

HARTI

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NEWSLETTER

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NATURAL RESOURCE MANAGEMENT PERSPECTIVES IN UP-COUNTRY VEGETABLE PRODUCTION: FARMERS' KNOWLEDGE, ATTITUDES AND RESPONSES

Hector Kobbekaduwa Agrarian Research and Training Institute initiated this study with the purpose of assessing farmers' knowledge on environmental concerns in the Up-country Vegetable Farming System (UPVEGSYS) and their response towards conservation options.

The literature survey of the report presents key environmental concerns in the UPVEGSYS and research and extension efforts launched towards its sustainability. Further, the report contains a description of the physical distribution of the farming system and socio-economic characteristics of the sample community chosen from the Kandy, Matale, Badulla and Nuwara Eliya districts.

Study findings include efforts towards raising farmer awareness on conservation farming techniques and their response towards them with particular reference to three major environmental concerns i.e. soil degradation, pollution from pesticides and pollution from fertilizer in the UPVEGSYS.

The study concludes that an exceptional growth has occurred in the UPVEGSYS over the last half-century due to competitive nature and low cost of the production of up-country vegetable supported by conducive climatic conditions. Concurrent with its expansion, the agro-environmental change (degradation) occurring in the

UPVEGSYS has become more apparent due to awareness gained through research and information. In response to this, sustainability concerns have grown over the time but efforts made to overcome the identified issues have failed to maintain the true sustainability of the UPVEGSYS. Hence, it is worthwhile to investigate the sustainable means of producing up-country vegetables with alternative material and methods that would minimise damage to the mankind and environment.

Recommendations

- ◆ Meaningful utilisation of data and information gathered at grass-roots level for charting the strategies to promote conservation measures and identifying the sustainable land use systems in compliance with agro-ecological variations.
- ◆ Appreciating the role of scientists towards sustainable agriculture and motivating them to come up with synergic outcomes of low input agricultural systems.
- ◆ Encouraging research into developing more economically and environmentally viable cropping systems and land management technologies affordable to farmers.
- ◆ Strengthening policy spheres by incorporating issues emerging at policy level.

- ◆ Avoiding shortcomings of soil test based fertilisation and providing simple guidelines to optimise the fertilizer used in up-country for vegetable crops.
- ◆ Narrowing the existing gap between certain technologies disseminated to the farming community and their operability with appropriate changes made in extension curriculum, teaching methods and extent of investment.
- ◆ Conducting programmes to derive the captured potential of Agricultural Research and Production Assistants (ARPAs) to promote sustainable agriculture at grass-roots level.

The research team consisted of Mrs. Sharmini K. Kumara (Research Associate), Mrs. P.R. Weerakkody (Senior Research Officer) and Mr.H.M.J.K. Herath (Research Officer).

Completed Studies

SOCIO-ECONOMIC STATUS OF THE PROPOSED SIYAMBALANDUWA – MONERAGALA SUGARCANE PROJECT

Hector Kobbekaduwa Agrarian Research and Training Institute initiated this study on the request of the Sugarcane Research Institute (SRI) of the Ministry of Supplementary Plantation Crops Development. The primary objective of the study was to investigate the pre-feasibility of the proposed Siyambalanduwa-Moneragala sugarcane project. Location for the study was selected by the steering committee within the radius of 40 km from the proposed factory site. The survey was carried out in 16 grama niladhari divisions within two Divisional Secretary areas in the Moneragala district.

The specific objectives of the study were:

- ◆ To ascertain information on demographic characteristics, education level, employment, unemployment, land ownership and the land use pattern in the proposed area.
- ◆ To examine prevalent infrastructure facilities.
- ◆ To work out competitive profitability.
- ◆ To estimate the extent of potential land for sugarcane cultivation.

Findings

The total extent of land in the command area is 165,593 acres. Of that, 30 percent of land has been reserved for wildlife and forest and state lands represent 17 percent. While 20 percent accounts for encroached lands, only 5.09 percent is private-owned lands. Holding sizes of lands are relatively big compared to the national level. Nearly 18.18 percent of the lands under non-home gardens are above 5 acres in size. Some 44,785 acres were identified as potential lands for sugarcane cultivation.

The research team consisted of Dr. T.A. Dharmarathne and Dr. L.P. Rupasena.

