

INVISIBLE LABOUR: A STUDY OF WOMEN'S CONTRIBUTION TO AGRICULTURE IN TWO TRADITIONAL VILLAGES IN THE DRY ZONE OF SRI LANKA*

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Besides contributing to the home front, women in developing countries do play a significant role in agriculture. Their specific roles vary widely depending upon ecological economic, sociological and religious factors. Ester Boserup drew the attention to the economic participation of women in the Third World, by stressing their important role in the rural labour force. The differences in and the nature of male and female contributions to agricultural activities, according to her, depend on the agricultural system itself. The contribution of women is relatively more significant in extensive shifting cultivation while the male contribution is greater in areas where plough agriculture is practised. However, Boserup argued that when there is intensive cultivation of irrigated land "both men and women must put hard work into agriculture in order to earn enough to support a family on a small piece of land" (Boserup 1970:35). The exclusive farming systems identified by Boserup are not found in Sri Lanka. Various combination of farming systems are the characteristic of Sri Lankan agriculture. However, irrespective of the crop combination, a careful and detailed study of female participation in the peasant sector would demonstrate the important role women play in the agricultural sector in Sri Lanka. The present study will attempt to show the female contribution to agricultural production process in two villages in the dry zone where both paddy and *chena* cultivation are combined. We will examine the division of labour in the farm household in detail to show that a substantial contribution of labour to paddy and *chena* cultivation comes from women in these villages. Although the general view is that women are assisting males in farm operations we will show that female labour contribution sometimes exceeds that of males. In order to meet the additional demand in labour during peak periods in agricultural cycle women's contribution is crucial in the dry zone of Sri Lanka.

Ecological variations and climatic conditions led to different combination of cropping patterns in different parts of Sri Lanka. For example, the wet zone is characterized by a combination of plantation crops consisting mainly of tea, rubber and coconut and by paddy cultivation. In the government-sponsored new settlements of the dry zone, paddy cultivation is the main agricultural activity. Paddy and *chena* (or shifting cultivation) is the common combination of agricultural practices in the dry zone *purana* villages. The crops grown in *chenas* have changed over the years from mixed subsistence crops to cash crops such as chillies, cowpea and green gram. The labour requirement, the labour involvement and the male-female division of labour in agriculture in Sri Lanka are determined largely by the combination of crops, the type of technology adopted, cultural practices and socioeconomic factors in different parts of the country.

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Attending to household work, preparation of food for the family, rearing of children, taking part in exchanged labour, and assisting men in farm operations are considered women's work in the rural sector of Sri Lanka. Hence, women are not only engaged in domestic chores but also contribute directly to productive work. In the dry zone, where paddy and *chena* cultivation are combined, and in the agricultural settlements in the dry zone, where agricultural operations have to be tightly scheduled so as to make the best use of irrigation, there is a great demand for labour during peak periods. During such periods, the participation of women in agricultural tasks relieve the short supply of labour. Although women are considered marginal workers, when there is a heavy demand for labour supply for agricultural needs the labour input of rural women is extremely important. In such a situation women's participation is crucially important in order to obtain optimum farm production and optimum use of available resources.

Certain tasks traditionally assigned to male workers in Sri Lanka such as land preparation and threshing of paddy have been gradually mechanized. The tractorization of agriculture in the peasant sector has reduced male labour input in paddy production. But such farm activities as paddy transplanting, land preparation, crop planting and harvesting in *chena* which are considered predominantly female tasks, have not yet been affected by the process of mechanization. Therefore the demand for women's labour in agriculture in the rural sector has increased over the years or remained constant with the introduction of high yielding varieties and new agricultural technology. Although a few affluent households in a village who can afford hired labour (including female labour) have reduced participation of female *family* labour in the cultivation of family farms, majority of households with limited resources have to depend on the labour of women to cultivate their family farms. In addition to working in their small family farms, women of households with limited land resources must also work as hired agricultural labourers in order to earn a supplementary income as necessary.

Although the women's contribution to agriculture is considerable, her role in the production process tends to be underestimated to a large extent. Generally, men are considered producers and women as reproducers and consumers. The cultural norm that the male is the head of the household has always emphasized the male role, somewhat neglecting the female counterpart who has made an equal contribution to the household activities including agricultural operations. It is here that Boserup's argument becomes relevant because she has correctly drawn attention to the female contribution to household economy. She has pointed out that a careful study of the contribution of women and their allocation of time to agricultural production will give a better understanding of the rural household in developing countries.

In Sri Lanka women have not received the attention that they rightly deserve for their contribution to agricultural production. In studies of labour inputs in rural agriculture the main focus has been on the role of male labour. Ironically even the contribution of women is calculated in terms of man days. For example, one day's labour input in agriculture by a woman is estimated to be equal to only 66 to 75 per cent of one day's labour input by a man. Her daily wages are calculated on this assumption (Wickremasekera 1977:85). However, in certain operations in paddy cultivation such as transplanting, harvesting and

post-harvest operations the women's contribution is equally efficient. Similarly, except in jungle clearance, a woman worker can be considered as efficient as a male worker in most of the operations related to *chena* cultivation. Thus although her contribution is significant in both paddy and *chena* cultivation, her involvement is not properly assessed in terms of efficiency, output, quality and quantity of labour force participation in peasant agriculture. This is all the more important, when one considers that most women in rural Sri Lanka combine housework and remunerative and or non-remunerative farm activity. Women themselves have contributed to the neglect of their contribution to agricultural production by categorizing themselves as non workers or housewives (Jayaweera 1985:87). When women are asked to describe their occupation, their immediate response is to categorize themselves as housewives, because ideally their primary responsibility is towards their home and children. This is their socially accepted role.

