



# THE WORK OF GIANTS

Rebuilding Cambodia

Brian Wenk

Nick Rain  
*Photography*



International Labour Office Bangkok

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**Rebuilding Cambodia**



*Most of Cambodia's roads now lie across the land like ribbons crumpled by an angry child. I travelled south to Kampot; it was just eighty miles away, and the journey took us nine hours, crawling around ditches, potholes, rubble, and poorly filled trenches cut across the roads by one of the many armies that had fought along them in the last ten years. Every town along the road had been blasted away by war; in place of concrete homes and wooden-stilted houses were only shacks and wrecked buildings in which people were attempting somehow to reorder their lives.*

*Much of the history of the decade lay along that road. The carcasses of American trucks and armoured personnel carriers, supplied to General Lon Not during the 1970-75 war; bomb craters filled with stagnant water and mosquitoes; twisted remains of concrete bridges with Bailey bridges flung haphazardly across them; grandiose canals and embankments constructed by the Khmer Rouge with slave labour; relics of towns and villages, some almost all gone, others half standing like roughly cut stubble in a plowed field.*

**William Shawcross**  
*The Quality of Mercy, 1984*

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# *Preface*

Though mementos of the horror lie not far from the new roadsides, it is difficult to believe now that the green and pleasant land of Cambodia was so recently the scene of truly epic barbarity. Nature quickly covers the wounds, sometimes harshly washing them away with floods, more often cloaking them with crops.

Men and women, too, are lending their minds and hands to reconstruction and restoration. This book focuses on a part of that effort: the building of roads around, to and from the fabled temples of Angkor.

Not long ago, David Salter, a single-minded Canadian engineer who is the chief technical adviser for the ILO's infrastructure work in Cambodia, walked me along many of these roads and drove me over the rest. Crestfallen at the beginning of the second afternoon, he said to me, "Well, I guess you have seen them all now. You have spoken with the team. I don't know what we can do until your flight goes out this evening." "David," I replied, "there is one of the wonders of the world in the middle of all these roads. Perhaps we could have a look at that."

So committed, so entirely taken up with planning, building and maintenance were David and his team that Angkor Wat and the other temples of Siem Reap had become simply an architectural backdrop for the more important business of roads and the people building and maintaining them.

There is a parable in the tale. The statues of Angkor survey impassively the follies and cruelties of the humans around them. But we, fellow beings of the countless victims, cannot - and must not - be so aloof. The story in this book is of courage and determination. It is about building ways out of a deep and evil pit, creating the veins and arteries of revived economic and social interaction. Helping to restore the Kingdom of Cambodia so that its citizens, once again, have the dignity, the means and the time to lift their heads from the roads and marvel at the works of their forefathers.

This is a great opportunity to thank David Salter and his colleagues. I should like to thank, too, Brian Wenk and Nick Rain for recording so vividly this episode of Cambodian reconstruction. May it inspire others in the International Labour Office and beyond to persist in the work of building better societies even in the face of tragedy and destruction.

**Ian Chambers**

Director

ILO Office and Technical Team for East Asia

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# *Acknowledgements*

When a road takes you somewhere, how many people can you thank for getting you there? The workers who built it? The engineers who designed it? The people who paid for it? The mapmaker who told you about it? Your list will be so long, wherever you start, that you cannot include everyone who should be on it.

Like road-building, putting together a book like this is in many ways a collective task too. Your story is something others have achieved, and most of what you say and show is what others have taught and shared with you.

An author and a photographer, if not thieves, are at best borrowers who take from one group of people to pass on to another. We hope that by telling this story of the Khmers' move "from black-and white to colour" we'll have begun to return some of the fine things they let us slip away with. Whatever in the pages that follow makes sense and is pleasing, we owe it to more people than we could ever name here. The blemishes, though, are ours.

Brian Wenk  
Nick Rain

Bangkok, 8 August 2001



# *Introduction*

This is the story of rebuilding a country savaged by one of the cruellest 20th century wars. The insults the Cambodian people suffered during the final decades of that century cost them their homes, their families, their teachers and their livelihoods. When the United Nations Transitional Authority in Cambodia (UNTAC) arrived in 1991, it found a country largely bereft of necessary infrastructure, education and agriculture.

But somehow the people had retained their desire to rebuild Cambodia into a country they could be proud to call their own. Theirs was the spirit that had shown at Angkor a thousand years earlier what it could do without bulldozers, cement mixers and other heavy equipment. On a November 1991 visit to Angkor, the Director-General of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) observed that:

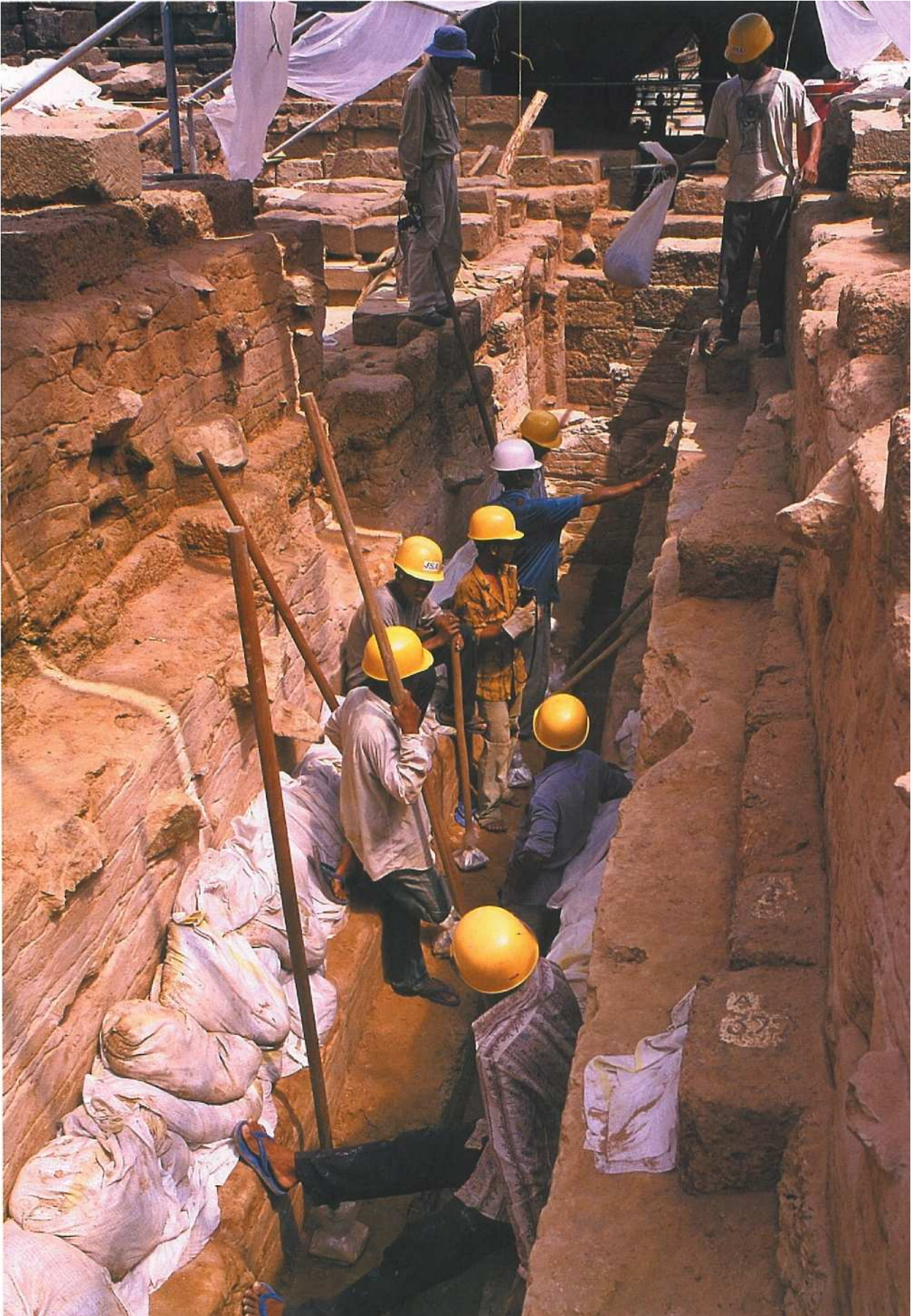
Angkor, city of the Khmer kings, is waiting to become once more the symbol of its country. Vestiges, which bear witness to a rich and glorious past, reflect all those values that are a source for the Khmer people of hope reborn and identity recovered.

