Off-Farm and Non-Farm Activities in Rural Cambodia

Dr. Sarthi Acharya, former Research Director with CDRI, discusses the types of non-farm activities being undertaken in rural Cambodia. The article discusses how they operate in the wider economy and some of the difficulties they face.*

The occupational base in Cambodia is rather narrow. The country's total labour force in the year 2001 was estimated at 5.63 million, out of which 4.35 million (77.26 percent) were engaged in agriculture. The size of the formal sector labour force was only about 5 percent of the total workforce. Of about 200,000 joining the labour force each year, only 15,000 get formal sector jobs; the rest have to accommodate themselves in the informal sectors, primarily subsistence agriculture, where productivity and earnings are low. It is not surprising that an annual growth in the national income of over 6 percent per year (1993–99 average) reduced poverty by a mere 3 percent over this whole period.

One of the proposals put forward to address this problem is to upscale activities in the informal sectors (outside agriculture) in rural areas. It is believed that if rural non-farm activities become economically vibrant, they will be able to absorb more labour and provide remunerative earnings. CDRI, in collaboration with the Cambodian Institute for Cooperation and Peace (CICP), launched a study to assess the economic position of rural industries in Cambodia. This article presents preliminary findings from field studies carried out in 2002 to judge the economic, financial and marketing status of the rural non-farm sector. [1]

It is believed that if rural non-farm activities become economically vibrant, they will be able to absorb more labour and provide remunerative earnings.

A Profile of Prominent Rural Industries

Fishing and Fish Processing

Cambodia's fisheries economy is mainly a seasonal, inland industry. Although it could be an underestimate, production is estimated anywhere between 290,000–430,000 tonnes annually and is valued at $100–200 million or 7 percent of GDP.

As most of the fish is marketed fresh, marketing and transportation assumes a central position. Fishing is still a low productivity activity with a majority of fisherpersons not earning much more than subsistence. Since 2001, 56 percent of the fishing lot area has been released for open access fishing in recognition of the need to provide better food security to local communities. Fishing lots are leased out to private contractors for one to three years. This system has yielded revenues to the state, but there has been little evidence of modern scientific efforts introduced to harness fish or manage the stock. Additionally, the technology used for fish processing in the villages is largely traditional.

Silk Making

There are about 10,000 weavers. Fifty-five percent working in Takeo, 31 percent in Kandal , and 11 percent in Prey Veng and Kampong Cham. Currently, only weaving and dyeing of silk is undertaken in Cambodia and 98 percent of the yarn is imported. Looms are wooden, locally made traditional hand-operated machines, constructed by local carpenters, while the dyes are imported. Weaving is primarily a household level activity and institutional credit is not available: traders advance credit to weavers at 3–4 percent interest rate per month. The quality of Cambodian silk is uneven from one batch to another, and poor quality of dyes and yarn tends to further result in poor quality output. Low technology looms and a lack of training of workers also result in low labour productivity and this is not permitting the industry to flourish.

Loom-made Cotton

Cotton ginning and spinning activities virtually vanished after farmers stopped growing cotton in the 1970s. Villages in the provinces of Kampong Cham, Kandal and Prey Veng engage in handloom and power loom weaving, and village carpenters make both handlooms and power looms. The productivity of handlooms is low: a worker produces no more than 10–12 *kromas* a day; though, production with power looms can be 35–40 *kroma*s a day. Cotton weaving is labour intensive and has the potential to provide large employment. However, there is little in the form of product diversification or improvement; hence the value added is low and the activity is localised.

Pottery

Khmer pottery, in its traditional form, does not make use of a potter's wheel. Instead, the production system consists of moulding the desired product with simple instruments made out of wood and cloth, and then baking them using firewood. Making pottery is exclusively a part time, household business and earnings are generally not much more than about $18 per month, for a team of two. Recently, a foot-paddled rotation machine and a high-temperature furnace have been introduced. This has helped raise labour productivity. Pottery is most prevalent on the banks of Tonle Sap, in the provinces of Kampong Thom and Kampong Chhnang (indeed the province name Kampong Chhnang derived from the Khmer word C*hhnang*, meaning earthen-made cooking

* This article is an abridged version of a report written for the Development Analysis Network (DAN). Sarthi Acharya and Kim Sedara (CDRI), and Chap Sotharith and Meach Yadi (CICP) authored the full report which will be published in 2003.

vessel). Cambodia manufactures both glazed and clay-baked pottery.