In peasant households, males are considered the full-time farmers whereas women always go as the farm helpers.¹ This is mainly because of the cultural norm found not only in Sri Lanka, but also in most countries in South Asia, that adult males have the responsibility of providing for the family (Dasgupta *et al* 1977; Moore and Wickramasinghe 1980:68). Thus the adult males are often considered the core of the labour force in this region. If properly reckoned, women's contribution to agricultural pduction in certain areas is even more than that of the males. Hence a rigorous measure of labour force participation of women and division of labour between men and women must be based on a calculation of the actual number of days of agricultural work performed by different household members over the agricultural cycle. Thus a total amount of work by females have to be carefully recorded in order to evaluate their participation in the agricultural production process. Hence, one means of understanding the rural agricultural household better is to study the share and the time devoted by women to agricultural production (Rogers 1980:192).

The available data on the rural labour force participation in Sri Lanka indicate a lower rate of female participation in production activities.

TABLE 1 : Economic activity rates (percentages)

1971*		1978/79**		1981*		1981/82**	
Male	Female	Male	Female	Male	Female	Male	Female
68.5	22.3	50.2	24.1	65.4	22.5	49.3	17.1

Source : * *Census of Population and Housing, Sri Lanka, 1981*

** *Consumer Finances and Socio-Economic Survey 1978/79 and 1981/82, Central Bank, Colombo.*

TABLE 2: Unemployment in Sri Lanka, Rural Sector (Percentages)

1978/79		1981/82	
Male	Female	Male	Female
8.7	26.3	7.3	25.3

Source : *Consumer Finances and Socio-Economic Survey 1978/79 and 1981/82 Central Bank, Colombo.*

1 This is the general view of peasants themselves as well as of some of the researchers who have worked among peasants.

This evident low labour force participation rate for women is mainly due to the fact that the majority of women were not full time employees. Such data on the economic role of women in national surveys led to treating the majority of women in developing programmes as dependent housewives and not as producers (Jayaweera 1985:19). However, any one familiar with the rural society in Sri Lanka would know that women in the rural sector do take part in productive farm work when there is a demand for their labour. Although they combine housework and farm work wherever possible, the national surveys may be under estimating the female contribution to agricultural production in rural Sri Lanka by lumping them together under the category of housewives. The analysis of micro-level data on employment and labour input for agriculture reveals a different pattern of women's participation. The present study therefore attempts to evaluate the labour contribution of women to the agricultural production in two villages in the dry zone part of Kurunegala District.

The cropping pattern in the dry zone is such that during *maha* season farmers combine both paddy and *chena* cultivation when land and water are available. Two crops of paddy during a year are possible only in places where an assured supply of irrigation facilities is available. Even in the *maha* season some form of irrigation such as small village tanks is necessary to supplement rain water and during *yala* the variability of rainfall is such that cultivation of most perennial crops become a risky venture. Hence employment opportunities, labour input and demand for female labour depend on the cropping pattern of the area, which in turn is determined by rainfall.

The two villages selected for the present study are in the dry zone area of the Kurunegala District. Although coconut and paddy are the common combination of crops in good part of Kurunegala District which from the point of view of climate falls into the intermediate zone, the northern part of the district is characterized by the combination of paddy and *chena* cultivation. In ecological terms, the northern part of Kurunegala district falls within the dry zone and the villages in the area are agroecologically similar to *purana* villages in the North Central Province. Villages from this part of Kurunegala District were selected because of the author's first hand knowledge of the area for a long time.

Moragaswewa, a typical village in the area, has a rainfed tank which supplements the water supply for some paddy lands in the village during the *maha* season. Climatic conditions permit only *chena* cultivation during the *yala* season. Moragaswewa is in the Maho AGA's division and is about nine miles from the Maho railway junction. Heelogama, the other village studied is one of the few villages in the area with a reliable source of irrigation throughout the year. Magalla tank which is connected to Daduru Oya through Ridi-bendiella provides irrigation facilities for paddy cultivation during both *yala* and *maha*. Although some farmers combine both paddy and *chena* cultivation in Heelogama, availability of assured irrigation facilities enables most farmers in the village to concentrate more on paddy during both *yala* and *maha* seasons. Heelogama is in the Nikaweratiya AGA's division and is about four miles from Nikaweratiya township. Both these villages have motorable roads and easy access to public transport.

Fieldwork for this study was carried out by the author with the help of two research assistants who were graduates in social sciences between August 1978 and May 1979. Farm labour input and other farm activities were recorded by the research assistants every fifth day during the *maha* season from August 1978 to May 1979. Actual labour input by adults and children were regularly recorded during each visit and farm records were systematically maintained throughout the agricultural cycle. In addition, a comprehensive questionnaire was administered and information collected through unstructured interviews and observations by the author and the research assistants. The sample consisted of all the households in Moragaswewa and one third of the households at Heelogama. There were 38 households in the sample from each village. The Heelogama sample was selected randomly using the household lists maintained by the Grama-sevaka of the village. The female labour input into various agricultural activities were taken from the records maintained by the research assistants in the two villages.

Resources in the study locations : land and labour

Land

Paddy and *chena* cultivation is the basis of the rural economy of the dry zone peasants. Since the main economic activity in both study villages is agriculture, land and water are the most important factors of production. The limited irrigation facilities forced the dry zone farmer to combine both paddy and *chena* cultivation. Availability of water determines the amount of paddy that could be cultivated in any village in the dry zone. In the villages concerned the land use pattern, the type of crop grown, the technology used and the employment pattern are all related to the availability of irrigation facilities.

Land ownership and operation shows that most of the farm households in the two villages studied own and operate some paddy and highland (which is used for *chena* crops,).

