

COPING WITH DROUGHT: A CASE STUDY OF LIVELIHOOD STRATEGIES OF PEASANTS IN HAMBANTOTA DISTRICT DURING THE DROUGHT IN 2001

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ABSTRACT

The droughts have been a frequent climatic phenomenon, in most tropical countries, which brings about many social, economic and environmental impacts. Unlike other natural disasters, a drought has its uniqueness according to onset and spread of impact over time and space. Present paper describes the situation in rural areas in the Hambantota District in Southern Sri Lanka where seasonal and contingent droughts have adversely affected the peasant community. This paper inquires effects of the severe drought that took place in 2001 as revealed by the peasant farmers in the area, who were worst, affected. It further discusses how their weak assets base and lack of alternative opportunities have further threatened their livelihoods. Interviews with randomly selected sample of affected families from different settlement clusters provide an insight into their issues and options to cope with drought. Chambers and Conway (1992) and subsequently by DFID (1999) have presented a Sustainable Livelihoods (SL) Framework to analyze vulnerability context and asset base affecting the capability of rural households in their survival strategies. This paper examines the applicability of this framework in understanding coping strategies of people in Hambantota District in a drought situation..

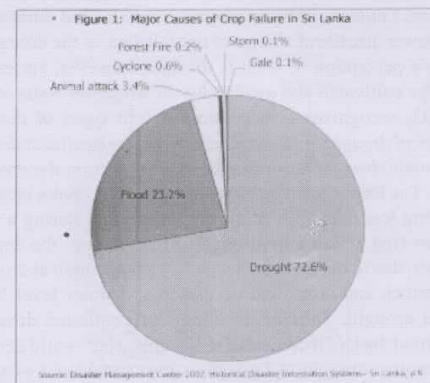
Majority of the population in the developing world who is living in the rural areas make livelihood in the agricultural sector and is frequently be vulnerable to natural disasters that take place seasonally or unexpectedly. Especially, the meteorological phenomenon or agricultural pests and diseases create a high degree of uncertainty in agricultural yields and income affecting those risk-averse peasant households. Local environmental problems, such as the depletion of ground water aquifer and deforestation, can also have a profound effect on the ability of households to maintain or improve assets and living conditions. Therefore, the policy makers need to seek sustainable solutions, to the major issues such as poverty, vulnerability to disasters and environmental degradation through rural development strategies focused on peasant community.

This essay inquires into the nature of impact of the severe drought that took place in 2001-2002 on livelihoods, in the Hambantota District of Southern Sri Lanka. A survey conducted during the period of drought, revealed that it was, not merely a climatologically induced phenomenon, but there were many other factors, attributable for the severity of its impact. An inquiry into the deterioration of livelihood, particularly among the peasants who have been marginalized, environmentally, socially and economically was the focus of this study.

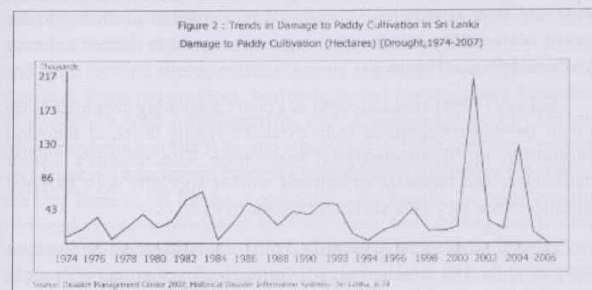
A drought is a temporary condition made by prolonged deficiency of rainfall, generally known as a "dry spell" or aridity of an area. The denial of meteorological conditions required for precipitation such as the presence of water vapor, condensation nuclei and rising air motion, causes dry weather condition in an area. However, it takes months to establish a dry spell as a climatic hazard persists for months, to bringing out cumulative effects with each additional day of drought. The effects of droughts are spread over a period of time and a wide geographical area occurring in regions with varying characteristics; hence there are regionally specific criteria to define meteorological phenomena as a drought.

In Sri Lanka the drought has been a most frequently occurred natural disaster, which brings about most severe impact on the agrarian community, the majority living in rural areas. According to the climatological and ecological criteria, drought has been broadly defined by different authors. Farmer (1957) defined a drought as "any dry spell, which is insufficient to maintain soil moisture above wilting-point". Wickramathilake (1963) recognizes 102 mm or less rainfall for three months as an effective dry period. Domros (1974) distinguishes three different types of droughts, namely *absolute drought*, *partial drought* and *dry spell* depending on the number of consecutive days of poor rainfall less than .01inch or none at all. Sirinanda (1975) identified seasonal and contingent droughts, experienced in the Dry Zone. The seasonal drought occurs in the months of May to September, the rainless period in most of the dry zone areas. The contingency drought occurs if there is a negative departure from the expected mean rainfall in the dry zone, during the northeast monsoon between Octobers to February

According to a study of the Disaster Management Center, it has been the most destructive natural phenomenon, during the period since 1974, causing crop failure in Sri Lanka, as depicted in figure 1. The Districts in the Dry Zone and Intermediate Zone, such as Kurunegala, Hambantota, Moneragala, Amapara, and Puttalam are frequently reported as drought prone areas. In 2001 alone, about 946,545 families were affected, 104,399 hectares of paddy lands and 50440 hectares under other crops were affected.



