

**Emergency Market Mapping & Analysis (EMMA) Report:
Rice Market System, Northern Province, Sri Lanka, March-April 2011**

Laura Meissner, USAID/OFDA for USAID/Sri Lanka

The developer of this report would like to thank Ivan Rasiah, USAID/Sri Lanka, and other staff from USAID/OFDA and USAID/FFP as well as (in alphabetical order): ACTED, CARE, Catholic Relief Services, ECHO, FAO, Oxfam GB, People in Need, Practical Action, UMCOR, WFP, and World Vision.

Sections

1. Executive summary	p. 1
2. Emergency context	p. 1
3. EMMA methodology	p. 2
4. The target population	p. 3
5. Critical market systems	p. 4
6. Market-system diagram	p. 4
7. Key findings	p. 9
8. Main recommendations and conclusions	p. 12
Annex: Sources	p. 16

Terms and Acronyms

EMMA: Emergency Market Mapping and Analysis

GA: Government Agent

GoSL: Government of Sri Lanka

JPA: Joint Plan of Action

LTTE: Liberation Tigers of Tamil Eelam

MPCS: Multi-Purpose Cooperative Society

PTF: Presidential Task Force

USAID: United States Agency for International Development

(W)RDS: (Women's) Rural Development Society

The term 'store' is used in Sri Lanka to refer not to a shop, but to a storage facility.

Conversions:

1 hectare = 2.47 acres

1 USD = approximately 110 Sri Lankan rupees (Rs. or LKR)

1 euro = approximately 159 Rs.

Section 1. Executive summary

This report is a rapid market analysis of the market system for rice in the Northern Province of Sri Lanka, less than two years after the end of the decades-long civil conflict, shortly after flooding in the north and east of the country in January-February 2011, and at the harvest of the first major rice crop since resettlement. The report uses the Emergency Market Mapping and Analysis (EMMA) methodology, adapted for the particular context. Please note that all figures (except those quoted from published sources) are estimates based on a rapid methodology, and are subject to further verification.

Affected populations both farm paddy as a livelihood strategy (through smallholder or tenant farming, and/or daily labor) and consume rice as a staple food. The key analytical questions were:

- What constraints are there to food security for conflict-affected populations in the north, particularly as regards rice?
- How can interventions best support the rice-related livelihood strategies of poor and vulnerable conflict-affected populations in the north?

The assessment found that the rice market system is functional, although with significant inefficiencies and market power distributions that could be ameliorated with interventions, and with limits to profits from paddy production. The numbers of some market actors, notably mills, have decreased over the length of the conflict; and infrastructure and some services are lacking.

Recommendations include supporting storage, irrigation, diversified production, improved market information, and small enterprise development with mills and equipment in the short to medium term; and in the longer term, supporting the regrowth of farmer organizations, more sophisticated storage and financing options, and higher-value rice products (see Section 9 for further details).

Section 2. Emergency context

Key background information

Sri Lanka covers 65,610 square kilometres, with a population of 21.28 million.¹ Around 85% of the population lives in rural areas. Gross domestic product (GDP) per capita is \$104.7 billion at purchasing power parity, or \$4,900 per capita, with strong growth. However, as of 2007, just 2.9 percent of GDP was created in the north.² Nationally, unemployment and inflation are both moderate and manageable, in part due to a large public sector. The country enjoys high rates of literacy and education. Agriculture contributes around 12.6% of GDP, but engages nearly a third of the workforce.

The Northern Province covers five administrative districts (Jaffna, Mullaitivu, Kilinochchi, Vavuniya and Mannar; each with a main town of the same name), 33 Divisional Secretariat (DS) divisions and over 900 village administrative divisions. The economy of the North, also called the Vanni, is strongly agriculturally focused. Unemployment and underemployment –perhaps 50 percent combined – are far higher than the national average.³ In addition to paddy cultivation, cash crops such as chilli and coconut, fishing, livestock, and small enterprise are common livelihood strategies.

Emergency needs and humanitarian response

Currently, northern Sri Lanka is recovering from two different crises: the decades-long civil war between government forces and the Liberation Tigers of Tamil Eelam (LTTE), which ended in May 2009; and recent flooding due to heavy rains in January and February 2011 in the north and east of the country. The last stage of the conflict displaced over 280,000 people; returns have been ongoing, with many returning during May-August 2010, and only about 15,000 people remaining in IDP camps. Throughout the course of the 26-year war, people were pushed from one area to the next, with a

¹ Source: CIA World Factbook.

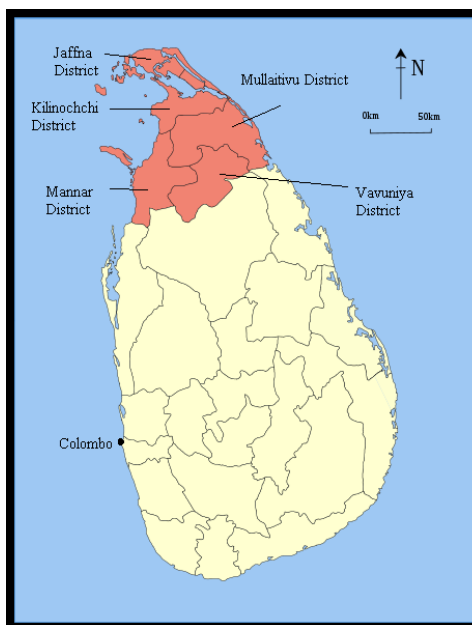
² Sources: CIA World Factbook & Nathan Associates 2009.

³ Source: IRIN News 2011.

significant number still remaining in southern areas of the country. Enormous progress has been made in demining, but this is not yet complete. Returnees to areas such as Kilinochchi and Mullaitivu, the last strongholds of the LTTE, experience lower-quality infrastructure and services than those in areas where people returned sooner or never left.

Original estimates were that 25 percent of the paddy crop in the North and around the same amount nationally was destroyed in the recent rains, although the actual figure is likely much lower. However, flood-related emergency needs were largely met; aid given to returnees helped to mitigate the level of assistance needed. The aid package to returnees varies somewhat, but is approximately six months' rations (rice, wheat flour, gram/lentil, sugar, tea, salt) with an additional three months of soft food-for-work (not currently active); a 25,000 LKR (\$227) shelter grant; and additional support such as agricultural inputs (land clearing, free seed, subsidized fertilizer), cash-for-work or cash transfers, temporary shelter, and/or support for permanent housing and water/sanitation. Among a survey of households in October 2010, 95% had received food aid, 37% agricultural assistance, and 36% some type of cash or allowance.⁴

In January 2011, the Joint Plan for Action (JPA), developed through collaboration by the UN and humanitarian community and the GoSL, outlined priority areas and sectors for humanitarian response in northern Sri Lanka. Key sectors include infrastructure development, agriculture and livelihoods; and a minimum livelihood package of 35,000 LKR (~\$318) has been recommended. The Presidential Task Force (PTF), chaired by the Minister of Economic Development, approves all humanitarian-agency proposals, actors, and interventions. The Ministry of Defence must also clear agencies to operate.



Map of Sri Lanka with Northern Province highlighted and provincial districts labeled. Original source: Wikimedia Commons, http://en.wikipedia.org/wiki/File:Sri_Lanka_Northern_Province_locator_map.svg

USAID is currently working in all districts in the Northern Province, as well as in flood-affected areas in the East. To date, total USG humanitarian assistance to Sri Lanka in fiscal year 2011, for both the complex emergency and flooding, is \$20,180,932; including support from USAID/Food for Peace, the Office of US Foreign Disaster Assistance (OFDA); USAID/Sri Lanka; USAID/Office of Transition Initiatives (OTI), and the State Department's Bureau for Population, Reintegration and Migration.