TABLE 3: Land owned and operated in acres

Paddyland				
	Total Owned	Owned per household	Total operated	Operated per household
Moragaswewa	165	4.3	138	3.61
Heelogama	151	3.97	116	3.05
Total	316	4.15	254	3.34
Highland				
Moragaswewa	180	4.73	61	1.6
Heelogama	124.5	3.27	37	.97
Total	304.5	4.0	98	1.28

Unlike the rural farmers of the wet zone who had severe pressure on land, *purana* villages in the dry zone had opportunities until recently to release their population pressure by unauthorized expansion into crown land (later such land were regularized under lease arrangement). Some farmers were able to develop small village tanks and "asweddumize" land below the tank for paddy cultivation but such land is limited even in the dry zone. Therefore the common practice is to encroach on highland for *chena* cultivation when opportunities are available. Even without proper irrigation the dry zone farmer cultivates paddy with rain water when there is land suitable for paddy cultivation.

The land tenure show that in both villages, part of land was *paraveni* or land inherited under traditional land tenure and *sinnakkara* or land purchased under the Land Development Ordinance of 1935; 25% of highland and 39.4% of paddy land at Moragaswewa and 71.5% of highland and 91% of paddy land at Heelogama were of either *paraveni* or *sinnakkara* land. The irrigation scheme under the Magalla tank has taken over all the irrigable land and, therefore, crown land available for further village expansion in Heelogama is limited. The type of land tenure and the land ownership and the availability of irrigation show that Heelogama farmers had better opportunities for paddy cultivation during both *yala* and *maha* with an assured supply of water for their own fields.

Moragaswewa is a typical dry zone village with a small village tank with limited irrigation facilities and with limited *paraveni* and *sinnakkara* land. Therefore people of Moragaswewa have made use of the available crown land around the village for rainfed high land paddy cultivation and *chenas*. When farmers make use of encroached crown land over a period of time land kachcheries allocated such land to the cultivators under the village expansion scheme if they did not own sufficient land to maintain their families. The government leased land (*badu-idam*) represents such land regularized by government deeds. The encroachment of crown land is very common in the dry zone villages when crown land is available in the vicinity of a village. For instance, 67.7% of the highland and 25% of the paddy land at Moragaswewa fall into this category. Farmers encroached into crown land in anticipation of regularizing their position under government lease. In Moragaswewa 95% of the households had some encroached highland, 31% had more than two acres of such highland; 47.36% of the households had encroached paddy land although availability of suitable land for paddy cultivation was limited. In Heelogama only 34% had encroached highland and only one farmer had as much as one acre of paddy land. This is due to the non availability of suitable crown land near Heelogama for encroachment.

The land operation during 1978/79 *maha* season shows that a total of 138 acres or 3.61 acres of paddy per household were cultivated at Moragaswewa. All the households cultivated some paddy land. Except six households (15.78%) at Moragaswewa all the other households had some highland under *chenas* (Table:4). In Heelogama a total of 116 acres of paddy or 3.05 acres per household were cultivated during 1978/79 *maha*. Only three or 7.89% of the households did not operate any paddy land. However, 16 or 42.1% of the households did not engage in *chena* cultivation. This is due to the ability of the farmers to cultivate two paddy crops a year at Heelogama due to the assured supply of water for both *yala* and *maha* seasons. Those households engaged in off-farm activities especially government employees, who were part-time farmers, concentrated only on paddy because of labour and management constraints (Table 5).

TABLE 4: Amount of Land Owned and Operated, Moragaswewa

Acreage	Paddy Land				Highland (including <i>chena</i>)			
	Owned		Operated		Owned		Operated	
	Number of households	Percentage	Number of households	Percentage	Number of households	Percentage	Number of households	percentage
No land	—	—	—	—	—	—	06	15.78
Less .25	—	—	—	—	—	—	—	—
.26 - .5	01	2.63	01	2.63	—	—	05	13.15
.51 - 1	02	5.26	03	7.89	03	7.89	07	18.42
1 - 2	09	23.68	09	23.68	05	13.15	12	31.57
2.01 - 3.00	06	15.78	06	15.78	09	23.68	08	21.05
3.01 - 5.00	10	26.31	10	26.31	11	28.94	—	—
5.01 - 7.00	06	15.78	06	15.78	04	10.52	—	—
7.01 - 10	03	7.89	03	7.89	02	5.26	—	—
10 +	01	2.63	—	—	04	10.52	—	—
TOTAL	38	100	38	100	38	100	38	100

TABLE 5: Amount of Land Owned and Operated Heelogama

	Paddy Land				Highland (including <i>chena</i>)			
	Owned		Operated		Owned		Operated	
	Number of households	percent-age	Number of households	Percent-age	Number of households	percent-age	Number of households	Percent-age
No land	06	15.78	03	7.89	02	5.26	16	42.10
Less .25	—	—	—	—	—	—	—	—
.26 - .5	—	—	—	—	03	7.89	04	10.52
.51 - 1.00	04	10.52	06	15.78	05	13.15	03	7.89
1.01 - 2.00	09	23.68	09	23.68	05	13.15	12	31.57
2.01 - 3.00	05	13.15	09	23.68	08	21.05	02	5.26
3.01 - 5.00	03	7.89	07	18.42	06	15.78	01	2.63
5.01 - 7.00	04	10.52	02	5.26	04	10.52	—	—
7.01 - 10	04	10.52	01	2.63	02	5.26	—	—
10 +	03	7.89	01	2.63	03	7.89	—	—
TOTAL	38	100	38	100	38	100	38	100

The amount of paddy land operated shows that 65.78% of the households at Moragaswewa and 52.62 at Heelogama operated more than two acres of paddy; 7.89% at Heelogama and 21% at Moragaswewa operated more than two acres of *chena*. This availability of some land at household level and the lack of other opportunities in the village or in the vicinity for off-farm employment made most of the adult males and females in the area depend on farming for their livelihood and most of the economically active labour force was engaged in agricultural production. Therefore the main productive activities of females were also in agriculture and their labour input went into paddy and *chena* cultivation in both study villages.