The trends in damage to paddy cultivation during the period since 1974 up to 2007, as presented in figure... reveals that an unprecedented drought impact has been reported between 2000 and 2002.



In 2001, seven districts have been reported as drought hit areas, and ten Divisional Secretariat areas in Ratnapura, Moneragala and Hambantota District formed one major disastrous zone, in terms of the geographical spread, number of affected people and the damage caused (Map 1).

Understanding Impact of Drought:

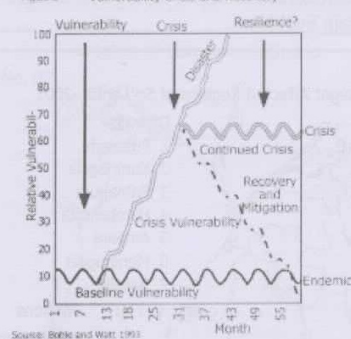
Any dry spell can be considered as a drought, according to the climatologists' criteria. Meteorologists consider the duration falling within the lower quartile of a range of rainfall data, as the drought period. The people's perception of what is drought, however, varies with the type of crops cultivated and availability of irrigation water in an area. Smith (1993) recognizes a succession of four types of droughts as: *meteorological drought, hydrological drought, agricultural drought and socio-economic drought* according to their impact on the environment and people. The Department of Meteorology, in Sri Lanka identifies any area receiving less than 75% of the normal rainfall during a particular season as an area affected by drought. At beginning, the depletion of ground water, due to the dry weather causes a hydrological drought. The loss of livestock and crops and decreased soil water level lead to an agricultural drought. Subsequent effects of continued drought such scarcity of food, lack of income and social unrest etc. world develop into a socio-economic drought. A Drought is also considered as a creeping hazard which brings about many short term and long term effects. In comparison to other natural disasters, onset of drought is not easily identifiable and the area affected cannot be easily identified. The drought vulnerability of a community develops and leads to severity gradually. Bohle and Watt (1993) have illustrated this process according to the level of vulnerability, effects of mitigation measures to create resilience of affected people (Figure 3).

Solway (1994) views drought as a crisis deepening dependency on outside assistance beginning from extended family level, of the rural community, up to international assistance. The resource - poor smallholders and landless agricultural worker specially seek external assistance since they lack sufficient means to live.

Several scholars have identified different adjustment and coping strategies applied by rural households during the development of drought hazards. Conway and Chambers (1992) identified household strategies

employed under the different vulnerable situations, such as a drought in a sequence. Reduce consumption (*stint*), store food (*hoard*), preserve food (*protect*), draw upon stores (*deplete*), seek new sources of food or income (*diversify*), and find external support (*claim*) are successive stages that are followed by households according to them. Finally people and livestock tend dispersal, change asset forms (sell or mortgage land, farm equipment etc) or migrate to other areas (*move*) at the very severe stage of the hazard. Chen (1989) in his case study of drought hit families in Gujarat in India has enlisted a similar range of strategies.

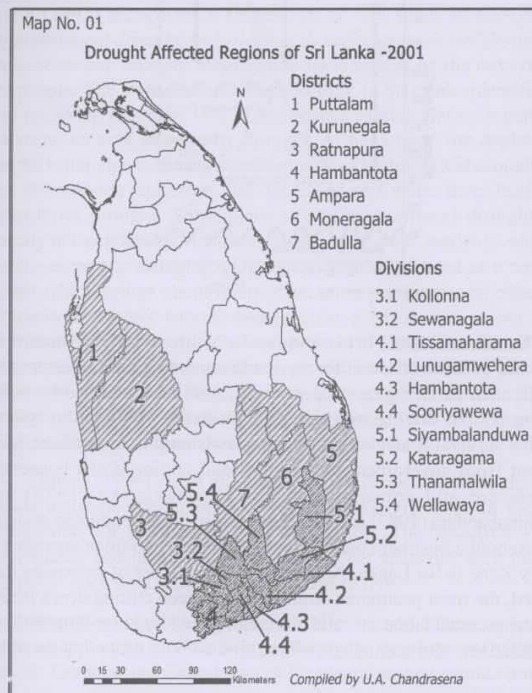
Figure 3 Vulnerability Crisis and Recovery



Source: Bohle and Watt, 1993.