Section 3. EMMA methodology

The primary EMMA analysts were USAID/OFDA's economic recovery advisor, who has completed the EMMA training and previously led two EMMA assessments, plus a USAID/Sri Lanka project development specialist who is very familiar with the northern Sri Lanka context, speaks Sinhala and Tamil, and is experienced in humanitarian response. Additionally, though the actual EMMA fieldwork was conducted by USAID, this report draws heavily on field notes, market data, project reports, and guidance provided by ACTED, CARE, Catholic Relief Services, ECHO, FAO, Oxfam GB, People in Need, Practical Action, UMCOR, WFP, and World Vision, as well on other USAID visits and published sources. The fieldwork consisted of key informant interviews and market actor interviews/market surveys in Colombo, as well as field visits, observation, and interviews with farmers, returnee and affected households, and market actors (shopkeepers, wholesalers, traders, mill owners, multi-purpose cooperative societies) in the divisions of Vavuniya, Kilinochchi, and Mannar.

⁴ Jayatissa 2011.

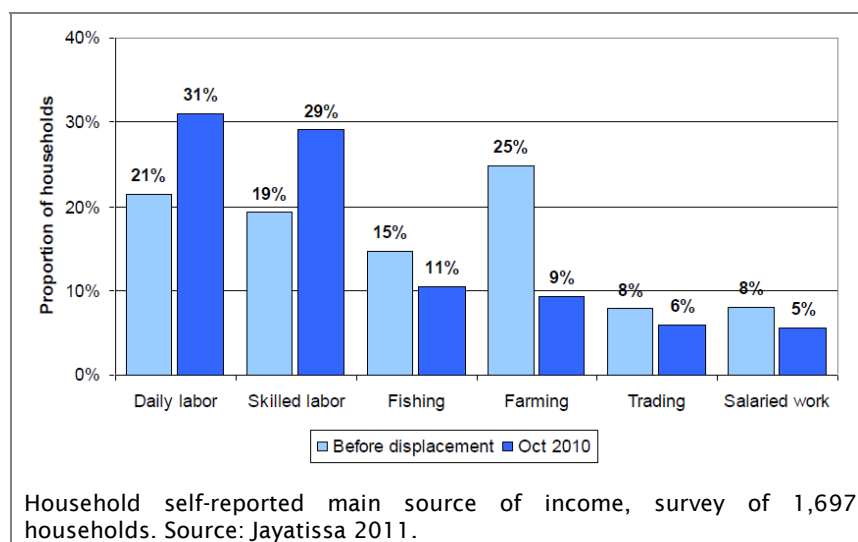
As with all EMMA processes, the analysts faced several constraints. Chief among these were: long transportation times to and within the province, which limited the depth and duration of fieldwork; local elections (a government holiday) during fieldwork; the adaptation of EMMA (designed for sudden-onset crises) to a longer-term complex emergency context; and general contextual sensitivities.

Section 4. The target population

A formal census has not been conducted since 2001, but the total population of Northern Province is estimated to be 1.19 million.⁵ Most people live in villages and rural areas. Average household size is 5, although a third of households have just 1 to 3 members. 74% of people live below the poverty line (3328 rupees or around \$30).⁶ Although 90% own some type of livelihood equipment, ownership of transport such as bicycles and motorbikes is down considerably from pre-war times. Some households do own livestock, but 47% of people reported that they used to own livestock pre-war, but did not now. 42% of households said that unemployment was their biggest problem. Households report consuming enough food, but for many, this comes at a high cost: 72% of households in the province borrow money, and 50% pawn valuables, to buy food. Northern families spent an average of 72% of their income on food, mostly on fish, vegetables, coconut, milk, sugar and rice.⁷

For the purposes of this assessment, the specific target population is: *Returnees and other poor/vulnerable populations in Northern Province who currently engage in, or could engage in, the rice value chain (production, selling labor, related enterprises) as a significant livelihood strategy.*

As of October 2010, 31% of people reported that daily (unskilled) labor was their main income source, up from 21% pre-war. Given the predominantly rural economy, most if not all of these workers likely engage in at least some agricultural labor. Just 9% said that farming (their own land or tenant farming) was their main income source now. However, 25% indicated this was their main income source pre-displacement.



As of October, therefore, a considerable number of people had yet to return to farming. (The *maha* rice planting season began in October/November, so many individuals who were not earning income from agriculture in October may now be doing so.)⁸ Several NGOs estimate that perhaps 65 percent of people engage in agriculture as a main livelihood. Therefore, as a rough estimate, perhaps half of all residents currently derive income from paddy farming in some manner. Among poorer households, this may be as high as 60-70 or even 90 percent.

⁵ <http://www.statistics.gov.lk/PopHouSat/Mid%20Year%20Population/midyearsex%20&district.pdf>

⁶ <http://www.statistics.gov.lk/home.asp>. Figure is per person per month.

⁷ Livelihood and food security figures from Jayatissa 2011.

⁸ As respondents could only pick one main income source, the number of all individuals who engage in at least some farming or farm labor is likely higher.

Specific target groups within the population to note include:

- Female-headed households: estimates vary from 11.5%⁹ to more than a third¹⁰ of households.
- Returnees by length of displacement: Some towns and areas experienced little or no displacement during the conflict. Other households were displaced multiple times, exhausting their coping strategies. Some were displaced for a few years; others for decades. Generally, longer displacement or recent return indicates higher vulnerability and need for support.
- Returnees by area of return. Some people returned to villages that had been abandoned during the conflict: basic services, shops, and infrastructure were essentially destroyed. Others returned to areas that had had some continuous population, and therefore had some basic infrastructure and services. Generally, those returning to abandoned areas or further away from towns are more in need, particularly in areas typically covered by dense jungle.
- Those disabled or otherwise severely affected in a way that limits their livelihood options.
- Host community members (those who did not leave). Given the economic isolation and infrastructure damage during the conflict, and the stress on resources from a large influx of returnees, at least some host community members are likely to experience serious vulnerability. Most humanitarian assistance targets returnees, so host communities may be overlooked.

It was not possible to obtain exact numbers for these groups, but it is estimated that more vulnerable groups make up perhaps 15-25% of the total population. Due to logistics and the difficulty of establishing a baseline, the EMMA team did not conduct detailed household economic profiles.

Seasonal Calendar, Rice Market System, Northern Province, Sri Lanka												
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
<i>Maha</i> rice season							P	P			H	H
<i>Yala</i> rice season		P	P		H	H						
Fruit/veg growing	Varies but generally year-round											
Rains		SE	SE				NE	NE	NE			
Lean season												

Key: P = Planting; H = harvesting. *Maha* is the main rice season. NE is northeast monsoon; SE is southeast (less intense). The rainy season varies, and has started considerably later in recent years.

