

MaD PROJECT DESCRIPTION

1. GENERAL PROJECT INFORMATION

1.1 Project Title, Location and Timing

Project Name	Nutrition for Prolit & Sambour Village
Country / Province / District / Commune / Village	Cambodia / Siem Reap / Puok / Reul / Prolit&Sambuor
Project Timing: Expected Start Date	June 2010
Expected Finish Date	November 2011
Project Duration	1 year, 6 months

2.1 Brief Background to the Situation

Rural Cambodia is poor. Siem Reap Province is the 2nd poorest province in the country. Most NGOs concentrate their efforts in and around the major city of Siem Reap. We are a Community Based Organisation (CBO) based in the rural community of Reul Commune in Puok District, one of the poorest communes in one of the poorest districts in Siem Reap. The vast majority of the inhabitants in Reul Commune are well below the poverty line, earning \$2 a day or less and surviving life on a day-by-day basis.

2.2 Statement of Development Needs / Issues

According to the World Bank, 75% of the World's Poor live in rural areas. This is no less true of Cambodia than it is of other developing countries, where rural households represent 90% of all poor in the country ([UN, 2009](#)). To cite one statistic of many, the average earnings per worker are five times lower in rural areas than they are in the towns and cities (UNDP 2007).

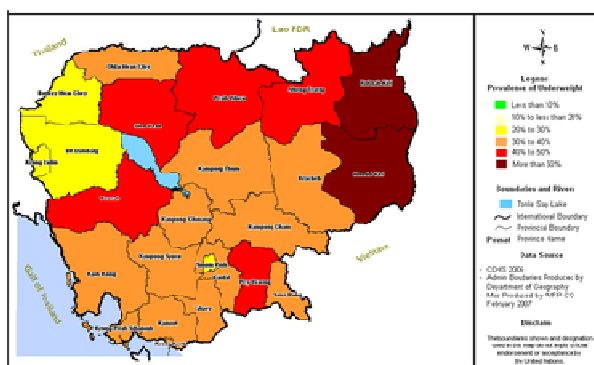
In rural areas, malnutrition, dehydration, poor hygiene, lack of sanitation, unsafe drinking water, inefficient agricultural techniques, environmental degradation, low levels of education and vocational training, inadequate healthcare provision, tropical infectious diseases, limited access to credit/insurance and non-existent welfare provision for orphans, widows, homeless and disabled people is common place. With such a huge array of obstacles impeding their human development, the rural poor are trapped in a vicious cycle of poverty.

MALNUTRITION & FOOD SECURITY

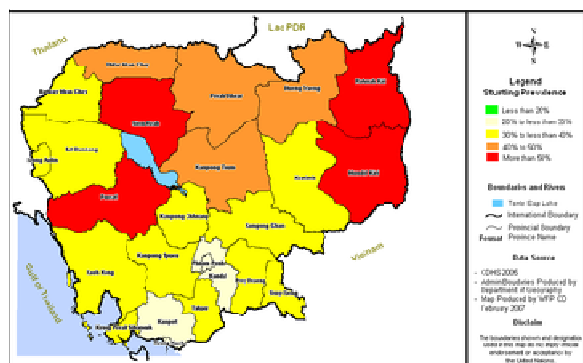
FAST FACTS...

- In 2009 Cambodia was ranked as one of the 29 countries in the world to still have an 'alarming or extremely alarming' hunger situation ([Global Hunger Index, 2009](#))
- Malnutrition affects 26% of the total population in Cambodia ([WFP, 2009](#)).
- 44% of Cambodian children under-five suffer from chronic malnutrition, 28% are underweight and 8% are acutely malnourished (wasted) ([UNICEF, 2008](#))
- 1 in 12 of Cambodia's children die before reaching the age of five ([UNICEF, 2007](#))
- "The highest maternal death rate in the Asia Pacific region occurs in Cambodia, with 472 out of 100,000 mothers dying during pregnancy, birth, or the first 42 days after delivery." Under-nutrition is "a leading cause, which makes them weak in withstanding neonatal infections." ([WVI, 2009](#))
- Anaemia caused by iron-deficiency affects 62% of Cambodia's children, 47% of its women and 57% of its pregnant women ([CDHS, 2005](#))

Cambodia is one of the few countries in South East Asia which has failed to make significant progress in combating hunger and malnutrition over the past few years. With over 4.6 million people still living below the regional poverty line of \$1.25 a day, the majority in rural areas of the country, and 2.6 million living in extreme poverty ([WFP](#)), millions of Cambodians continue to suffer from food insecurity and hunger. Malnutrition also remains to be exceedingly prevalent amongst the Cambodian population, which has the highest rates of malnutrition in the region, with the exception of East Timor ([IRIN Asia](#)). As you can see from the maps below, critically high levels of food insecurity and malnutrition are most prevalent in the rural areas of the country and Siem Reap province is a particularly hard hit province on all accounts.



A map of Cambodia highlighting the provinces with the highest prevalence of underweight in the country. Siem Reap is listed as having a prevalence of underweight between 40 – 50% ('extremely high') of its population, placing it as the second worst province in the country for this indicator ([WFP, 2007](#))



A map of Cambodia highlighting the provinces with the highest prevalence of stunting amongst children. Siem Reap is listed as having a rate of stunting at over 50% ('extremely high') of its total child population, placing it as the second worst province in the country for this indicator ([WFP, 2007](#))

These high levels of food security and malnutrition can be attributed to a wide range of obstacles, including:

- **Lack of access to and availability of food** - caused by factors such as: low incomes, inefficient agricultural policies, limited access to land for small farmers, low yields, poor infrastructure and crop failures

caused by persistent droughts in some provinces

- **Lack of diversity in food production and consumption** – rice accounts for 90% of the total crop production in the country and accounts for 75% of the total caloric intake for the average Cambodian ([WFP, 2009](#)). This both contributes to the low incomes of the rural population and to malnutrition as Cambodians find themselves lacking essential vitamins and nutrients in their diets (especially Vitamin A, iron and protein, which have caused countless health problems amongst the population)
- **Vulnerability of the poor to shocks** – both internal (such as a family member becoming ill or dying) and external shocks (such as a drought or a rise in food prices) can quickly impact upon the ability of households to supply themselves with

sufficient quantities of food

- **Education** – the lack of education amongst the population (especially in rural areas) has been shown to contribute to malnutrition at the household level
- **Increase in food prices** – the surge in food prices in 2009 increased the number of chronically food insecure Cambodians by 50% to 2.8 million people ([UN, 2009](#)). The ensuing financial crisis also hit the population hard, especially in rural areas ([IRIN Asia, 2009](#))

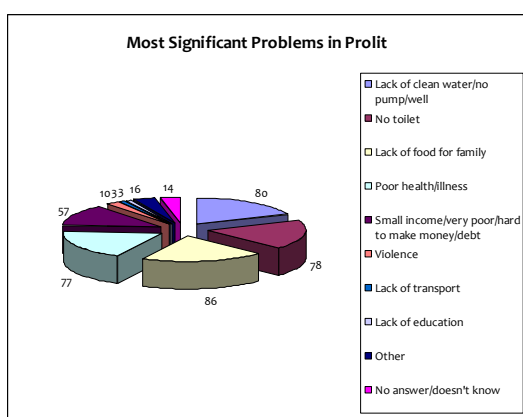
As you can see from the maps below, at the commune level, Reul Commune is one of the worst performing communes in Siem Reap province for both food security and malnutrition (Reul Commune has been circled in white on the first map). This is the most recent data available at the commune level on these issues.

growing crops in their village, mainly due to the inadequate water supply, and that this had meant that many people in the village did not have enough food, a situation that is magnified greatly each dry season. They related to us how a previous NGO had donated crops for them to grow but that this project had failed due to the lack of water and that the NGO had abandoned the village as a result. Furthermore, the very low incomes earned by the majority of the village residents means that they can not afford to buy enough food when their own crops failed.