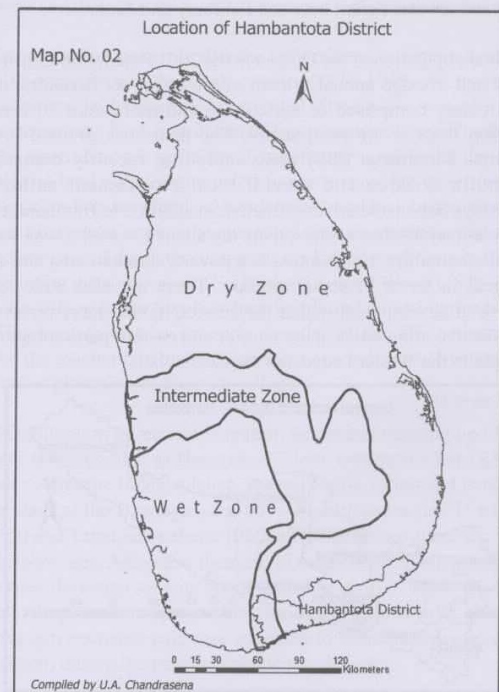
Tennakoon (1986) in his study in the North central Province of Sri Lanka has enlisted different forms of adjustment by the farmers to poor rainfall, such as changing crop calendar, cultivate seeds with shorter growing period, sharing suffering through *Bethma* cultivation system, and other survival strategies like claiming assistance from relatives, relief payment from government, borrowings and cutting down household expenditure and consumption etc. Karunanayake (1975) and Maddumabandara (1983) among other scholars have conducted research on household adjustment process under drought conditions prevailed in the Dry Zone in Sri Lanka. According to the number of responses they received, the most prominent strategies have been cutting down meals, working as casual labourers, and mortgaging jewelry or sending children to the relatives, mortgaging and selling land come at the end of the order.

Present study reveals the way in which families in drought prone areas of Hambantota district sought different adjustment strategies, during the different phases of the drought in order to sustain their livelihood. It was evident that the people in Hambantota faced with a crisis situation by September in 2001, due to continuation of dry spell for several consecutive months. This situation was well publicized in media. In response, different relief groups from the government and general public as well as charity organizations reach to them. It was evident from our observations that most of the assistance provided to people was sufficient as relief measures but their resilience to vulnerable situation was at a low level. Therefore certain strategies coping with drought were necessary for them to sustain livelihood.



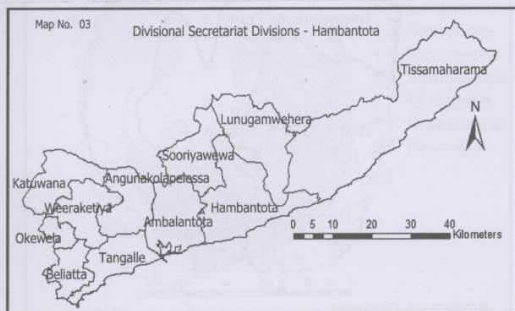
Hambantota District:

Hambantota is one of the 25 administrative districts in Sri Lanka, located in the southeastern coastal plain of the Island, covering 4% of the area in the country. It has been identified as a part of the *Ruhunu Rata (Ruhuna)*, in ancient Sri Lanka. The district extends over about 2625 sq. km. and is mostly found as a flat and gently undulating landscape. The drainage pattern in the district is formed of 18 river basins including Walawe Ganga, Kirindi Oya and Menik Ganga as major rivers flowing southwards to the Indian Ocean. Hambantota is peripheral and isolated, compared with more developed core area in western province of the country.



The district lies within the three major climatic zones of Sri Lanka, the wet, intermediate and dry zones, according to the annual rainfall. The western one third of the area which lies within the wet and intermediate zones receives a rainfall of about 1900 mm per annum. "Northeast Monsoon" which falls between November and February brings about 54% of the total annual rainfall. The farmers in the dry zone areas commonly divide their crop calendar into two cultivation seasons according to the rainfall regime of the year. The *Maha* or major rainy season falls between October and February, and the *Yala* or minor rainy season lies between April/May and July/August. The water balance studies have revealed that there is a water surplus between October and January and a water deficit between February and June.

Total population of the District at the 2001 Population Census was 525,370 and average annual growth rate was 1.1 %. Economy of the area is mainly comprised of agriculture and more than 80% of the population lives in the rural sector. The district is divided into 12 Divisional Secretariat (DS) areas including recently demarcated Walasmulla division and several local government authorities (Paradeshya Sabha and urban councils). In addition to Hambantota and Tangalle as major urban centers, there are about 13 small towns serving the rural community. Hambantota is a poverty stricken area and under privileged, in terms of social welfare. There are also wide spatial variations in development within the district, having more remote and marginalized communities at the interior and eastern parts compared to the people in the Western edge and the coastal belt.



The dry zone area of the district, extends eastwards from Tangalle, and covers about 70% of the total land area in the district. The rainfall in this part is highly variable and uncertain so that irrigation was an insurance and mitigation against the dry weather since the early days of Aryan settlements in the area. Every village had a small reservoir and three-fold land use system comprised of home garden (*gangoda*), shifting cultivation (*chena*) and paddy cultivation (*welyaya*). The village tanks were clustered as *cascades*, made of about 10-15, hydraulically connected small tanks within a meso-catchment draining to paddy fields in the ancient time. When Sinhalese moved towards the Wet Zone of the Island in 13th century B.C., most of the small tanks were neglected, abandoned and their pivotal position in the village economy declined.