Brick Making

At the end of the 1990s, there were about 600 brick making units in the country. Most factories are located in Kampong Cham, Kandal, Kampong Thom and Phnom Penh. The sizes of these factories vary greatly; the smaller factories could produce 200,000 pieces each year, while the larger ones can have 30 times this capacity. Cambodian brick makers face stiff competition from factories in neighbouring countries where brick is more expensive but of better quality.

Marble Handicraft

Marble handicraft manufacture is concentrated in the provinces of Pursat, Kandal, Siem Reap, and Phnom Penh. Handicraft making is predominately a household activity, though in recent years some families have set up larger production facilities. While modern methods have become evident for stone cutting and chiseling, stone extraction continues to be rudimentary in marble mines. Large blocks of marble are dug out of the hill, which are then broken into smaller pieces and carved into still smaller statues. In the process, a lot of stone gets wasted, jeopardising the economics of manufacturing, and wasting a non-renewable resource.

Rice Milling

There were 400 rice mills operating in the country in addition to about 1,000 smaller, village-level commercial units. Commercial rice-milling units operate in the west, and southeast, the main rice producing areas. Larger mills buy paddy when the prices are favourable, process, and market the rice. They operate all round the year and manage to get some institutional credit. Smaller mills mainly carry out custom operations, seasonally and get no money from institutional sources. Estimates place the annual rate of return on capital between 5–20 percent, depending upon the vintage and size. The direct employment potential is largely seasonal, and is not particularly high (5–10 workers per enterprise). Spin-off employment, though, may be significant with respect to transportation and storage. Nearly all mill machinery, however, is old and inefficient, which keeps productivity low. Cambodian rice millers are also disadvantaged because they buy diesel in dollars and market their products in riels, baht or dong.

Rural Electrification

About 80,000 households are served through localised generators and rechargeable batteries, mainly in the northwestern provinces. In most households, the primary source is old diesel generators that are not only inefficient, but also repeatedly breakdown. The average value of assets per enterprise is about $17,633, employing about five persons. The average cost of power is about $0.30–0.45 per kWh which is rather high compared to $0.10 cost incurred in more modern systems. There is also significant transmission loss (greater than 30 percent). Customers are charged a fixed rate, about $1–2 a month, for 1–2 kWh of power, for about four hours a day. Given the quality of service, customers would not pay more. Although 40 percent borrow from private sources only about 10 percent of enterprises have obtained credit from financial institutions.

The Economic and Financial Characteristics of Sample Enterprises

Earnings and Employment

The average wage paid for male workers is the highest in fishing and the lowest in cotton weaving. The daily wage in fishing is about $1.25, though full time work is only available for about four months. Wages of female workers in this industry are lower, at about 83 percent of the male wages. In fish processing, the wages of male workers are lower at about $1.13 a day, and female workers' wages are at about 63 percent of male workers' wages. In the cotton-weaving sector (and weaving in general), the wages are lower still, at about $0.68 per day, though in this case the gender wage gap is virtually non-existent. In short, earnings of hired workers are a little over $1 a day at the highest.

Table 1: Numbers of People and Capital Outlay by Enterprise

Enterprise	Average no. of people employed	Average Capital Outlay
Fishing	3.65	$975
Fish processing	2.23	$373
Silk weaving	1.51	$34
Cotton weaving	4	$940
Pottery	1.35	$72
Marble handicraft,	2.26	$370
Brick making	19.36	>$10,000

Table 1 indicates the average number of people employed in an enterprise. Although the numbers are generally small, a few units are much larger and not represented by the mean. In industries other than brick making, the scale is very small and generally smaller enterprises employ lower numbers of hired workers. Hired workers constitute nearly 100 percent of the workers in brick making, about 20 percent in fishing, 16 percent in marble handicrafts, and less than 3 percent in fish processing, silk and pottery.

Capital Outlay

With the exception of brick making, Table 1 suggests it is possible to initiate business enterprises in rural areas with relatively small amounts of capital. However, the differences between the sizes of enterprises with respect to capital outlay are large. In the fishing and fish processing industries, the largest enterprises have a fixed capital outlay more than 20–30 times that of the smallest. In brick making, cotton weaving and marble handicraft this gap is lower, followed by pottery and silk weaving where it is the lowest.

Local suppliers and intermediaries supply business equipment. The source of equipment depends upon its

type. Boat makers construct boats locally, while second-hand diesel engines are imported, or locally procured,, by intermediaries. In fish processing, the main equipment needed is pots, pans, pails, stirrers, knives and other kitchenware, which is supplied by local shopkeepers. Local carpenters fabricate both the silk-weaving and cotton-weaving equipment. Very often, the owners themselves repair their equipment and this is why they choose simple technologies even if their resulting productivity is lower.