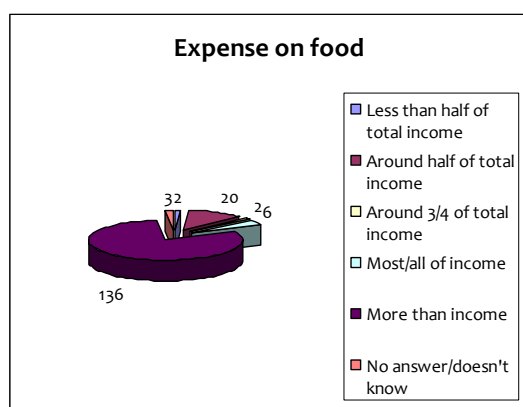


MaD's 2nd PRA with Prolit villagers at the local temple

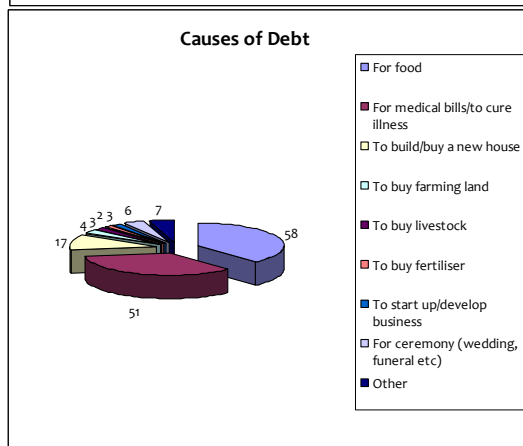
This situation was confirmed when MaD carried out its baseline survey of Prolit Village, during which we interviewed 170 of the 196 families in Prolit.¹ When asked to identify the three most significant problems that face their family, lack



of food was identified by the highest number of families (86), shortly followed by lack of (clean) water, lack of toilets, poor health and high levels of poverty. This clearly demonstrates that increasing the availability of affordable food is an exceedingly high priority for the majority of families in Prolit. The fact that so many families also identified poor health and/or recurring illness as another problem also highlights the troubles that are caused by the lack of availability of nutritious foods, as well as clean water and improved sanitation.



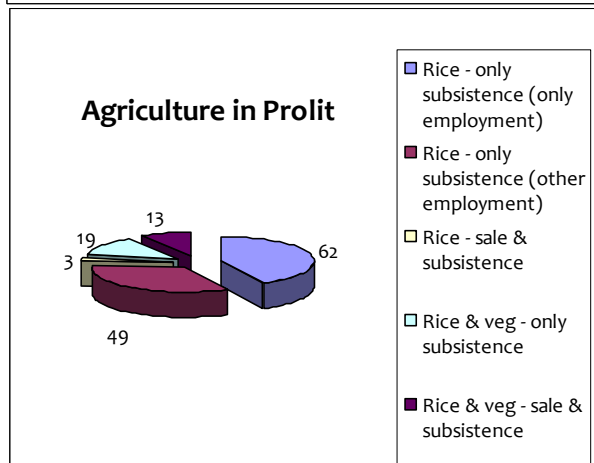
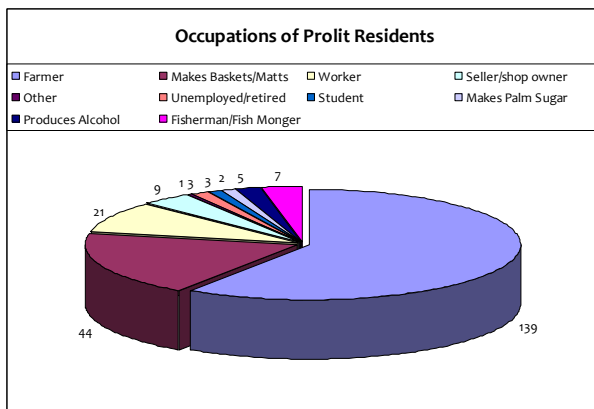
Another issue that emerged from our baseline survey was the high amounts of money that families were currently spending on food. When asked how much of their total income they were currently spending on food a staggering 136 families claimed that they were currently spending *more* than their weekly income on food expenses. However, this statistic may not be valid for the entire year, as our survey was carried out at the peak of the dry season when both income and food availability are low, particularly for those that families that rely on agriculture for their sustenance and earnings.



Nevertheless, this is a particularly alarming statistic, especially when one looks at the levels and causes of debt in the village. Out of the 170 families interviewed, only 35 said that they currently did not owe any debt. 58 families said that they owed money in order to pay for food and 51 families owed money which they had to borrow in order to pay for medical bills. The local micro finance business in the village, from which the majority of the families had borrowed money from, charges an interest rate of over 40%. It is clear to see therefore how the lack of food both directly and indirectly contributes to the spiral of poverty in which so many of the families in

Prolit are entrapped.

¹ Baseline Survey carried out in Prolit village between the 17th – 28th May. A full copy of these results is available on request. We could not interview all families in Prolit as many are not home during the day, which is when we carried out the survey. As we progress with the project however, we will add data on the remaining families.



Data which we collected on agriculture and employment in Prolit confirms this. The vast majority of families rely on agriculture for their livelihoods and a large percentage of these families do not have any other recourse to generating income. Whilst there are other economic opportunities in the village, these are severely limited by a myriad of obstacles such as lack of markets, lack of training/education and lack of transport. For example, a large number of families make mats and baskets, but they have related to us that it is very difficult to find places to sell them.

Agriculture in the village is also very limited. Out of the 146 families who said that they grow some form of crops, 114 said that they only grow rice, out of which 62 said that they only grew rice for subsistence and that it was the only form of employment in their family. For such families it is very easy to understand why they can so quickly fall into debt: money is constantly going out rather than coming in and so it becomes necessary to take out loans in order to pay even for the most

basic of necessities such as food, which they can only hope another member of their family will be able to repay sometime in the future. Furthermore, the fact that so many families only grow rice in the village only goes to prove the limited diet that so many rural Cambodians consume, explaining why there are such high levels of malnutrition and illness in the village.

As a result of the information we have gathered from the community, MaD agreed to launch a large scale water & sanitation project in the village, which aims to provide every person in the village with ready access to clean water and improved sanitation through the installation of UNICEF water pumps, the distribution of water filters and the construction of ablution blocks: communal sanitation units consisting of compost toilets and a basic shower. MaD also agreed to assist the community with several income generation activities by helping to sell their locally made products in Siem Reap and in the not too distant future we are also hoping to teach members of the community how to make new products such as soap which we will sell on their behalf. This project aims to assist the community in the areas of agriculture, food security and nutrition: the other issues in the village that the community have asked us for assistance with.



Explaining what assistance MaD can offer

2.3 How the Project will Address Development Needs / Issues

Moringa Oleifera and Amaranth Grain – a solution to hunger and malnutrition

This project aims to combat malnutrition and bring about increased food security through the cultivation and promotion of Moringa Oleifera trees and Amaranth grain: two crops that are gaining an increased amount of recognition as key players in the fight against hunger and malnutrition in developing countries.

Many nutrition projects in developing countries often rely on the distribution of expensive and imported vitamin and nutrient supplements and can therefore create a precarious situation of dependency upon the NGOs/governments that distribute them. Furthermore, such interventions target the symptoms of malnutrition rather than its causes, which can essentially be narrowed down to the lack of availability of nutritious foods at prices that rural people can afford. This project therefore aims to foster a locally managed and therefore sustainable solution to the aforementioned problems.