Due to the European rule after the 16th century, and especially during the British occupation in the whole country (1815-1948), the traditional village economy in the country deteriorated. The rural community in the country faced many hardships due to new economic policies. The British neglected the traditional agricultural system prevailed in the dry zone. The Colonial land policies prevented further expansion of settlements and cultivation into new lands. Abandonment and lack of maintenance of ancient irrigation works, the spread of malaria epidemic and many other factors caused the deterioration of the living conditions in the dry zone including the southeastern Sri Lanka. Leonard Woolf (1913) in his novel, *The Village in the Jungle*, which was based on an interior hamlet in the Hambantota district in early decades of the 20th century, has described the manner in which village life was conditioned by threats of nature and exploitation of the poor villagers.

Rehabilitation of ancient irrigation works and opening up of new settlement schemes such as Beragama Colony commenced in 1930s in the district. After the Independence, several Colonization and irrigation schemes such as the Bandagiriya (1957), Muruthawela (1971) Kirama Oya (1979) and Lunugamwehera (1986) were opened up attracting more people in to the area. Altogether there are 17 major tanks, 7 ancient schemes and one river diversion scheme operating in the district. There are about 400 small village tanks in operation or abandoned in the district, although successive governments paid less attention to their maintenance and rehabilitation, during the post-independence decades.

Present land use pattern in Hambantota is mainly comprised of home gardens (24.6%), paddy cultivation (13.7%) and shifting cultivation (11.6%) in the interior areas, while coconut plantation is spread along the coastal belt. The homestead gardens, in the drier part of the district consist of few drought resistant trees compared to luxuriant growth and crop diversity found in the wet zone part of the district. Irrigated paddy cultivation is mainly distributed in the dry zone areas in the east. About 75% of the paddy land area is cultivated under major irrigation schemes and 18% is under minor irrigation schemes. Total paddy land area cultivated in Yala 2000 was 21,286 hectares and 35,176 hectares in Maha, 2000/01. Most of the paddy cultivators in the district have adopted modern farming techniques as an impact of the green revolution, though there are adverse environmental and socioeconomic effects. From 1960s to late 1980s the paddy yield showed a remarkable increase from about 60 bushels to 120 per acre though it has been stable subsequently.

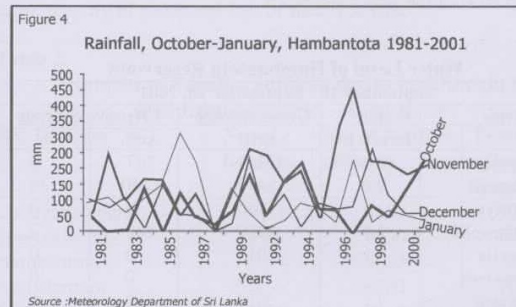
Villagers have been practising *chena* cultivation in the *Maha* season either by encroachment of state lands or on the highlands they inherited. The *chena* cultivation provided supplementary food for most of the population in the past though it has been changed into cash crop sector during the past two decades. The grains like *kurakkan* (finger millet) *meneri* (red millet) which provided supplementary food and secured from starving in lean harvest seasons of paddy fields were replaced by cowpea and green gram produced for sale. The fallow period of *chena* cycle has been shortened to one or two years. Some farmers cultivated the *chena* in each rainy season. Therefore soil fertility has to be artificially restored and farmers tend to apply pesticides and fungicides for their crops. The damage to crops by wild elephants is also a major issue at present. Most of the *chena* cultivators prefer to cultivate crops with short growing period due to the uncertainty of the rainy season.

There is scattered information about droughts occurred in Hambantota in the past. According to the government administrative report of Hambantota District for 1866, a severe drought that took place in Hambantota and "developed into, a famine wrought grievous havoc, disseminating people and destroying flocks and herds". The Department of Social Services in Sri Lanka, reports that people in Hambantota District have been provided with drought relief assistance for 20 different years since 1947 up to 2001. The meteorological department of Sri Lanka

records that major dry spells occurred in Hambantota in the years 1905, 1957, 1976, 1983, 1992, and 1994. It was observed that there is a drought in Yala season once in every 3-4 years, while there is a drought in Maha season, once in every 5-6 years in Hambantota (Mohottala, 2001).

The Drought in 2001:

Even under normal climatic conditions, Hambantota is a water deficit area where potential evaporation exceeds mean annual rainfall (Sirinanda 1975). The seasonal pattern rainfall in the district is highly skewed and about 55% of the annual rainfall is concentrated into five months from October to February, while five months from May to September receive only 28.5% of the annual rainfall. Long term rain fall data shows that even in the wet season the rainfall is fluctuating and unpredictable. (figure 4)



The drought of 2001 in Hambantota was resulted due to continuous dry weather for the previous two consecutive Maha seasons. For instance, during the 2000/2001 Maha season, Northeast monsoon in the area received only 65% of the average rainfall. Between February and August in 2001, this area received only 34% of the average rainfall. According to available statistics, about 105,001 families and 382,478 persons have been victims of the drought. The paddy cultivation in the district dropped by 45% and the yield in the rain fed paddy lands dropped from 2.5 tons per hectare to 0.8; the damage to livestock, and perennial crops etc was considerable. The families living in the eastern part of the District, in Thissamaharama, Lunugamwehera, Hambantota and Sooriyawewa areas

first experienced the severity of drought in May, 2001 and it further spread into Tangalle, Weeraketiya and Okawela divisions in the west by September.