Labour force and employment

The data on primary and secondary activity of the population in the two villages will show the labour situation in the area. The total population in Moragaswewa at the time of the survey was 217 of which 78 were school going children, children under five years and invalids who did not fall into the labour force. Thus 64.05% of the total population were in the labour force. The female component of the total labour force was 73 or 52.51% where as 66 or 47.48% of the total workforce formed the male component. The employment data indicate that 38.12% (53) adult males and 26.61% (37) adult females of the labour force were directly involved in the family farms. Thus 80% of the adult male labour force and 50.68% of the adult female labour force were directly involved in agricultural work in the family farms. There were 33 or 45.2% of the female labour force who categorized themselves as full-time housewives. Of the 14 government employees in the village only three were women, two of them were teachers and one a co-operative worker (Table 6).

Labour availability in Heelogama was similar. There were 72 men and 63 women in the labour force when school going children, children under five years, invalids and old people were left out. Thus 57.44% of the total population in the village were economically active of which 46.66% was female labour. Furthermore, 56 males and 16 females or a total of 53.33% of the total labour force were directly engaged in farm work. Thus 77.7% of the adult male population in the labour force and 25.39% of the adult females in the labour force were involved in the work of the family farm. There were 16 males engaged in off-farm employment, fifteen were in government service and one in trade. Among females in the labour force 43 or 68.25% reported that they were housewives and only four engaged in off-farm activities. All four were engaged as teachers in government service (Table 7).

The greater participation of women in the agricultural work is clear when the secondary activities of the adult population are taken into consideration. As we have already pointed out most of women who categorize themselves as housewives in the rural sector were also involved in the work in the family farms and work as hired labourers in agriculture. The status of hired labourers is such that many women would not admit that they work as agricultural labourers. However, when there is a demand for such work, and when the household needs additional income from sources other than they get from their family farms to maintain family's consumption level, women work as agricultural labourers. Thus, most of the women especially of the poor families combine both housework and farm work, but consider themselves housewives because of the sociocultural norms existing in the society.

TABLE 6: Primary Activity by Sex

	Moragaswewa						Heelogama					
	Men	%	Women	%	Total	%	Men	%	Women	%	Total	%
Farming	27	27.27	02	16.94	29	13.36	35	28.45	02	01.78	37	15.74
Farm helper	26	26.26	35	29.66	61	28.11	21	17.07	14	12.5	35	14.89
Hired labour (Agriculture)	01	01.01	00	—	01	00.46	00	—	00	—	—	—
Trade	01	01.01	00	—	01	00.46	01	00.08	00	—	01	00.42
Housewife	00	—	33	27.96	33	15.20	00	—	43	38.39	43	18.29
Government employee	11	11.1	03	02.54	14	06.45	15	12.2	04	03.57	19	08.08
School-going Children under 5 years	23	23.23	28	23.72	51	23.61	35	28.45	31	27.67	66	28.08
Old and invalids	08	08.08	13	11.01	21	09.67	15	12.19	16	14.28	31	13.19
Total	02	02.02	04	03.38	06	02.76	01	00.08	02	01.78	03	01.27
Total	99	100	118	100	217	100	123	100	112	100	235	100
Number of people in labour force	66	66.66	73	61.86	139	64.05	72	58.53	63	56.25	135	57.44

TABLE 7: Secondary Activity by Sex

	Moragaswewa						Heelogama					
	Men	%	Women	%	Total	%	Men	%	Women	%	Total	%
Farming	08	08.08	00	—	08	03.68	14	11.38	00	—	14	5.95
Farm helper	09	09.09	36	30.5	45	20.73	07	05.69	40	35.71	47	20.00
Hired labour (Agriculture)	12	12.12	14	11.86	26	11.98	00	—	00	—	—	—
Hired labour (non Agriculture)	01	01.01	00	—	01	00.46	00	—	00	—	—	—
Trade	05	05.05	00	—	05	02.3	00	—	00	—	—	—
Housewife	00	—	19	16.10	19	08.75	00	—	00	—	—	—
Others	05	05.05	00	—	05	02.30	02	01.62	00	—	02	00.85
Total(engaged in secondary activity)	41	41.41	68	57.62	109	50.23	23	—	40	35.71	63	26.8
Total Population	99	100	118	100	217	100	123	100	112	100	235	100

In fact, some of these women who categorize themselves as housewives were available for farm work almost full time. Only when they have infants and no one such as an elderly parent or grown up child to look after them do they keep away from farm work. Sometimes school going children look after their infant siblings after they return from school so that their mothers could take part in farm work at least for few hours.

In rural areas household work itself is not a constraint to female labour input in agriculture during peak periods of labour demand because women normally adjust their household work according to labour needs. For example, when there is no domestic help available, women prepare their mid-day meal and attend to their other household activities before they go for field work, or they may return home during noon and prepare lunch for the family. They prepare dinner and attend to any other remaining house work, when they return home from work in the evening. Thus, in fact, they have combined both farm work and household work. Such a combination invariably forces them to work more hours in a day than the adult males who are engaged in full-time farm work.