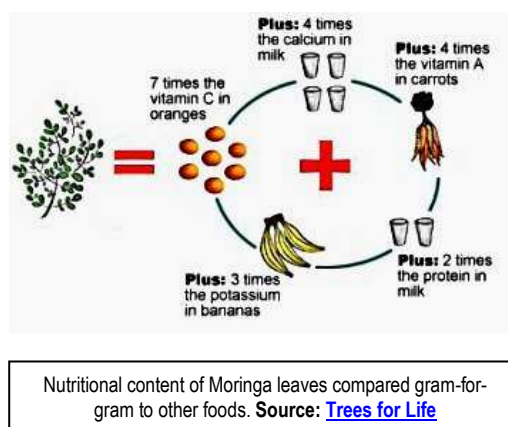
Moringa Oleifera

"Imagine a tree in your backyard that will meet all your nutritional needs, take care of you medicinally, and purify your water for you. This tree actually exists" ([NaturalNews](#)).

"The ancient traditional medicine of India called ayurveda says the leaves of the Moringa tree prevent 300 diseases. Modern science is confirming that these leaves could help prevent untold suffering and death caused by malnutrition and related diseases." ([Trees for Life](#))

Called (Daem) M'Rum in Khmer, the Moringa Oleifera tree has been nicknamed the 'miracle tree' due to its exceptionally high nutritional content and its ability to grow in even the harshest of environments.

Nearly all parts of the Moringa tree have a high degree of nutritional value. Particular attention has been drawn to the leaves of the tree. In the diagram to the right you can see the nutritional content of fresh leaves compared gram-to-gram to other foods:



However, the nutritional content of the leaves varies significantly depending on whether they are consumed dry or fresh, meaning that one gets additional benefits if both are consumed. Gram-for-gram dried leaves measure up against other foods as follows ([Trees for Life](#)):

- 10x the vitamin A of carrots
- 1/2 the vitamin C of oranges
- 17x the calcium of Milk
- 15x the potassium of Bananas
- 25x the iron of spinach
- 9x the protein of yoghurt

The leaves also contain high concentrations of vitamin B complex, zinc, magnesium, selenium and the ten essential amino acids, which is a rare plant phenomenon.²

In addition to the leaves, both the flowers and the pods/seeds are highly nutritious. The immature pods, which can be eaten raw or cooked like green beans, contain all the essential amino acids and are also high in fibre and many other vitamins and nutrients. When eaten raw, it has also been said that they act as an effective de-wormer and can treat liver and spleen problems (although this has yet to be scientifically proven). The seeds have been used in traditional medicines for their antibiotic and anti-inflammatory properties. Furthermore, the seeds can also be used as an effective flocculent in order to purify dirty water and the sludge left over from this process can then be used as an effective bio-fertiliser/bio-compost, which has been shown to increase the yields of other staple food crops.³ The

² See, Foundation Ensemble, [Moringa Oleifera – The Tree of Life](#) for a table of the full nutritional content of dried Moringa leaves.

³ See for example: Suleyman Muyibi ["Quenching the thirst of millions in the third world – application of processed Moringa Oleifera seeds in drinking water treatment"](#)

seeds can also be used to extract a rich oil called Ben Oil, which can be used for cosmetics, aromatherapy and cooking. In the future MaD plans to assist communities to extract the oil from the seeds from their trees, which we will then sell on for them.

The flowers (which much be cooked), are rich in both calcium and potassium. Traditionally, they have been boiled in teas which can be used to both treat colds and also to increase the flow of a mother's breast milk.

All of these nutrients make Moringa an exceedingly powerful tool in fighting both malnutrition and preventing disease. It is of particular benefit to pregnant women and infants. One study carried out in Senegal in 1997-1998 showed that by treating malnourished pregnant or breastfeeding women and their children with Moringa leaf powder the following effects ensued, demonstrating the leaf powder's huge potential for treating malnutrition:

- Children maintained or increased their weight and improved overall health.
- Pregnant women recovered from anaemia and had babies with higher birth weights.
- Breast-feeding women increased their production of milk. ([Trees for Life](#))

Studies are now examining the possibility of using Moringa to fight the spread of HIV/Aids and to improve the health of HIV infected people, and have yielded promising results.⁴

Another factor that makes Moringa such an important player in the fight against hunger and malnutrition in developing countries is that it is extremely resilient to harsh growing environments, including drought, poor soil quality and many pests and diseases. They are also very fast growing, with normal growth ranging from 3-5 meters per year if left uncut. It is one of the fastest growing biomasses on the planet if thoroughly nourished and can grow up to 7 meters a year. Furthermore, in warm climates the trees are evergreen if they are kept well nourished and can therefore continue to provide poor families with access to food even in times when other food is scarce. Moringa has therefore been highlighted as having an important role in mitigating the effects of climate change as it can still provide food to families in developing countries when other crops have failed, due to droughts etc.

Amaranth grain

"The People of The World Shall Eat Amaranth. It can feed the world and has the essential elements which are missing from wheat, oats, and rice. It is a superior food and seems that it was designed for us. As awareness grows, demand will grow and those that grow it shall prosper. It will grow where wheat and rice cannot because it needs little irrigation. Amaranth has been touted as a miracle grain, a supergrain, and the grain of the future..." ([Richard Thomas](#))

Amaranth grain is one of the most nutritious grains known to man. Its remarkable protein content stands at 13 – 16%, providing an average of 30% more protein than other grains. It is also 3 times higher in lysine, 4 – 8 times higher in calcium, 3 – 5 times higher in iron and 3 times higher in fibre than other grains such as corn, wheat and rice ([Don Lotter](#)). Added to this are high levels of potassium, methionine, phosphorous, zinc and vitamins A and C. Its digestibility rates at an impressive 90%, making it an ideal food for young children and infants as well as for those who are sick or recovering from serious illnesses.

The leaves are also edible and are comparable to spinach, except they are higher in calcium, phosphorous and vitamin C, in addition to containing the high levels of folate and other nutrients that are present in the seeds. The combination of these essential nutrients means that amaranth crops can

& Miracle Trees - [Purifying water using Moringa Oleifera](#)

⁴ Outrageous Gardens - [Can Moringa change the face of AIDS?](#)

Burger DJ et al, [The possible role of Moringa oleifera in HIV/AIDS supportive treatment](#)

supply 75 – 87% of human nutritional requirements ([B. Stone](#)). It is an especially promising crop for Cambodia because the grain can be cooked in the pot with rice (which forms the bulk of the average Cambodian's diet, especially for those in rural areas) and thereby provide a meal as rich in protein as one with fish, chicken or red meat: foods that many impoverished rural Cambodians cannot afford.

It is therefore not surprising that studies involving amaranth have proven its enormous potential in fighting malnutrition. One study carried out by *San Miguel de Proyectos Agropecuarios* in Mexico found that 1,000 children eating 20 grams of amaranth grain a day for one year recovered from states of malnutrition at a rate of 61.7%, whilst the control group only recovered at a rate of 15.33% ([Puente](#)).

Similar to Moringa Oleifera, Amaranth also has the added advantage of being fast growing, easy to grow and extremely adaptable to adverse growing conditions: it can resist high levels of heat and drought and has no major disease problems. It also has very high yields, with each plant producing between 40,000 – 60,000 seeds every season meaning that just a few crops can provide a family with a stable supply of food. As with dried Moringa leaf powder, amaranth grain can also be stored for up to 6 months.

However, unlike Moringa Oleifera, which grows locally in Cambodia, amaranth grain has yet to be grown in Cambodia and so MaD will be the first NGO to attempt to grow and distribute amaranth grain in the country. We have been in contact with [ECHO Asia](#) who have been experimenting with growing amaranth grain in Thailand and they have told us that they are confident that it will grow in the local environment in Siem Reap and have therefore sent us some seeds from their seed bank which we are now in possession of.