Water level of reservoirs declined rapidly and effective storage decreased so that further issuing of water for human activities was impossible. For example, effective storage of Lunugamwehera, Weerawila, Badagiriya and Debarawewa reservoirs was below the minimum. The Irrigation Department recorded the water level of major reservoirs in Hambantota in October 2001, as shown in table 1 above in terms of gross storage of water and effective storage, which is available for release. Four reservoirs had no water to keep records and were left dried up while Lunugamwehera had water not sufficient to release. Ridiyagama, Yodawewa and Thissawewa has marginally sufficient storage to release. This situation further aggravated by totally drying up most of the major reservoirs.

Table 1

Water Level of Hambantota Reservoirs

Reservoir	Water Level (Ft)	Gross Storage (Acft)	Effective Storage	
			Acft	%
Lunugamwehera	5.4	22253	247	0
Ridiyagama	9.8	8450	6850	34
Badagiriya	-	250	0	0
Muruthawela	3.9	4080	880	2
Weerawila	-	2015	0	0
Debarawewa	-	65	0	0
Yodawewa	4.2	610	510	6
Tissawewa	10.0	835	800	223
October 1- October 7, 2001				
Lunugamwehera	4.0	19646	-2854	-2
Ridiyagama	4.6	4310	1110	3
Badagiriya	-	-	-	-
Muruthawela	-	-	-	-
Weerawila	-	-	-	-
Debarawewa	-	-	-	-
Yodawewa	3.8	475	375	5
Tissawewa	9.9	765	730	21

Source: Department of Irrigation, official Website of the Government of Sri Lanka, Last modified 2003; http://www.priu.gov.lk/news_update/Drought/Statistics.htm

The drought while continuing for three consecutive cultivation seasons aggravated the crisis situation, leaving resource poor households in a more vulnerable situation by September in 2001. The limited accessibility to use land, lack of water and uncertainty of rainfall on the one hand and low price higher cost of input, on the other hand leave the peasant families at marginally subsistent level even under normal conditions. The drought hazard in the District is therefore cannot be viewed only as a has climatic phenomenon. This study revealed that the vulnerability of the families to the stress increased and they had to seek coping strategies to sustain livelihood.

According to the statistics available in the District Secretariat about 80% of the all families in the district were affected and over 90% were affected in many DS areas. However, the severity of drought was also more visible in the interior villages of the District, in terms of damage to crop, scarcity of water and loss of means to live.

Table 2.

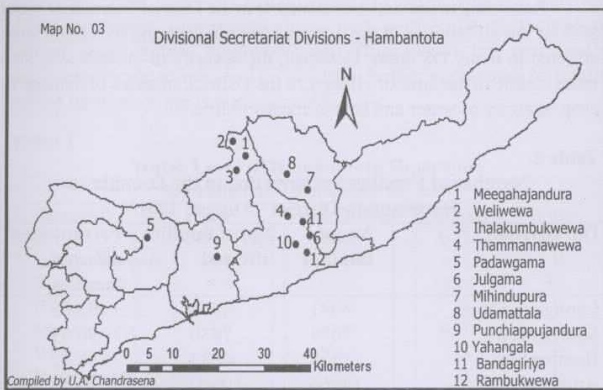
Number of Families Suffered due to the Drought in Hambantota District - August, 2001

DS. Division	No. of families	No. of families affected	Percentage of affected families
Lunugamwehera	6941	6459	93.05
Sooriyawewa	8098	7830	96.69
Hambantota	11353	6633	58.42
Ambalantota	14866	10500	70.63
Tangalle	14226	7953	55.90
Beliatta	15186	9800	64.53
Okewela	4528	3550	78.40
Katuwana	15818	15196	96.06
Weeraketiya	14283	14000	98.01
Angunakolapelessa	10036	10000	99.64
Tissamaharamaya	14687	13380	91.10
Total	130022	105001	80.75

Source: District Planning Secretariat, Hambantota, 2002

Research Methodology:

This study was planned to conduct during the severest phase of the drought in August and September in 2001. Ten villages were selected for the survey through transecting in to the area and by observation of the environmental conditions. The discussions were held with local level officers including Gramaniladaris (GNs) for collecting information as well as for organizing field surveys. A random sample of 128 households was selected representing Hambantota, Lunugamwehera and Sooriyawewa DS divisions. Further discussions were held with key informants in the villages.



Interviews were conducted with household heads using structured questionnaires. They were stratified according to the main occupation as given in table 2. Informal discussions were conducted with village elders, key informants and village level officers. The villagers in the selected areas have been mainly depending on paddy cultivation irrigated by small village tanks and rain fed highland cultivation (chena). Major irrigation works fed the in Badagiriya and Lunugamwehera Colonization schemes. Our visits to the area during the severity of the drought between September and October in 2001 could grasp a clear picture of drought hit environment and community

Table 3
Main Occupation of the Household Heads

Division/Area	Villages	Paddy cultivation	Chena cultivation	Wage Labor
Hambantota Division	(Bandagiriya Irrigation Scheme) Thammannawa, Yahangala West, Julgama	39	17	03
Lunugamwehera Division	Udamattala, Mihindupura	24	13	02
Sooriyawewa	Meegahajandura Weliwewalhala Kumbukwewa	21	08	01
Total		84	38	06

(Field Survey 2001)

It was revealed that the recent drought in Hambantota was unusual due to several reasons, such as loss of income, employment, food, assets and damage to environment etc. according to them. The coping strategies in the pre-drought relief period, attitude of being recipients of free rations and donations, and the proposed solutions to mitigate the impact etc were also discussed.