While many intergovernmental and non-governmental organizations subsequently answered the call to contribute to the reconstruction of Cambodia and the restoration of the symbolic site of Angkor, this book will deliberately focus on the work of a single one: the International Labour Organization (ILO). In post-conflict Cambodia, the ILO has found ways to generate sustainable employment - which the people ardently desire - while rebuilding infrastructure and exemplifying the international labour standards for which the Organization stands. It has created millions of days of paid employment, given training in a host of trades, set up a thriving micro-credit institution and built rural roads and bridges.

In the northwestern province of Siem Reap, which paid so stiff a tribute to the Khmers Rouges, the ILO was instrumental in the clearing of jungle growth and debris surrounding the monuments of Angkor. With the return of political stability to Cambodia, it is becoming increasingly plain how important the site of Angkor is to economic growth in the country.

Though widely known and respected among the people of Cambodia, the ILO's work has remained surprisingly discreet. In many respects, this is as it should be given the Organization's commitment to helping the workers, employers and governments that are its members to help themselves. What matters is not what an international organization can do, but what the people do.

Yet the need for ILO expertise in alleviating poverty while rebuilding disaster-torn countries continues to arise in other parts of the world. So perhaps it is time to reveal a further secret of Angkor.



## *chapter 1*

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# VESTIGES

**S**ome 1,200 years ago, a line of Khmer builder-kings began having vast stone structures erected in dense jungle to illustrate their might. They oversaw the construction of towering sanctuaries, entire temple-mountains, huge reservoirs and moats. From their capital at Angkor, in the basin of a great lake linked to the Mekong River, their empire had spread over much of south-east Asia by the 11th century: southward to the Gulf of Thailand over central and southern parts of present-day Thailand, westward deep into Myanmar, northwards into Lao territory and eastward into Viet Nam.

### *Kingdom of builders*

By 1150, the Khmer had built what remains to this day the world's largest religious monument: the temple of Angkor Wat. Set on a sprawling 21.0 hectare site, Angkor Wat is framed by a moat 190 metres wide that describes a rectangle several kilometres around. A majestic causeway crosses the moat towards the main entry through an outer wall that runs for 5½ kilometres.

Inside is a complex of elaborately sculpted buildings all of which seem to reach for the sky. As visitors approach the central shrine, they penetrate a succession of covered galleries, each one higher than the one before. Finally, in the centre of the monument, some 470 metres from the moat, a square-shaped platform supports a tower at each corner and a taller fifth tower in the middle that rises 65 metres. However grandiose, Angkor Wat is but one of scores of temple complexes that dot the site of Angkor, which covers more than 200 square kilometres. Among the others are Angkor Thom, the Bakong, Banteay Kdei, Banteay Srei, Krol Ko, Neak Pean, Preah Khan, Preah Ko, Ta Keo, Ta Prohm and Ta Som. All form part of an ancient tradition of labour-based technology to



Dancing for eternity

which we also owe the Great Wall of China and the Taj Mahal. They give powerful testimony to the majesty that smart engineers - and artists and labourers - can attain without the use of machines.

## ***Materials and design***

The stone used to build these monuments was of two types. The platforms, foundations, walls and vaults were made of laterite, a native stone (see *chapter 2*) quarried several kilometres away. For the elaborate statuary and reliefs that decorate the monument it is speculated that sandstone was floated by raft from the north down the Siem Reap River and then carried to the site by elephants or ox-cart.



Mammoth reliefs

(Photo/B. Wenk)



Following the tune

The Khmers used no mortar. They relied instead on a painstaking technique of rubbing stones together with an abrasive sand to form a tight joint sealed with a vegetal glue. A thousand years later, many of those joints are still perfect.

The symmetrical layout and decorative features of the temples came to the region from south India, hence the "Indo" in Indochina. Hindu mythology holds the key to the design of Angkor Wat. The five towers represent Mount Meru - the abode of the gods - and neighbouring peaks. The courtyards represent the continents and the moat evokes the oceans. Fine carvings embody protective divinities. Hundreds of lithe dancing nymphs, called *apsaras*, are everywhere carved in relief.

Because paper and other vegetal material do not last long in Angkor's tropical climate, the stone carvings of Angkor are the only record of the building techniques, history and way of life in those distant times.



Enigmatic giant

## *Decline and abandonment*

Between the 12th and 15th centuries, Angkor came under increasing pressure from neighbouring kingdoms. Persistent raids by the Thais, along with a possible decline in living conditions, finally drove the Khmers towards the south-east, where they ultimately founded a new capital at Phnom Penh.

With few exceptions, Angkor's great cities<sup>1</sup> and temples were abandoned to the ravages of time and jungle. Buddhist monks began caring for the great temple of Angkor Wat, which suffered far less damage than others. In the 16th and 17th centuries, reports of "an ancient city" enshrouded by jungle came from the pens of Dutch, French and Iberian traders and missionaries. Many likened it to Rome. A Japanese interpreter visited Angkor Wat in the 1630s and sketched a faithful diagram of the temple. In the 1850s, several missionaries and travellers visited and described the temple, but these accounts went largely unnoticed.

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<sup>1</sup> Angkor's population at its zenith reached an estimated 2 million.



## *West meets east*

It fell to Henri Mouhot, a French naturalist who saw Angkor in 1860, to arouse popular Western interest in the site. After Mouhot died in 1869, of a fever at Luang Prabang (now in the Lao PDR), the narrative of his travels appeared posthumously, based on careful notes and drawings which were returned to his family.

Mouhot repeatedly asked the people around Angkor Wat who had built it. Again and again they told him it was “the work of giants”. This he thought a fitting metaphor for a place where “patience, strength and genius seem to have done their utmost to leave to future generations the proof of their power and civilization”.

The origin of Angkor is but one of the enigmas that pervade Cambodian history, a history few experts have dared to render between two covers. Since ours is a story of rebuilding, it is important to know, chiefly, that destruction on a massive scale took place and that the damage had to be repaired. Yet, as a rough historical guide and to nudge the interested reader to seek out further information elsewhere, some relevant developments since Cambodia became a French protectorate<sup>2</sup> in 1864 will be sketched below.

## *Independence and beyond*

- In 1941, France placed an 18-year-old prince, Norodom Sihanouk, on the throne.
- The King’s crusade for independence, launched in 1953, triumphed the following year with recognition by the Geneva Peace Conference of the independent Kingdom of Cambodia.
- In 1955, the sovereign abdicated in favour of his father to play a more active part in politics. Opposition Communists, dubbed Khmers Rouges, took sanctuary in the countryside and formed the nucleus of an underground resistance movement. Upon the death of his father in 1960, Prince Sihanouk became chief of state.
- In 1965, with American troops at war in neighbouring Viet Nam, Cambodia broke off diplomatic relations with the United States. The Americans and their allies carried out raids targeting Vietnamese fighters camped inside Cambodian borders.
- In 1969, diplomatic relations with the United States resumed, and the United States began bombing suspected Communist bases in the east of Cambodia.

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<sup>2</sup> The French put great energy into clearing, documenting and restoring the ruins at Angkor. The Ecole française d’Extrême-Orient, founded in 1898, led the study of Angkor’s history and archaeology for more than seventy years until 1972, when it was forced by heavy fighting to leave.

- In March 1970, while the Prince was out of the country, he was deposed by Prime Minister Lon Nol. Lon Nol held onto power for five years during which the country experienced American bombing, partial occupation by the Vietnamese and a string of victories by the Khmers Rouges. Prince Sihanouk, having found refuge in Beijing, set up a united front with the Khmers Rouges to unseat the government of Lon Nol.
- On 17 April 1975, the Khmers Rouges marched into Phnom Penh and took over the country. They expelled the inhabitants of the capital and other towns and attempted to make the country into an agrarian commune. They abolished the currency, shut down schools and summarily killed dissenters. Estimates of the number of victims range from the hundreds of thousands to two million. Those who managed to flee to neighbouring Thailand reported unrestrained xenophobia: everything from air conditioners to musical instruments and foreign medicines was outlawed.
- In December 1978, the Vietnamese army invaded Cambodia and within two weeks routed the Khmers Rouges, whose leaders escaped to the Thai border area. Hundreds of thousands of Cambodians also fled to Thai refugee camps, leaving behind a country on the brink of starvation.