Project Structure

This project is divided into two stages. The first stage will commence in June 2010 and consists of establishing a nursery of 500 – 1000 Moringa Oleifera trees and several hundred amaranth grain plants. These will then be grown until near the end of the rainy season (October/November), which is when we have been advised is the best time to plant both Moringa trees and amaranth grain in this climate.

The second stage involves transplanting the crops to the residents of Prolit. We are hoping to provide each household (198 in total) in the village with at least two Moringa trees and several amaranth plants. During this process each household will be taught how to best grow each crop and how to take care of it once it is established. Once the crops are ready to be harvested we will teach households how to harvest them most effectively and, in the case of Moringa, how to dry the leaves and create leaf powder.

We will also hold training sessions on the preparation of both amaranth and Moringa, which will cover the basics of nutrition and explain to households the importance of incorporating both foods into their diets and the benefits that their incorporation will bring. These training sessions will be directed at women and, in particular, mothers as studies have shown that levels of child malnutrition decline sharply with increases in the level of the mother's education on such issues ([WFP, 2009](#)).

2.4 Project Design

2.4.1 Major Development Objectives

Goal

To reduce malnutrition and improve food security in Prolit village in order to make a sustainable improvement in the health and wellbeing of all of its inhabitants

Objectives

- To promote community participation in and ownership over the development process

- To create a nursery of Moringa Oleifera trees and amaranth grain crops
- To transplant the Moringa trees and amaranth crops to households in Prohit village
- To train households in the successful cultivation of the crops
- To raise community awareness of issues related to nutrition and teach them how to effectively incorporate Moringa/amaranth into their diets

By making progress on the following objectives, we will get closer to realising our overall development goal.

2.4.2 Significant Project Goals Log Frame

	Summary	Indicators	Evidence	Assumptions
Goal	To reduce malnutrition and improve food security in Prolit village in order to make a sustainable improvement in the health and wellbeing of all of its inhabitants	Improvements in the health of all of inhabitants of Reul Commune by 25 th month	Household surveys Photos/videos Logs from MaD's Medical Program	
Purpose	To enable residents of Prolit village to incorporate Moringa Oleifera and amaranth grain into their diets on a permanent basis	At least 198 households (1048 people) incorporating Moringa/amaranth into their diets on a regular basis by the end of the 18 th month	Household surveys Photos/videos Project logs	No outbreak of famine/disease in Siem Reap province Food is fairly distributed within households Households continue to look after and grow Moringa/amaranth after project completion
Outputs	1. Community participation in the development process	90% of assisted households to have participated in planning, implementation and evaluation by end of 18 th month	Minutes of meetings Photos/Videos Household surveys	Community willing/able to participate in the development process
	2. Nursery of amaranth grain and Moringa Oleifera established	At least 500 Moringa trees and 500 amaranth grain crops cultivated and ready to be transplanted by 6 th month	Photos Project logs	50% or more of seeds germinate and successfully grow No outbreak of pests/disease that destroy crops
	3. Households in Prolit able to successfully cultivate Moringa Oleifera trees and amaranth grain	At least 500 Moringa trees and 500 amaranth grain crops growing strongly in Prolit by 9 th month	Photos Project logs Records of training session	Crops do not die as a result of transplanting No outbreak of pests/disease Households adopt training & take proper care of crops Households have sufficient water for crops
	4. Raised community awareness on nutrition and how to incorporate Moringa/amaranth grain into their diets.	All households receiving Moringa trees/amaranth grain crops to have participated in training sessions by end of 18 th month	Records of training sessions Photos	Households apply knowledge
Activities	1.1. Participatory meetings with the community to plan the project strategy and review progress	75% of assisted households represented in planning and evaluation process by 7 th month	Minutes from community meetings Project logs/evaluations	Participatory meetings represent all stakeholders from the community

	1.2. Community members to assist in the work of the project by offering labour and/or raw materials	100% of assisted households offering labour and/or raw materials by 7 th month	Photos/videos Project logs	Community members willing/able to offer labour or raw materials
	2.1 Moringa Oleifera trees planted on organic farm	1,000 Moringa Oleifera seeds planted by 3 rd month	Photos Project logs	
	2.2 Amaranth grain crops planted on organic farm	1,000 amaranth grain seeds planted by 5 th month	Photos Project logs	
	2.3 Nursery of Moringa Oleifera and amaranth grain developed	At least 500 Moringa Oleifera trees and 500 amaranth grain crops ready to be transplanted by 5 th month	Photos Project logs	Enough seeds have germinated Crops not destroyed by heavy rain/flooding
	3.1 Moringa Oleifera trees transplanted to households in Prolit village	At least 250 Moringa trees transplanted by 6 th month	Photos/videos Project logs	Moringa trees are ready to be transplanted
	3.2 Amaranth grain crops transplanted to households in Prolit village	At least 250 amaranth crops transplanted by 6 th month	Photos/videos Project logs	Amaranth is ready to be transplanted
	3.3 Households trained in the successful cultivation of Moringa Oleifera and amaranth grain	At least 75% of households receiving Moringa trees/amaranth crops to have received training in their cultivation by 8 th month	Household surveys Training records Photos	Households adopt training
	3.4 Households trained how to successfully harvest Moringa Oleifera and amaranth grain.	At least 75% of households trained how to harvest Moringa trees/amaranth grain by 15 th month	Training records Household surveys Photos	Households remember training for future harvests
	4.1 Training sessions on nutrition and the preparation of Moringa/amaranth provided to households	At least 50% of households represented in training sessions by 15 th month	Training records Photos	People attend training sessions Education is understandable and culturally relative

2.4.3 Project Activities and Resources Required

Objective	Resources Required
To promote community participation in and ownership over the development process	<i>Participatory Rural Appraisals⁵ (PRAs), interviews and evaluation sessions with local community leaders and residents</i>
To create a nursery of Moringa Oleifera trees and amaranth grain crops	<i>Pots, trays, compost, posting, thatch, water system</i>
Transplant Moringa Oleifera and amaranth grain to households in Prolit	<i>Tuk tuks + trailer, compost, tools (spades, shovels etc)</i>
Train households in the successful cultivation of Moringa Oleifera and amaranth grain	<i>Trainer + training materials</i>
Raise community awareness on nutrition and teach households how to effectively incorporate Moringa & amaranth into their diets	<i>Trainer + training materials</i>

2.4.4 Project Activity Description

1: Community participation in the development process

- **1.1 & 1.2** Before we start work in a village, we hold meetings (PRAs) with the community to discuss their needs and to decide upon a specific plan for that village together. We also hold informal interviews at the household level in order to ensure that no members of the community are left out of the decision-making process. We have already held several PRAs with the villagers of Prolit and have conducted a baseline survey covering all of the households in the village and we decided to launch this project in Prolit as a result, due to problems the community related to us regarding the difficulty they have growing crops and the lack of food available to families. During these initial PRAs, the community were made aware of, and agreed upon, the conditions of MaD carrying out work for them:
 1. That they offer what they can to assist us in the program (labour, resources, or cooking a basic lunch for the team whilst they do their work). This means that a representative from each household must be present when we transplant the crops to their land and must assist us with the work, offering materials such as compost if available.
 2. That they attend training sessions on cultivation, preparation and nutrition.
- Participatory evaluations are carried out throughout the work in order to ensure a constant learning process. For example, we will hold informal interviews at the household level after we have transplanted the crops to them or delivered a training session in order to gauge how the residents feel the project is going and to deal with any potential problems that arise. We will also get participant reports from volunteers and from our Khmer team and we will incorporate their suggestions into project designs where appropriate.
- Upon completion of the agreed upon project we will hold more formal evaluation meetings with the village community where we will be able to discuss the project in depth, examine any particular successes or failures and take into account any future needs the community may have.