Section 5. Critical market systems

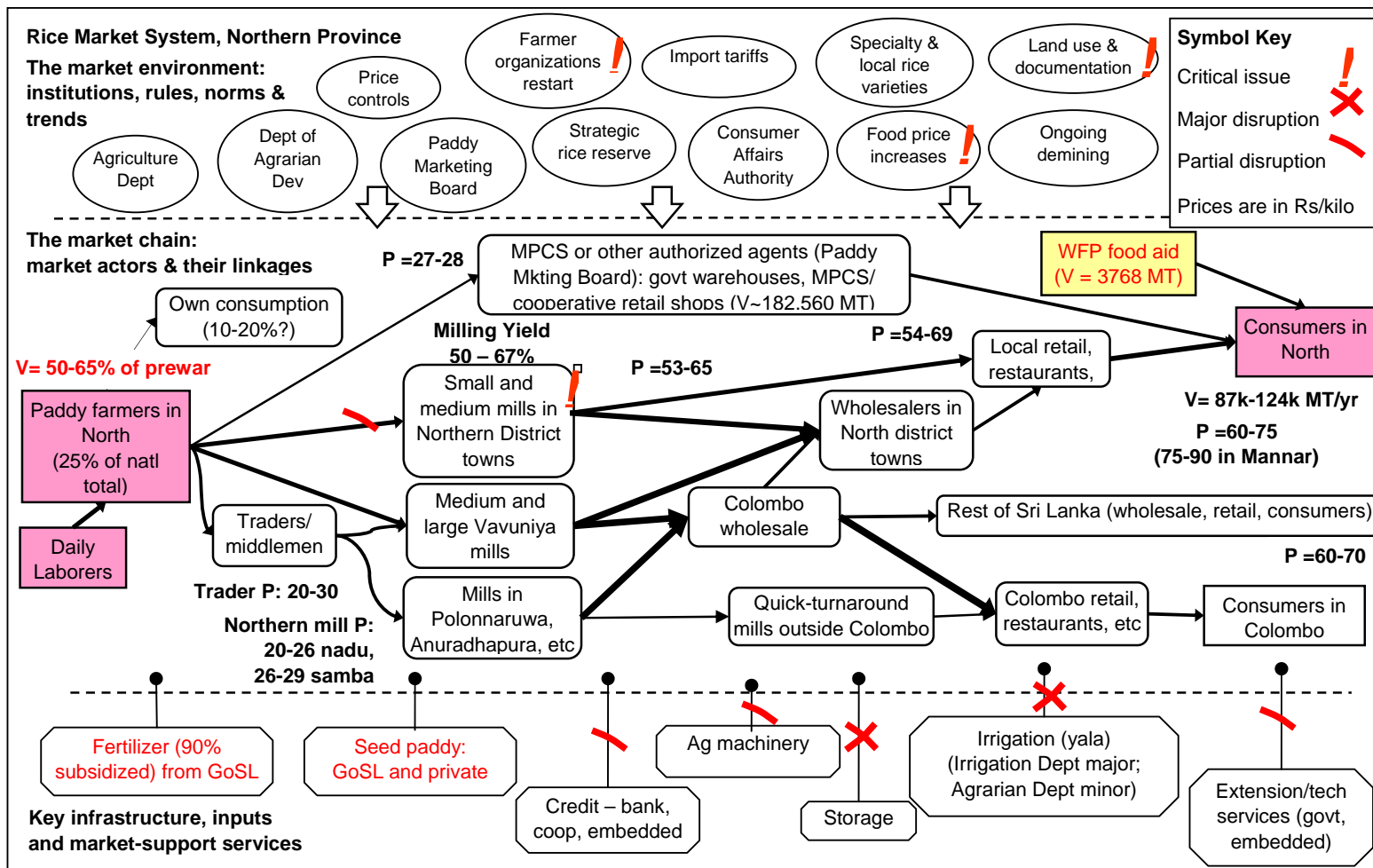
Critical market systems in Northern Province include food and income markets such as rice (paddy); fish; vegetables; legumes (black gram, green gram); cash crop markets such as chilli and coconut; transportation; shelter materials; and the labor market. This assessment looks at the rice market system, due to its importance in the Northern area both as a source of income (either through farming or daily labor) and as a staple food. Although other industries in Sri Lanka are higher-value, the rice value chain is a key income source for poor and vulnerable populations, and therefore is important for USAID's humanitarian assistance and transition interventions. The North was previously a rice surplus area, with relatively flat land and soil good for paddy cultivation. (In fact, the long fallow periods due to the conflict have had an unintended benefit of increasing soil fertility.) Consumers in the Vanni strongly prefer Sri Lankan rice (including local varieties); the most common types are nadu and samba; along with white and red 'raw' rice, considered to be of lower quality.

Section 6. Market-system diagram

Due to the length of the war, it is not possible or particularly useful to provide an accurate diagram of how the rice market system functioned pre-conflict. The diagram here instead presents the rice market system as it is currently, with markings in red to indicate critical issues, or where key actors, services or governance are not functioning optimally. Please note that all figures are estimates only.

⁹ Jayatissa 2011.

¹⁰ Informal NGO estimation.



The market environment

- **Governance:** Rice is important to the GoSL for economic and cultural reasons; multiple government bodies are involved in regulation and services in the north. The Agriculture Department handles seed certification and seed paddy supply, and determines which varieties grow best in which areas. The Department of Agrarian Development handles community outreach, farmer organizations, fertilizer subsidies and the management of Agricultural Service Centres throughout the country. The Paddy Marketing Board, re-established in 2007, oversees and arranges the purchase of paddy through authorized buyers. The Consumer Affairs Authority enforces adherence to government-set prices. The GoSL also maintains a large strategic reserve of rice. Understandably, GoSL services are not yet up to full capacity and operations in the north. Offices are still being rebuilt, and some staff have extremely large caseloads or areas of responsibility.
- **Import/export:** Most years, Sri Lanka produces enough rice to meet or exceed domestic demand, although it both imports and exports specialty rice. Imported rice, usually from Pakistan, is normally only about 2% of total consumption due to consumer preference and government support to domestic production, including a tariff on imports.¹¹ According to central bank and Statistics Department figures, national consumption in 2009 was 2.34 million MT.¹² The GoSL has announced that it will not need to import rice this year even given flood losses, and will release rice from its reserve as needed, including an initial announcement of 25,000 tons.¹³
- **Land:** The majority of land (80% nationally) is owned or controlled by the GoSL, with tilling rights allotted but restrictions placed on land use (e.g. on not selling the land or transferring title). 17% of land in the north is used for cultivation. Around 20% of paddy land in the north is still jungle, or under security restriction for demining. Proper documentation or rights to the land can be difficult to establish in former LTTE-controlled areas. The Ministry of Land Development has launched a program to expedite these decisions, but it will take time.
- **Organization:** Farmer organizations, including Rural Development Societies for men and women, used to be very strong in the north, and still are in some areas with little displacement. However, in many areas where people are still newly returned, farmer associations have yet to rebuild. Farmer associations typically have very close ties to Agrarian Services Centres and the Multi-Purpose Cooperative Societies (see below).
- **Price controls:** The GoSL controls the retail price of the most commonly sold types of rice. Currently, white and red 'raw' rice and nadu rice are controlled at 60 rupees per kilogram; samba is sold at 70.

The market chain

- **Paddy farmers:** Nationally, about 60% of farmers have two or fewer acres.¹⁴ Many farmers in the North are also smallholders, with just a few acres. In other villages, land control might be more closely held, although land rental and tenant farming are commonly practiced. Rental costs vary but are between 2,000 to 4,000 rupees (\$18-36) cash per acre, or a slightly higher-value share of harvested paddy. Land preparation and harvesting typically costs around 10,000 Rs/acre each. Most farmers keep a small amount of their harvest for consumption. Farmers in the north report that yields are low this season, just 20-25 bags (each 60-70 kg) per acre, compared to a pre-war 'good' harvest of 40 bags.
- **Laborers:** Although machinery use is rising, agricultural laborers still play a key part in the market chain. Daily laborers move around the north following planting and harvest; there are some rotating community labor systems. Depending on the area and time of year, daily laborers can earn

¹¹ Nathan Associates 2009; Sirilal/Hull 2011.

¹² Sirilal/Hull 2011.

¹³ UPI 2011, *Colombo Page* 15 Feb 2011.