The secondary activities of women in Moragaswewa show that there were 50 or 68.49% of adult women in the labour force who were engaged in agriculture work as farm helpers or agricultural labourers. At Heelogama too 40 adult women or 63.49% of the female labour force reported that farm work was their secondary activity (Table 7). When the means of production (such as land and capital) are limited, but when the labour available is far more than that required for their own small family farms, women tend to supplement the income of the household by working as agricultural labourers. In a situation where paddy and *chena* cultivation are combined but when the farmers who do so cultivate more land than they are able to work with their own family labour and or when there are households with sufficient funds to hire labour, while withdrawing their own women and children from the labour force, there is a demand for labour from outside the household. In such a situation women in poor families make use of the opportunity to earn extra income by working as agricultural labourers in the farms of others. Especially in the dry zone off-farm employment for women is limited. Therefore women in Moragaswewa and Heelogama have to confine themselves to work in the family farm or work as agricultural labourers or combine both.

The labour availability, primary employment and secondary activities of women in both study villages reveal almost a similar pattern. The overall employment situation in both villages show that the opportunities available for both males and females for off-farm employment are limited. Except for the few who were government employees, the entire adult population was engaged in agricultural activities. In the scattered settlements in the dry zone, with small service townships lacking even small rural or cottage industries, the majority of the labour force have to seek employment in farming. Thus, women in both the villages studied, were either engaged in household work or work in farms or they had a combination of these.

Labour utilization in agriculture and the contribution of female labour

The labour utilization for both paddy and *chena* cultivation was assessed by keeping records of labour input into agriculture every fifth day in both villages during 78/79 *maha* season from August to May 1979. There were three categories of labour used for agricultural work namely, family, exchange or *attam* and hired labour. All three types of labour input were found in Moragaswewa for both paddy and *chena* cultivation but in the other village lack of exchange labour was noted and only family and hired labour was used. The traditional pattern of exchange labour use seems to have given way to commercial hiring of labour for cash. The constant demand for hired labour during both *yala* and *maha* for paddy cultivation at Heelagama has eroded the concept of *attam* in that village.

Core of the labour force in most South Asian countries is adult males. This is the norm in Sri Lanka as well and, therefore, adult male labour force participation remains fairly constant in almost all the districts in Sri Lanka (Moore and Wickremasinghe 1980:68). However, the variation in labour force participation is mainly reflected in the female labour force participation. There are various factors affecting this variation. When the demand for family labour is high not only adult males in the household but women and children also have to work in family farms in order to meet the increased demand for labour. Especially when the man/land ratio is high demand for labour increases, apart from males, females are also drawn into the family labour force, to work in their own family farms. In addition, in a situation of high man/land ratio those houses with limited land resources get an opportunity to work as agricultural labourers in the farms of others to supplement the meagre income from their own family farms. The average amount of paddy land operated in both study villages is more than three acres per household which is more than the 2½ acres allocated to a farm household in new settlement areas by the government. Furthermore, the combination of *chena* and paddy during *maha* season in both villages increased the demand for labour and therefore the participation of the female labour force in agricultural activities has become crucial. Being cheap compared to male hired labour, females are hired in both paddy and *chena* cultivation. Furthermore, females were hired for certain tasks such as transplanting of paddy and weeding and harvesting in *chena*, which were more or less considered female tasks.

Paddy is the main crop cultivated in both villages and therefore paddy farming demands the major share of the village labour. The agricultural cycle in the area is governed by the north east monsoon which brings about heavy precipitation from October to January. The seasonality of demand for labour is found in both villages and the female labour contribution depends on the type of agricultural activity in which they take part. Planting, weeding, harvesting and processing paddy are the main tasks related to paddy cultivation which are considered female tasks. Female labour input goes into these tasks and their participation depends on the seasonality of these activities.

In Moragaswewa sporadic land preparation activities started in September with the clearing of paddy fields. Since only one crop of paddy is grown in the village shrubs and weeds grow during the rest of the year and therefore the land has to be cleared before ploughing. Although land preparation for paddy cultivation is considered a male job, both sexes do take part in this preliminary land clearing task. The intensive land preparation work takes

place during October. Rain-fed lands take the priority so that that land could be cultivated well in time so as to make the best use of the monsoon rain. The cultivation of the land under the village tank is done afterwards. The land preparation task is progressively accelerated during November and by the beginning of January land preparation and sowing is completed. The labour input data collected from Moragaswewa show the farmers, adherence to this time schedule in paddy farming. Although harvesting starts during January, first with rainfed paddy being harvested, the intensive harvesting is done between February and March at Moragaswewa.

The paddy cultivation cycle is more controlled at Heelogama where farmers are blessed with reliable irrigation facilities. Most of the farmers there started land preparation with the issue of water from the tank and most of the land preparation work, sowing or transplanting is done during November-December period. Although no transplanting was done at Moragaswewa due to water constraints, more than 80% of Heelogama farmers did transplant paddy during 78/79 *maha* season. That is the normal pattern of cultivation in that village. The peak period of harvesting falls during February and March. The labour input data from both villages show that labour demand and labour involvement follow this agricultural cycle during 78/79 *maha* season. For example, higher female participation at Heelogama during November, December and January was due to their involvement in transplanting of paddy during that period. Generally transplanting of paddy is considered women's work (Table 8).

TABLE 8: Total labour input for paddy during 1978/79 *maha* by the agricultural cycle (number of days)*

Month	Moragaswewa			Heelogama		
	Men	Women	Children	Men	Women	Children
Sept.	24	06	12	—	—	—
Oct.	575	14	54	18	—	—
Nov.	714	377	35	867	301	—
Dec.	302	166	45	429	878	—
Jan.	171	123	41	102	201	—
Feb.	497	413	95	77	43	—
March	571	423	40	1440	973	—
April	95	02	04	396	98	—
May	68	—	—	—	—	—
Total	3017	1524	326(163 man days)	3329	2494	—

* Number of work days calculated on the basis of number of calendar days worked.