MID-TERM EVALUATION OF DAIRY VILLAGE DEVELOPMENT PROJECT

In order to develop the dairy sector by empowering the dairy farmers, the Ministry of Agriculture, Livestock, Lands and Irrigation initiated the Dairy Village Development Project (DVDP) in 2004 aiming at increasing the dairy production and promoting the local sales of fresh milk and milk based products with the assistance of farmer organisations and private sector entrepreneurs. The basic concept of the DVDP was to develop the socio-economic standards of the farmers, while empowering them for better decision making in their

enterprise by improving the production and productivity.

On the request of the Ministry of Livestock Development, HARTI carried out this assessment on the DVDP in order to find out the short-term gains and impacts of the project and also to identify the weaknesses, loopholes and problems of the project that hinder achieving the objectives of the project.

Furthermore, following factors were also among the specific objectives of the study.

- ◆ Investigating the level of achievements of the objectives of the DVDP.
- ◆ Examining the problems, constraints and effectiveness of the strategies implemented to achieve the project objectives.
- ◆ Comparing the DVDP with similar projects implemented by various other organisations.
- ◆ Providing necessary policy guidelines to make the DVDP more successful.

Thirty dairy villages which were established by the Ministry of Livestock Development were selected from 10 districts for the study and 293 farmers were interviewed using a structured questionnaire. The information of the secondary sources is also used for this study.

Findings

After implementation of the DVDP in the study area, both cow and buffalo milk production has increased. The highest production was observed in the Puttalam district and the increase was from 18.6 litre/day to 31.6 litre/day. This is basically due to successful input delivery of the DVDP and managing high yielding breeds in the district. In the study area, the milk production has increased in all the districts. The project has enhanced the production performance and increased

family income of rural small-scale dairy farmers.

Besides, as a result of the project, the milk consumption has also increased slightly. The number of households which consume fresh milk has increased from 67.2 percent to 71.33 percent after the implementation of the project. The percentage of milk consumption has greatly increased in the Hambantota district. However, the consumption of fresh milk among dairy farmers seemed to be less due to allergies among younger generation, according to farmers.

The farmers were not interested in producing value added products as expected after the project. Even though there are tremendous possibilities for different income generating activities in the dairy sector, the farmers in the study area have not paid much attention to this. According to the findings, out of 18 strategies of the project, 10 had been implemented in the study area to achieve the project objectives.

Moreover, the study information proved that buying a high-producing animal which is genetically improved is a difficult task for dairy farmers in the study area. The current situation is that they have to buy such animals from their surrounding areas with minor improvement in the genetic performance.

Recommendations

- ◆ An area specific breeding centre must be implemented. According to the cattle farming systems in Sri Lanka, these breeding centres are managed by private entrepreneurs under the supervision of the VS Office. These private middle-level entrepreneurs should be given the government assistance to increase the breeding facilities in order to enhance the dairy

industry in Sri Lanka and the income of the farmers.

- ◆ Meetings of farmer managed societies should be conducted once a month with the participation of relevant officers and introduced follow-up programmes.
- ◆ Introducing loan schemes and subsidy programmes to attract new farmers towards dairy industry and conveying new technology to increase production.
- ◆ Advertising the importance of fresh milk consumption using the electronic media.
- ◆ Conducting national and regional training programmes to change the attitudes towards fresh milk consumption and finding out remedies for allergies caused by fresh milk consumption.
- ◆ Improving local fresh milk sale centres, especially targeting school children and officers and improving the fresh milk distribution in the urban areas.

The research team consisted of Mrs. Sagarika Hitihamu (Co-ordinator) and Mr. S. Epasinghe (Co-researcher).

STUDY ON PRODUCTION AND MARKETING OF OTHER FIELD CROPS

With the main intention of studying the reasons for the decrease of cultivating the other field crops and the structure, conduct and performance of this sector, the Marketing Food Policy and Agri-business Division of HARTI carried out this project.

Moreover, following objectives were also taken into account:

- ◆ Reviewing the past trends and present situation of the production and demand
- ◆ Studying potentials for the expansion of production.
- ◆ Finding out constraints on expanding quality produces.

