

# Root Crops : Lifesaver for Rural Poor

Since most root crops are consumed locally or sold in nearby small markets, their actual contribution to the energy intake of rural populations is not fully accounted for. by V. Preecha.

BANGKOK — Root crops, because they are mostly cheap, are popular with the poor. As such, being the poor man's fare, root crops receive little attention, except for potato which is relatively expensive in developing countries.

But root crops are important in the diet of many tropical countries. They are consumed, as in the case of cassava, as a basic source of low-cost calories, or as supplement to cereals.

In the Pacific, root crops still supply from 14 to 43 per cent of the dietary energy, the type depending on the island. Taro and yam provide 43 per cent of the food energy in Tonga. Sweet potato, taro and yam are the chief suppliers of food energy in Papua New Guinea and the Solomon Islands.

The consumption of root crops in Southeast Asia ranges from a low of 6 kilograms per caput per year in Cambodia to a high of 113 kg/caput/year in Indonesia.

"Since most of these food crops are consumed locally or sold in nearby small markets, their actual contribution to the energy intake of rural populations producing them is not fully accounted for," says P. Lunven, head of the Food and Agriculture Organisation's Food Policy and Nutrition Division.

Studies in the Philippines indicate that root crops con-

sumption is low in urban areas (metropolitan Manila) but high in poor regions (Eastern Visayas). This is true in many countries where, in urban areas, convenience foods and cereals are more popular.

Root crops refer to any plant that stores edible material in subterranean root or tuber. They belong to the class of foods that provide energy in the form of carbohydrates.

The fact that these root crops are mainly starchy has led to the disparagement of their protein content, which is low compared with cereals, says an FAO report on root crops. "But considering the quantities of root crops consumed a day, their protein contribution is often significant."

Root crops also contain an appreciable amount of vitamins and minerals and may have a competitive production advantage in terms of energy yield per hectare over cereals produced in difficult conditions.

Roots and tuber crops were dispersed by the Portuguese in their search for slaves, by both the Portuguese and the Spanish in their missionary journeys and by Arab traders. Yams are the only root

crops in which the Asian and African species developed independent of each other. Sweet potato seems to be the most widely dispersed root crop. It has a shorter growth (3-5 months) and can be grown year round.

Among five root crops, potatoes occupy a land area of about 20 million hectares. This is 43.3 per cent of the total area of 46 million hectares planted to root crops worldwide.

It is followed by cassava, planted in 14 million hectares, sweet potato (about 8 million hectares), yams (3 million hectares) and taro (1 million hectares).

In Java, Indonesia and Kerala, India the average land planted to root crops is about 2 hectares. The average land planted to cassava in Thailand is about 1 hectare.

In 1982-83, about 1.2 million Thai farmers harvested some 19 million tonnes of cassava. They obtained yields between 13 and 15 tonnes per hectare. Most of the cassava was processed, 85 per cent made into chips and pellets for animal feed and 15 per cent for starch production. Very little was used directly for human consumption.

The Centre for Potato Research estimates there was an overall increase in root crops production from 1961-79. Cassava production went up while sweet potatoes remained stagnant during the period. Production of potatoes decreased in industrialised countries while it increased in developing countries.

Most research to improve root crop production has been devoted to potato. It is not surprising that potato yields are much higher than those of other root crops.

Potato is produced only in limited quantities in the tropics, cassava and sweet potatoes being the major crops there. In some parts of Latin America, potato is still grown by farmers on a small scale.

In temperate zones and cool highlands, where it is usually grown under irrigation and as a sole crop, yields are often very high.

The leading producers of potato are all in temperate areas. But of the 130 potato-producing countries, 95 are in developing countries, producing less than 10 per cent of world potato harvests in 1978-81.

By 1985, developing countries accounted for about one-third of world production,

with China producing 60 per cent of this. It is followed by India (3.6 per cent of world production), then Turkey, Brazil and Colombia.

Together, these countries account for over 50 per cent of the production in developing countries, but only 7 per cent of world production.

In the subsistence production of cassava, yields are often low as a result of poor farming practices. Cassava is often grown on marginal land. As it grows relatively well on poor soils, with limited inputs, it is often planted as the last crop in a shifting cultivation farm.