The labour input for paddy in both villages show that there is a considerable share of labour input from females. Although there is a notion that efficiency or productivity of women's labour is less compared to that of men there is no sound basis for such a notion. The relative weighting in the remuneration of adult males, adult females and children is on the following basis: adult male-1.0; female- 0.66-75; child -0.5-.6. This is based on the notion of the differential productivity of different types of labour (Wickremasekare 1977:85). However, women are as efficient and productive as men and it may be that in certain tasks such as transplanting of paddy women are more efficient than men in handling the job. Unfortunately no study has calculated the output of men and women separately in different tasks in order to assess their efficiency. In the present study we have taken both the male and female contribution on an equal basis but child labour was converted into man/woman days on the basis that one man/woman day is equal to two days of child labour.

The data on total labour input show that 32.4% of the total labour input in Moragaswewa for paddy cultivation during *maha* 78/79 came from females (Table 9). At Heelogama female contribution was 42.8% of the total labour input (Table 10). When different categories of labour input are taken into consideration 28.2% of the family labour for paddy cultivation was contributed by females at Moragaswewa but only 22.2% of the family labour contribution came from females at Heelogama. The lesser involvement of female **family** labour was due to the socioeconomic background of the village. The cultivation of two paddy crops a year at Heelogama increased the regular income of the household and therefore Heelogama households are in a better economic position. Hence there is an almost complete absence of children in the labour force and much lower level of female **family** labour input than at Moragaswewa. This is as one would expect as farmers become more prosperous it is usually women and children who leave the labour force before there is a marked reduction in the hours of the farmer himself. However, women's participation in paddy cultivation increased with more women's participation in hired labour. 49.7% of the hired labour input for paddy cultivation at Heelogama was by females. During the cultivation season female agricultural labourers from nearby villages also come to Heelogama for cultivation work. Hence there is a greater participation of women in hired labour at Heelogama, although there is less involvement of female **family** labour. At Moragaswewa the hired labour category is even higher with a 52.7% of contribution from females. The employment of females in farm activities and wage work is considerable in both villages. Thus, women share the burden of the household by working on their own farms or as casual workers in other farms.

Women's participation in the production process is further elaborated when their contribution to *chena* is taken into consideration. A total of 61 acres of *chena* were cultivated by Moragaswewa farmers and 37 acres by Heelogama farmers. The data on labour input show that in both villages more women than men were engaged in *chena* work. They have participated in almost all the activities related to *chenas*. 71.1% of the total labour input for *chena* at Moragaswewa and 59.3% at Heelogama was contributed by females. The *chena* cycle shows that most of the *chena* work is concentrated in September through January.

TABLE 9: Type of Labour Input for Paddy Cultivation by Task and by Sex, Moragaswewa

Task	Family			Hired			<i>Attam</i>			Total			% of labour input for each task		
	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C
Ploughing	14	—	—	—	—	—	—	—	—	14	—	—	100	—	—
Nursery Work	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ridge Making	528	—	92	542	—	—	9	—	—	1079	—	92	92	—	7.86
Levelling and sowing	314	245	34	55	300	—	13	7	—	382	552	34	40.16	58.04	1.78
Transplanting	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Fencing	84	9	18	23	—	—	—	—	—	107	09	18	85.6	7.2	7.2
Weeding	29	4	2	7	—	—	—	—	—	39	04	02	87.8	9.75	2.43
Manuring	31	1	3	1	—	—	4	—	—	36	01	03	92.3	2.56	5.12
Pest Control	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Harvesting	528	477	116	12	439	—	56	26	2	596	942	118	37.31	59.65	3.73
Post-Harvest operations	232	16	39	23	—	—	512	—	22	767	16	59	94.24	1.96	3.69
TOTAL	1760	752	404	663	739	—	594	33	24	3017	1524	326	64.13	32.39	3.46
		(28.22%)			(52.71%)			(5.26%)					(1.63%)		

M — Men
W — Women
C — Children

TABLE 10: Type of Labour Input for Paddy Cultivation by Task and by Sex, Heelogama

Task	Family			Hired			Total			% of labour input for each task		
	M	W	C	M	W	C	M	W	C	M	W	C
Ploughing	69	—	—	94	—	—	163	—	—	100	—	—
Nursery work	28	—	—	35	—	—	63	—	—	100	—	—
Ridge making	243	—	—	401	—	—	644	—	—	100	—	—
Levelling and sowing	103	—	—	107	—	—	210	—	—	100	—	—
Transplanting	41	63	—	22	1150	—	63	1213	—	05	95.06	—
Fencing	—	—	—	12	—	—	12	—	—	100	—	—
Weeding	11	2	—	13	155	—	24	157	—	13.25	86.74	—
Manuring	110	—	—	40	—	—	150	—	—	100	—	—
Pest Control	34	2	—	57	—	—	91	2	—	97.84	2.15	—
Harvesting	329	174	—	919	818	—	1248	992	—	55.71	44.28	—
Post-harvest operations	138	57	—	523	73	—	661	130	—	83.56	16.43	—
Total	1106	298	—	2223	2196	—	3329	2494	—	57.16	42.83	—
		(21.22%)			(49.69%)							

M — Men
W — Women
C — Children.

TABLE 11: Total labour input for *chena* during *maha* 1978/79 (number of days)

Month	Moragaswewa			Heelogama		
	Men	Women	Children	Men	Women	Children
August	—	—	—	144	122	—
Sept.	653	1215	254	273	95	—
Oct.	236	692	121	243	281	13
Nov.	34	431	84	155	351	27
Dec.	221	1637	391	76	254	33
January	59	359	66	73	367	19
Total	1203	4334	916 (458 man/d)	964	1470	92 (46man/d)

TABLE 12: Total labour input for *chena* and *paddy* during *maha* 1978/79(number of days)

	Paddy			<i>Chena</i>			Total		
	Men	Women	Child*	Men	Women	Child*	Men	Women	Child*
Moragaswewa	3017	1524	163	1203	4334	458	4220	5858	621
Heelogama	3329	2494	—	964	1470	46	4293	3964	46
Total	6346	4018	163	2167	5804	504	8513	9822	667

* Man/woman days.