Refugees in a Thai border camp

- Equipped by foreign suppliers, the Khmers Rouges managed to recoup their military strength and joined opponents to the Vietnamese-installed regime in a disparate coalition headed by the Prince, who stayed in Beijing. After years of fighting between government forces, anti-Vietnamese factions and the Khmers Rouges, an “Agreement on a Comprehensive Political Settlement on the Cambodia Conflict” was signed in Paris in 1991. The United Nations Transitional Authority in Cambodia (UNTAC) was charged with implementing the settlement.
- Following UN-organized elections in 1993, power was to be shared by a coalition of Royalists and the ex-Communist People’s Party. King Sihanouk acceded to the throne. But for several years violence threatened the political process.
- In 1998, Khmer Rouge leader Pol Pot died and power was consolidated under a government led by Samdech Hun Sen.

The Cambodian people have at last begun to test the waters of political stability and peace. At a human rights gathering in Phnom Penh shortly before the turn of the millennium, Cambodia became the second State in Asia to ratify all of the International Labour Organization’s fundamental Conventions on freedom of association and the elimination of child labour, discrimination and forced labour. A battle unlike those which had despoiled the country for decades was engaged: the fight for social justice.



## *chapter 2*

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# EARTH

### *Dangers underfoot*

A pervasive reminder of Cambodia's decades of fighting and their toll on the people are the landmines that litter many parts of the country. In other countries, mines were laid along well-defined lines of opposing conventional forces. In Cambodia they were used as weapons of terror aimed at civilian populations, often along roads and even in villages.

Mines are designed to kill or maim. They (do not discriminate between military personnel and civilians, adults or children. The weight of the person who steps on one is enough to set it off.

And many people do. Most of them are poor. As the Halo Trust, a de-mining charity, observes, "landmines are essentially a poverty issue - it is only the people with the least resources that are forced to live in areas known to be contaminated with landmines."

In heavily mined areas like Siem Reap province around Angkor, mine clearance is the first component of any development programme. Before schools can be re-opened, health centres established, land cultivated and roads built or rebuilt, the de-miners must have completed their perilous job.

Halo, one of several organizations active in Cambodia, began clearing mines in Siem Reap province in 1994. After experimenting with heavy machinery, Halo still considers individual de-miners with

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<sup>1</sup> *Socio-economic land use report*. London: Halo Trust Mineclearance Programme (Cambodia), 1999, p.127.

a metal detector, probe and trowel to be the most effective way to eliminate the debris of war. In areas of dense vegetation, however, mechanical bush cutters help speed up the process.



Do not encounter



Most victims are poor



Irreplaceable

(Photo/B. Wenk)



De-mining is hot, hard work

Progress can be laborious: rates of 10 metres a day for a lane 1 metre wide are considered slow. But in formerly inhabited areas with lots of metal in the ground (cigarette wrappings will trigger a metal detector), a de-miner may advance as little as 30 centimetres a day. Under more favourable conditions a single de-miner will clear about 20 to 25 metres a day. When there is no metal in the ground, it is possible to clear up to 100 metres a day.

When deciding which land to clear, Halo gives priority to village-resettlement (and the construction of schools, clinics and other community services), road building or improvement and agriculture. The greatest share of the land Halo has cleared in Siem Reap province (35 per cent) has been for the purpose of road and bridge building, much of it in response to requests from the International Labour Office (ILO).<sup>2</sup>

<sup>2</sup> Other de-miners with which the ILO has been privileged to work are the Cambodian Mines Advisory Centre (CMAC), Compagnie française d'assistance spécialisée (COFRAS), the Mines Advisory Group (MAG) and Norwegian People's Aid (NPA).

## Profile: Sman Makara, de-miner

Sman Makara was born in Siem Reap, the son of school teachers. Under Pol Pot, the family was sent off to the countryside, where he and his sister were separated from their parents. As a boy of eight, he would ask everybody for his mother. "She's not far," they would try to reassure him. "Just over in the next village."

But both of his parents, together with his grandparents, uncles and aunts - eleven close relatives in all - perished at the hands of the Khmers Rouges.

When the UN moved in, Sman Makara returned from the border camp at Khao I Dang, where he had found refuge and learned English, to work for UNTAC as an interpreter. In 1994, he joined the Halo Trust, trained as a de-miner and later rose to the position of assistant location manager.



Sman Makara

De-mining is very physical: up and down all day in gruelling heat. It also demands unrelenting concentration and patience. Makara said he imagined the job would be dangerous. "But it isn't really," he says. "There are rules - a standard operating procedure - and you wear body armour and a visor. So the risks aren't that great."

In his free time - the workday begins at 7.00 in the morning and ends at 3.00 in the afternoon - Makara destroys UXO<sup>3</sup>, frequently discovered by children. He and his team also spend time explaining the dangers of mines and UXO to the villagers, who offer them hospitality during clearance operations.

<sup>3</sup> Unexploded Ordnance: anything from a grenade to a very big bomb.



## *A heritage of devastation*

Cambodians returning in the early 1990s from border camps, military duty or internal displacement to what was left of their homes and towns found roads and bridges in a sorry state. Heavy vehicles - many of them military convoys with axle-loadings more than double the maximum prescribed tonnage - had turned highways into obstacle courses. Bridges, drainage systems and embankments had all suffered extensive damage, and there had been no real maintenance for years.

The roads, however, were not the only casualties. Cambodia lacked engineers, contractors, technicians and financial managers. They had either fled or been victims of a genocide that claimed the country's educated elite.

Roads are essential for economic and social development. A lack of roads cuts people off from each other, denying them access to health services, schools, markets and information from the outside. Road construction, naturally, was a top priority for village and town leaders. Jobs were another.



Too much for the roads



Technology for people

## ***Labour-based technology***

By choosing the right technology, it is possible to rehabilitate infrastructure and at the same time create millions of workdays of productive employment.

In the early 1970s, the ILO began to show the dramatic potential of infrastructure investment for sustainable employment. Over the years it had refined what it calls a labour-based approach to infrastructure works. Labour-based technology maximizes employment opportunities without compromising engineering standards and does so at competitive rates. The labour called for, both skilled and unskilled, is supported by light equipment and uses materials and tools generally available on local markets.

In 1979, the World Bank calculated that labour-based technologies were the most economical solution wherever the daily rate for unskilled labour was below US\$4. Given the rise since then in the cost of machines, fuel and raw materials, those technologies are still attractive at higher wage rates.<sup>4</sup> What is more, labour-based technology keeps available funds inside the locality unlike equipment-based technology, which can swell the profits of distant manufacturers and transporters to the detriment of a country's foreign exchange balance.

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<sup>4</sup> In 1993, Cambodia's per capita GDP was about \$200 and the mean opportunity cost of unskilled labour in rural areas was \$1 per day. Today, with GDP at \$280, Cambodia is still among the world's poorest economies, and the cost of unskilled rural labour is still about \$1 per day.



The right balance between labour and machines

## ***Labour-based vs. labour-intensive***

It is important, however, not to confuse labour-based technologies (LBTs) with what are known as labour-intensive technologies (LITs). Though both deploy much more manpower than equipment-based technology, they differ significantly in the quality of the results obtained and the costs involved. LBTs recruit the *optimum* number of workers for a given result; LITs use the *maximum* number, with results that are inferior to those obtained using heavy equipment. LBTs, on the other hand, achieve results that are as good as and often better than those obtained with heavy equipment at prices that are frequently lower. The substandard quality delivered by LITs makes them relatively costly. Though modern management procedures are seldom a concern of labour-intensive schemes, labour-based approaches consider sound management procedures and training essential at all levels. A similar divide separates the two with respect to equipment and tools: LITs make scant provision, if any, for the good-quality, well-designed hand tools and associated light equipment that are a hallmark of labour-based technologies.

It follows that short-term employment is the overriding concern of labour-intensive technology, whereas labour-based technology looks beyond that to longer-term sustainable employment possibilities. What is more, concern for working conditions and compliance with international labour standards - part of what the ILO calls *decent work* - is an essential component of labour-based technology, which strives to set an example for country-wide practice.

## *The building begins*

In 1992 and 1993, the ILO turned to LBTs to rehabilitate Cambodia's secondary and rural roads. Work began in the north-west provinces in response to a request from the United Nations High Commissioner for Refugees, whose task was to resettle people and give them access to food distribution points.

The first step had to be training, which started in refugee camps along the border. LBTs being management intensive, all field engineers, technicians and supervisors took a two-month training course before the first spade hit the ground. Instruction materials were produced in English and Khmer.