The severity and duration of the impact of the drought varied by regions depending on the availability of irrigation facilities, importance of rain-fed cultivation and the location of the villages. In Bandagiriya irrigation scheme, people had experienced the drought for 8 to 10 months until September 2001. The villagers in Sooriyawewa Division reported that they had suffered a longer period of 10 to 20 months. The shortage of water for domestic use at their usual sources, inability to cultivate farms and the lack of wage employment in the villages were major indicators of the impact according to them. It was also revealed that the recent drought was the severest hazard they had faced. Most farmers have not been able to cultivate paddy in the three or four consecutive Maha and Yala seasons since Yala in 1999. Nearly half of the reservoirs, ponds, small tanks and wells were dried up.

Withering and dying of perennial crops, loss of animal, birds and other organisms were major indicators of the severity of drought. In most villages trees and plants that have grown for 10 to 30 years in the homesteads such as coconut trees have been dying indicating the decreased soil moisture and high evaporation accelerated by the dry winds passing that area. Major sources of drinking water, for settler families in Bandagiriya and Lunugamwehera irrigation schemes were well and tap water provided at regular intervals. The some villagers in Suriyawewa and Lunugamwehera divisions were provided with tube wells or they use wells and tanks for domestic purposes. All sources of water for domestic uses were depleted by that time. Settlers in the Lunugamwehera scheme were in trouble since the beginning of the project due to insufficient water provided for paddy cultivation. Almost all settlers failed to cultivate their one hectare land during the past few years in outside areas. Since the project could provide water off and on depending on storage capacity of the reservoir, some of the families in that area revealed that the drought affected them later and not severely like other places.

Due to increased population, the second-generation families face acute shortage of land in the irrigation schemes. Most of them tend to temporarily move to other areas for *chena* cultivation or to work as casual labourers. About 60% of the families were not cultivating highland areas they possess for a long time due to the shortage of water and infertile soil. About 56% of the all families were recipients of assistance from Samurdi Programme. (Poverty alleviation programme). Landlessness, unemployment and poverty are prominent issues in the area and scarcity of water for cultivation and domestic use has further aggravated the situation. It was also revealed that there were few families who cultivated *chena* on encroached lands. And those who had not any cultivable land worked as casual laborers.

Scarcity of water for cultivation, sub-division of original land holdings among the second generation members, low income from paddy cultivation and unsuitability of highland plots for cultivation were persistent issues faced by settlers during the last four decades. The poor and marginal farmers therefore had to seek wage employment in other areas. According to their dependence on income from nonagricultural sources, the vulnerability to drought varied. Some of the second generation members encroached and cultivated state lands or migrated

to Colombo for work in the construction sector, industries or in service sector. There are several families where wives have migrated to Middle East countries to employ themselves as domestic workers.

The families we interviewed in Uda Mattala traditional village were continuing their livelihood in paddy cultivation and *chena* cultivation revealed that the drought hit them severely. They were mainly depended on rain-fed agriculture. Most of them cultivated *chena* lands smaller than one acre due to uncertainty of rainfall and the lack of land for further expansion of cultivable area. Besides they had no savings after the income from the previous harvest to invest in next cultivation. Decreasing employment opportunities in farming sector as wage labourers in the neighboring villages due to the drought, further affected those families badly as revealed at the interviews. The dependency on outside assistance was increased among the settlers in irrigation schemes as well as in old and new villages equally, due to the fact that their livelihoods were determined by the availability of water.

Some of the families whom we met in the villages of Sooriyawewa Division had only a small highland plot of state lands encroached for cultivation. Majority of them have been migrated from old villages in the district, due to landlessness. They practiced *Chena* cultivation regularly on the same highland plot or had to encroach new lands available farther away from residence. Paddy cultivation had been possible only by water supplied from small tanks, (as we observed in that area). Family case studies revealed that the impact of drought on them was relatively more severe due to the lack of water supplied from major irrigation schemes, increasing dependence on *chena* cultivation, isolation and lack of attention on their problems by policymakers and planners.

Some respondents who had settled there 30 years ago, and are still dependent mainly on *chena* cultivation revealed that now, they do not cultivate or save food for use during a scarcity, as in the past. Their main aim now is to cultivate cash crops like green gram and cowpea in the whole land area. The income gained in a normal crop season is about Rs.30,000 per acre and they had to bear a high cost of cultivation. Most of the *chena* cultivators had replaced mixed-crop cultivation which provides *kurakkan*, *meneri* or other supplementary food grains, with mono crop cultivation. Their sole harvest is intended to sell, so that there was no food security at all.