Over the last 20 years (1965-84), cassava production worldwide increased by over 330 per cent. This corresponds to an annual growth rate of 4.3 per cent which is substantial for any food crop.

Nigeria is the highest producer of yams, with about 73 per cent of world production. Virtually all the world production of yam is from West Africa, with a few in Haiti, Chile and Ecuador.

The Samoan islanders of the South Pacific get nearly 16 per cent of their calorie intake from cocoyam (aroids). Plantains and cooking bananas (grown and used as a starchy staple mainly in Africa) are popular, especially as the labour cost is relatively lower even than for that of cassava.

— *Dephnews*.

# Modest Loans Fund Villagers' Small Business Ventures

The ramshackle shed does not give a true account of itself and its reach into the villages. by Mallika Wanigasundara.

Colombo: A.W.M Thahir, 49, can no longer remember the movie's title. But he can still picture the kerosene lamp in the movie, made of discarded light bulbs.

Now, 21 years later, he is making the kerosene lamps into a family industry. He buys discarded cans (10 rupees a kilo) and uses the tin to hold the wick. Discarded bottle caps (3 rupees a kilo) seal the light bulb.

Discarded light bulbs (15 rupees a kilo) hold the kerosene. A simple lamp (2 rupees) is made of just the bulb, bottle cap and tin holder for the wick. More decorative models (8 rupees) have an attractive tin stand and tin petals around the bulb.

Mr Thahir and his family of five make around 2,000 to 3,000 lamps a month in a corner of a verandah of their home, government-built house.

Here, his daughter Rameeza Begum 14, lays out in strips. His son, Mohamed Nazi, 16, cuts the tin. Nazi, who has left school, says he will carry on the enterprise. Indeed, the children do most of the lamps, with the father concentrating on buying scrap raw materials and marketing.

"I never had the cash to buy more materials and expand my enterprise until the YMMA gave me a loan of 2,000 rupees (US\$50) eight months ago," says Mr Thahir. "Since then I have been able to supply more kerosene lamps to cooperatives and retailers."

The YMMA stands for the Young Men's Muslim Association, organised in 1985 by nine villages in Aranyake district, in Sri Lanka's central hill country. Mr Thahir comes from Gwiltipitya village.

The YMMA's goal was to do what it could to help the poor villages. And on its modest record of community development work, the United Nations Development Programme (UNDP) gave it a grant of 20,000 rupees (US\$500) to be used as loans for poor families to start or expand their income-earning activities.

Mr Thahir's kerosene lamp is just one of over 40 income-earning projects assisted by YMMA, says Khurshid Alam a United Nations Volunteer from Bangladesh. Like most UN Volunteers, Mr Alam's assignment here is financed by the UNDP's Domestic Development Service.

He has been in the Aranyake region for four years now and speaks excellent Sinhala. And like all UN Volunteers, he lives with the people he works with, in the same conditions they live in.

Like many of the remote parts of Aranyake, the area is made of undulating land, with very few roads and bridges. People scramble up labyrinthine, rock-encrusted pathways and alleys, subject of treacherous mudslides.

The YMMA office is just a tin-roofed shed between the walls of two houses. It has rough pillars and a mud floor, on which the benches tilt precariously. The roof leaks and much effort has to be made to protect three precious typewriters and odd assortment of books and pamphlets that is the "library."

This ramshackle shed does not give a true account of itself and the reach it has into these villages. It is headquarters of the YMMA's 600 members. The YMMA also shares the shed with the Young Muslim Women's Association.

In Aranyake there are 5,000 Muslims and 35,000 Sinhales. "We do not make distinctions," says MSM Sardi, president of YMMA. "The people are poor and mainly landless. They need support and guidance to launch themselves into income-earning activities."

The YMMA gives small loans of 2,000 to 3,000 rupees. The YMMA is also affiliated with the National Youth Services Council through which bigger loans are available. Some of the loan recipients are in the joss sticks, candies, tooth powder, twine, gardening and honey businesses.