¹⁴ Munasinghe 2008.

from 500 to 650 rupees/day, and as much as 800-1,000 rupees this past harvest season, while women earn much less, only around 200-400.¹⁵

- **Multi-purpose cooperative societies (MPCS) and government authorized buyers:** MPCS provide a wide range of products and services in partnership with the government throughout Northern Province and the country; for the rice market system, they are most important as buyers of paddy. MPCS members and elected staff are community members, but the GoSL's Cooperative Society Department actively regulates them. For paddy farmers, MPCS serve as an authorized buyer of paddy, with the goal of providing a guaranteed fair price for at least some of farmers' harvest. Each MPCS determines how much they want to buy, and makes a request to the government, which is funded in whole or in part. Usually each farmer can sell up to a designated amount (in 2007, this was 2,500 kg per farmer, but can be adjusted by district), which is stored in government warehouses and may be sold through MPCS retail cooperative shops or other outlets. Currently, MPCS are paying the government-set rate of 27-28 Rs/kilo. MPCS try to purchase a majority of the harvest, but are not likely to reach that level. For the 2009/10 *maha* and 2010 *yala* season, the Paddy Marketing Board reported purchasing 182,560 metric tons.¹⁶
- **Traders/middlemen:** Although the GoSL offers a guaranteed fair price through MPCS or others, the quantity they purchase might be limited, or farmers might wish to sell before the MPCS are buying. With varying levels of farmer organization, difficult transport and inadequate storage, paddy traders often represent the only viable buyer. At the start of the harvest, traders buy at lower prices, perhaps 24 rupees per kilo of paddy or as low as 20, with the price rising over time. In mid-March, the EMMA team observed traders at small villages buying for 29-30 Rs/kg but selling to mills that paid higher prices, including in Polonnaruwa. Payment is usually on the spot. Traders usually sell to one or a few specific mills. They may travel to remote villages around the province from Vavuniya, Polonnaruwa, Anuradhapura or other major rice-milling areas in Sri Lanka. Traders make a reliable profit, but they do incur significant costs from travel, transport and lodging. Their price margin is perhaps around 1-3 Rs/kg of paddy.¹⁷
- **Mills:** Mills play a major role in the rice market system, processing paddy into rice (one kilogram of paddy yields 0.5 to 0.67 kg of rice); and serving as drying and storage facilities for paddy and milled rice.¹⁸ Mills buy both from traders and, commonly in the north, direct from farmers who bring their paddy to the mill. Many larger mills in the district towns are closed or abandoned, although there is at least one medium-sized mill each in Mannar, Jaffna and Mullaitivu, three in Kilinochchi, and many mills of all sizes in Vavuniya.¹⁹ Currently, mills in Kilinochchi were buying *nadu* paddy direct from farmers for 20 to 25 Rs/kilo and 30 for *samba* and red rice; Vavuniya prices were higher, at 22 to 26 Rs/kilo and 26-29 for *samba*. Most town mills in the North sell only to wholesalers and retailers in their area. The exception is medium and large Vavuniya mills, who might sell to Colombo and Jaffna, and who buy paddy from a larger catchment area including Ampara, Polonnaruwa, and Dambulla. There are reports of bigger mills buying up smaller ones, with the aim of controlling supply and selling rice at harvest time as a way of driving down the price of paddy (with no downside for them, as the retail price of rice is stable). However, there are too many mills for easy large-scale collusion. Even taking into account the paddy-to-rice milling yield, mills do seem to have the largest price margins of all players in the

¹⁵ When asked, some women said there was no good reason for this, while others said that there were some kinds of work only men could do, justifying the higher wage.

¹⁶ Source: <https://www.tops.lk>, "Paddy Marketing Board purchases 182,560 tonnes of paddy," May 9, 2011.

¹⁷ Price margin estimates given here do *not* take into consideration each actor's own costs and risks, and should *not* be seen as directly correlated to profit.

¹⁸ The byproducts of paddy processing – the chaff or outer husk, and the bran and germ to make white rice – are sometimes used as fuel at mills, with the chaff either sold or given away for use as livestock feed. For purposes of this assessment the EMMA analysts disregard additional value from these products, as they were not seen to be a major income source for mills.

¹⁹ There is no set definition for sizes, but one small village-level mill reported processing around 1,500 kilos of paddy a day; a medium-sized mill in Kilinochchi reported processing 6,000 kilos a day with capacity for 15,000; a self-identified medium mill in Vavuniya reported 15-16,000 kilos a day with capacity for 25,000.

value chain, although this is mitigated by the fact that they have high fixed costs (fuel and equipment for milling and drying, packaging, space for drying and storage, transportation to wholesalers around the country).²⁰

- **Wholesalers:** After milling and storage at the mills, the majority of rice is sold to wholesalers. Smaller wholesalers are found in the district-center towns throughout Northern Province, with around 40 to 50 large wholesalers in Colombo (loosely organized by their two main locations there), who serve the Colombo and national markets. Around 15% of the Colombo-wholesale rice supply comes from Vavuniya mills. This is the determining price point for prices backwards through the market chain. Wholesalers and traders are both often suspected of hoarding supplies and/or selling above the legal price, with raids carried out in Colombo as recently as February.²¹ As retail prices for nadu, samba and white/red rice are fixed, the difference between the purchase price from mills and sale price to retailers is often very close. Wholesalers profit on volumes and by carefully timing when to buy and sell. Price margins are estimated at 1-3 Rs/kg.
- **Retailers:** There are retailers of all sizes in the main district towns, as well as some small retailers in villages, but few outlets in rural areas. There are some large supermarket-style retailers in Colombo and elsewhere in Sri Lanka. Retail prices are legally capped at 60 Rs/kg for nadu and white/red rice, and 70 for samba, although many retailers carry as many as ten or a dozen rice varieties. Price margins are estimated at 2 to 3 rupees/kilo.
- **Food aid:** WFP has provided rice as part of six-month rations both in the Manik Farms IDP camp and among returnees. Approximately 3,768 MTs of rice have been or will be distributed in communities. There were some complaints from vendors about low demand and on-selling of food aid, but at most the distributions constitute around 4% of yearly provincial consumption, and as food aid diminishes with returns coming to a close, any impact on demand is not likely to persist.
- **Consumers:** Practically all residents in the Northern Province and throughout Sri Lanka buy rice, and buy it regularly. A typical five-person family consumes 1-2 kg a day. Poorer families eat more rice, as it keeps better than flour and is less expensive. Although buying by the 10- or 50-kg bag is cheaper, many customers at smaller shops in the North buy just a few kilos at a time.

Key infrastructure, inputs and services

- **Finance:** The availability of credit is expanding rapidly, but access to credit (usually in the form of proper land documentation) is still constrained. Private and government banks have expanded considerably in the area, although microfinance institutions and community savings/lending programs are less common. Mills, wholesalers and retailers report few problems with accessing credit, although annual interest rates can be as high as 14-21%. Farmers used to receive small loans from their associations or the MPCS, although this is much less available now. Small farmers with the proper land documentation can access favorable credit, including small loan sizes (US \$225-450); affordable interest rates (around 8%); multi-season qualification; payment terms based on the growing season; forward contracting to mills; and embedded technical services and community visits. The NCRCS (New Comprehensive Rural Credit Scheme) is a government program to partially subsidize rural lending. However, despite this and banks' outreach efforts, many poor farmers either do not have their land deed, or are perhaps intimidated by banks. Embedded finance is also common throughout the market chain. For example, farmers might receive payment for their paddy at planting time in exchange for a lower price and guaranteed sale to the buyer. Although changing rainfall patterns have increased the risks of paddy farming in recent years, crop insurance products are not yet widely available.