2: Nursery of amaranth grain and Moringa Oleifera established

- **2.1** The Moringa Oleifera trees will be planted on the organic farm in June. We have already acquired several thousand seeds from the local region which will enable us to immediately

⁵ PRA as defined by [Wikipedia](https://en.wikipedia.org/wiki/Participatory_rural_appraisal): “an approach used by non-governmental organizations (NGOs) and other agencies involved in international development. The approach aims to incorporate the knowledge and opinions of rural people in the planning and management of development projects and programmes.”

start growing the trees come June. The seeds will be planted in pots in a mixture of soil and rich compost in order to accelerate growth and ensure maximum yields. Two seeds will be planted per pot and then will later be thinned in order to ensure a higher chance of germination in each pot. The pots will be large enough in order to ensure growth for the full 5-6 months that they are grown on the organic farm.

- **2.2** Amaranth grain has yet to be grown in Cambodia and so MaD will experiment with the best growing practices for the plant in the Cambodian environment in the beginning of June. We will have time grow and harvest our own plants before the end of the rainy season (September – October), which is when we have been advised by ECHO Asia as the best time to grow amaranth grain in South East Asia. This way, by this time we will have a source of locally grown seeds which we can use to develop a larger nursery of amaranth grain which can then be transplanted to Prolit in October - November. The first batch that we grow in June will be transplanted into the soil on our organic farm around 1-2 months later.
- As with the Moringa trees the amaranth grain will be planted in pots/trays in a mixture of soil and compost. Several seeds will be planted per pot/tray and then later thinned so that the strongest plants survive.
- **2.3** MaD has been experimenting with growing Moringa Oleifera since the beginning of 2010 and we now have several trees growing strongly on our property. One of the things we have learned whilst growing the trees is that the young saplings do not tolerate heavy watering or rain. We have been told that young amaranth plants suffer from the same weakness. Therefore, as our nursery will be developed during the rainy season in Cambodia, we will construct a high thatched roof above the nursery in order to ensure that the crops do not suffer from flooding. The high roof will also ensure that the crops get enough sun to grow strongly. We will also install a sprinkler system on the farm so that we can lightly water all of the crops every day.
- Moringa Oleifera trees are best transplanted when they are well developed and therefore more resistant to the transplanting process and so 5-6 months of growth will be more than enough in order to ensure this. Amaranth grain crops are best transplanted 1-2 months after they have been planted as this gives enough time for the taproot to become fully established, so they will be planted in September with the aim of transplanting them in October-November.

3: Households in Prolit able to successfully cultivate Moringa Oleifera trees and amaranth grain

- **3.1** MaD will start to transplant the Moringa trees to Prolit in October, when the rainy season is nearing an end but when the soils are still rich in residual moisture. Neither the Moringa trees nor the amaranth grain crops will be donated to households in the community. Instead, we will charge each household a nominal fee of 2000R (\$0.50) for the Moringa trees and 2000R for the amaranth crops. Our experience in rural development work over the past few years has taught us that projects are much more sustainable when families contribute their own resources to the project. People in rural parts of Cambodia generally believe that if something is simply given to them then it is not worth much and they therefore do not take proper care of whatever has been donated to them, putting the long term sustainability of a project at risk. If they buy into the project or contribute their own resources to it then they have a much higher incentive in order to make sure that whatever is donated to them is taken care of properly. Having said this, no families will be denied Moringa trees or amaranth crops due to lack of money, however MaD will first investigate the situation through the appropriate channels (meetings with neighbours, the community chief etc) in order to determine whether or not the family are genuinely incapable of paying for the crops.
- In order to transplant Moringa trees the following practice has been recommended: first it is important to find a location where the soil is light and sandy and not heavy clay in order to

ensure optimal growing conditions for the trees. A hole approximately 60cm deep and 30-50cm square will then be dug, and the soil will then be mixed with approximately 1 part compost to 3 parts soil and then backfilled into the hole. The Moringa tree will then be added to the planting hole, with extra care being taken not to disturb the soil around the trees roots as this can severely damage growth. Moringa trees will be planted at least 3 metres apart in order to ensure that they are not competing for valuable nutrients in the soil. The trees, as well as the amaranth grain, will normally be planted close to the family's house, when there is space, rather than in the farming fields so that they are within easy access for the family and they are easier to look after.

- We will not transplant a Moringa tree unless a representative from the family who is receiving the tree is present to assist with the planting. This way, we can teach the family how to plant the tree and how to take care of it over the upcoming months: watering it lightly every day or every other day. The family will also be told how to plant their own trees if they wish to do so in the future, both from cuttings and by direct seeding.
- **3.2** Amaranth will also be transplanted onto sandy, and therefore well drained, soil. The plants will be spaced approximately 12 inches apart. Holes around 10-20cm deep will be dug into which the plants will be placed and then covered with soil and compost and lightly firmed. They will then be immediately irrigated in order to establish a good root-to-soil contact. Rows of furrows approximately 4-6 inches high will also be dug in order to protect the plants from excessive moisture.
- As with the Moringa trees, we will not transplant the amaranth plants unless a representative of the recipient household is there to assist us with the transplanting and learn about the cultivation process. We will instruct them to lightly water the plants several times a week, unless there has been a lot of rain. We will also teach the households how to plant new amaranth crops at the end of the rainy season the following year, directly with seeds from the plants that we have given them. As amaranth plants produce so many seeds it will be easy for families to increase the number of plants that they are growing if they wish to.
- **3.3.** After all of the crops have been transplanted, our team will then work closely with all of the households in Prolit in order to monitor the progress of the crops and to correct any errors that families may be making with their cultivation (over watering, not watering enough, controlling pests/weeds etc). This will involve making our way round the 196 households in Prolit, inspecting the crops and then working with the respective families to correct any problems.
- Once established amaranth grain does not need much attention until they are ready for harvesting, except for light watering several times a week during dry periods. Moringa Oleifera, however, must be regularly pruned in order to increase yields and ensure a bushier growth with more leaves within easier reach. We will teach households how to prune their trees once they reach roughly 60cm in height, when the terminal tip will be pinched 10cm from the top. The secondary branches that then develop will be pruned by 10cm once they reach around 20cm in length. The tertiary branches will be pruned in the same way. As when we are transplanting the trees, representatives from the respective families must be present when we prune the trees so that they can learn how to do it by themselves in the future.
- Each time pruning is carried out, families will be encouraged to incorporate the fresh leaves into their meals and feed the branches/stems to any livestock they have, which has been shown to improve health and increase weight.
- **3.4** Amaranth grain will be ready for harvesting first, around December and January. However, the leaves can be harvested on a small scale on a regular basis before this. Several indicators can be used to determine when the grain is ready to be harvested: when the seeds start falling to the ground or when they are easily separated from the heads upon rubbing between the hands. The seed heads are then cut from the stalks as soon as possible after they have matured. They are then dried in the sun if necessary. The seeds are

then knocked or thrashed from the heads and then sifted or winnowed to remove chaff (this is something that the vast majority of households in Prolit will already know how to do as it is necessary for both rice and other grain crops that so many families grow).