Even before the UNDP grant, the YMMA solicited small contributions and stated training courses in leadership and management, farming, carpentry and so on. Around 40 villagers attend each course — in gardening, compost making, plant grafting, horticulture, pepper cultivation, mushroom culture, pest and disease control, bee and poultry keeping, animal husbandry and soybean preparation.

Sithi Nazema and her husband, a carpenter, took the poultry and management courses. With a 2,500-rupee loan from the YMMA, she has expanded her poultry farm which now produces and average of 35 eggs a day.

Ileen Menike Kaluarachchi took a 3,000-rupee loan for

bag-making. She and her husband now run a thriving "factory" with four sewing machines and four workers. Each month, they make 200 ladies handbags, school and shopping bags.

Niyas, from village of Moragammama, had a small soap-making business. But he could never expand his operation for lack of capital. He took the management course offered by YMMA. With its help, Niyas obtained a bank loan of 25,000 rupees (US\$625).

Today, soap-making is a small industry in which his extended family of ten all participate. He gets hired labour periodically to cut, wrap and pack the soap. They produce 75,000 rupees worth of soap each month.

With UNDP funds, the YMMA also bought 24 goats and gave them to 12 families. When the goats multiply — there are now 40 goats — each family has to return two goats to the YMMA. These goats are given to other families.

"The YMMA is most responsive to the needs of the people," says Mr Alam the UN Volunteer. The YMMA also engages in Shramadana (voluntary labour) to build roads, latrines and other community projects. It runs two pre-schools for 42 children.

"We visit all our projects and keep very much in touch," says Mr Sardi. "This encourages the people and if they have problems, we help sort them out."

One big step forward is that in this conservative rural area, Muslim girls are coming forward to do community development work. They have formed the Young Muslim Women's Association — a breakthrough in traditional barriers.

"The girls' parents raised no objections because it was for the good of the community," says Sithi Sifaya, 20 YMMA president. "In fact, they were pleased."

Fifteen girls are learning to use the typewriter and hope to find jobs. The certificate given by the YMMA is very useful when it comes to getting jobs, they say.

Some of them have been trained in sewing and hired by a garments factory. Others have formed into eight groups which receive sewing orders. The YMMA also helped 12 girls get teaching positions.

# Education Reform on ILO Meet Agenda

GENEVA: Education systems are currently undergoing a period of reforms characterised by the search for higher quality at the best price. These reforms, which affect teachers first of all, come at a time when teachers, bearing ever greater responsibilities, are increasingly aware that their status, defined in material and social terms, has reached an intolerably low point. Their workloads are continually expanding but career perspectives remain limited, and salaries poor.

Composed of 16 representatives of 16 governments of member States of the ILO, four representatives of employers' organisations and 20 representatives of workers' organisations, the Joint Meeting will deal with measures to improve teachers' working conditions and thus enable them to participate fully in the improvement of education and national development.

Education is the single largest wage-sector employer in the world with almost 44 million teachers active in 1988. According to an ILO report which will serve as a basis for discussions, more than half are engaged in primary education, three-quarters of these being in the developing countries. After two decades of rapid employment increase in education, the 1980s seem to have been a period of stabilisation. There is a shortage of teachers in many developing countries and surpluses, even unemployment, in certain developed countries. For its part, private education has shown remarkable stability over the years, but regional trends reveal important variations.

The overall impression of a world keeping pace with the challenge of educating its children, at least in quantitative terms, is confirmed by the

constant rate of public expenditure on education: in 1988, some 5.5 per cent of the world's GNP was devoted to education. But this global figure is deceptive, for it masks the deep regional disparities which have grown ever more troubling over the past ten years. A number of high-income nations have used the respite afforded by declining enrolment rates to rethink their systems, fine-tune curricula, and redeploy resources.

Low-income nations, on the other hand, have generally seen their resources dwindle as demand continued to rise. Like tired marathon runners handicapped with heavy loads, the world's poorest nations are straining themselves to the limit simply trying to stay in the race.

The 1980s have not been an easy decade for educators anywhere in the world. Career possibilities have remained relatively limited. The vast majority of primary and secondary school teachers leave teaching at the same level as that at which they entered, having had little chance of promotion to positions of responsibility, or even transfer to other levels of education without significant retraining.