Patience helps



Red Gold

The ILO's infrastructure projects were in fact part of a wider employment-generation programme, which provided training in business, accounting and other skills. Contractors and supervisors were steeped in management and business techniques alongside safety-standards, mines-awareness and the technical aspects of quality road building.

## ***Raw materials***

The local surfacing material most widely used in Cambodia's rural roads is laterite. Laterite - the term comes from the Latin word for brick - is a highly weathered natural mudstone, usually a mix of gravel and clay, formed by a concentration of hydrated oxides of iron or aluminium. Often reddish in colour, it can be found in varying quantities in scattered locations around Cambodia and other tropical countries. The quality of laterite varies. Its self-cementing properties often make it quite hard and suitable for roadworks.

One of the first and most important ILO roads around Siem Reap leads to a quarry that supplied the laterite for several hundred kilometres of road in the province.

Though it is relatively economical to build roads with laterite, when the source is not too distant, laterite roads do require extensive maintenance. The ILO has accordingly tested other locally available materials for labour-based methods. In the Mekong River province of Kampong Cham, a stretch of road using stone packing and a cobbled surface has already created new skilled jobs at a nearby quarry. In the province of Siem Reap, bamboo-reinforced concrete is being tested for heavily travelled areas near a district market.



Tool of preference



Stretcher transport

## *Tools*

Along with local manpower and materials, labour-based technology calls on local tools and, where available, light equipment.

The preferred local hand tool for excavation is the same hoe farmers use. The pick mattock is handy for hard soils and laterite sources. Spades are efficient in wet clay soils.

Excavated material is carried by bamboo basket or, for hauls greater than 5 metres, by stretchers made with bamboo poles and hessian bags. Long-handled 3, to 5 kilogram hammers are used to break oversize laterite surfacing material. Wheel barrows are used for routine maintenance operations. Bush-cutting tools are often required too.

Most of the hand tools needed for infrastructure rehabilitation in Cambodia can be had in provincial market centres. Others have been made to specification by local blacksmiths out of steel from old cars. In-country procurement - at competitive prices - has given local manufacturing and cottage industries valuable support.

Thanks to the generally flat terrain in Cambodia, the star among locally-available light equipment has been the small utility truck known as the *etean*. Costing under \$4,000 and with a carrying

capacity of about 2 cubic metres, the etean has proved a faithful workhorse for the transport of tools and materials. Fitted with a 2,000 litre water tank, it is also used to water down roads.

Other important light equipment includes the 700-kilogram pedestrian vibrating roller, the water pump, the plate compactor and soil-testing equipment.

## ***Costs and benefits***

To compare the costs of labour-based and equipment-based construction technologies requires data on work performed under similar conditions and to the same construction standards. Though such data are not easy to come by, labour-based technology costs appear to be somewhat lower. What is plain are significant differences between the two in the relative amounts budgeted to generate employment and to purchase equipment.

Equipment-based technologies typically allocate 80 to 85 per cent of budget to (mostly imported) equipment, with labour expenses making up no more than one-fifth of the total. With labour-based technology, labour accounts for up to 40 per cent.

Within eight years, ILO infrastructure projects in Cambodia gave local workers over 3 million workdays' direct paid employment and trained hundreds of managers, contractors and government staff in business, accounting, language and computer skills on top of labour-based construction and maintenance techniques. More than 540 kilometres of rural roads and 80 bridges, 439 culvert rows and 21 watergates were rehabilitated and maintained. To protect embankments from erosion and hungry cattle, selected local species with sturdy roots and spiky leaves were planted.

ILO guidance has been sought by the Asian Development Bank (ADB), the World Bank, the European Union and other development bodies. ILO methods are being adopted and adapted in other parts of the country. Most importantly, the Ministry of Rural Development has made labour-based technology its method of choice for rural development, and the country's future engineers follow an ILO-designed curriculum in labour-based techniques as part of their studies.

LBTs are not confined to road building. In many parts of the world they have contributed to irrigation projects, flood and river control, drainage systems, water supply, sanitation, forestation projects, environmental protection, housing, community building, recycling, refuse collection and tourism.

## ***Tourism***

In the province of Siem Reap, tourism holds special potential for poverty alleviation. Like any large public building, the World Heritage Site of Angkor needs constant care. Vegetation in the tropics left unchecked can swiftly transform parkland into jungle. Trees and vines take root in masonry and in time split it into pieces that, perversely, may be held together by the very roots that caused the



Stoney symbiosis

(Photo/Tom Smith)

original damage. The cracks opened by roots allow moisture and other agents to penetrate and weaken the integrity of ancient stone, brick and laterite structures.

Between the pull-out of the Ecole française d'Extrême-Orient (EFEO) in the early 1970s and the beginnings of the ILO employment generation project in 1992, the surrounding wall and much of the structure of Angkor Wat had vanished from view. So thick was the vegetation in the moat that it could hardly be imagined to contain water.

Mindful of the importance of clearing the monument and its value for tourism-driven development, the ILO joined with UNESCO to spearhead a massive clearing and restoration operation. Unskilled workers soon found hundreds of thousands of days' employment clearing vegetation from and around the monuments. A hydrological expert outlined a plan identifying drainage systems needing repair,



From carpet of vegetation to moat





Uncovering lost relics

(Photo/ILO)

and reeds and other vegetative growth in canals were removed. Under the supervision of a Cambodian agronomist, hundreds of workers rid the ponds around the temples of weeds, algae and other plants.<sup>5</sup> They cleared grasses and weeds and removed bushes, roots and stumps. To conserve soils and enhance the site they planted 10,000 tropical hardwoods in 1994 alone. They also revived the drainage system, recovered statues from insecure areas, ran a rubbish-collection service and put up scaffolding for restoration specialists.



Sunset at Angkor

The restoration of ancient drainage and irrigation structures at Angkor has made a big difference to the site. The stabilization of water tables at their original levels or thereabouts has helped save many ancient structures from imminent collapse.

But of all tasks, the clearing of the moat has most dramatically added to the magic of Angkor. Whether at sunset, under moonlight or through morning mist, temple silhouettes are never more admirable than when reflected in water.

<sup>5</sup> During the blistering heat of the dry season, workers can still be seen floating around on inner-tubes engaged in the strenuous though apparently refreshing job of clearing vegetation from the ponds.



## chapter 3

# WATER

**L**ife, as every school child knows, cannot be sustained without water. For a civilization to develop on the scale of Angkor's requires not only vast quantities of water but also great skill in harnessing, managing and delivering it.

### *Asia's biggest lake*

The tropical cycle of devastating monsoon rains followed by scorching dry seasons is distinguished in the region of Angkor by a singular hydrographic phenomenon: the annual swelling of a huge inland lake, the Tonlé Sap, located some 15 kilometres south of Angkor, to more than twice its usual size. This is caused by the surprising reversal in the Mekong River's direction of flow. The Mekong has its source in the Himalayas and flows down through China, the Lao PDR, Thailand and into Cambodia, which it bisects on its way to Viet Nam and the South China Sea. From May to November, the river's silty channels overflow under pressure from melted Himalayan snow and monsoon rains. As the waters build up, they have nowhere to go but northward up the Tonlé Sap River - a tributary that





Home work on the lake

joins the Mekong at Phnom Penh - all the way to the great lake of Tonlé Sap. The level of the lake then rises by several metres, enough to submerge trees and send people to the hills.

This pattern of ebb and flow has had a decisive impact on the history of Cambodia. The Tonlé Sap, Asia's largest inland body of water, is teeming with fish to this day. It is also home to a fast-growing variety of rice, known as floating rice, uniquely adapted to upsurges in the Tonlé Sap's water level. In a single day the stem can grow 10 centimetres, until it stretches to a height of up to 6 metres.

## ***Irrigation***

Cambodia has relied on irrigation techniques and flood control since the Angkor period. But little infrastructure survived intact into the 1990s, by which time the drainage systems around Angkor had suffered and uncontrolled surface drainage was damaging the monuments.

In the 1970s, Pol Pot imposed an ill-conceived canal-building programme using forced labour seemingly in emulation of Angkorean irrigation techniques. He emptied the cities and set their inhabitants to building canals, dykes and dams. This experience of forced labour was a profound human tragedy, which cost hundreds of thousands of lives.

It was also a technical fiasco because it disregarded such basic engineering considerations as geo-



Rural pleasures

technical studies, soil sampling, compaction of earthworks and all manner of environmental implications. Design consisted of following the longitudinal and latitudinal gridlines of maps, heedless of natural contours or slopes.

