



Rice Based Products Exhibition - 2007 Cathy Rich Memorial Food Processing Training Centre



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Number 1

Why Rice Based Products?

The agriculture sector in rural Sri Lanka provides employment to about 32%¹ of the labour force, surpassing the contribution of any other sector. The rice sector employs about half of the total agricultural labour force (about 16% of the total labour force). Rice accounts for approximately 25% of the consumer goods basket, about 75% of total grain consumption and 45% of caloric intake in the country.²



Photo 1. Paddy field in the Embilipitiya area

Rice is therefore a major component of the agricultural sector in particular and the overall economy in general. Therefore, any increase in the value of rice products has the potential to accrue benefits to a large segment of the population. Moreover, rice products as a substitute for imported wheat flour and wheat flour products, can potentially save the country valuable foreign exchange expenditures.

The Importance of Value Addition

It is well established that agricultural growth provides a direct link to the poor that live in rural areas and as such is effective in eradicating rural poverty³. Furthermore, it may be a prerequisite to broader based sustained economic growth in many

developing countries.⁴ The Government of Sri Lanka has the aim to improve the productivity of agriculture by improving processing and value addition, as stated in the “Mahinda Chintana” (2006-2012 National Development Framework).

Most of the rice, sold as the main source of income for rural people, does not offer any value-added benefit or incorporate available technology in ways to improve their value. As such, the products often are sold at low prices and the income earned by producers is low. The concept of the Cathy Rich Centre (CRC) rice-based project was developed under the direction of JICA volunteer/researcher Ms. Mariko Inada in conjunction with Practical Action – ITDG to address the need in the Sri Lankan agriculture sector, for transforming the relatively low value output of primary rice production into higher productive value added rice based products.



Figure 1: Simplified agri-business value chain (adopted from UNIDO, 2006)

Cathy Rice Centre is involved with adding value at the level of the chain that concentrates on transforming raw agricultural materials (e.g. rice) into a variety of processed products. This is

¹ Central Bank Of Sri Lanka – Annual Report (2006)

² Kelegama, (2006)

³ World Development Report (2000) cited in Wilson, (2002)

⁴ DFID (2002: p 9)

particularly at the small and medium scale business level that is known to be fragmented. The goal for the centre has been to address the needs of this business class with a clear focus on product quality, cost efficiency, and increased profitability.

Product Development

Over the past two years, the CRC staff and JOCV Ms. Inada have been working to develop a long and varied list of rice based products. The key features of the rice product development process included:

- Ingredient selection
- Regulations
- Formulation
- Food safety
- Processing methods
- Product costing and pricing

Rice flour has positive attributes from a nutrition standpoint, but it is a relatively difficult product to work with from a processing standpoint, as compared to wheat flour. Some of the main benefits and challenges of using the product are as follows:

Benefits of using rice flour

- Potential to increase the rice farmers' income by increasing value.
- Readily available in Sri Lanka and consumption rates of the primary form are high – there is scope for homegrown demand that can increase competitiveness of rice based products.
- Higher digestible protein in rice flour than wheat flour.
- Lower calorie content compared with wheat flour.
- High fiber content.
- Can possibly save foreign exchange expenditures.

Challenges of using rice flour

- Low gluten content, making products hard to bind, products break up easily. This results in many processors use artificial additives (that are expensive) to compensate for the absence of gluten.
- Flour from smaller mills/producers has coarser grains that make the product harder to work with.

- Perception among consumers that wheat flour is of better quality (related to problem with binding properties of rice flour).
- Lack of coordination between different levels of the agribusiness value chain, to address supply and demand issues.
- Customers' reluctance to try new products.
- Lack of marketable products that attract the attention of consumers.



Photo 2. Right to Left: Mariko Inada (JICA/JOCV), Nadeeka Edirisinghe and A. D. Priyantha (CRC staff) working to develop new rice based products

The Process

To address the challenges to rice flour products development, the CRC staff and researcher centered on how to develop products that were of good quality, nutritious, tasty, visually appealing and produced in a cost effective way. The researchers through an iterative process, formulated various recipes using rice flour as a main ingredient or as a substitute for wheat flour and experimented with these by using various processing methods, until the most cost effective and labour efficient way was devised. The products were then tested on centre staff and outside visitors for visual and taste appeal.

Once the taste and visual appeal were confirmed, then the material cost, the production process and the preservation period were finalised. During the product development process the CRC staff honed their technical knowledge and practical skills through trial and error, under the direction of Ms. Inada. This was done with the objective of ensuring that the staff would have the know-how to produce quality rice based products and the capacity to conduct training, once Ms. Inada departs.



Photo 3. Rice based cinnamon rolls

What was needed to get to this point?