- ◆ Studying whether there is food insecurity in the agrarian sector.
- ◆ Studying whether the farmers adopt new technologies for cultivation, processing and marketing.
- ◆ Analysing the market margins.
- ◆ Suggesting policy measures for the development of this sector.

Findings

According to findings, the cultivated extent of most of the other field crops had been declining until 2000 and after that, it has stabilised at about 20,000 ha. Among the other field crops, the maize cultivation has increased sharply as a result of forward contracts made by the private companies. Further, there was a tendency to cultivate new improved local variety of cowpea *dhawala* in the Ampara district, because this commodity fetched a higher price due to good quality.

Though the private sector was engaged in the seed sector, access to high quality seeds and planting material is limited due to procedural delays of the government. In addition, research and extension service for these high value crops is inadequate and not demand driven. Due to lack of quality seeds, the produces available at the market are relatively low. Hence, the demand for imported commodities is high.

Before 1996, the production of traditional crops was adequate to fulfil the local demand but after that, the production has declined to 70 percent.

Ad hoc changes in tariff rates are not favourable to the long-term growth of this sector, because this policy increases the inefficiency of production and marketing of the commodities. As a result of *ad hoc* tariff, the market price distortions occur in every year and this badly affects both the producers and the consumers. The producers, traders and processors are reluctant to invest in this sector due to uncertainty.

Since there are more consumers, the demand for traditional field crops is high.

To fill the gap between local productions and the demand, about 25-30 percent of the total supply is imported.

Recommendations

- ◆ Maintain a consistent tariff rate for these crops to increase the efficiency.
- ◆ Allow the private sector to involve in the development of agricultural marketing. The government should provide infrastructure facilities and monitor the supply and demand situation of these commodities.
- ◆ The government introduced forward sales contract system would be a viable alternative.
- ◆ Since the private sector investors are facing problems while importing seeds and planting materials, it is needed to allow imports of properly quarantined seeds.
- ◆ It is advisable to co-operate with the private sector for better research on demand driven crops, field testing and other related activities for the expansion of this sector.

The research team consisted of Mrs. C.P. Hathurusinghe (Co-ordinator), Mr. T.G. Somaratne (Co-researcher), Mrs. Roshini Rambukwella (Co-researcher) and Mrs. Ruwini Vidanapathirana (Co-researcher).

On-Going Studies

STUDY ON FOOD CONSUMPTION PATTERNS TO DEVELOP TRADITIONAL FOOD-BASED PRODUCTION AND MARKETING POLICIES FOR NUTRITION PROMOTION

Sri Lanka continues to be a net food importing country though rice is produced within the country itself and also the country is near to reach its self-sufficiency in rice which is the staple food of Sri

Lankans (Annual per capita consumption of rice is 106.2 kg according to consumer finance and socio-economic survey in 2003/04). Today, bread also plays an important role in food consumption in Sri Lanka as a staple food second only to rice. Not only bread but also many types of wheat flour based foods are popular today.

Rising per capita income, increasing urbanisation, and growing population are the most important factors which cause for food habit changes. When income rises, the consumers desire a variety in diet and at higher income levels, the taste and health too play an important role in food consumption. On the other hand, changes in the life style and shopping facilities due to urbanisation have also influenced the traditional pattern of food consumption. The demand for the food which require a minimum time of preparation is also a new trend today. Many people tend to consume wheat flour based products which are instant. This situation leads to a number of health problems. Therefore, it is vital to popularise the traditional Sri Lankan food i.e. rice and rice based products in formulating the nutritional and agricultural policies.

HARTI initiated this study with the purpose of identifying the factors affecting food habit changes and their impact on rice consumption in Sri Lanka for deriving policy options to popularise traditional rice based food diets among Sri Lankans.

Apart from that, the following specific objectives are also included:

- ◆ Studying the current food consumption patterns of different communities in Sri Lanka.
- ◆ Assessing the nutritional value of different food diets of Sri Lankan communities.

- ◆ Studying the supply side and the demand side which affect the food consumption pattern.
- ◆ Identifying the factors which have caused for the deviation of consumer preference from rice consumption to wheat and wheat based products.
- ◆ Deriving options for designing production, processing and marketing policies to popularise traditional food diets in Sri Lanka.

The findings on food availability, affordability and recommendations would be included in the research report. It will be beneficial for the policy makers to take appropriate actions to improve local food sector.