In the early 1990s, less than 10 per cent of Cambodia's croplands was under irrigation. Irrigation schemes held a potential for development that the UN was keen to tap. The ILO, for its part, saw a further source of gainful employment and a channel to economic self-sufficiency.

## *Reviving the Baray*

After carrying out extensive technical studies, the ILO set to work reviving the irrigation network around the massive Baray Reservoir in the heart of Angkor. The reservoir, which measures some 8 kilometres by 2 kilometres, is said to date from the 11th century. In the 1960s, the reservoir permitted 7,000 hectares of dry-season cultivation: when the ILO went to work on it some 30 years later, only a few hectares were producing dry-season crops.



Labour-based technology served to rehabilitate 44 kilometres of secondary canals in Siem Reap province. Each kilometre generated an average 2,500 workdays. As with road work, the project injected much more into the local economy than direct wages: it enlisted hauliers to transport materials, manufacturers to make hand tools and baskets, and contractors to prefabricate culverts and other concrete structures. It gave work to equipment repair shops and service suppliers. An estimated \$4,000 entered the local economy for each kilometre of canal or road completed.

By increasing water-storage capacity, the irrigation works gave agriculture a much-needed boost and helped stem the tide of rural-urban migration. With the irrigation and construction skills acquired on the project, people became more self-reliant and better equipped for jobs in infrastructure maintenance.



Reviving the irrigation network

(Photo/ILO)



Year-round water for rice

The Baray command area covers approximately 8,000 hectares. The main crop is rice: including dry and wet-season varieties as well as floating rice. The area also produces maize, mung beans, soybeans, sugar cane, watermelon, sweet potato and sesame. The rehabilitation and maintenance of the network has generated some 460,000 workdays.

From construction and rehabilitation the focus has shifted to maintenance. Responsibility for maintaining the irrigation network is largely in the hands of water-user groups (see *chapter 6*), which meet on a regular basis to ensure that water is distributed efficiently and equitably.

## Profile: Chim Seak Leng, Minister for Rural Development



Chim Seak Leng

For Chim Seak Leng, rural roads and canals hold the key to sustainable development in predominantly agricultural countries. A staunch advocate of labour-based technology, Chim Seak Leng is Cambodia's Minister for Rural Development.

Under the palm fronds of a village in Siem Reap province, he tells a group of farmers about the fresh opportunities and challenges before them:

"At last Cambodia has peace and stability. The war is behind us and tourists want to visit us, especially in this province with Angkor at your doorstep.

"Our struggle today is against poverty. At least one Cambodian in every three is poor. Tourism is giving us a chance to pull ourselves up. But if we do not raise enough chickens for the tourists, our hotels and restaurants will serve them chicken from outside. If our peasants do not grow better rice with bigger yields, tourists will eat rice brought in from Thailand. So we have to take advantage of the influx of tourists, the benefits of peace and the lure of Angkor to provide our guests with the vegetables, fruit and other staples they need. It will be up to you to maintain the infrastructure built with the ILO's help and use the water it brings us to plant new varieties of rice and other crops. We have enough water to produce food all year round now. And we have markets for that food. We must make the most of these great opportunities."





## *chapter 4*

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# MARKETS

**M**ention the *centre* of a town and chances are your listener will picture the marketplace and thereabouts. Markets are central to our lives and not just as places to stock up on essentials or offer our wares. At a market, much more than money and goods changes hands. Before the first libraries and universities - long before the Internet - they were already a nexus of ideas, skills and experience.

Market people do not base their lives on handouts: they are farmers, craftsmen and tradespeople with a stake in the growth of their community. They value stability, infrastructure and know-how.

### *Barometers of development*

Because they are central to the human experience, markets are a good place to see the benefits of infrastructure development. The market town of Puok, 20 kilometres west of the city of Siem Reap, is the head of an agricultural district with a population of 110,000. Four roads lead to the town: three rural roads - rehabilitated using labour-based technology - and the main national road.

Today the market at Puok is the second largest in the province, surpassed only by the urban market at Siem Reap. Yet before the new rural roads it would have been fanciful to call Puok a market town. Most mornings a handful of vendors would set themselves up in the hope of a few hours' business. In the rainy season, no one even bothered.



Unloading

## *Roads make a difference*

With the completion of the rural roads around Puok, things began to change. There were 80 market stalls in the mid-90s; by the year 2000, the number had soared to 570. Demand for market space was so great that the purchase price of stands - which had been free for the asking before the roads - had risen to \$200 for a fruit or porridge stand and up to \$1,000 and more for the larger equipment or clothing outlets.



Ready for market

## *Delivering the goods*

Of foodstuffs reaching the market, rice makes up the lion's share. In 1999, a traffic survey found that over 120,000 kilograms of rice reached Puok market every day. The second largest food item traded is seafood (fresh fish and crustaceans), followed by fresh fruit and vegetables, meat (pork, beef and poultry) and dried or processed foods. The market sees a lively business in building materials, of which daily arrivals total nearly 125,000 kilograms. Other major consumables on offer are firewood, charcoal, clothing and livestock.



Goods for the people, from the people

## *Two wheels more often than four*

Six out of every ten vehicles on the roads to the market are bicycles. They transport rice, fish and vegetables in loads averaging 30 kilograms. The average cyclist comes from about 40 minutes away. Tourists are invariably struck by how many pigs arrive lashed to a luggage rack.

Bicycles and motorbikes together account for 95 per cent of traffic, which comes from each of the 12 districts in the province. The remainder is made up of *remorques* (motor-trailers), ox-carts and horse-carts (which can haul firewood and charcoal over long distances), pickups (popular for passenger transport), the truck-like *koyun*<sup>1</sup>, handcarts and a few cars.



All a matter of balance

Photo/B. Wenk)



This pig goes to market

<sup>1</sup> A linguistic yoke of the Khmer words for ox (*ko*) and machine (*yun*), the locally-made *koyun* has the engine of an irrigation-pump.



The ever-popular ox-cart

## *Economic impacts*

On average, the road works have halved journey times and doubled the quantity of loads reaching the market. The cost of transporting goods on rehabilitated roads has fallen by at least a quarter, often more, thanks arguably to heavier load capacities and quicker, safer journeys. Perversely though, fees for passenger travel have risen, possibly because transporting people has become a viable business in itself, rather than a service hauliers would render on a casual basis.

A 1999 survey of Puok market found an average fall in the price of goods by 16 per cent since the ILO completed the rural roads to it. Vendors see this as a result of stepped-up competition and the wider range of goods. Though the decrease in profit margins was, of course, unwelcome to some hangers-on, newer arrivals appreciate the ease with which suppliers and customers reach them and rising turnover.



Multi-purpose vehicle

## *Making growth sustainable*

To be able to sustain the growth made possible by better infrastructure, people need business acumen and capital. That is why two other important ingredients in the ILO's employment programme - alongside infrastructure development - are training and micro-credit.

Business and employment conditions in Cambodia were especially bleak on the signing of the peace accords in 1991. Most people in rural areas lacked employable skills. Women, many made head of their families by the fighting, were further penalized by limited access to formal education and jobs. Outside of the garment sector, tourism and logging, prospects of finding employment were meagre. The labour market was largely unorganized and there was no reliable information system or investment programme to bolster it.