During a long dry period the families usually depend on wage earned through working as casual labourers. Some of the families sent their children to live with relatives in the nearby less vulnerable areas during the peak of the drought. It was also revealed that some families abandoned paddy cultivation, for two or three consecutive seasons due to insufficiency of water in the village tanks. Silting on the tank bed due to soil erosion in the catchment area, where natural vegetation is removed by encroachers and poor maintenance of village irrigation system were major causes of intensifying drought impact. The mal-practices and corruptions in development programmes even at the village level were experienced according to our respondents. It was evident in one village that irrigation canals rehabilitated recently were also collapsed already. The older generation villagers found that the increasing population and land settlement programmes have significantly changed natural environment in the area and finally led to a dry climatic condition, especially during the past few years.

Drought Relief Programme:

Families in the income groups below Rs.1500.00 were eligible for relief assistance from the Department of Social services. They were provided with rice and other essential food items worth of Rs.1200.00 per family. One member of each family receiving the assistance had to work for 14 days in maintenance of roads, canals, tank bunds etc. The Local level administrative officers, politicians and voluntary organizations made arrangements to providing drinking water to the people living in every accessible village area. It was common to see the people gathered in different localities in the area waiting for vehicles, which carry water. Hambantota drought has been more publicized through mass media, than any other drought prone area in the country or previous droughts in the same district. Many organizations and voluntary groups were involved in the distribution of food, and water for the victims.

The Sri Lanka Red Cross Society launched a project to assist about 3390 families in Lunugamwehera, Sooriyawewa and Hambantota divisions. FAO/WFP conducted a food needs assessment in September and highlighted the food insecurity in the area and recommended a supplementary feeding program to maintain the nutritional status of most vulnerable groups, such as children, lactating mothers and pregnant. The assistance flowing into the area in late September and October,

in 2001 could mitigate the crisis situation to some extent. Our observations have revealed, however, that the households living in most disadvantaged and marginal locations were not accessible to goods distributed on the main roads. It was also revealed that most of the food aid distributed to them during the same period so that the households faced the difficulty of storing or preserving some of them. According to the discussions we had with the farmers, they wished to depend on external assistance until they reap the first harvest of the crops grown after coming rainy season. Some families stated that they were not in a position to purchase seeds paddy and other inputs even if they get rains in time. The *chena* lands had been cleared in many places hoping rains in a few days' time.

Adjustment to Drought by Peasants

It is true that the dependency on outside assistance has been increased very much among the settlers in irrigation schemes as well as among the villagers, due to their livelihoods are bound with availability of water for cultivation. The limited accessibility to land, lack of water and uncertainty of rainfall on the one hand and low price and higher cost of input, on the other hand, leave the peasant families at marginally subsistent level even under normal situation. The drought while continuing for one to two years, further aggravated their crisis situation, and resource poor households became more vulnerable by September in 2001.

Our survey revealed that at the severe phase of the drought, the families tended to cut down meals, saving food for children. The households we have visited in Lunugamwehera and Sooriyawewa divisions had depleted their stocks of grain by that time. Most families could not have even one meal with rice a day, before relief workers distributed food. Some of them had stock of grain (rice or *kurakkan*) which was sufficient only for two weeks for the family. The women and children were engaged themselves in collecting Nelum *Ala* (tuber of Lotus plant) in the dried up tank beds. Some others have engaged in collecting fire wood for sale, and mining salt in *Rakewa Saltern* according to our interviews in Bandagiriya colony. Most common survival strategy of families in both colonization schemes and traditional villages was to move away seeking employment as casual laborers in agriculture, especially in the wet zone areas of the district. Some males have moved

to brick making sites in the district where the demand for labor increases during the dry period.

Most farmers showed that they were reluctant to move to outside areas seeking employment due to two main reasons. Those who were planning for chena cultivation, envisaging October rains in time, engaged themselves in preparing chena lands. On the other hand it was the time when many different organizations and groups visited the area for distributing food and water to the victims. They said at the interviews that waiting for assistance was worth than seeking employment elsewhere. Further, it was a laborious task to collect water for the family when trucks delivering water come to villages and distribute water in some selected sites, at different unpredictable times. The families collected water and food depending on the number of adults and grown up children who could wait for vehicles coming for relief distribution.

In Bandagirya settlement project area, the grown up children of first generation settlers, were already employed elsewhere so that remittance they sent could support the families during the crisis situation. In some families where the wives work as housemaids in Middle Eastern countries, the dependents could survive. Thus it was revealed that the impact of drought on households varied depending on family members' involvement in the non-farming sector employment and dependence on remittance from outside. Some of our respondents revealed that the drought affected them so severely not only due to shortage of water for cultivation but also due to lack of opportunities in the area for most of the people who work as casual labourers especially during the off season. The borrowing money from relatives and local traders was limited only to the first phase of the drought, since the villagers had no guarantee to repay them soon. Some of them had been already indebted due to loans taken from rural banks and under group loan schemes, in the previous cropping seasons. Next stage of coping strategies had been to mortgage jewelry and sending children to relatives living in other districts and taking herds of cattle to neighboring areas to feed them. It was reported that some household heads had moved away seeking alternative employments. There were also few households who had sold their cattle to make money for consumption needs.