²⁰ It should be noted that there are some 20-25 specialty quick-turnaround mills outside Colombo, in Karadaghamula. These mills only operate overnight, and unlike most mills do not store or dry paddy – they mill the paddy immediately after purchase, with a high moisture content, and sell it right away. Certain shops and customers deal only in this type of inexpensive rice, which must be eaten shortly after purchase.

Although the mills are large, they do not have a large share of the national market, and they only process nadu and samba rice.

²¹ *Colombo Page*, 11 Feb 2011.

- **Storage:** Proper storage is critical for farmers, who need to keep the paddy safe from pests and too much moisture, and to be able to sell paddy later in the year if desired. Storage is important for mills, too, as paddy needs to be milled and dried, then stored until it can be sold. Currently, storage at the farm level is severely lacking; many storage facilities were destroyed or broke down during the conflict. Farmers currently store paddy in their homes, or sell quickly after the harvest. Even in areas with newly-constructed storage, the lack of financing to cover the period between harvest and sale (e.g. *warrantage*, warehouse receipts financing) keeps many farmers from being able to make the most of this.
- **Seeds and fertilizer:** This past year, the GoSL and partners, including USAID and FAO, provided seed paddy, fertilizer, as well as some machinery for land preparation. 319,456 bushels of seed paddy were given out to 45,872 households, which would be enough to plant some 106,000 acres.²² Pre-war, the Agriculture Department, farmer organizations and federations, as well as the MPCSC, were heavily engaged in input supply. It is unclear where seed paddy will be sourced next season, other than from farmers able to save some this year, and from those organizations and cooperatives that are functional. There are a few private-sector seed suppliers, including CIC Agro, which produces certified seed, though there is little price incentive to supply high-quality seed paddy. Fertilizer is also provided by the government at 90% subsidy in limited quantities; farmers purchase the rest privately. Fertilizer use is widespread, and costs around 7,500 Rs/acre at subsidized prices.
- **Irrigation:** Like much of the rest of Sri Lanka, the Northern Province is mostly irrigated by a complex system of major and minor tanks (reservoirs), irrigation channels, and wells. The Irrigation Department is responsible for the major tanks, while the Department of Agrarian Development oversees the tens of thousands of minor irrigation systems. While the *maha* growing season is rain-fed, only farmers with irrigation can participate in *yala* paddy cultivation. Given that much irrigation infrastructure is in need of repair after years of neglect during the war, perhaps only a third of farmers will be able to participate in *yala*.
- **Extension services:** The government provides technical services through visits to farmers and through the agrarian service centers (ASCs) throughout the country. Several NGOs also have current or planned agricultural training, though this is likely short-term. Some banks also provide embedded services through their loan officers, who are trained in agriculture. Given the loss of human capital during the long conflict, quality, reliable extension services may be a challenge. Additionally, much extension is focused on agricultural production, with an emphasis on traditional crops, with little training for farm management and market-oriented approaches.
- **Equipment:** Use of machinery used to be more common; much equipment was lost or damaged during the years of the war. Most areas do use tractors for land preparation, including some donated to farmer organizations. High-end equipment is newly available in the Vanni; a John Deere combine harvester costs 6.6 million rupees, whereas a small Chinese-made tractor for 1.5 million rupees. Although machine harvesting costs are comparable to paying laborers to harvest and dry by hand (around 10,000 rupees/acre), availability of such services is not widespread.
- **Transport:** The vast majority of transportation is by lorry (truck). There are only a few main highways in the north, and most roads are of uneven to poor quality, due to rapid construction, heavy vehicles and the recent rains. Depending on the distance traveled, transport costs for paddy are approximately 0.75 - 2.5 Rs/kg (diesel, lodging and other expenses; more for rental). Rail lines were destroyed, though a new one is being built, as is a highway between Mannar and Jaffna.

Section 7. Key findings

Gap analysis: Is the target population able to meet their needs?

²² Source: FAO.

- **Paddy farmers:** With the current yield, an average small farmer, harvesting 22 bags of paddy per acre (assuming 60-kg bags, which are more common now) and earning 25 Rs/kg by selling immediately to a trader, could gross 33,000 Rs/acre. Subsidized inputs and labor cost 27,500 Rs/acre (not including one's own labor). So, the profit from paddy farming is approximately 5,500 Rs/acre; for a three-acre small holding, this would be 16,500 rupees or approximately \$150. The Sri Lanka poverty line is 3328 rupees (~\$30.25) per person per month, so for a typical family of five, the profits from paddy cultivation this season (assuming full sale or counting the value of own consumption) would provide for less than one month. Female-headed households, in particular, struggle to afford the necessary labor and inputs, so they may fare even worse.

However, this outcome can be improved. If the same farmer can store his/her paddy and wait a few weeks to sell, or pools resources with other farmers to transport the paddy at low cost to a higher-paying buyer elsewhere, he could earn perhaps 30 Rs/kilo, with a profit of 36,300 Rs. This would translate to over two months of income. If he waits even longer and sells at 35 Rs/kilo this would provide 56,100 Rs. profit, or over three months' worth of expenses. With a very good harvest yielding a full 40 bags an acre, the best possible profit would be 169,500 Rs., or ten months' worth of expenses. It is clear therefore that even under very good conditions, paddy farming cannot on its own provide for families' needs, and must be supplemented by other livelihood activities.

- **Laborers:** At the peak of the season, male laborers can earn 800 rupees or more a day, or perhaps around 20,000 rupees a month, which is 20% above the poverty line for a family of five. However, rates at other times of the year are only around 650 rupees, and some respondents reported that daily laborers (of various types) could often get only 15 days of work a month, which would be more than 40% below the poverty line for a typical family. For farmers who labor part-time, the income potential is lower since peak demand for labor is when they must themselves be harvesting.
- **Rice consumers:** Food availability, including of rice, does not seem to be a major concern, even with the losses due to rains. Different types of foodstuffs were widely available in towns and villages throughout the province, although for those living in more rural areas, long and unpredictable transport makes purchasing food difficult. Additionally, most families have a vegetable garden, although those whose crops were flooded may need additional support. WFP has estimated food assistance needs decreasing steadily, from nearly 19,000 households in February 2011 to less than 10,000 in April, and just 3,292 households by July.

The major challenge to northern consumers is economic *access* to food. As of fall 2010 beneficiaries reported that a majority of their rice consumption was from food aid.²³ Although this EMMA did not attempt a financial calculation of income and expenditures, beneficiaries largely responded that they are coping financially, but just barely. People are not currently saving and are afraid of unexpected expenses. Common coping strategies include pawning or selling jewelry, shrinking consumption, taking on debt, and/or using social and family networks. Prices for many common types of foods (particularly coconuts, important in local cuisine) have also been rising.

Market analysis: What are the significant post-crisis changes in the market?

The paddy/rice market system in Northern Province is functional, in the sense that paddy growers are able to sell their produce, and that consumers are able to purchase rice. The value chain is rather well integrated across the country, in the sense that shortages and surpluses regionally are able to fill in for one another. The market system is, however, inefficient and has market power unevenly distributed.

Prior performance: Given certain aspects of paddy production in Sri Lanka, the pre-existing market system in northern Sri Lanka has limits on productivity. Some irrigation systems, developed dozens or even hundreds of years ago, were in need of repair during and even before the war. Diversified rice products, such as rice flour and rice bran, are not much in demand in Sri Lanka. Quality seed paddy has long been difficult to find; and rural farmers used older technologies and methods.²⁴

²³ Jayatissa 2011.

²⁴ Subramaniam 2009.