## *New skills*

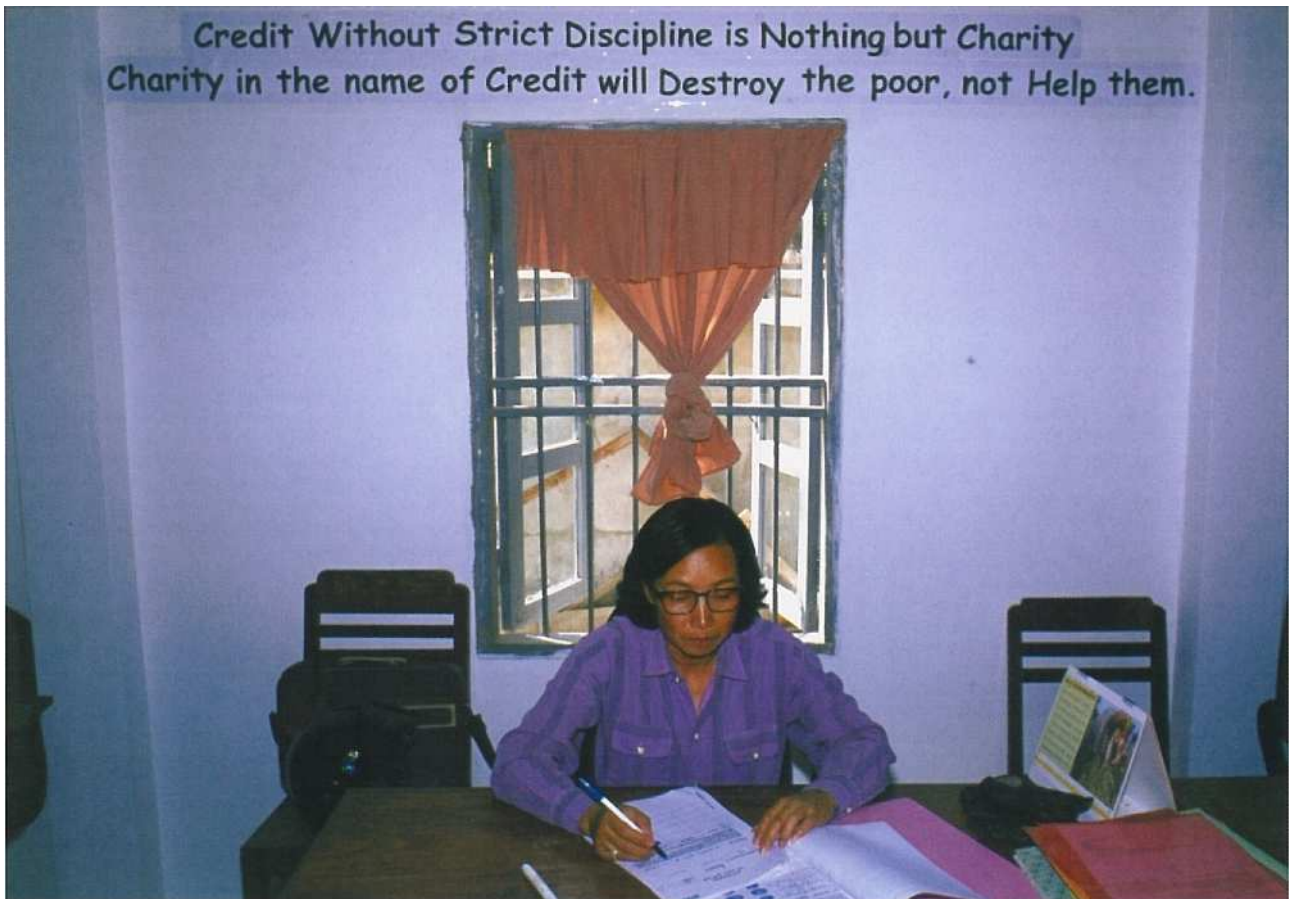
In a bid to help bring work to thousands of returnees from the border camps, internally displaced people, demobilized military personnel and vulnerable members of society, the ILO organized vocational training in several provinces, including Siem Reap. Courses ranged from car repair to wood carving. People learned hairdressing, masonry, bike-frame and plough making, radio and television repair, sewing and weaving, food processing, duck rearing, frog raising, fish farming, rattan furniture making, mat production and welding. Growers were shown how to produce leeks, mushrooms, onions and watermelons. In-service training was conducted in accounting, management, computers and language.



Sew and you shall reap

## *Access to credit*

For businesses of any size to develop they must have capital. In rural Cambodia, where income figures are among the world's lowest, savings (and banks) are often non-existent. But some 80 non-governmental organizations (NGOs) have taken the lead in supplying seed money for micro and small enterprises. The most important NGO involved in micro-financing is the Association of Cambodian Local Economic Development Agencies, better known as ACLEDA.



Lending not just an ear

ACLEDA opened its doors in 1993 with support from the ILO and the United Nations Development Programme (UNDP). By October 2000, it had become a licensed bank with 49 branches and offices in 14 provinces, chiefly in rural areas. Its loan-repayment record is now greater than 95 per cent.

ACLEDA offers three kinds of loans: micro-credit loans, collateralized small-enterprise loans and small-scale industry loans. Prospective recipients of micro-loans are counselled in business practices and credit methodology. This information is usually given out by mobile training teams in clients' villages. Micro-loans are made in local currency equivalents of up to \$400 and have to be paid back within 3 to 12 months.



Investing in agriculture

A growing number of small businesses and agricultural concerns turn to ACLEDA for collateralized small-enterprise loans in amounts up to \$4,000 each. Borrowers, predominantly women, have up to two years to repay. Between initial screening and the grant of a loan, clients get training in business and management techniques.

ACLEDA also offers loans to industrial entrepreneurs in amounts ranging from \$10,000 to \$70,000. With a client base of 58,000 - noodle makers, motorbike mechanics, seamstresses and joss-stick makers to name but a few - ACLEDA has become the most active lender in Cambodia with a loan portfolio of some \$15.6 million.



What'll it be?



## Profile: Kek Chek, T-shirt entrepreneur



Kek Chek with his wife and workers

In 1994, Kek Chek was poor. He could afford neither a house nor a motorbike. Six years later, he had four children, a business of his own with seven employees, and hopes of buying a car before long.

It all began with a request from ACLEDA: could the ILO train Kek Chek to do silkscreen printing? The answer was yes, and the ILO brought an instructor up from Battambang to teach him.

Kek Chek also studied accounting, management and marketing in ILO-organized courses. At the time he had a small print shop. A market survey by ACLEDA suggested that tourists might appreciate T-shirts bearing the symbols of Angkor.

Kek Chek also studied accounting, management and marketing in ILO-organized courses. At the

time he had a small print shop. A market survey by ACLEDA suggested that tourists might appreciate T-shirts bearing the symbols of Angkor. He took out a \$2,000 loan and repaid it in two years. The tourist boom around Angkor is living up to Kek Chek's expectations and visitors are grabbing his T-shirts, most of which sport ancient Angkorean designs. He sells almost as many tapestries from rubbings of the reliefs on the walls of the monument. Without help from ACLEDA and the ILO, he says, he would never have known how to print on a T-shirt.



## *Economic and social benefits*

The effects of infrastructure development on Seam Reap province have been far-reaching. Many of ACLEDA's clients, it turns out, were clustered along the ILO roads. They include people who had worked on the construction and managed to put aside some of the money they had earned. Seeing the new business opportunities brought by the roads, they borrowed a bit more from ACLEDA and started up their businesses.

The roads have also moved health services closer to those who need them. People living along rehabilitated roads can reach health posts and hospitals twice as fast as those lacking ready access to the road network. What is more, community health services have begun to reach outlying communities as international agencies and other donors open up health centres in formerly isolated localities.



Easier to reach now



What will they learn in school today?

School-goers are another winner. The largest single group of road users in the vicinity of Puok market are the teachers and pupils of the three nearby schools. Puok High School draws pupils from 12 different towns in the district. Over 90 per cent of them pedal to school on their own bicycles - a few come by motorbike. It takes them on average 20 minutes to get there over the smooth new roads.

The upgraded roads have seen ownership of motorized vehicles, chiefly motorcycles, accelerate. This in turn has boosted employment opportunities for mechanics.

The market creates greater demand for baskets and other bamboo and wicker items, which local craftsmen are busy producing. Not surprisingly, hauliers are facing a brighter future too.



Catching up

So buoyant had economic prospects become for the people of Puok that by the year 2000 contractors and engineers resurfacing the roads around the marketplace with experimental bamboo-reinforced concrete had to look well outside of town to find hands willing to serve as workers. That was as sure a sign as any that the local economy had at last taken off.



On-site lunchbreak

## Profile: Try Sarei, sandwich man

Try Sarei had been selling sandwiches on a pock-marked feeder road leading to Puok for some years before the ILO arrived to rehabilitate it. He remembers how hard it used to be to push along his cart. It became all but impossible in the rainy season. But all that has changed: he's finding it easier - whatever the season - to move up and down the road. And more people are stopping for a snack these days. Business is brisk with sales of about a hundred sandwiches a day. Try Sarei looks back without regret to the time when he stayed at home and his wife made porridge to sell in town. Their income has doubled since then, but remains under \$3 a day.



Try Sarei and customer

To purchase his cart, Try Sarei took out a loan from ACLEDA, which gave him training in basic business skills too. There is pride in his step as he wheels his cart down the smooth laterite surface to where a hungry crowd place their orders for pate and cucumber sandwiches on warm bread toasted to a crisp on Sarei's charcoal fire.