Increasingly, the situation is a source of frustration in a highly educated profession, the report states. A comprehensive human resource policy integrating all facets of teachers' employment and teachers' organisations themselves, as well as the training institutions, would lead to professional improvement and greater career satisfaction, the report contends.

Workplace relations between teachers, represented by their unions, and their employers public or private, constitute an increasingly important, but often overlooked, di-

mension of the educational process in virtually all societies. Considering in particular the pressures to which teaching is subjected, the future requires full participation of teachers in the decision-making process to ensure that the voices of those closest to the problems of the learning environment in the classroom and to their potential solutions are fully heard.

In many countries women have long outnumbered men in the teaching profession. In the developed countries, for example, women's share of teaching positions in 1988 amounted to 75 per cent at the primary level and 53 per cent at the secondary level. However, women are generally under-represented at the principal level, at both pre-primary and primary schools and at technical secondary institutions or other vocational schools. Women predominate in part-time teaching, which is particularly attractive to younger women with family responsibilities and those seeking to return to teaching after a period of absence.

As regards salaries, teachers in general earn less than persons in comparable occupations in the private sector. Pensions, job security and longer annual leave may seem to be extra advantages. However, in many countries, teachers' salaries and social prestige have dropped so low that many teachers have lost motivation and interest. Some teachers may seek to leave the profession, others may reduce their efforts. It is the quality of education which suffers.

Although the number of actual teaching hours in contact with students has remained static over the past few years, the overall workload of teachers has increased and diversified with expansion of subject

matter and teaching methods. The main growth areas of work are administrative duties created by additional rule and regulations, and the attention devoted to unruly pupils as well as those from underprivileged backgrounds. Stress and time pressures increasingly characterise the working day of most teachers, which extends to nights and weekends and often far exceeds 40 hours of work per week.

According to the report, there is a strong argument for reductions in the teachers' workload that is not related to the essential task of teaching, as well as for continuing slow but steady reductions in class sizes in middle and high-income countries and reversing recent upward trends in most low-income countries. Other policy measures which could supplement these improvements in working conditions include the provision of adequate in-service training programmes, more and better classrooms and adequate teaching materials.

Finally, the report points out that the reforms undertaken in a great many countries have led in the direction of decentralising educational financing, as well as privatising the financing by involving private enterprise and non-profit organisations, including religious entities, in the provision of education.

The effect on teachers' employment and working conditions has not been uniform, in some cases improving them, in other contexts leading to a serious deterioration, particularly where structural adjustment and cost containment programmes have resulted in salary and recruitment freezes, and limitations on collective bargaining processes.

BEIJING: A number of them get their doctorates in their early 20s, ranking among the youngest doctors in the world.

They are China's wonder kids, brilliant in science and mathematics — among other things — at such a tender age. And showing their classmates they're humans, too.

In 1987, Wang Yan was only a 14-year-old 10th grader when she started to major in Management Information System at Tsinghua University, one of the most prestigious institutions of higher learning in China.

When she finishes her five-year study at this Beijing University in mid-1991, Ms Wang expects to receive two bachelor's degrees, one in economics and the other in mathematics. Her 30 classmates will have only one degree, but then they don't have to take 12 extra courses, of which she has finished 11.

And the 18-year-old daughter of teachers from Henan province, central China, has remained a top student in her class, winning scholarships every year ever since she entered the university.

Both teachers and classmates admire Ms Wang for her brilliance. "It is not easy for a MIS major to pursue a degree in mathematics but she has done well in this field," says Li Zinat, deputy dean of the School of Economics and Management. "There is something unusual about her."

Her classmates Li Tong agrees, saying she marvels that "it looks so easy for the baby of the class to get the best mark all along," although she points out that Ms Wang "never abuses her gift but always works hard."

Between 1985-90, 94 prodigies like Wang Yan enrolled at Tsinghua University. It is one of 13 institutes that have established since 1978 a special programme for gifted teenagers. At present only eight of the institutions still run the programmes.

Since 1984, more than 20 high schools in Beijing, Jiangsu, Anhui, Liaoning, Hubei and Jiangxi started similar programmes for prodigies at an even earlier age.