Few borrow from institutional sources. The main reason for the lack of credit supply is the inadequate social infrastructure for loan regulation and recovery. The consequent high interest-rates inhibit borrowers from borrowing.

In fishing, fish processing and cotton weaving, it requires about $200 to create one job, in silk weaving about $25–30, and in pottery $65–70. Only in brick making does the capital requirement exceed $500. These average values, however, have to be interpreted with care since inter-enterprise variations are large.

Production and Productivity

The mean value of production per fishing enterprise is about $4,890 and the value added is 66 percent of this. Fish culture is the reason for a smaller proportion of value added to production, as it requires buying fish feed and the regular repair of fish cages. The mean value of production in fish processing per enterprise is four times higher than fishing, though the value-added ratio is smaller at about 31 percent. The value of production in silk weaving is modest at about $875 annually (value added: 54 percent), while for cotton it is about 10 times that of silk (value added: 23 percent). Pottery making yields a high 'value added to production ratio' as its material inputs — earth or clay and firewood — are either very inexpensive or they are self-provisioned. In the case of brick making, this ratio is 68 percent because of greater fuel requirements.

Labour productivity is the highest in fish processing, followed by brick making, cotton weaving and fishing, with pottery and silk weaving coming last. The size of production, technology use, and labour productivity do not necessarily follow the same ranking. A more capital-intensive industry like brick making has a lower production per worker ratio than fish processing. The labour productivity data suggest that the scale of operation or sophistication in technology alone do not ensure success; product demand (i.e. price) plays a critical role.

The capital/output ratios for this sample show the highest figure at 0.47 in brick making and the lowest in silk weaving and pottery which is only just greater than 0.10. In some of these rural industries, capital is rotated several times each year and the efficiency of capital use is many times higher than in modern large industries. This implies that these industries survive essentially on labour inputs being intensive.

Profitability

Earnings per owner-worker are higher than subsistence in all industries other than silk weaving. However, wages are at subsistence everywhere. A possible reason is that labour market conditions determine hired workers' earnings rather than capacity to pay. Hired workers in rural non-farm enterprises can be low skilled, and the overall labour market conditions are slack.

In summary, rural industries are disparate entities with significant industry/enterprise variations in labour use, capital outlay, value added, and profitability. However, most have shared characteristics. Most industries are labour-intensive, and short of capital. In almost all, the turn-around cycle of capital is rather short, often as little as a month. Machines are chosen for the ease with which they can be repaired. Few, if any, get credit from institutional sources. Earnings of paid workers are always at subsistence, though profits in many industries are higher than subsistence. Despite high efficiency exhibited in operations, absolute earnings are modest because of the small scale of operation, low output prices and rudimentary technologies.

Marketing and Market Chains

On aggregate, the highest numbers of buyers are the intermediary traders, followed by local shops. Products are directly marketed in Phnom Penh markets only in the case of woven *kroma*. Intermediaries, traders and merchants enjoy a localised monopoly.

Product Price

Perceptions about who controls output prices among the enterprises are mixed. In fishing, intermediaries controlled the prices as the market for fish is large and spreads outside the region. In the case of fish processing, as there is no urgency to sell, there are few intermediaries. Intermediaries, who supply the yarn and pick up the final product, dominate the silk market. Again, in pottery and marble handicraft, traders play a critical role. Finally, locals and not traders market the cotton, *kroma,* and brick making products.

Forward and Backward Linkages[2]

Fishing involves a large number of partners in the production and marketing process. There are two kinds of fish traders. The first are those who procure smaller quantities and sell the catch in a local town market where another set of traders will take over. The second are Fishing-lot owners who possess the resources to market their products to traders in Phnom Penh or Poipet for export. There are traders in Phnom Penh and Poipet who take the merchandise further for distribution to its final users. The markets are not perfect, as there are a greater number of traders than producers.

The price of fresh fish has not risen in the last two or three years despite an increase in the demand, while input prices (salt, ice and diesel) have risen steadily. Prices are negotiated daily, based on the prevailing prices on the border or Phnom Penh. Traders pay $0.12 per kg of fish to transport the merchandise to the Poipet border, to cover the freight cost, road fees and checkpoint payments. Additional expenses are incurred for

licence fees ($25 per trip), monthly telephone costs, and monthly labour costs for loading and unloading fish stocks. Those who operate 30-tonne trucks also have to pay for warehouses and ice. The smaller traders cross the border and dispose of their product at whatever price they can get. The incidence of all these expenses is not borne by consumers alone as producers and various traders bear the costs. It is not surprising that prices the producers receive have remained stagnant.