In terms of yield and productivity, a good yield in past years was estimated by farmers to be around forty 60-kg bags, or 2.4 MT, per acre.²⁵ Historically, Northern Province (which lies in Sri Lanka's Dry Zone) realizes around 85-93% of total rice production from the *maha* season, so the irrigation-dependent *yala* season is not as critical.²⁶ And, although this past year's *maha* cultivation area may be a record, even during the war there was some cultivation in less-affected areas. Estimates vary of the amount of paddy planted in the North this year: the Joint Plan of Action estimates 200,000 acres planted; 122,000 acres were released from demining/security for cultivation (out of an estimated 169,000 acres of possible paddy land in formerly LTTE-controlled areas);²⁷ FAO with the Agriculture Department distributed enough paddy to plant slightly more than 100,000 acres, although the paddy was not of ideal quality.²⁸ What is clear is that production this year is higher than in years past.

Post-conflict impact: As with many post-war situations, physical and skilled human resources have suffered. Several district agriculture offices and other government agriculture-related structures were destroyed or damaged in the war; cooperatives lost qualified staff; and many water tanks and irrigation structures are in need of repair or missing (including tens of thousands of water pumps). Transport services are lacking – those living in remote areas might walk 10 km just to catch a once-daily bus. Paddy storage structures, including locally-developed elevated structures called *bissas* used by many farmers, have been destroyed. Even larger and usually successful businesses weathered considerable financial losses during the war years. With demand constrained due to low incomes, some businesses report very low profits, just breaking even or sometimes taking a loss. Particularly, many smaller village-level paddy mills are no longer operating, and even larger mills are not able to compete on quality with mills elsewhere in the country.²⁹ Traders and other market actors in the central and eastern areas of the country, particularly around Polonnaruwa, control much of the rice market, which means little ability for northern farmers, traders and mills to influence prices.

However, the time since the end of the war has yielded some peace dividends. Shops and marketplaces are much busier now, with more competition, than even just a year ago. Larger companies are coming to the area; construction is a booming business. It may take several years, however, for these benefits to trickle down to returnees who do not have specialized labor skills or the capital to invest in new businesses.

Flood damage: Direct flood damage in the province due was relatively small, estimated at 9% in Kilinochchi and 4% in Mannar.³⁰ The indirect and ongoing losses have been caused by unexpected rainy weather, which has made it hard to dry and store the paddy; fungus damage (particularly to the Atakari variety of rice) due to the damp weather; and loss of seed stocks for the coming season. Particularly difficult is the damage that the rains and heavy truck traffic have done to the main roads. There were some temporary displacements and breaks in supply, but these have since been resolved. Wholesalers in Colombo reported no significant concern about a supply shortage due to the rains. Individual farmers who lost most or all their crop, particularly those who went into debt to buy inputs or took upfront payments from traders, will need targeted assistance.

Government and humanitarian response: From free seed paddy, to subsidized fertilizer, to cash-for-work to clear land for paddy cultivation, a significant amount of aid has been directed at supporting the rice market system. On the whole, this clearly resulted in a much larger harvest than would have otherwise been possible. However, some farmers reported not being able to afford to clear all their land, even with support. Some 150 to 170 shipping containers have been provided for temporary paddy storage, but not all of them are appropriate for this purpose or clearly managed. Additionally, much of this past season's support was likely a one-time intervention.

²⁵ This is corroborated by the Department of Agriculture 2009 master plan for agriculture, which estimates highest yields to date at 6 MT/hectare which is equivalent to 2.4 MT/acre (1 ha = 2.47 acres).

²⁶ Subramaniam 2009. Historical data 1985-2000.

²⁷ Sirilal/Hull 2011.

²⁸ FAO interview and Jayatissa 2011.

²⁹ Major milling areas around Sri Lanka include Anuradhapura, Polonnaruwa, Dambulla, Batticaloa, Kekirawa, and Minneriya.

³⁰ District Government Agent (GA) estimates as given to USAID staff, February 2011.

Likely future performance: The paddy harvest in the North, despite losses and low yield, should be adequate to meet its expected capacity locally and through Colombo to the rest of Sri Lanka. The volume demanded for rice should be steady nationally, with a small increase in areas of return as they exhaust food rations. This season's yield is nowhere near possible yields; a good harvest could almost double this season's production, and the Department of Agriculture calculated that with improved technology yield could increase to 8 MT/ha, or 3.2 MT/acre, for a total of 800,000 metric tons for the entire region.³¹ Even if supply were to increase considerably, there is export potential most years for Sri Lanka, as only a few countries export rice. Since the Northern Province provides only around 25% of national production, and given retail price controls, any drop in prices due to increased production would be muted. However, rising costs for daily labor and fuel may make paddy cultivation less attractive to farmers over the next several years.

The GoSL has significant multi-year plans for repairing or restoring agricultural service centers, seed farms, and infrastructure such as roads, wells, storage facilities and irrigation channels.³² As irrigation infrastructure is repaired, *yala* production in the North could go from a mere 10-15% of total production to a full second season. Or, irrigation could be used to invest in profitable cash crops as a way to diversify incomes. There are also government plans to promote organic rice farming and certification; to promote additional rice products and by-products, such as rice bran oil and rice flour; and to improve soil conservation and protect biodiversity.³³

The national rice market system is currently somewhat inefficient: paddy produced in Mannar might be sold to a trader who takes it to a mill in Vavuniya, who sells it to a wholesaler in Colombo, who sells it to retailers back in Mannar. However, Colombo wholesalers report that such sales are rapidly dropping, as retailers and smaller wholesalers begin to purchase directly from mills near them instead of through Colombo. This might be a sign of improving efficiency and market information in the system – bad news for Colombo wholesalers, but good for the market as a whole.

Section 8. Main recommendations and conclusions

The rice market system in post-conflict and post-floods Northern Province is functional, but could be supported to work more efficiently in order to provide higher, more predictable income for paddy producers. Particularly, paddy supply could be supported to reach 'normal' or pre-conflict yield levels, and the quality and seasonal fluctuations of rice supply could be improved through better storage, milling, and transportation.

Given the relative size and market share of northern rice production to the national market, the integrated nature of provincial production with market actors nationally, and strong local demand for local rice varieties, one can assume that a reasonable increase in paddy supply and quality, with more smoothly timed supply, will be met with the requisite demand. However, given retail price controls, higher-quality and better-timed paddy sales will only command higher prices up to a certain level.

Therefore, support options should focus on improving the livelihoods for people who are already engaged in paddy cultivation as a main livelihood or source of employment – encouraging new entrants into this market would not be recommended. However, related enterprises such as village mills or contract harvesting, as well as diversified agricultural production, would be viable.

Response recommendations

The key analytical questions for this report were:

- *What constraints are there to food security for conflict-affected populations in the north, particularly as regards rice?* This analysis found that availability (other than transport difficulties for those in remote areas to towns) is not a critical issue, but that economic access is a major

³¹ Subramaniam 2009.

³² Source: Joint Plan of Action 2011.

³³ Subramaniam 2009.

concern for the target population. Support to people's paddy-related livelihood strategies, as detailed in the recommendations, should alleviate this to some extent, although as noted paddy cultivation alone will not meet all of a family's basic needs.

- *How can interventions best support the rice-related livelihood strategies of poor and vulnerable conflict-affected populations in the north?* This analysis found that paddy farmers and daily laborers, as well as other actors in the market chain, would benefit from support to improve the level and reliability of paddy/rice production as a livelihood source.

The response recommendations below are ordered according to the estimated timing in which they could be implemented. They take into account current and planned future responses from the GoSL and the humanitarian community, as well as feasibility in the current context. For example, transportation and road infrastructure improvements will be of strong benefit to the market system, but this is already a high priority for the GoSL and partners, so it does not appear here. The following list is not meant to imply USAID endorsement or planned support to any of the recommendations, but to suggest interventions that might be appropriate for a range of humanitarian and development actors.