At the moment, data collection has been completed and report writing is in progress.

The research team consists of Mr. R.L.N. Jayatissa (Co-ordinator) and Mrs. W.D. Wickramasinghe (Research Officer) of HARTI, Mrs. Chandrani Piyasena (Researcher) of the Medical Research Institute and Mr. J.A.L.P. Jayakody (Researcher) of University of Peradeniya.

RE-STUDY OF PUL ELIYA VILLAGE

Over a half-century has elapsed since the late professor Edmund Leach conducted the study on Pul Eliya, a village in the Anuradhapura district, in 1954. The publication of his research findings in 1971 under the title, "Pul Eliya, a Village in Ceylon; A study of Land Tenure and Kinship" consists a benchmark in the history of social anthropology in general and studies of kinship and land tenure in particular. Conducting a similar type of study again would be beneficial to identify the nature and magnitude of changes in the society and economy of the village.

Therefore, HARTI is carrying out this study. The general objective of the study is to document, analyse and assess the impact of macro level changes in the Pul Eliya society. In this regard, the detailed ethnographic observations submitted by Leach himself on land tenure, agricultural practices, organisation of agricultural labour, kinship, caste and social organisation, religious beliefs and practices, local level leadership and the role of village elites would be benefited for the study.

Case study approach is adopted to examine the research question in detail. Both quantitative and qualitative data collection procedures such as literature survey, re-mapping of Pul Eliya, questionnaire survey (205 households), key informant interviews and participant observations were also adopted. This study commenced in October, 2008 is scheduled to be completed in December, 2009.

The research team consists of Miss. M.K.N. Damayanthi (Co-ordinator) and Prof. A.J. Weeramunda (Consultant).

ECONOMIC EVALUATION OF INSTITUTIONAL LEVEL RAINWATER HARVESTING

Industrial and service sectors in Sri Lanka are mostly dependent on water supplied by the National Water Supply and Drainage Board (NWSDB) and the water pumped from ground water and surface water sources. The current water tariff system practised in the country provides water at a low cost for domestic consumers (starting from Rs. 3 per cubic meter of water) and a higher rate for commercial and industrial water users allowing the cross subsidization for domestic consumers. The current high tariff structure and the difficulties in receiving sufficient quantity of water

throughout the day for commercial activities have made the users to look for alternative water sources. On the other hand, the reliability of water supply by the NWSDB is not guaranteed and in most of the areas, water supply is restricted to a few hours per day. Therefore, it is worthwhile to explore low-cost and simple alternative methods, which could be managed easily at the institutional level to supply water for daily needs.

Although water need has become a central issue to industrial and service sectors which consume substantial quantities of water for processing, washing, cooling purposes and sanitary needs, the potential of harvesting rainwater has not yet gained proper attention. Only a few commercial ventures and public buildings have incorporated rainwater harvesting in their building premises, but with large investment. The performance of these projects, usefulness of harvested rainwater, economic return to the investment made and the problems and constraints of these projects are not scientifically studied today. Therefore, it is important to study the performance of the current institutional level rainwater harvesting facilities in the country and conduct an economic evaluation. The findings of this study will be useful to advocate and influence the industrial and service sectors for the implementation of rainwater harvesting in their building premises. The outcome will be useful for the country in terms of economic and environmental perspectives in a leading way to sustainable development.

The major objective of the study is to conduct an economic appraisal of institutional level rain water harvesting projects implemented in selected areas.

The specific objectives of the study are: to assess the suitability of rain water harvesting as an alternative in the

commercial/industrial sector, to find out the return of the investment made for rainwater harvesting projects, to document the experiences gained in rainwater harvesting in the study locations (strengths, weaknesses and lessons learnt), to make recommendations to promote rainwater harvesting at institutional level and to advocate and influence the relevant stakeholders on the lessons of experiences through a seminar and research report.

The study is mainly based on the secondary data maintained by the selected institutional level projects and the qualitative information collected through rapid methods such as key informant interviews and focus group discussions. The collected data will be analysed using descriptive methods and project appraisal techniques. The study which commenced in January will be completed in June 2009.

This study is being carried out by Mr. M.M.M. Aheeyar (Co-ordinator) and Mr. M.A.C.S. Bandara (Research Officer).