In addition to the above points, the CRC had to take into consideration a number of other variables (internal to the centre) that affect the ability to develop rice-based products. The centre was able to use its strategic relationships with various government and non-governmental organisations to address these issues, which included:

1. **Financing for the project:** The cost of research and development activities to develop rice based products was prohibitive to the CRC, fortunately in this regard **Practical Action – ITDG** provided the leadership and foresight to fund the research.
2. **Skilled researchers/technicians:** Product development is a secondary activity since the CRC is primarily involved in training. Therefore there was a need to develop the technical capacity of staff members, so that they are able to conduct product development. This was addressed through the help of **JICA**, who provided a skilled researcher to lead the project and train CRC staff.
3. **Internal Organisational Support and Coordination:** The organisational support and coordination needed to successfully conduct product development is substantial. The CRC management was effectively and efficiently able to harness the **commitment of the staff that worked very hard to make the exercise successful.**

What next? Links in the Value Chain

While the Cathy Rich Centre has the technical knowledge relating to rice products processing,

there are other players at different levels of the chain that need to be coordinated. Productive management of the rice products chain means that the actors have to satisfy consumers' expectations through continually improving the process and relationships that support the efficient development and flow of products from producer through consumer. This is about reducing waste and improving quality – that is, providing value.

The rice based exhibition: was conceived as a way to share the technical knowledge the CRC has acquired so far and to collaborate with the government, farmers, the corporate sector, researchers, marketing institutions and the NGO/INGO sector for the optimal benefit of new innovation in value addition in rice based products. The reasoning for this is that the rice products value chain covers the entire scope of producing an end product to the consumer. The chain is therefore very much market driven and require a systems approach that involves multiple actors at the different levels. The exhibition will bring together the above-mentioned actors to get feedback on the rice products that have been developed so far. This input is to ensure continued development of our products.

Workshop: The success of rice products in the competitive marketplace depends on close ties and open ongoing communication among all the players in the chain, ensuring that each is providing the needed value for the entire chain to succeed. During the course of the exhibition the CRC will be conducting a workshop as a tool to initiate communication between the different players with the hope that this will help to build relationships between the players and help them to recognise their individual and collective worth to the chain.



Photo 4. Rice based sesame cookies

In discussion with the CRC technical team

The staff led by JICA/JOCV Mariko Inada who are involved with the development of the rice-based products are, Pushpa Senevirathna, Nadeeka Edirisinghe and A. D. Priyantha. Below are some of their comments relating to rice based project at the CRC:

Relevance:

- The project is important because at the moment rice farmers have a problem with marketing their products and this project can help improve the marketability of their products.
- The introduction of new rice products provides the opportunity for improved income for farmers and processors.

Sustainability:

- It is important that the centre staff practices their skills and also to experiment with new products to keep abreast with new developments.
- Internal (CRC) communication is necessary so that knowledge is shared internally to improve the quality of the products.
- There is a need for technical staff to conduct practical train sessions so that skills are refined and know-how is shared with food processors and farmers who can benefit.

Efficiency and Effectiveness:

- The centre needs an oven that is more energy efficient, so that the unit costs of the products can be reduced.
- There is a need for the centre to establish closer collaboration with food processors, marketers and farmers so that we can understand the problems they face. This will help us to improve the production process and ultimately the products.



Photo 5: Mrs. Pushpa Senevirathna working on rice based donuts

CRC – The Preferred Centre for Food Processing Training and Product Development

The concept of the centre was initially developed with the help of a trust fund set up by friends and family of Cathy Jane Rich, a dedicated ITDG – UK food technologist who passed away in a road accident in Sri Lanka in 1986. The centre was officially established in 1992 as a joint project of the Ministry of Policy Planning and Implementation and Practical Action - ITDG. The centre is a registered institution under the Tertiary and Vocational Education Commission (TVEC).

Main Objectives

- To help entrepreneurs who are engaged in the food-processing sector to develop their skills, new products and the existing quality of their products.
- To strengthen the capacity of local organisations to support small food processing entrepreneurs and thereby stimulate income generation and employment opportunities.

Technology Transfer

We have the following food related training programmes:

- Rice Based Products
- Bakery Products
- Confectionery Products
- Fruit & Vegetable Products
- Milk Based Products
- Fish Based Products
- Grain & Legume Processing
- Post Harvest Technology (Fruit & Vegetable Products)

We also offer courses in

- HACCP – Quality Control, 5S Concept & Productivity Improvements
- 'START' – Programme for small and medium entrepreneurs to start up a food business
- Introducing New Products to the Market
- Product Quality Development
- Financial, Business & Marketing Mgt
- Productivity

Contact Us

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