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SHORT COMMUNICATION

AN ASSESSMENT OF DAMAGE CAUSED TO THE CROP SECTOR IN THE *TSUNAMI* AFFECTED AREAS OF SRI LANKA

G.A.M.S. EMITIYAGODA
Extension & Training Centre, Department of Agriculture, Peradeniya

A.R.M. MAHAROUF and I.S.M. HALEEMDEEN
Socio Economics and Planning Centre, Department of Agriculture, Peradeniya

ABSTRACT

The *Tsunami* of 26 December 2004 destructed standing crops, cultivable lands of paddy and other field crops and home gardens along the coastal belt of nine administrative districts which included thirty-seven Divisional Secretary areas A total of about 3520 ha of paddy, 269 ha of other field crops, 242 ha of vegetables and 242 ha of fruit crops were completely damaged. In addition, a large number of home gardens were washed away. Intrusion of sea water into productive fields had induced a high level of soil salinity. Agricultural infrastructure including buildings, irrigation canals and farm machinery were also damaged. The total damage to the crop sector is estimated to be around Rs. 509 million.

KEYWORDS: *Tsunami*, Crop sector, Financial estimates.

INTRODUCTION

The *Tsunami* experienced on December 26, 2004 was the worst disaster ever recorded in the history of Sri Lanka. This resulted in the loss of nearly 35000 human lives, and over 550,000 being rendered homeless (Annual report of the Central Bank of Sri Lanka, 2004) Total value of the damage caused by the *tsunami* tragedy is estimated to be about US dollars 1 billion (Annual report of the Central Bank of Sri Lanka, 2004). Damage to the fishing and the tourist industries was extensive. The damage to croplands and other agricultural assets are considerable and it had influenced the livelihood of the individual farmers, farm families as well as the economy of the country.

With the receipt of numerous assistance on humanitarian grounds from the people and various organizations the world over, and the vast extent of damage caused to the crop sector, it became necessary for the Government of Sri Lanka to assess the value of damage caused to the crop sector. The accurate information on the damage caused to the crop sector was sought by the various internal and international organizations in order to provide assistance for rehabilitation work. With the above objective, the Ministry of Agriculture, Livestock, Lands and Irrigation directed the Department of Agriculture (DOA) to carry out a detailed census to ascertain the total damage caused to agriculture, particularly the crop sector.

MATERIALS AND METHODS

The Department of Agriculture (DOA) initiated a detailed census of affected farmers in the administrative districts of Kalutara, Galle, Matara, Hambanthota, Ampara, Batticalao, Trincomalee, Mullaitivu and Jaffna. A structured questionnaire was utilized for the census. The census was conducted in collaboration with the Provincial Department of Agriculture (PDOA). The field data was collected by the Agriculture Instructors (AI) and Agriculture Research and Production Assistants (ARPA). They were assisted by the Divisional Officers (DO) of the Department of Agrarian Development (DAD) and Grama Niladaris (GN) in most of the districts. These activities were supervised by the Segment Agriculture Officers and further monitored at district level by the respective teams of scientists and senior extension agronomists appointed by the Director General of the Department of Agriculture.

The census, which commenced on 15th January 2005, was completed by 28th February 2005. All perfected questionnaires were collected and analyzed at the Extension and Training Centre (ETC) of the Department of Agriculture.

The extent of damage caused to crops cultivated during *maha* 2004/05 season namely paddy, other field crops (Maize, Ground nut, Cowpea, Chilli, Green gram, Onion, Gingerly), vegetables (low country and up country) and fruit crops (mainly Banana and Papaw) and perennial crops like coconuts were ascertained during the data collection. Information on damage caused to nurseries, home gardens, and betel plots as well as damage to agricultural buildings, implements, machinery and seed stocks were also collected.