PROBLEMS AND CONSTRAINTS IN PROMOTING THE SYSTEM OF RICE INTENSIFICATION IN SRI LANKA

System of Rice Intensification (SRI) is a method of rice cultivation developed more than 20 years ago. It evolved in Madagascar in 1980. This method of cultivation increases the rice productivity without relying on external inputs. Research findings have proved that the yield increases by 50%-100% and sometimes more than that with less requirement of water, seeds, fertilizer and crop protection. The SRI has been demonstrated in 28 countries including most of the rice producing countries in Asia and many others in Africa and Latin America.

The idea of the SRI was first brought out by Professor Norman Uphoff, Director of CIIFAD, at a farmer meeting in Gal Oya, a large irrigation settlement in Sri Lanka in 1998. For the first time, farmers practised the SRI on their own farm in *yala*, 2000 in order to test the viability of the method. Further trails were also conducted to compare the SRI with the conventional system. It was found that rice yield could be doubled by using the SRI. Even though it has been already proved that the use of SRI is profitable, adoption of the SRI by the farmers is very less in the country. Therefore, the HARTI has decided to conduct this research with the purpose of studying the problems and constraints of adopting the SRI in Sri Lanka.

The specific objectives of the study are:

- ◆ To study the socio-economic condition of the farmers who practise the SRI in Sri Lanka.
- ◆ To investigate farming practices adopted under the SRI.
- ◆ To assess the cost of production of utilizing the SRI.
- ◆ To investigate the problems and constraints in promoting the SRI within the country.
- ◆ To provide necessary policy guidelines to promote the SRI in Sri Lanka.

The study which commenced in March, 2009 will be completed in December, 2009.

The research team consists of Mrs. H.M.S.J.M. Hitihamu (Co-ordinator) and Mrs. M.D. Susila Lurdu (Co-researcher).

Training Programmes

TRAINING PROGRAMME ON PARTICIPATORY TECHNIQUES (RRA, PRA & PCM) FOR PLANNING AND MANAGEMENT OF RURAL/COMMUNITY DEVELOPMENT PROJECTS

The training activities of HARTI take the form of training programmes, short courses, workshops, seminars and symposiums. Resource persons for these programmes are mainly drawn from the Institute but according to the specific needs, the resource persons are also drawn from the universities, other government institutions and agencies and NGOs.

HARTI conducted the above training programme paying special attention to the importance of preparing a community action plan for sustainable development in the rural areas under the *Gamaneguma* programme of the government in January 2009. The training programme was to advocate the officers who are directly involved in *Gamaneguma* programme and to enhance their knowledge on preparation of agriculture based community action plan. The basic theme of the programme was *gama negumata sithata saviya*. The major objective was to enhance the participants' knowledge on the concepts and methods used in participatory planning and management in addition to development of their skills in using participatory techniques such as RRA/PRA and PCM in rural/community development planning and management.

The five-day training programme was conducted to achieve the above mentioned objective in Polonnaruwa. Twenty seven government officers who are directly involved in *Gamaneguma* programme from seven offices of Provincial Secretaries in Polonnaruwa participated in the programme.

Co-ordinator: Mr. R.M.R. Bandara - Head/HRID (Research Associate).

FOOD COMMODITIES BULLETIN

The Marketing, Food Policy and Agri-business Division of HARTI issues a weekly Food Commodities Bulletin on every Friday providing wholesale and retail prices as well as supply information of food commodities. Subscription rates are as follows:

One year	-	Rs.520.00 (52 copies)
Six months	-	Rs.260.00 (26 issues)
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Director
Hector Kobbekaduwa Agrarian Research and Training Institute,
P.O. Box 1522, Colombo, Sri Lanka.

HARTI NEWSLETTER is a quarterly publication of the Hector Kobbekaduwa Agrarian Research and Training Institute, Sri Lanka. It reports new findings and policy issues pertaining to research and action programmes of the Institute and other organizations concerned with agrarian development.

Unsolicited information on agricultural research and development programmes implemented by other organizations is welcome and will be included under "MISCELLANY".

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V.K. Nanayakkara,
Director,
Hector Kobbekaduwa
Agrarian Research and Training Institute,
P.O. Box 1522,
Colombo7,
Sri Lanka.