They pick out children with high IQs — usually 4th to 6th graders aged 9-11 years old — from math competitions and other tests. They are trained under special curricula for three to four years before the kids are ready for college.

"These high school programmes are still experimental but have supplied us with very good candidates and made our programme for young talents more systematic," says Xin Houwen, a professor at the Chinese University of Science and Technology (CUST) and a pioneer in the field.

China's first ever special programme for young talents in science was launched in 1978 by the CUST, located at Hefei, Anhui province. Since then 317 young students have graduated from CUST, with 72 per cent going to graduate studies here and abroad.

Nearly half of them took a graduate programme one year or two ahead of schedule while 150 are pursuing doctorates abroad. A number got their doctorates in their early 20s, making them among the youngest doctors in the world.

At CUST, about 2 per cent of these wonder students also fail. But some of these gifted

# Chinese Whiz Kids are also Human — and a Lot Wiser

Both her teachers and classmates admire Wang for her brilliance. There is also something unusual about her.

youngsters complain that it is "unfair" to expect too much from them.

"We are human beings after all," says Wang Yan. "I think we can be regarded as OK as long as we keep up with elder schoolmates. We don't have to always do better than them, as the teachers expect us to. That'll be too much a pressure on us."

It all started when numerous letters were sent to CUST recommending youngsters "allegedly with unusual talents in science," says Professor Xin Houwen. Examinations made across China came up with 21 prodigies below 15 years old. CUST set up a special class for them.

Since then CUST has enrolled 516 talented teenagers, 13 per cent of whom were girls. Eight out of ten came from highly educated families. The youngest was 11 years old, the eldest 15.

The young talents qualify when they are recommended by their teachers and have passed the national college entrance examinations. Then they are interviewed by the faculty of the universities they have applied for admission.

"Normally they were 9th or 10th graders when they were recommended but they had reached the level of a high school senior or even higher," says Zhai Daqian of Tsinghua University.

Most universities which run a special programme for young talents would arrange the children to stay together in one class for two or three years after they are enrolled.

"We don't want them to specialise too soon," says Ye Guohua, head administrator of the special programme at CUST, "because we find they need some polish in their studies of such basic courses as maths, physics, computer science, radio technology and foreign languages. And it's better for the youngsters to decide on their specialisations at a later stage."

Mr Ye, who has been with programme for 10 years, explains that the young talents lack a systematic training in basic courses since they use to study on their own. They tend to ignore academic elements essential to higher learning.

As they have cultivated an ability to study independently, Mr Ye says, "it is quite challenging to teach these teenagers." Top faculty at CUST usually conduct the special class.

Professor Yin Hongju, vice-president of CUST who teaches physics in the special programme, says the young students "pose more questions than ordinary students" and their questions "always carry considerable depth."

The programme features a special curriculum which consolidates the youngsters' basic knowledge while giving them a cross-disciplinary training. With regard to their independence, Mr Ye says, "We mind not cram them but offer them with materials representing the quintessence and latest discoveries in a discipline. And 40 per cent of their academic periods are devoted to study by

themselves.

The youngsters tend to differentiate in progress one year after they enter the university. "So our training plans vary from student to student," Mr Ye says. "It is our principle to teach them in accordance with their aptitude."

Good as they are at academic studies, Mr Ye says the teenagers "are weak at doing things with their hands. This has led the CUST curriculum for them to include more experiments than those for other students."

The youngsters are trained on computer drawing and programming, metal working, electrical engineering and other skills. They also have to learn how to operate machines such as lathes, planers and millers and welders.

Zhai Daqian says Tsinghua University has an intensified writing course for the young students because "their linguistic thinking is not as strong as their mathematical thinking." Wang Yan, who used to "hate writing," says she now ranks first in composition in her class thanks to taking this course.

Physical education is also important. "These teenagers would spend an important period of physical growth at the university," Mr Ye says. "We must see to it that they keep fit rather than become book-worms." Apart from two or three sports classes every week, they must spend at least 40 minutes in outdoor activities every day.

— *Dephnews Asia*.



Self-employment, like typing on the street, provides livelihood for the unemployed. ILO.