A much smoother push



## *chapter 5*

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# RIGHTS

**E**conomic progress is only part of the rebuilding of Cambodia. For economic gains to be of lasting benefit to everyone, the country's social fabric, torn by decades of fighting and instability, also has to be mended.

Social and economic progress have always been inseparable for the ILO. Respect for the rights enshrined in international labour standards is a fixture of its work in Cambodia, whether infrastructure projects, training courses or micro-credit schemes.

### *Standard-setter or road-builder?*

More widely known as a standard-setting body than as a road-builder (except, perhaps, in parts of Cambodia), the ILO had to look no further than its own Conventions for the fundamental principles behind its employment-generation programmes. The ILO's 376<sup>1</sup> Conventions and Recommendations constitute a unique body of international law that stands behind its goal of *decent work*. Decent work is freely chosen, non-discriminatory and safe. It is remunerated fairly and includes health coverage and other social benefits.

International labour standards spell out a range of work-related rights and duties and offer guidelines for good practice. They seek to wipe out child labour, forced labour and discrimination in the workplace. They champion freedom of association, small business development, worker training,

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<sup>1</sup> As of August 2001.



Decent work

occupational safety and health, and the special interests of women workers and of least-favoured members of society. Adopted by the international community of workers, employers and governments, ILO labour standards reflect the conviction that poverty, and widespread unemployment and under-employment are a permanent threat to stability, peace and general well-being.

## ***Equal opportunity for women and men***

Women have played a decisive role in the rebuilding of Cambodia. In 1992, the heads of many households were unemployed and under-educated women. Often, half the workers on an ILO-sponsored construction site are women. Many of them have received special training to work as road supervisors and in senior technical and managerial positions. For example, the entire programme of work to clear the Angkor monuments and environs, including the acres of pond overgrown by dense vegetation, has for several years been under the management of a female agronomist recruited by the ILO.

Shortly after the peace agreement, UNESCO and a non-governmental partner provided special literacy courses for women. The curriculum was designed, in part, to raise women's knowledge of family planning, hygiene and health. ACLEDA, which grants the vast majority of its loans to women, has given female entrepreneurs substantial management and business training from the outset. What is more, ACLEDA has built gender balance into its recruitment policy and is committed to hiring women and men in equal numbers.



### **Profile: Iv Yarany, agronomist**

The first Khmer counterpart recruited by the ILO in 1992 for the job of clearing obstructive vegetation at Angkor Wat was Ms Iv Yarany. Having trained in Russia as an agronomist, she was working with the Ministry of Agriculture in Siem Reap at the time. The beginning, she says, was the most difficult: “The vegetation in the moat was so thick that a worker could barely clear 30 square metres a day.” Today, under her management, the 300 or so workers who take the plunge for the annual cleaning of the moat manage to cover about 100 square metres per day - some of them afloat on inner-tubes. As for the walls around Angkor Wat, she still cannot look at them without recalling how much vegetation her workers had to hack away to uncover the stone. When that was done, they planted the decorative species that now dot the perimeter of the site.



Iv Yarany

(Photo/B.Wenk)

As the person in charge of clearing and cleaning for APSARA<sup>2</sup>, Iv Yarany is out there every day with her team to do battle with the encroaching jungle in dry weather and wet.

## ***Helping the disabled to help themselves***

The profusion of landmines has put the proportion of physically disabled people in Cambodia among the highest in the world. In 1993, the country saw an estimated 100 landmine victims killed or maimed each month. Because mines and unexploded ordnance still litter many parts of the country, mine-related accidents are likely to grieve the country for many years to come.

For amputees to provide for themselves and their families they need special tools and training. The ILO began addressing those needs by identifying specially adapted, commercially available - and affordable - farming and road-building tools in keeping with its Vocational Rehabilitation (Disabled Persons) Convention, 1983 (No. 158), which seeks to integrate disabled workers into the mainstream labour market. Handicap International, an NGO, gave valuable advice on amputee working conditions. Of the workers involved in clearing vegetation in and around Angkor Wat, some 10 per cent were technically disabled. But thanks to special tools or duties they have been “enabled”.

<sup>2</sup> APSARA is the French acronym for Autorité pour la Protection du Site et l'Aménagement de la Région d'Angkor.



Teamwork

The ILO made a point of picking candidates for training from members of particularly vulnerable groups. So it was that a 16-week radio-repair course, for example, transformed the life of a father of two from Banteay Meanchey province. At great cost to his self-esteem, he had been relying on his wife's labours in the rice paddies after losing both his legs. Within months of finishing the course, he had his own repair business and was training three of his neighbours to work with him.

## ***Equal and fair remuneration***

Payment on construction sites is generally made on the basis of a specific amount of work, or task, which takes about six hours to accomplish. Upon recruitment, workers indicate the method of payment they prefer: either cash payment in local currency - at competitive rates relative to those prevailing in the local labour market - or a 50/50 mix of cash and food. The World Food Programme, under a collaborative arrangement with the ILO, has provided the food under these schemes in the form of rice, fish, oil and salt.

To give everyone an equal chance of getting hired, a system of recruitment by lottery has become popular. Applicants have to produce ID cards as proof of age and domicile. In keeping with the premise "no child labour", workers must be over 18 to be eligible. Only people from within the vicinity of construction sites are taken on as labourers. Gender balance is guaranteed by the requirement that half the workforce must be female. These conditions of recruitment and employment embody the core principles in ILO Conventions against forced labour, child labour and discrimination.

## *Decent work is safe work*

Safety is a prime concern on ILO work sites. Ensuring safety in Cambodia started out with mines-awareness training in close collaboration with several mine-clearing agencies, among them the Cambodian Mines Advisory Centre (CMAC), the now disbanded Compagnie française d'assistance spécialisée (COFRAS), the Halo Trust, the Mines Advisory Group (MAG) and Norwegian People's Aid (NPA). Despite the risk posed by heavily mined terrain and unexploded war debris on the floor of the ponds and in the grounds of Angkor Wat, the ILO has lost none of its workers to mine accidents. (Tragically, two experts, one British and one Khmer, working for MAG to clear land near an ILO road were abducted by Khmers Rouges and killed.)

## *Environmental concerns*

Safety for workers and safety for the environment go hand in hand. Nowhere has this practice been more in evidence than the massive operations to clear the ponds and monuments of Angkor. Though powerful herbicides and defoliants might have made their labours easier, workers disentangling networks of roots, breaking up and hauling away cartloads of vegetation and cleaning sandstone and laterite have the assurance that the techniques they use and any chemicals issued to them are both environmentally sound and safe for use by people.



Safe work, safe perk

(Photo/B. Wenk)

## *Teaching standards by applying them*

Human rights, sadly, are often left for people to preach and breach: something for activists to espouse and others to ignore. Some poor countries suspect more economically advanced ones of laying down harsher standards on them than they themselves had had to apply at the time of their own industrial development. So it would not be surprising for governments to look askance on those who seem more interested in finding fault than finding solutions.