For marketing silk, intermediaries supply the yarn and dye and collect the final product. In some cases, the people who collect the final product and those who sell the yarn are the same. Intermediaries supply silk to producers, at $16 per kg if paid in cash, and at $20 for 21 kg if advanced on credit. Producers sell to intermediaries, who transport the product to Phnom Penh. In turn, they sell the merchandise to city merchants. Intermediaries often obtain credit from the merchants, and since the interest rates are what they are, the real gainers in the trade chain could be the merchants. The product is sold to the consumers at prices ranging between $20–25 a piece; merchants earn about $2–4, the intermediaries (middlemen) profit margin is $1–3, while the producers gross about $10–15 a piece. Since the producers are able to weave only about two pieces a month, their incomes are at subsistence.

In the case of cotton cloth, producers have historically developed contacts with cloth merchants in Phnom Penh. Select producers, travel to Phnom Penh to both deliver products and pick up fresh yarn for weaving. In each trip producers spend up to 6,000 riels to carry either the final produce or yarn. At least two factors limit the incomes of both workers and producers. First, output markets are fairly competitive, and if the cost of production rises because of increased land-input prices, the incidence cannot always be passed on to the markets. Second, technology is still rudimentary. The productivity is therefore low.

With pottery, the main input is clay, which is inexpensive; a cart (about ½ m^3) is available for a little over $1, and is sufficient to make 250–300 pots and vessels. Often the producers dig the clay and transport it themselves. Traders market up to 95 percent of the product and export a small proportion. Most traders also transport the product. Breakage's, which could be up to 30 percent and borne by the traders, are met partly by the producers through price adjustments. The price paid for each product is not standardised, other than that which is sold to locals for household use.

The principal backward linkage in marble handicraft is the supply of marble stone. Miners extract and cut marble slabs from mountains and transport them to an open warehouse. They earn no more than subsistence. Intermediaries' pick up the merchandise from warehouses. The producers (carvers) buy stone from intermediaries at prices ranging from $0.20–$1.00 per kg. Intermediaries usually sell stone to producers at prices two to three times higher compared to that paid to miners. Part of the margin is shared with government functionaries, en-route, for safe passage from the mines.

Forward linkages include traders and wholesalers in Phnom Penh and elsewhere. Traders off-take up to 80 percent of the total produce in volume. They have a network of wholesalers to whom they supply; who in turn distribute the product to smaller shops, emporia, and souvenir shops. The final customers are tourists, local high-income groups, and foreign wholesalers/ exporters. The profit margin of traders is two to three times their costs, and for wholesalers a further two to three times that. Traders and wholesalers rather than producers control the business. While many producers now have power drills and chisels, which have enhanced their productivity, they do not earn very high incomes for lack of control over the markets.

In brick making, backward links include supplies from clay sellers, rice husk suppliers (i.e. rice mill owners) and transporters. The forward linkage includes intermediaries, traders and transporters. Inexpensive machinery is imported. Next, clay suppliers often own the land plots from where clay is dug and transported to the brickyards. Workers are locally employed at subsistence wages to dig the clay and pack it in trucks. Transporters then take the clay to the brickyards. In the case of bricks, producers rather than wholesalers dominate the market. They sell bricks on an order-basis as well as for supply to wholesalers and retailers. Downstream price margins do not exceed 10 percent of that received by the producers.

Typical to small producers in developing countries, small rural industries in Cambodia suffer from a lack of control over marketing and price mechanisms. However, traders, intermediaries and merchants can gain a great deal, especially those who possess a large amount of money and a monopoly position.

Conclusion

In almost all cases, the internal functioning of the enterprises is efficient. However, enterprises suffer because of obsolete technologies, inadequate training and exposure of workers to modern methods, lack of finance, limited marketing channels, and rather small scales of operation that yield insufficient incomes. Next, subsistence and family-oriented styles of business also keep productivity low. Finally, the two frequently quoted obstacles to promoting local business in Cambodia, namely poor infrastructure and dollarisation of the currency, appear to be present here as well.

Nevertheless, the rural non-farm sector has strong potential for remunerative job creation. To meet this potential, however, comprehensive effort, to address both macro level issues and micro level support will have to be undertaken at the policy level.

Endnotes

1 Primary surveys with a total of 276 enterprises.

2 A term used to describe the economic linkages that occur from a single product. For example with tree felling, a forward linkage would be timber or wood products, while a backward linkage would be