- The seeds are then stored in a sealable bucket/container (which will be given each household) which is stored away from direct sunlight in order to prolong their life
- Moringa trees are not usually harvested until they are around 1 year old. Households will be given two options when it comes to harvesting the trees: harvesting them only for the leaves or harvesting around half of the leaves so that the tree will also produce seed pods which can also be harvested and eaten by the family. If they only want the leaves then the entire tree will be cut around 30cm from the ground and then allowed to grow again. This harvesting method produces a large amount of leaf powder, but limited amount of fresh leaves (as they cannot be stored as long as the leaf powder) and no pods.
- If the families would like to grow the trees for the pods as well as the leaves then they can either trim around half of the branches or harvest the leaf stems from the branches, leaving some branches/leaf stems remaining for future harvests and pod production. This method produces a smaller amount of leaf powder, but allows for pod production and for more regular harvesting of small amounts of fresh leaves which can then be immediately incorporated into a meal.
- After being shown how to harvest the leaves, families will be shown how to create Moringa leaf powder. The Moringa leaves are spread out and left to dry in a place that is shielded from the sun's rays, as direct exposure to the sun whilst drying the leaves decreases the amount of vitamins and nutrients contained in them. The dried leaves are then separated from the stems, which can again be fed to livestock, and then grinded to create a leaf powder. This leaf powder is stored in a sealable container and placed away from direct sunlight for up to 6 months. The leaf powder can be added to virtually any meal and in the process provide an exceptional nutritional boost to the food.

4: Raised community awareness on nutrition and how to incorporate Moringa/amaranth grain into their diets

- **4.1.** Seminars on nutrition and on the preparation of amaranth grain and Moringa leaves/pods will begin in December. They will be organised for groups of 5-10 households and will be directed at the women in the households, since they are generally responsible for providing the family with their daily meals. Each seminar will firstly cover the dangers of malnutrition and how eating nutritious foods such as Moringa and amaranth grain on a regular basis can mitigate these dangers. Particular emphasis will be placed on consuming these foods at critical times, such as during pregnancy and breastfeeding, when children are under 5 years of age and when members of the family fall ill. We have an interactive DVD in Khmer on nutrition and healthy eating which will be shown on our portable, battery powered TV/DVD player at each seminar in order to add to the education on nutrition.
- Attendees will then be shown simple ways to incorporate amaranth grain, amaranth leaves, Moringa leaves (both dried and fresh), and Moringa pods into their meals/diets. Attendance to these seminars is compulsory by at least one representative to each family receiving Moringa trees/amaranth grain.

2.5 Project Activity Schedule

Months of project																		
Tasks	2010 June	July	Aug	Sept	Oct	Nov	Dec	2011 Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov
Nursery established																		
Crops transplanted																		
Training on cultivation																		
Education on preparation & nutrition																		

2.6 Direct & Indirect Beneficiaries

Prolit village has a population of 1,048 people spread across 196 households. This project aims to cultivate enough Moringa trees and amaranth grain in order to provide every single family in the village with an ample and sustainable supply of the food from the crops.

In general, the female heads of households will be the primary direct beneficiaries of the educational elements of the project, but we are confident that this strategy will enable the project to have a greater impact on the rest of the family.

The project will not only have a positive impact on food security and nutrition, but we predict that it will also impact positively on the livelihoods of the targeted families as well: their food costs will go down which means that many will no longer have to take loans in order to pay for food and others will have an increased surplus of income to spend on other necessities, such as their children's education.

Furthermore, the ultimate aim of the project is to improve the health of all the targeted families, which will mean less will have to take valuable time off work or away from school due to illness and less will have to take out loans in order to pay for expensive medical bills.

3.0 PROJECT CROSS-CUTTING ISSUES

3.1 Gender Analysis

As explained above, this project has a strong gender focus. This is because in Cambodia, as in many developing countries around the world, the female heads of household are generally responsible for the rest of the family's nutrition, especially when it comes to young children who are often particularly vulnerable to malnutrition. The project aims to empower female members of the family so that they are able to take greater control over providing their families with decent levels of nutrition.

3.2 Environmental Assessment and Management

This project will have a positive impact on the local environment. Planting trees helps to reduce the levels of carbon dioxide in the atmosphere and therefore help to prevent global warming. They filter pollutants such as carbon monoxide, smoke, dust and ash out of the air and replace them with oxygen, cleaning the air in the process. In addition to this they also make valuable carbohydrates that are used for plant growth and absorb water which can prevent flooding and redistribute water more evenly, therefore contributing to soil fertility.

All of the farming techniques that MaD uses are organic and sustainable, and it will be these farming techniques that we will be teaching to the local community. We never use chemical fertilisers and strongly discourage their use in rural communities, instead promoting the use of organic compost made from locally sourced materials such as manure, water hyacinth and food leftovers.

It is worth mentioning that there has been some speculation as to whether or not Moringa trees should be classified as an invasive species, due to its ability to grow very fast and very easily, even under poor conditions. However, it seems very unlikely that Moringa has the capacity to develop into an invasive species in Cambodia: the plants grow natively in the local environment in Siem Reap and around the rest of the country and yet trees are generally very sparsely populated throughout the countryside. During our extensive research in Prolit village, we only saw two Moringa trees (one of which was planted in the local primary school) and there were very few in Bakong Commune, where MaD used to work. This is backed up by the research carried out by the Invasive Species Council, which does not list Moringa as being invasive in any countries in South East Asia.⁶ Beth Doerr, who works for ECHO and has a great deal of experience working with Moringa trees, also calls into question as to whether it should be classified as an invasive species. She claims she has never seen its weedy potential during her travels to more than 40 countries around the world where the tree grows. There are several reasons for this, she believes. Firstly, because animals love to eat the young trees and secondly because the pods/seeds are not dispersed by wind: “The pods drop below the tree, get bugs and decompose, unless you collect and plant them.”⁷

Nevertheless, MaD will be closely monitoring the situation during this project and will be taking pre-emptive steps in order to further minimise this possible risk (see Risk Assessment).

3.3 Sustainability of Development Activities

This project aims to be completely sustainable by the end of the 18th month. By providing extensive training to all families who have received Moringa trees and amaranth grain we aim to enable them to cultivate and prepare the crops for consumption without any outside assistance by the time the project has finished. We aim to provide each family with enough training so that they know how to plant and cultivate their own Moringa trees and amaranth grain in the future, so that they are capable of increasing their cultivation if they wish to do so.

Providing training to female heads of households on the importance of good nutrition and on the benefits that incorporating Moringa and amaranth grain into their diets can bring to their family's health will help to ensure that they understand the importance of doing so and therefore take proactive steps to ensure a healthier diet for their family. This will mean taking care of their Moringa trees and amaranth grain and adding them to their family's meals on a regular basis.

Moreover, by only using and promoting organic farming techniques we will ensure that the crops are grown in a sustainable manner that does not damage the local environment or the soil's fertility.

3.4 Local Community Participation

This is a community led project, established after extensive consultation with the people and leaders in the village so that we can focus on the issues that matter to them. We aim to establish maximum community participation throughout the project. In order to ensure this we will:

⁶ Invasive Species Council, [The Weedy Truth About Biofuels](#), March, 2008

⁷ Beth Doerr, quoted in: Susanne Retka Schill, [Multidimensional Moringa](#), Biodiesel Magazine, June 2008

1. Never transplant Moringa trees or amaranth grain unless an adult representative of the family is available to assist us with the transplanting. This way we can ensure that they understand how to plant the crops correctly and can be given training on how to look after them once they have been planted.
2. Provide participatory training on the cultivation and harvesting of the crops to all families who receive them
3. Provide training on nutrition and preparation of the foods to all families who have received the crops, focused on the female heads of households
4. Ensure a constant flow of feedback from all of the families by conducting interviews with them throughout the project in order to deal with any questions that they may have or any problems that may arise and in order to gauge how they think the project is going. This feedback will be recorded and will be available on request.

Whilst we help with management and funding it is down to the locals within the community to help themselves. We bring all the elements together and assist with training and education to make their efforts productive and worthwhile. By carrying out the project in this way we ensure that it is fully participatory, which makes it more sustainable and more empowering.