In assessing the crop damage, the cost of production in respect of each crop up to the date of the *tsunami* tragedy was calculated. The information on value of income lost was also gathered based on the anticipated yields of the crops. The anticipated yields were determined by the AI of the areas. Cost of cultivation of paddy with respect to the early stage of the crop was estimated to be about Rs. 30000 per hectare and Rs.36750 per hectare for mature stage based on the cost of cultivation studies conducted by the Socio Economics and Planning Centre of the DOA (Socio Economic & Planning Center, 2004). The estimated income lost to farmers calculated on the basis of different levels of the average yields i.e. income lost from yields of 5.0, 6.0 and more than 6.0 tons per hectare were valued at Rs 25000, 32500 and 40000 respectively. The values for other crops were also calculated based on the cost of production information provided by the Socio Economics and Planning Centre of the DOA.

The estimated values of damage to implements, buildings and seeds were also added to the value of crop damage for purposes of assessing the total damage caused to the farmer. Damage to crops was caused mainly by way of intrusion of salt water and sand deposits or debris carried to croplands through sea waves. Fields with serious salinity problems (Electrical Conductivity (EC) readings ranging from 4 mS/cm to 20 mS/cm or more, have also been identified by scientists visiting the affected areas (Mark and Rickman, 2005).

RESULTS AND DISCUSSION

The detailed information on the damage estimated in different districts is depicted in Figure 1.

The total number of affected farmers amounts to 8366. The highest number of farmers affected was reported from Batticoloa (2053) and Ampara (1914) districts. The lowest number of affected farmers were in the Kalutara district.

The total crop extent damaged in each district is presented in Table 1. A total of 4465.8 hectares of crops were completely damaged by the *tsunami.*

Table 1. Total extent of damage to crop sector.

Crop	*Extent damaged (ha)*
Paddy	3520.3
Other Field Crops	269.5
Vegetables	242.6
Fruits	242.7
Other crops	190.7
Total	4465.8

The largest area damaged (3520.3 ha) was in paddy (Table 1), the highest being in the Ampara district, in which the worst affected was the Divisional Secretary Division of Pothuwil.

Among the other field crops (OFC), cowpea, green gram, onion, black gram, groundnut, maize and chilli were the worst affected. The highest extent of OFC damage was in groundnut. Trincomalee district reported the highest damage to OFC in general. The total extent of OFC damage in 9 districts was 269.5 hectares.

A total of 242.6 hectares of vegetable crops were damaged by the *tsunami.* These comprise mostly of low country vegetable crops cultivated on a large scale as well as in home gardens.