When the total labour input for paddy and *chena* is taken together there is a great contribution of women to the agricultural activities in Moragaswewa. Thus 54.8% of total labour input for agricultural activities in Moragaswewa is from women. Although the female contribution in the other village is slightly less than that of males 47.2% of labour input for *chena* and paddy is contributed by females at Heelogama. When both villages are taken together, the female participation rate in agricultural activities exceeds that of the males. 51.7% of the total labour input into paddy and *chena* came from females in both villages.

Female labour input by task in paddy and *chena* cultivation

Labour input for various tasks shows that transplanting, levelling of fields, weeding, harvesting and post-harvest operations are the tasks where specialized female contribution is evident in paddy cultivation. At Heelogama 95% of the transplanting, 86% of the weeding and 44% of the harvesting was done by females. In Moragaswewa there was no transplanting due to limited irrigation facilities. But even there females were engaged in levelling the field before sowing paddy. Thus 58% of the levelling, 57% of the harvesting was performed by females. Due to cultural reasons women usually do not get involved in threshing of paddy because farmers believe that they pollute the threshing ground and the yield is less if women

TABLE 13: Type of Labour Input for *Chena* by Task and by Sex, Moragaswewa

Task ¹	Family			Hired		Total			% of labor input for each task		
	M	W	C	M	W	M	W	C	M	W	C
Clearing of land	372	417	142	40	311	422	728	142	34.02	60.11	5.86
Sowing	71	60	27	01	51	72	111	27	36.64	56.48	6.87
Planting	185	219	86	—	171	185	390	86	29.93	63.10	6.95
Fencing	56	17	17	04	—	60	17	17	69.76	19.76	10.46
Weed Control	170	357	112	—	330	170	687	112	18.61	75.24	6.13
Pest Control	—	—	—	—	—	—	—	—	—	—	—
Harvesting	131	1108	421	—	847	131	1955	421	5.70	85.14	18.33
Post-harvest operations	173	320	111	—	126	173	446	111	25.62	66.0	8.29
Total	1158	2498	916	45	1836	1203	4334	916	20.06	72.29	7.63

M — Men
W — Women
C — Children

¹ Male involvement in crop protection during the night is not included in the labour input figures. Crop protection is important only few weeks before the harvest and all the farmers were not involved. *Chenas* closer to homes were visited once or twice in the night but farmers did not spend the whole night there. Therefore even if the male participation in crop protection is included the overall female participation still remains high.

TABLE 14: Type of Labour Input for *Chena* by Task and by Sex, Heelogama

	Family			Hired		Total			% of labour input for each task		
	M	W	C	M	W	M	W	C	M	W	C
Clearing land	165	85	—	287	197	452	282	—	61.58	38.4	—
Sowing	10	4	—	—	8	10	12	—	45.45	54.54	—
Planting	76	63	8	67	74	143	137	8	50.35	48.23	1.40
Fencing	—	—	—	30	—	30	—	—	100.0	—	—
Weed Control	66	132	31	85	250	151	382	31	27.50	69.58	2.91
Pest Control	6	—	1	3	—	9	—	1	90.0	—	10.0
Hervesting	110	174	29	—	375	110	549	29	16.32	81.45	2.22
Post-harvest operations	59	97	23	—	11	59	108	23	32.96	60.33	6.70
Total	492	555	92	472	915	964	1470	92	38.87	59.27	1.85

M — Men

W — Women

C — Children

take part in threshing work. But they are engaged in winnowing paddy after the threshing. Furthermore, when labour is hired for various tasks, females are hired for tasks such as transplanting and weeding which are considered female tasks. This is quite conspicuous in the hired labour input for various activities in paddy cultivation (Tables 9 and 10).

Female labour input to various tasks related to *chena* cultivation show that except for making fences to guard the crop and guarding the crop in the night which are considered man's jobs in both villages, women make a relatively higher labour contribution to the activities such as clearing land, sowing, planting, weeding, harvesting and post-harvest operations; 85% of the harvesting at Moragaswewa and 81% at Heelogama is done by females and this indicates the extent to which female labour is important in *chena* cultivation (Table 13 and 14). Our data suggest that in *chena* cultivation women's labour is more significant than that of men. This supports Boserup's argument that swidden agriculture is more a women's cultivation type than it is of males. It is possible to argue that when paddy and *chena* are combined, more female labour go into *chena* while males concentrate on paddy. However, our data on female labour input into paddy cultivation do not support such an argument. In the villages studied women are equally involved in both paddy and *chena* cultivation. Hence it is clear that in rural Sri Lanka although females are considered marginal labour, in the dry zone villages where there is a great demand for labour during certain months of the year the female contribution to agriculture is very significant. The level of their labour input in the villages studied clearly demonstrates their involvement in productive work related to agriculture in the dry zone.