3.5 Capacity Building

The capacity building of this project will be on several levels. At the first level, we will develop the community's capacity to grow, harvest and prepare Moringa trees and amaranth grain. However, whilst doing this we will also provide the families with valuable organic farming techniques such as composting which they will be able to use to grow other crops. Agricultural knowledge in rural parts of Cambodia are limited and outdated and Prolit is no exception to this, and so the benefits that this increased knowledge will bring to a community that depends so heavily on agriculture are potentially enormous.

The training on nutrition will enable families to take greater control over their family's nutrition and therefore their health. The project will not only provide them with the training to understand why this is important and how they can improve their families nutrition but it will also provide them with the resources and the capacities to do so *by themselves*, without depending on other organisations or their government, therefore making this project very different to the majority of nutrition interventions in the developing world.

The improved health that we hope to bring about with this project will also increase the community's capacity to develop in other areas. It will lead to a decrease in disease and illness, an increase in worker productivity, increased incomes and children who are capable of performing well at school. The indirect effects of this project upon other development objectives cannot be emphasised enough.

3.6 Strategies for Management of Identified Risks

Risk: The amaranth is not successful growing in Siem Reap

Strategy: This is somewhat of a significant risk with this project, since MaD is the first NGO to attempt to grow amaranth grain in Siem Reap and Cambodia. It has had some success growing in Thailand, which has a similar climate to Cambodia, which leaves us feeling optimistic about its chances growing here.

We decided to incorporate it into the project this year rather than choosing to experiment growing it for a year on our organic farm first because the costs involved with adding amaranth into this project were so minimal that we decided that it would not matter too much even if we were not successful growing the

crops this year. The only additional costs involving the amaranth are the seeding trays and a small portion of the potting mixture and manure, the rest we would have had to incorporate into the budget for the Moringa Oleifera anyway. Therefore, for the costs involved, we felt this was a risk that we could take.

Risk: The community do not genuinely want or need this program

Strategy: This project has been developed in response to the community's request for assistance with food supplies. By asking families to make a small contribution for the crops we will ensure that we will not be giving them to families who do not want them and/or are not prepared to look after them properly, therefore ensuring a higher level of sustainability for the project.

Risk: Households will not be willing to participate in the project.

Strategy: As a requirement for receiving assistance from MaD in this project, all households are obliged to participate in the project so that they can learn how to properly take care of the crops that we have provided them with. Households are required to participate in this way for all of our rural development projects and we have never found them to be unwilling to do so.

Risk: Segments of the community are left out of the PME process

Strategy: As well as conducting general meetings in the villages we will operate in, MaD will also initiate informal conversations at the household level in order to ensure that all voices are heard. Often, these conversations will be targeted at women and other members of society who are at particular risk of exclusion. We have completed a database of 170 of the 196 families in the village, which we aim to increase to cover all of the families in the village as the project progresses. This database will enable us to see exactly whose voices have been heard and whose have not.

Risk: Outbreak of pests/disease destroy crops

Strategy: Both Moringa Oleifera and amaranth grain are noted for their resistance to a wide variety of pests and disease. However, we will be monitoring the growth of all of the crops closely so that we can deal with any outbreaks of pests/disease before they become too serious.

Risk: Heavy rain/flooding destroy crops

Strategy: Moringa trees and amaranth grain are only vulnerable to over watering/flooding when they are young. Consequently, we will construct a basic roof over the nursery on our organic farm so that the crops are not destroyed by the heavy rain during the monsoon season (July – October). This way we will be able to control the amount of water the crops receive through a sprinkler system that will be installed on our organic farm. By the time we transplant the crops, they will not only be strong enough to stand heavy rain but they will be transplanted when the rains of the monsoon season are diminishing rapidly.

Risk: Crops die as a result of transplanting

Strategy: Amaranth grain is easily transplanted and usually does not suffer any complications during the transplanting process. Special care will be taken when we transplant the Moringa trees so that the soil around the roots is not disturbed, as this can severely weaken and kill Moringa saplings. The crops will be transplanted into appropriate soil, which will be mixed with rich compost in order to ensure healthy growth in their new location. Furthermore, they will be transplanted near the end of the rainy season, when soils are richest in the moisture needed for strong and stable growth.

Risk: Households do not have enough water to look after crops

Strategy: All households have access to some form of water source; the only problem is that it is not always clean water. Both Moringa and amaranth only need a small amount of regular watering to grow well and so lack of water should not be an issue. Furthermore, this project will be implemented at the same time that MaD will be implementing a large scale water and sanitation project for Prohit village, which will provide all families both with better, safer supplies of water and rich compost from the compost toilets that we are constructing in the village, both of which will be invaluable for this project.

Risk: Households do not have enough land for crops to be transplanted to

Strategy: There is a huge amount of land in Prolit where there is currently either nothing useful growing or nothing at all growing. During our extensive survey of Prolit, we did not come across a single house which we thought would not have enough land in order to receive the crops from this project.

Risk: Families do not look after crops

Strategy: That families do not sustain work that an NGO has carried out for them is a risk in any development project. However, we believe that by both working closely with each family throughout the year and by ensuring that each family makes a contribution of their own to each project we will minimise this risk and incentivise families to sustain our work to the greatest extent possible.

Risk: Families do not store Moringa leaf powder and/or amaranth grain properly

Strategy: All families will be given two sealable containers in which they will be able to store their amaranth grain and Moringa leaf powder. They will be instructed to use these containers for storage and to store them away from direct sunlight in order to prolong the life of the grain/leaf powder.

Risk: Families do not incorporate amaranth/Moringa into their diets

Strategy: As previously mentioned, women in the family in Cambodia are generally responsible for providing their family with their meals each day. By both teaching them the importance and benefits of incorporating Moringa/amaranth into their diets (i.e. better health, less illness), as well as showing them easy ways in which to do so it will act as a very strong incentive for each household to consume the foods on a regular basis.

Risk: Lack of community willingness to participate in educational program

Strategy: Each individual intervention will be agreed in advance with the recipient households and will be conditional upon households attending training and committing labour and/ or resources. This model has also proved successful in our previous rural development work in Siem Reap. MaD has been running education in health and hygiene through its medical program for over two years and has found that in general there is a great willingness to participate in such programs when the community is made aware of its potential benefit, and an effort is made to make sure the education/training sessions are interesting (eg. through the use of props and Khmer DVDs)

Risk: Education on nutrition is not understandable and/or culturally acceptable

Strategy: Education offered is culturally sensitive and understandable– it is drawn from best practice of other NGO's and Government Agencies who have been successful in the field as well as from our own experience from working in the field for over 2 years. The seminars will be delivered by a Khmer person who is well educated on the subject but is also sensitive to the limited knowledge/education of those in rural communities. Our educational DVD on nutrition has been shown to people from rural communities in Cambodia before and has received very positive feedback.

Risk: Moringa Oleifera trees become invasive in the community

Strategy: The Invasive Species Council, one of the key organisations who have voiced concern over the invasive potential of Moringa Oleifera trees,⁸ writes that Moringa seeds do not spread far from parent plants, except along waterways. It therefore recommends that Moringa trees should not be grown near water courses or national parks, and MaD will follow this recommendation.

Having said this, the Moringa trees that we will teach families to grow will not have much of a chance to develop into invasive plants. This is because we will be teaching families to cultivate the trees primarily for their leaves, leaving only a limited space for pod production by harvesting most branches before pods

⁸ Invasive Species Council, [The Weedy Truth About Biofuels, March 2008](#)

can develop. We will encourage families to consume the pods that develop on the branches that are left as soon as they ripen, meaning they will not be able to spread.