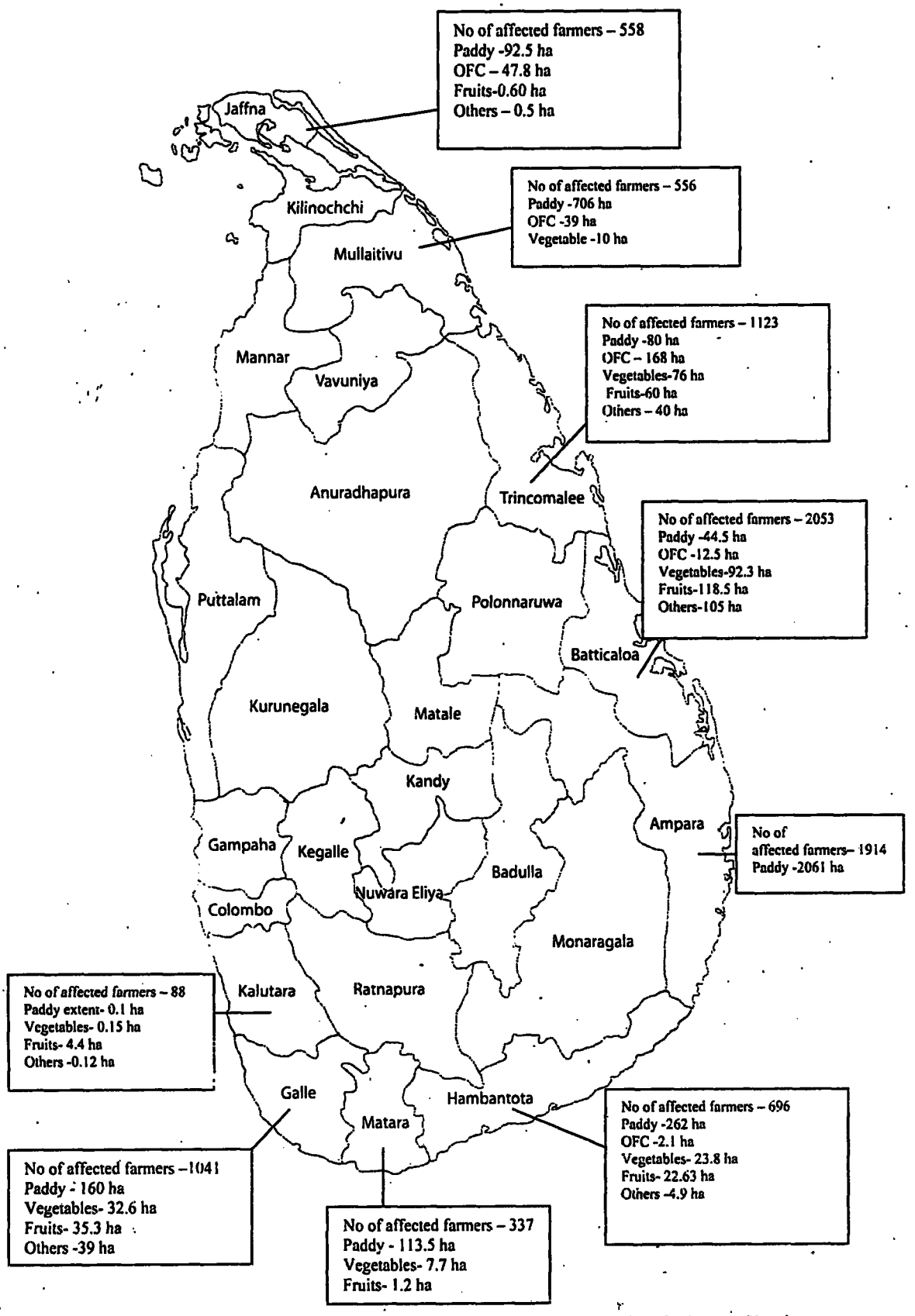

Figure 1. Extent of damage to the crop sector caused by the *Tsunami* in different districts.

A total of 242.7 hectares of fruit crops were damaged by the *tsunami*, of which Banana, Papaw and Mango were the worst affected. The highest extent of damage was reported from Batticalao district.

The damage caused to coconut palms, betel plots, and nurseries and ornamental plants have been categorized under damage to other crops.

The total financial cost assessment of damage to the crop sector inclusive of the total expenditure on cultivation, total income losses and the value of damage to agricultural machinery, implements, buildings and seed & planting material is estimated to be Rs. 509 million (Table 2).

Table 2. Assessment of damage to crop sector caused by the *tsunami*.

District	*No. of affected farmers*	*Extent of crop damage (ha)*					*Total Assessment of damage Rs. millon*
		Paddy	*Other Field Crops*	*Vegetables*	*Fruits*	*Other crops*	
Matara	337	113.57	0	7.711	1.202	0	15.125
Kalutara	88	0.101	0	0.151	4.391	0.126	1.248
Hambantota	696	262.06	2.06	23.89	22.63	4.92	40.5
Galle	1041	160.01	0	32.6	35.38	39.067	76.17
Mulaithivu	556	706.07	39.01	10	0	0	43.03
Jaffna	558	92.49	47.83	0	0.641	0.45	21.952
Ampara	1914	2061.42	0	0	0	0	108.6
Trincomalee	1123	80	168	76	60	40	51.33
Batticaloa	2053	44.58	12.59	92.32	118.5	105.44	151.46
Total	8366	3520.3	269.5	242.6	242.7	190.0	509.4

CONCLUSIONS

The *tsunami* tragedy caused considerable damage to the food crop sector affecting the livelihood of the coastal farmers. Although the financial losses incurred are not significant when considered at national level, taking in to account the damage to other sectors, an adverse impact on the income and food security of affected farmers is clearly evident. The revival of farming activities in these areas is vital for the elimination of poverty and the improvement of the livelihood of the farming community.

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