Females are thus engaged in productive agricultural work in addition to their responsibility for household work. Although domestic work is considered a constraint to productive work, at times of high labour demand domestic work is accommodated in various ways to fulfill the labour requirement in field operations (Das Gupta 1977:33). In rural Sri Lanka there are different agricultural tasks specified for men and women but there are some tasks that are interchangeable between men and women. This traditional division of labour is revealed in our data on labour input into different tasks in agriculture. Although there is a difference between the type of work performed by men and women, there is very little objective basis to conclude that work performed by one sex is more productive or deserve higher remuneration than for that done by the other. In both study locations wage difference between the sexes were common. At Moragaswewa the mean wage for a male worker was Rs. 10/- per day and only Rs. 6/- for female worker during 78/79 *maha* season in paddy cultivation. Although the rates paid for males in *chena* cultivation was the same as in paddy cultivation, females who were involved in wage labour in *chena* cultivation received Rs. 5/ per day which is only 50% of the wages paid to men who were involved in the same type of work. At Heelogama where there was greater demand for female labour specially for transplanting paddy, the average wage rate for paddy cultivation was slightly higher than that prevailed at Moragaswewa. Rs 6/85 was the average wage for females; but for *chena* work they were paid an average wage of Rs. 6/20 against Rs. 9/85 to Rs. 10/paid to males for the same type of work in *chenas*. The average wage paid to a male worker involved in paddy cultivation at Heelogama was also Rs. 10/- during that season. This wage difference explained why farmers preferred female hired labour for both paddy and *chena* cultivation. Even tasks that were traditionally considered male tasks such as levelling of paddy fields before sowing were assigned to females at Moragaswewa because of low wages paid to female labour.

Conclusion

Female participation in agricultural production process in two dry zone villages shows that although women are generally considered housewives involved in household tasks, their contribution to agricultural production is considerable. In developing countries the measurement of women's involvement in economic activities is not done accurately. Boserup was among the few to note that "subsistence activities usually omitted in the statistics of production and income are largely women's work" (Boserup 1970:163). Women's work is underreported and underestimated especially in the area of domestic production. Furthermore, the labour contribution of women to their own family farms are not properly evaluated (Sharma 1985:58; Dixon 1982:539). According to some, this is due to the existing sex stratification system which has penetrated into norms, values and social structures creating mechanisms that hide rural women's contribution to Third World agriculture. This in turn creates an image of female dependency on men in those societies (Rothschild 1985:229). As pointed out by Rothschild even when women work in the fields helping their husbands with agricultural tasks, such work is sometimes defined as a wifely duty rather than as work. The low rate of female participation in economic activities in national census figures is mainly due to the definition of economic activity adopted and due to the way the information is gathered.

Seasonality of agricultural work makes census classification of economic participation based on arbitrary time requirements unsuitable. If the census is taken during the month of relative agricultural inactivity, the result would be different from a census taken during a busy period of agricultural activity (Deere 1983:800). If a long reference period is specified for data collection for a census, seasonal work for which women and children form a reserve labour pool is likely to be reported (Freedman et al 1979:27; Dixon 1982:545). In our study we have quantified the female participation during *maha*, the major agricultural season in the dry zone which shows that female labour contribution to agriculture even exceeds the contribution made by the male labour force.

The method of data collection also could affect the counting of female participation. Instead of a questionnaire beginning with a person's principal occupation, if it begins with a description of activities in which a person is engaged in, women's response will be somewhat different (Deere 1983). Swarna Jayaweera has shown that only those women who were engaged in wage or regular employment reported that they were employed. According to her, "further probing, however, revealed that some 'non-working' women were also involved in income-generating activities in their homes....." In one location although only 18.7% of women were employed according to their own classification, the figure went up to 47.3% with additional information gathered through further probing (Jayaweera 1979:495). We have shown this difference in our survey making a distinction between employment and secondary economic activity. The latter category gives additional information about greater participation of women in economic activities. In our rigorous measurement of agricultural participation of women by recording the actual number of days of labour input into different agricultural tasks over the agricultural cycle *maha* 1978/79 we have demonstrated their actual contribution to agricultural production in rural Sri Lanka, especially in the dry zone

Although we have not quantified the time spent on household activities, when these two spheres of activities are combined their participation in the household economy is much greater than the contribution of the males who are considered the full-time farm operators. Casinader and others have clearly demonstrated that rural women who are involved in petty commodity production in some villages bring a considerable income to the household which is absolutely necessary for the survival of their families. In fact, their study shows that those women have become the main bread-winners of their households (Casinader *et al* 1982:73-91).

Although women go as farm helpers their physical labour input into various tasks in paddy and *chena* cultivation shows that women's participation in agriculture is crucial. When intensive cultivation practices such as transplanting of paddy and hand weeding are adopted, the increased demand for labour is met by women. Thus women have to absorb not only the labour demand for their own family farms but they have to work as agricultural labourers for wages. When the two types of agricultural activities such as *chena* and paddy cultivation are combined in dry zone Sri Lanka and when timely cultivation is necessary to make the maximum use of monsoon rain and controlled irrigation facilities the resulting upsurge in labour demand for different agricultural work is met mainly by women.

The foregoing discussion demonstrates that the contribution to rural agriculture by different household members cannot be properly understood without proper attention to female participation. Furthermore, any rural development programme cannot be properly designed and implemented without a knowledge of actual and potential labour force participation and access to resources at the local level. Since farming is the major economic activity of majority of population in rural Sri Lanka a better understanding of the farm household is a necessary precondition for the implementation of any rural development programme in Sri Lanka. A detailed account of women's participation in economic activities become absolutely necessary if they are to be included as direct participants and target groups in rural development programmes. This is why the gathering of micro-level data such as what we have presented in this study is vital to complement the macro-level data gathered through census and other national level surveys. A different picture of female labour force participation emerges from rural studies which count the labour contribution of all household members, male and female, adult and child (Fong 1980). Such a study would reveal a far higher rate of participation by women. From our study it is clear that in dry zone villages in Sri Lanka female participation in directly productive activities in terms of physical labour input exceeds even that of males who are considered full-time farm operators. When both productive and other household activities are combined females play a very important role in the economy of the rural sector. Nevertheless, their participation and contribution to the rural economy has not received the proper attention it merits. Only detailed studies taking into consideration women's involvement in both directly productive work in the agricultural sector and in household chores will fill the vacuum in knowledge about their participation in the rural economy.

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