4.0 PROJECT MANAGEMENT AND COORDINATION

4.1 The MaD - Making a Difference for Good! & Coordinating Arrangements

MaD – Making a Difference for Good! Cambodia has been actively working in rural Cambodia for the past 2 years. We have experienced success and failure but from this we have learned the only way for us to work effectively is to be community based, with the full support and co-operation of the community.

MaD - Making a Difference for Good! Cambodia will take full responsibility for all of the operational tasks of the project: project design, planning, implementation, monitoring and evaluation.

Additional support in project management and implementation will be provided to the project where necessary.

All funds directed to this organization will be distributed directly to the MaD - Making a Difference for Good! Cambodia ANZ Royal Account where it will be distributed and accounted for as the project requires.

4.2 Project's clear accountabilities

MaD - Making a Difference for Good! Cambodia keeps strict financial records and accounts for all of its projects. These are consistently kept up to date and are well organised and will be available to the donor upon request at any time.

4.3 Monitoring and Reporting Roles of the Implementing Partner

MaD - Making a Difference for Good! Cambodia will give regular three month reports against output and objectives. The narrative report will include photographs and will describe exactly what happened with the funds, what has been achieved, what issues have arisen and how they have been dealt with and what is expected to be achieved in the next three month period.

4.4 Strategy for promoting the identity of the donor

MaD - Making a Difference for Good! Cambodia publishes a quarterly news letter in which all our program achievements are detailed and explained for the previous quarter. Full disclosure and credit is given/attributed to those who have donated, funded and supported the program. When and where appropriate we will add the donor's logos / insignia to the MaD - Making a Difference for Good! [website](#) and [Facebook page](#) with external links, and any publications we plan to disseminate in Cambodia or abroad.

If requested by the donor, we would also be willing to explore the possibility of adding logos / insignia to specific items paid for or provided by the donor. This could include the donor's logo or other insignia in the following places:

- On a sign outside the MaD House (located on the main road of Route #6 / Airport Road)
- On the teams' MaD t-shirts
- On the 4WD Tractor

4.5 Other Existing Programs in the Area

Whilst there are other food security and nutrition programs that are being run in Prolit village by both other NGOs and the Cambodian government, there are no projects that are similar to MaD's nutrition program. All of the other existing programs that MaD is aware of in the area rely on the distribution of free food such as rice and bread and on the distribution of vitamin supplements, such as vitamin A injections for children. Part of the reason for launching our own nutrition program has been in response to such programs, which we believed are a short sighted and flawed model for improving nutrition and food security as they create dependence on the NGOs/organisations that are running them, rather than allowing communities to take control over such issues themselves.

4.6 Exit strategy

We work on a village by village basis. Once this project has been completed and we are content that the village community are capable of growing, harvesting and consuming the crops that we have provided them with, we will commence a new project in a different village in Reul. We will maintain regular contact with the village leaders and carry out regular checks on our work in Prolit after the project has been completed in order to ensure that our work is being sustained by the families in Prolit as planned. During such checks we will be able to deal with any issues that arise and help to rectify any problems that the community are having sustaining the project on their own. However, our aim is to gradually decrease the need for such checks and eventually the reliance on MaD as the community learns to take complete ownership and responsibility over their new crops, their nutrition and, ultimately, over their own standards of health.

5.0 BUDGET DESIGN AND FINANCIAL ISSUES

5.1 Presentation of Budget

BUDGET: All \$ are USA\$ unless stated otherwise

Year 1: Prolit Village

Unit	Unit Measure	Total Units	Unit Cost	Total Cost
Potting Mix	1 truck (3 Metre ³)	10	\$ 32.50	\$ 325.00
Pots	Kilo (approx 70 pots)	15	\$1.75	\$ 26.75
Seeding Trays	Tray	40	\$1.50	\$ 60.00
Sprinkler System	Sprinkler system	1	\$ 533.00	\$ 533.00
Tools	Hand tools	N/A	N/A	\$ 48.00
Fencing	Roll of wire	4	\$ 18.00	\$ 72.00
Stone chips for nursery	Cubic Metre	3	\$ 37.00	\$ 111.00
Shade cloth (nursery)	Roll (30 Metres)	2	\$ 18.00	\$ 36.00
Timber (nursery)	Bundle	1	\$ 48.00	\$ 48.00

Manure	Bag	10	\$ 3.00	\$ 30.00
Local Staff Costs ¹	Allowance/month	14	\$ 300.00	\$ 4,200.00
Transport Costs ²	Fuel/week	45	\$ 30.00	\$ 1,350.00
150cc Motorbike ³	Motorbike	1	\$ 1,100.00	\$ 1,100.00
Trailer	Trailer	1	\$ 600.00	\$ 600.00
Storage Buckets	Bucket	392	\$ 1.50.00	\$ 588.00
Contingency ⁴	6% contingency	1	\$ 550.55	\$ 550.55
Total (US\$)			\$ 9726.30	

Year 2 onwards: Sambuor Village (and other villages in Reul Commune after Year 2)

Unit	Unit Measure	Total Units	Unit Cost	Total Cost
Potting Mix	1 truck (3 Metre ³)	10	\$ 32.50	\$ 325.00
Pots	Kilo (approx 70 pots)	15	\$1.75	\$ 26.75
Seeding Trays	Tray	40	\$1.50	\$ 60.00
Tools	Hand tools	N/A	N/A	\$ 48.00
Manure	Bag	10	\$ 3.00	\$ 30.00
Local Staff Costs ¹	Allowance/month	12	\$ 300.00	\$ 3,600.00
Transport Costs ²	Fuel/week	45	\$ 30.00	\$ 1,350.00
Storage Buckets	Bucket	288	\$ 1.50.00	\$ 588.00
Contingency ⁴	6% contingency	1	\$ 432.00	\$ 432.00
Total (US\$)			\$ 6274.94	

Budget Notes:

1. This project will be managed and implemented by two new staff members: a project manager (\$200/month) and an assistant (\$100/month). These wages are subject to change, but this will be the maximum total they will amount to.
2. Transport costs are high because Prolit is located 21km away from our NGO HQ. These transport costs includes repairs and maintenance to vehicles, which are also high as the road to Prolit is in a very bad condition
3. Previously MaD has relied on slightly cheaper 110cc motorbikes with trailers to carry goods to project sites. However, during our Water & Sanitation work in Prolit we have found that these less powerful motorbikes have immense difficulty pulling a decent amount of supplies to Prolit, as the road is so bumpy, sandy and, during the rainy season, muddy. We have therefore started using 150cc motorbikes which are more capable of taking the amounts of supplies we need each day to the project site. However, our bikes and trailers will be in constant use for our Water & Sanitation project and so we will need an additional bike and trailer in order to implement this project.
4. We have allowed a 6% contingency of our total budget to allow for possible financial setbacks such as: inflation; currency fluctuations; rise in fuel prices; damage caused by extreme weather conditions; accidents; civil strife; change in legislation relating to NGOs and our work etc.

5.2 Sources of Funding

MaD recently partnered with a new social enterprise in the United States, called Ecodana, who have helped us raise part of the necessary funds to implement the first stage of this project (\$500). We have raised the rest of the funds to implement this first stage through various other means: with the revenue generated by our ongoing voluntourism program, the funds raised by our social enterprise restaurant at our NGO HQ and with the funds raised by our MaD USA team.

We are now looking for donors to help us to raise the funds to implement the second stage of this project.

5.3 Project Assets at their Disposal

MaD - Making a Difference for Good! Cambodia has been active working in rural development in Siem Reap for the past two years and as such has built up a small stock of all the necessary equipment and tools to enable us to begin such a project immediately. These assets include several motorbikes and tuk tuk trailers. We also have a collection of tools necessary to carry out the first stage of this project and we have the land at our NGO HQ where which we will be able to use to implement the first stage of this project.