Table 4

**Adjustment Strategies of Households-
Hambantota Pre-Drought Relief stage**
(Ranked according to the number of Responses)

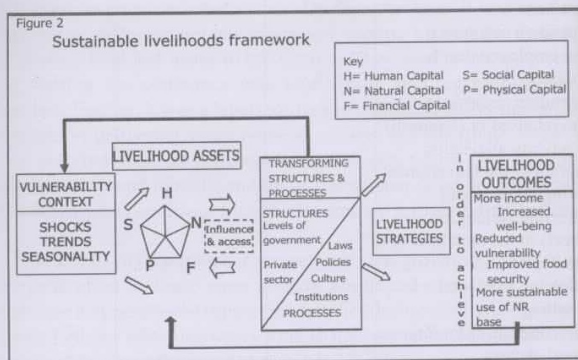
Strategy	Bandagirya	Lunugamwehera	Sooriyawewa
Seek employment elsewhere	1	1	1
Depend on remittance from employed family members.	5	---	---
Depend on assistance from relatives or (Samurdi) the poverty alleviation program of the Government.	6	2	3
Cutting down meals	2	3	2
Collecting Nelum Ala (tubers) in the tank beds for consumption.	3	---	---
Collecting fire wood for selling	9	---	---
Collecting salt from Rakewa natural slattern	4	---	---
Collect wild products (Woodapple, drumstick) for selling	---	5	4
Selling Cattle	11	---	---
Mortgage jewelry	8	8	---
Borrowing money	7	4	5
Sending Children to relatives	1	0	7
Deplete stocks of grains	5	6	6
Others	12	9	7

(Field Survey, Oct.2001)

Sustainability of livelihoods:

Sustainable livelihood has been conceptualized by Caroline and Diana (1999) of DFID and applied by subsequent authors, as a suitable framework to analyse vulnerable situations in rural communities (figure 2). The livelihood simply means gaining and maintaining a decent living of a community at household level. According to Chambers and Conway (1992) a livelihood comprises of people, activities and assets commanded

by households. The livelihood sustainability is assured if their assets can support to cope with and recover from stresses and shocks, whether man-made or natural. The livelihood framework further illustrates how the five forms of capital in different combinations create the circumstances that would help the households to cope up with vulnerable situations.



This study made an attempt to analyse the drought affected people in Hambantota district within the livelihood frame. The asset base of households, in the study area which was a critical factor for sustaining livelihoods, since alternative strategies has been weakened gradually over the time. Land and water as the main *natural capital* has been degraded, due to environmentally unsound land use practices in the past. According to the villagers, their vulnerability was not only caused by climatic factors, but also local environmental degradation. The siltation in the tank beds which reduces the water holding capacity, increased due to encroachment and cultivation on the catchment areas of the tanks. Many respondents in our survey revealed that the village tanks which store rain water for cultivation in the dry season received less water from springs and streams flowing from the catchments due to the opening up land through deforestation. Migrations of people into this area has led to the encroachment of environmentally marginal lands. The sustainability of the ecosystems has been declined over the time.

The *physical capital* development and maintenance had been poor according to our observation. For example, the maintenance of small village tanks which were looked after by the village community in the traditional village society, was transferred to the bureaucracy denying participation of local community in rural development works. Commercialization of subsistence farming sector has adversely affected the food security of the cultivators. Most families who cultivated *chena* for subsistence in the past have opted to cultivate one or two cash crops. The *financial capital* of the asset base, was declining due to the disposing savings, lack of employment and indebtedness. At last the *human capital* of the household had been left idle, unproductive since they had no skill or education to employ in newly expanding sectors in the economy. The *social capital* in terms of mutual support to community, kinship and membership of societies etc had been very vital in a crisis situation in the rural community. The traditional society in the past had developed a very strong social capital which was vital in the development of culture and economy.

According to our interviews, most of the households believed that the continuing peasant agriculture, has been unprofitable due to the low price they gain and the uncertainty due to water scarcity. Therefore a tendency is shown, that the males in new generations move out from the agricultural sector and the village itself seeking new income sources. The need for income diversification and employment generation other than farming activities was said to be their expectation. The respondents in the interior villages, however, still believe that the cultivation is their option provided the water is supplied by some irrigation scheme.

Conclusion

This situation briefly explains the vulnerability context and the nature of asset base of the peasant livelihood system in Hambantota which affected them differently, during the severe drought. The development strategies in the district by various agencies which have focused on modernization of production activities, expansion of social welfare services etc have not been able to develop a sustainable asset base within the peasant sector. Different strategies and approaches leading toward development of physical infrastructure and poverty alleviation are not of much benefit to the resource poor peasants. The environmental degradation is partly a product of poverty in the area as repeatedly said

by poor villagers in interior hamlets in Hambantota. The most immediate felt need of the people is water for cultivation. In addition to development of common capital assets, the creation of household assets base must be a priority in any rural development strategy. This would be feasible by enhancing available water supply projects as well as by diversifying the income generation activities of the peasant families.

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