Activity:	Improved storage, based upon farmer preferences (communal or individual; in homes or at the village level; or housed in agricultural service centers or at MCPSs)
Advantages:	Restores key infrastructure; allows farmers to sell when they wish. Some storage options, such as tarps/poly bags at the household level, are very fast and low-cost to implement.
Disadvantages/Risks:	Impossible to take one approach (e.g. communal or individual) throughout the region. Several farmers interviewed reported preference for home storage such as tarps, poly bags, and bissas. In other areas, entrepreneurs could be linked to credit to build private storage. Needs to be high-quality to protect against moisture, pests, etc. Storage at the ASC/MPCS level is usually owned by that entity, and paddy is sold before entry into storage, so does not translate automatically into increased farmer incomes. Cohesion/trust, and strong management, are critical for shared storage options. Many farmer organizations will need strong capacity building to properly manage storage. Without linked financing options, some farmers will not be able to take advantage of improved storage.
Timing:	Can begin now; major impact not felt until next <i>maha</i> harvest (Feb-Mar 2012).
Likely Effect:	Highly positive for farmers. Slight negative to traders (but some producers will always want to sell immediately, regardless of storage options).

Activity:	Provision of water pumps/irrigation inputs
Advantages:	Widely requested by farmers. Would enable planting (either paddy or cash crops) during the offseason. Possible opportunity to promote lower-cost alternatives (e.g. rope pumps instead of mechanized).
Disadvantages/Risks:	May create dependency (especially if provided at full subsidy); humanitarian community cannot meet entire need. Only appropriate for farmers in areas with functional irrigation infrastructure.
Timing:	Immediate (yala planting begins in May); effects felt at harvest time
Likely Effect:	Positive, although care should be taken to appropriately manage water resources and to target those most in need of assistance.

Activity:	Land documentation support
Advantages:	Complements new efforts by the Ministry of Land Development. Can greatly help with increasing access to finance or to more affordable interest

	rates, leveraging other interventions.
Disadvantages/Risks:	This is a highly sensitive issue (e.g. double claims to land) and should only be undertaken by those with necessary expertise and understanding of the context.
Timing:	Can begin now; benefits felt in the medium to long term
Likely Effect:	Positive for farmers; some spillover positive benefits for laborers and others in the market chain, such as mills and equipment shops.

Activity:	Diversification into other agricultural activities: livestock rearing; cash crops such as onions, chilli, coconut; and/or other field crops; as appropriate for the locality and as responds to market demand
Advantages:	Provides much-needed supplemental income for those with access to at least some land; may help to increase demand for agricultural laborers. Many people have previous experience in livestock rearing; environment can tolerate it as livestock levels are down from previously.
Disadvantages/Risks:	Needs further market analysis (e.g. on chilli, coconut, gram market systems, animal products most in demand) to be sure only profitable activities promoted. Irrigation still required—for those without working wells or pumps, or irrigation channels, will not be useful without complementary irrigation intervention.
Timing:	Immediate (2011 yala season) or medium-term
Likely Effect:	Should be positive both for paddy farmers and daily laborers; minimal to no impact on others in the rice market system.

Activity:	Support to new and fledgling agro-related businesses: village-level rice mills and retail groceries, contract harvesting/machinery rental, etc.
Advantages:	Can fill in needed gaps in the market chain; promote competition; create additional opportunities for sustainable incomes.
Disadvantages/Risks:	Requires more in-depth business analysis (e.g. rural shops are a major need, but individual shop owners report very low profit). Should leverage entrepreneurs' own investments rather than provide 100% of start-up costs. Would need to be paired with market and business management training.
Timing:	Short to medium term
Likely Effect:	Generally very positive, but with possible negative consequences if too much competition is promoted or if analysis is not properly conducted

Activity:	Reinvigoration of farmer organizations/associations (through MPCs as appropriate)
Advantages:	High government interest in rebuilding farmer organizations and (W)RDS. Some MPCs have strong capacity and/or existing activities in this area. Farmer organizations/federations can take action on their own to improve input sourcing, find high-paying buyers, etc, leading to sustainability.
Disadvantages/Risks:	May need to let this evolve organically, as social cohesion rebounds. Would want to take care not to duplicate efforts or start too quickly.
Timing:	Medium to long-term effects
Likely Effect:	Largely positive, but does not directly benefit laborers who are employed for paddy preparation and harvest.

Activity:	Irrigation infrastructure rehabilitation
Advantages:	Will have community-wide benefits; can be very sustainable if done properly.
Disadvantages/Risks:	Needs to be done in concert with relevant GoSL authority. Irrigation systems are highly interlinked; this must be approached in a holistic manner and with specialized expertise.

Timing:	Short to long term, depending on scale
Likely Effect:	Largely positive, assuming careful design and implementation.

Activity:	Market facilitation to link buyers to progressive private-sector actors
Advantages:	Several companies are willing and interested to work with small farmers for direct purchase of specialty items, and will often provide training/extension as an embedded service. Could result in higher prices to farmers and thus improved incomes.
Disadvantages/Risks:	Rice is not yet of large interest for this sort of partnership (compared to vegetables or other crops). Remote farmers and those wanting immediate income will still want to rely on traders for sale. Forward contracts can be difficult without trusting relationships, and given small acreage, individual farmers may not succeed.
Timing:	Medium term (1-3 years)
Likely Effect:	Positive for those farmers who have the organizational cohesion and financial ability to take advantage of it. Leaves out some more vulnerable farmers. Trickle-down benefits to laborers.

Activity:	Warehouse receipts financing
Advantages:	Could open up/improve access to finance considerably, smooth the availability of paddy, and allow farmers to command higher prices. Banks likely to be interested and willing to participate.
Disadvantages/Risks:	Generally requires privately-owned storage by a neutral third party. Complex to implement and requires a high degree of trust in relationships. Given the set retail price, can only improve incomes up to a certain level.
Timing:	Medium to long term
Likely Effect:	As with market facilitation, positive for those farmers able to take advantage of it.

Activity:	Further investigation, including seed system security analysis (SSSA) or market analysis on alternative and diversified livelihoods
Advantages:	There is still a considerable need for additional information; in a rapidly growing and changing economic context, further analysis can identify opportunities not immediately obvious.
Disadvantages/Risks:	Requires specific expertise; recommendations may require long-term investment (e.g. vocational schools for skilled jobs, or improved seed availability development).
Timing:	Analysis could begin at any time; relatively short-term
Likely Effect:	No immediate impact, but should have a longer-term positive effect for both current farmers and laborers; may result in improved efficiencies.

