men leave farming activities. The only common form of off-farm work in the villages of this study was labourer work or migratory work (mainly farm labourer work as well), which is done by both men and women. As can be seen from section 4.2 women earn about half to two thirds that of men for farm labourer work. Farm labourers generally carry out the same activities on the farm as the owners themselves, so the work patterns of male and female farm labourers are as depicted in Figure 2. According to the villagers women get paid less because their work is not as strenuous as that carried out by men.

Parmar (1992) states that sex differences in wages and the discrimination on the basis of sex in the matter of employment is a big problem in the unorganised work sector. Thus studies carried out in West Bengal show that the use of female labour on farms is seasonal, and the female labourers typically have lower, and seasonally more fluctuating employment and wage rates than their male colleagues (Parmar, 1992). This corresponds to the situation in the villages investigated, and as a result (as stated in section 6.2) male job security is higher than female job security. The majority of the existing labour laws in India are sex neutral, and only a few laws have special provisions for women workers (Parmar, 1992).

5 Gender and the introduction of aquaculture

The use of wells or ponds for aquaculture may preclude farmers from using the water for drinking, bathing and washing clothes. As women mainly carry out these tasks it is likely that the daily workload of women will increase with the introduction of aquaculture. However alternative water bodies may not be very far away, and in many cases ponds and wells were not used for drinking water or washing clothes to a great extent anyway. This is because common village wells are commonly used even by farmers with wells on their land because it may be more convenient for households situated within the village to collect water from village wells if these are closer to the home than the farm open well. Clearly the impact would differ between different households.

Thus the workload of women may increase if aquaculture is introduced because alternative water resources for consumption and washing of clothes may be further away. However according to villagers men would carry out the majority of the tasks associated with aquaculture, so although the daily workload of women may increase, the seasonal workload on men would certainly increase more. Of course there is no way of knowing whether the aquaculture workload-division suggested by villagers is indeed correct, or whether women may end up doing more of the work than envisaged at present.

Whether aquaculture would strengthen the (presently very low) position of women in the society would depend on how and to whom it was introduced. Traditionally men are in control of all farming activities and if they end up carrying out the majority of the tasks associated with aquaculture it is likely that they will control this too. Because women have no decision-making powers in agriculture, this is likely to be the case in aquaculture as well, unless a special effort is made to include women in projects. However there is potential for including women into aquaculture development. Already nursery or savings-based self-help groups exist and it may be possible to include such groups in the development of aquaculture to ensure that women are not left out of the process. These groups could potentially establish aquaculture into community owned water resources such as check dams (see Working Paper 7 for an outline of small-scale farmer managed irrigation water bodies in the region). There are both advantages and disadvantages of supporting formal groups (such as women's self-help groups). Often for women groups provide an opportunity to overcome the constraints they face as individuals. However groups can easily become dominated by an elite and the issue of the control of funds often leads to dispute. One of the pre-requisites for successful group activities is that pre-existing networks (in terms of social status, caste, kinship etc.) are taken into account when the groups are formed (Harrison, 1996). One of the advantages of introducing new technology or farming systems is that there are few preconceived ideas about who would be responsible for the activities, and if women are helped to a position of responsibility for a project like aquaculture this may help in their empowerment. However women have relatively little spare time in these villages, and perhaps responsibility for additional tasks would act only as a burden. Clearly any project aimed at targeting women for aquaculture development in this

area would have to consider carefully how this could best be done. Activities such as spawning fish or raising fry especially where techniques exist that can be carried out close to homesteads may be highly relevant.

6 Recommendations and further research

- It is recommended that women's groups should be targeted for aquaculture development. For this water bodies, which could be stocked with fish and managed by women groups, should be identified and the possibilities for obtaining credit for such ventures should be established.
- Further research on the impact of the introduction of aquaculture into the farming systems should be carried out. This should include assessment of the potential for obtaining water for domestic purposes from other sources than the farm water body, as well as the nutritional benefit to men and women from the introduction of fish into the diet.
- Mobile hatcheries and fry rearing near to homesteads should be investigated.

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Appendix 1: Samuha project villages

Village name	Households	Population total	Sex-ratio	SC (%)	ST (%)	Literates (%)	
Deodurg taluk:						males	females
Pilligund	98	539	953	4	72	23	8
Malledevergud	141	754	1000	7	0	24	6
Alkod	202	1178	925	33	0	23	8
Mallapur	219	1343	868	2	75	7	2
Chadkalgudda	161	1137	1009	11	3	12	2
Palkanmardi	182	928	970	25	19	13	4
Koppal taluk:							
Alwandi	1105	6039	925	17	2	56	25
Kawaloor	1174	6171	982	21	7	47	24
Neeralgi	245	1581	1043	12	8	54	15
Moranhalli	196	1170	993	0	0	37	5
Bhairapur	155	839	993	0	0	41	9
Hatti	272	1614	961	1	0	32	5
Kushtagi taluk (KWDP):							
Rampur (Jagir)	73	438	938	3	0	30	9
Nawalhalli	244	1445	963	16	0	45	13
Tawargera	1763	10471	973	13	4	52	25
Vithalapur	101	612	993	21	0	22	10
Nandapur	168	1079	944	18	0	44	12
Jumlapur	247	1491	949	14	21	35	7
Idlapur	91	591	957	5	51	33	10
Ainapur	Uninhabited						
Sasvihal	114	646	894	13	5	43	14
Kilarhatti	98	567	896	26	37	22	6
Narinhal	115	762	947	3	0	33	6
Kushtagi taluk (Akanksha):							
Gumgeri	251	1278	1006	15	0	33	11
Tawargera	1763	10471	973	13	4	52	25
Mudalgundi	100	584	986	23	0	25	7
Kalmalli	No data						
Huliyapur	211	1281	980	23	1	33	6
Chalgera	637	3589	932	16	8	52	25
Lingsugur taluk:							
Kesarhutti	132	890	1023	52	0	20	2
Pai Doddi	164	1088	953	12	0	17	3
Goudur	444						
Kotha	643	3617	989	17	4	32	9
Honnahalli	344	1955	1032	18	0	41	11
Deverbhupur	378	2446	973	11	0	0	0
Yelbarga taluk:							
Dammur	201	1260	941	18	0	29	5
Chikkawankalakunta	102	626	956	6	87	21	3
Hire Arlihalli	270	1867	935	5	4	46	15
Putakmari	88	529	1019	2	0	38	7
Chikka Mannapur	110	657	1060	8	12	31	6
Tippanhal	102	585	881	2	28	39	11

Table A1: Summary statistics forSamuha villages in the taluks considered for further study. KWDP: Kanakanala Watershed Development Programme, a Samuha project. Akanksha: Samuha project. Source: Government 1991 Census for Raichur District.