Activity:	Facilitation of higher-value rice production, including of government-certified seed paddy, traditional/ organic varieties, and/or improved branding of rice by area of origin
Advantages:	Organic rice requires fewer inputs and can command higher prices, including for export.
Disadvantages/Risks:	Yields are somewhat lower; somewhat risky due to variable weather patterns, shorter storage possibilities. Requires additional market analysis (some already conducted) and linkages. Communal nature of rice irrigation may complicate organic certification efforts.
Timing:	Longer-term, although some projects are currently ongoing

Likely Effect:	Positive for both farmers and laborers (more labor-intensive than improved seed varieties). Slight negative for others in the market chain, although positive for mills, wholesalers and retailers willing to follow certification regulations.
-----------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Annex: Sources

Interviews:

- Bharat Pathak, Head of Mission, UMCOR. Meeting 12 March 2011, Colombo.
- N. Ravikumar, Livelihood & Market Access Coordinator, Oxfam GB. Meeting 11 March 2011, Colombo.
- Calvin Piggott, FAO. Meetings 11 and 12 March 2011, Colombo.
- Andre Krummacher, Country Director, ACTED. Meeting 12 March 2011, Colombo.
- Vishaka Hidellage, Regional Director, and Jayantha Gunasekera, Team Leader, Practical Action. Meeting 11 March 2011.
- Dan Houston, USAID/Food for Peace officer, 12-14 March 2011, email.
- Rice wholesaler/retailer, 14 March 2011, Vavuniya town.
- General foods wholesaler/retailer, 14 March 2011, Vavuniya town.
- Petr Drbohlav, Iveta, and Faris, People in Need, 14 March 2011, Vavuniya town.
- Restaurant managers, 14 March 2011, Vavuniya town.
- Dubrovka Pem, Humanitarian Emergency Affairs Director, World Vision, and staff from World Vision, CARE and CRS, 15 March 2011, Vavuniya town.
- Affected household interviews, including female-headed household, 15 March 2011, Karachchi DS Division, Kilinochchi District.
- Focus group discussion, 15 March 2011, Karachchi DS Division, Kilinochchi District.
- Lafir Mohammed, Practical Action, 15 March 2011, Kilinochchi.
- Medium-sized rice mill, 15 March 2011, Kilinochchi.
- Medium-sized rice mill, 15 March 2011, Kilinochchi.
- Agricultural machinery shop, 15 March 2011, Kilinochchi.
- Rice retailer, 15 March 2011, Kilinochchi.
- Dawn Hayden, Regional Program Manager, Reintegration & Stabilization in the East & North, DAI, 16 March 2011, Vavuniya.
- Alina Konevski, Area Coordinator – North, 16 March 2011, Mannar.
- Santhampillai (Emil) Emilianspillai, District Program Coordinator, 16 and 17 March 2011, Mannar.
- Paddy farmer, 16 March 2011, Palaikuly village, Mussaleri, Mannar district.
- Paddy trader/purchaser, 16 March 2011, Palaikuly village, Mussaleri, Mannar district.
- Paddy farmer group interview, 16 March 2011, Palaikuly village, Mussaleri, Mannar district.
- Village leader, 16 March 2011, Karadikuly village, Mussaleri, Mannar district.
- Affected household, 16 March 2011, Karadikuly village, Mussaleri, Mannar district.
- Paddy trader/purchaser, 16 March 2011, Karadikuly village, Mussaleri, Mannar district.
- Rice mill owner, 16 March 2011, village outside Mannar town.
- Small shop owner, 17 March 2011, Mannar town.

Supermarket proprietor, 17 March 2011, Mannar town.

Shop owner, 17 March 2011, Mannar town.

Small shop, 17 March 2011, road from Mannar to Vavuniya.

Small shop owner, 17 March 2011, Puwurasakulam village outside Vavuniya town.

Cheddikulam MPCs staff, 17 March 2011, Vavuniya.

Dr. S. Gnanachandran, Area Coordinator and Training Specialist (North); Horticulturalist and Vavuniya office head, UN Food & Agriculture Organization (FAO), 17 March 2011, Vavuniya.

Medium-size rice mill owner, 17 March 2011, Vavuniya.

UN World Food Program (WFP), 17 March 2011, Vavuniya.

Price and source observation/survey, Cargill's supermarket, 19 March 2011, Colombo.

Price and source observation/survey, Keell's supermarket, 19 March 2011, Colombo.

Amélie Yan-Gouiffès, Technical Assistant, ECHO, 21 March 2011, Colombo.

K.M.D.B. Rekogama, Project Relationship Manager, and M.V.P. Gunawardena, Senior Manager of Development Banking, Hatton National Bank, 21 March 2011, Colombo.

USAID/Sri Lanka Economic Growth office, 22 March 2011, Colombo.

Rice and spices wholesale shop, Pettah Market, 22 March 2011, Colombo.

Rice and pulses wholesale shop, Pettah Market, 22 March 2011, Colombo.

Michael Rewald, Country Director Sri Lanka, CARE International, 22 March 2011, Colombo.

Ravindra Hewavitharana, Commissioner, Department of Agrarian Development, 22 March 2011, Colombo.

Articles:

Department of Agriculture website, Sri Lanka: www.agridept.gov.lk . Last viewed 5 Apr 2011.

"Floods disrupt Sri Lanka's rice production," 14 February 2011. United Press International (UPI). http://www.upi.com/Science_News/Resource-Wars/2011/02/14/Floods-disrupt-Sri-Lankas-rice-production/UPI-14931297700113/

Jayatissa, Dr. Renuka. "Nutrition and Food Security Survey among Resettled Population in Vavuniya, Mannar, Jaffna, Kilinochchiya and Mullaithievu Districts," GoSL Ministry of Health with UNICEF and WFP. Presentation, Feb 2011.

Joint Plan for Assistance, Northern Province, 2011, Government of Sri Lanka, United Nations and partners. 2011.

Marasinghe, S. and D. Mudalige. "Food stocks on reserve" (Parliament session notes/transcript). 7 *Daily News* (Sri Lanka), April 2011. <http://www.dailynews.lk/2011/04/07/pol03.asp>

Munasinghe, Chintha J. Participatory Market Chain Analysis report, "Traditional Rice Sector," Rural Enterprise Network and Practical Action, 10 Jul 2008.

Nathan Associates Inc. "Sri Lanka Economic Performance Assessment," produced for review by USAID, Sep 2009.

NGO market price survey report submitted to USAID, Oct 2010.

“No need to import rice, says Sri Lanka government,” *Colombo Page*, 15 Feb 2011.
http://www.colombopage.com/archive_11/Feb15_1297776674KA.php

“Paddy Marketing Board purchases 182,560 tonnes of paddy,” *Tops Sri Lanka*, 9 May 2011.
<http://www.tops.lk/article36391-paddy-marketing-board-purchases-182560-tonnes-of.html>

Rafeek, M.I.M. and P.A. Samaratunga. “Trade Liberalisation and its Impact on the Rice Sector of Sri Lanka,” *Sri Lankan Journal of Agricultural Economics* vol 3, No 1 Pp 143 - 154.

Rajapakse, Sugath. "The Economics of Organising: Enabling the Sri Lankan Rice-oriented Farming Community to Own the Value Chain." *Quality Pathways*, Apr 2008.
://businesssrilanka.com/Articles.aspx

“The Significance of Sri Lanka’s Small Tank Cascade Systems,” *Water Matters*, International Water Management Institute, Issue 5, Apr 2010.

Sirilal, R. and C. Bryson Hull. “Sri Lanka says rice losses at 35 percent.” 8 Feb 2011. Reuters :
<http://www.trust.org/alertnet/news/sri-lanka-says-rice-losses-at-35-percent/>

“Sri Lanka” country page, CIA World Factbook. <https://www.cia.gov/library/publications/the-world-factbook/geos/ce.html> Last viewed 8 Apr 2011.

“Sri Lanka Accelerates Production of Seed Paddy,” *Colombo Page*, 24 October 2010,
http://www.colombopage.com/archive_10B/Oct24_1287932902KA.php .

“SRI LANKA: Does cash for work - work?” 11 March 2011, IRIN News.
<http://www.irinnews.org/Report.aspx?ReportID=92164>

“Sri Lanka's consumer authority raids rice hoarders,” *Colombo Page*. 11 Feb 2011,
http://www.colombopage.com/archive_11/Feb11_1297443067KA.php

Subramaniam, K. "Comprehensive Master Plan for Agriculture crop sector Development Northern Region," Provincial Director of Agriculture, Department of Agriculture, Northern Provincial Council, Jan 2009.

UN Flash Appeal for Sri Lanka, Revision Mar 2011.

USAID/OFDA Northern areas post-flood assessment, Feb 2011.