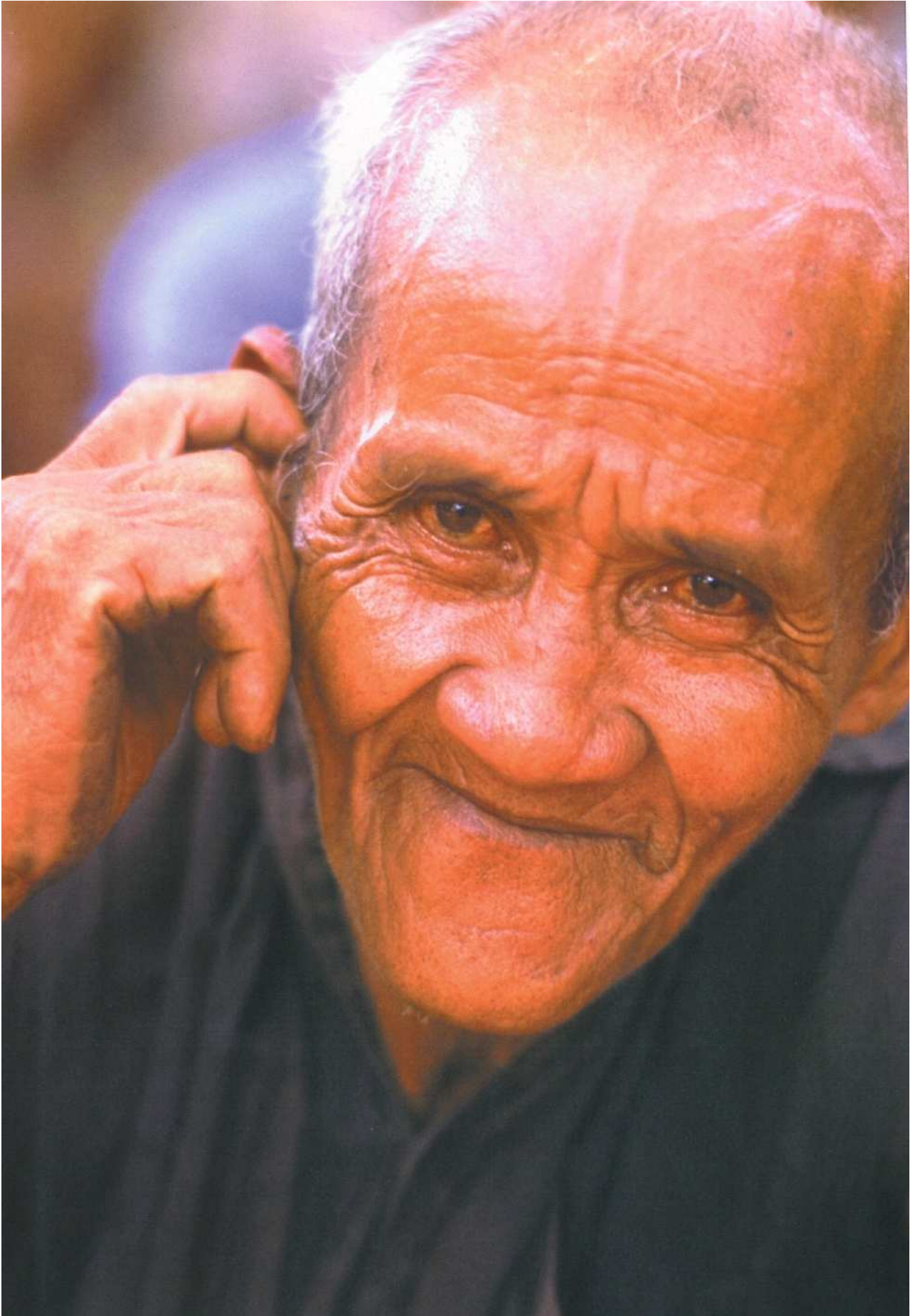
Many of Cambodia's rural entrepreneurs, workers and officials first heard of and experienced international labour standards, including proper safety procedures, in ILO-organized programmes. When they in turn go on to train their neighbours, standards are a big part of each lesson. When a successful businessman empowered by ILO training and an ACLEDA loan decides to take a portion of his earnings to raise pigs for those too poor to have any animals of their own, he admits that the idea of sharing and spreading the wealth came from what he learned through the ILO. When contractors offer wages above market-rates and practice "safework", they merely extend practices that they saw paying off for the ILO. What they all experienced when they were most in need is a respect for human rights and human dignity that now seems natural to them. And that respect, coupled with a lot of hard work and intelligence, is rebuilding Cambodia.

### **Profile: Vai Vann, veteran and groundskeeper**



Vai Vann

At 35, Vai Vann, a former soldier, has cleared weeds in Angkor's ponds and grounds for the past seven years as a year-round worker on the team set up by the ILO and now part of APSARA. As a soldier, he lost a leg to a land mine. The veteran's pension he collects is worth about \$15 a month. A father of two young daughters, he says his pension does not go far enough to feed the whole family. His choice of remuneration with APSARA is half-cash and half-food: 2,000 riels (about 50 US cents) plus two kilograms of rice per day under a World Food Programme "food-for-work" scheme.





## *chapter 6*

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# OWNERSHIP

The tools that make development sustainable always belong to the people. Aid that consists of unpacking a caseful of solutions, dropping them off with good wishes and hopping on the next flight out is no aid at all. Far from imposing “solutions” from outside, the ILO makes a point of listening to the people it works with and learning along with them.

### *Infrastructure and development*

At the time of the Paris peace accords, as already noted, Cambodia was short of engineers. For over 20 years, the country’s road network had been left to deteriorate for want of systematic maintenance. Bridges were out and road surfaces in the dry season looked like moonscapes. During the six-month monsoon season, whole sections of the country were simply cut off. One Cambodian village dweller compared the isolation experienced during these long periods to living like a frog in a well: the lack of road links left much of the country, much of the time, looking at the wet and the mud with little hope of getting out.

The frog-in-the-well image shows how utterly dependent development is on infrastructure. Without transportation links, what nurses, what school teachers, what entrepreneurs would want to mire themselves in a village with little or no access much of the year to the outside world? Without decent roads, people are doomed to a subsistence economy, in which there is no incentive to produce surpluses because there is no way of getting them to markets. Goods which cannot be moved have no market value.



Listening and learning

## ***Maintaining roads***

After rural roads, bridges and irrigation schemes are built or re-built, someone has to maintain them. Often, it is best for the users - directly or indirectly - to be responsible for this upkeep.

But maintenance poses many sorts of challenges: financial, technical and social. The donors who, in the wake of the peace agreements, made it possible to rehabilitate sections of the road system are less eager to take on the long-term and open-ended demands of infrastructure maintenance. Although maintenance is a wise use of resources, it does not come cheaply.



Soggy road

(Photo/ILO)



Technically, maintenance requires a well-kept inventory of road conditions, a calendar of targeted interventions, hundreds of well-trained and well-supplied repair crews and a body of qualified civil engineers to coordinate and supervise interventions throughout the network.

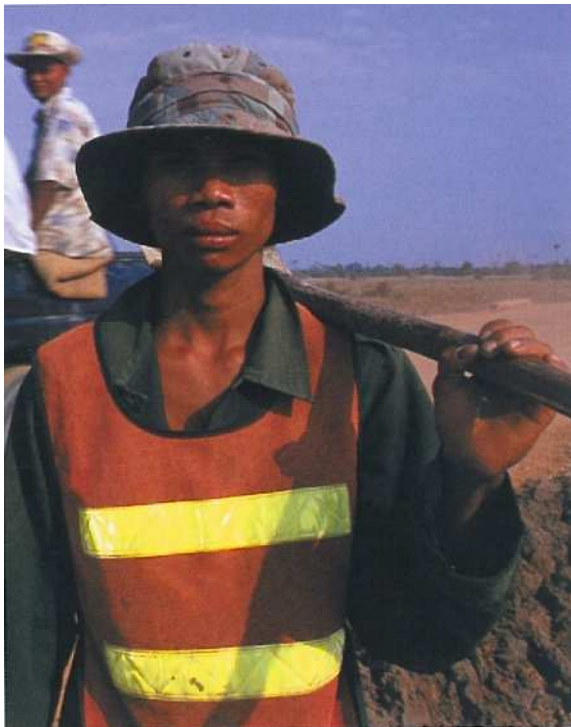
Road building can of course be done with foreign aid, expertise and equipment, though it is better to use local resources. But for a maintenance programme to succeed, a country must have the necessary skills and organization.

In the early 1990s, Cambodia had no professional civil service, no funds set aside for maintenance and no qualified contractors to carry out the work.

So the maintenance of village roads was left entirely to the local population. To help them take charge, the ILO set up a system of "length persons". Each length person is responsible for approximately 1 kilometre of roadway. Paid on a task basis, these women and men usually live and work close to the section of road assigned to them. Recruited with guidance from village leaders, most of them already knew about labour-based techniques through involvement in the construction phase.

Though the work goes on year round, length persons set their own schedules so that the ten or so days per month it usually takes do not interfere with the crop schedule. Their main tasks are patching up laterite surfaces, repairing potholes, securing slopes damaged by erosion, clearing drains and culverts, controlling vegetation, planting trees and helping with road-safety initiatives.

### **Profile: No Yan, length person**



No Yan

Being a length person is No Yan's first paid job. It requires the 21-year-old to put in about ten days a month, leaving him time to look after the farm. He appreciates the regular income and spends all of it on rice. (The rice from his farm does not cover his own needs.) Like most Khmer workers, he eats about a kilogram of rice every day. "On a farm, the harvest can fail. With a job, you always know what's coming your way," he says.

But it isn't just the money that No Yan likes about his work. When you look after a road you make a difference: "People need the road to go to work, get to the market and sell their produce." The sight of people going about their business is a big part of his dream for a Cambodia with "no more fighting". The spot on which he stands has seen fierce battles, which he will never forget.

The length-person system proved an effective and relatively inexpensive way to maintain rural roads. Aggregate per-kilometre costs - including wages, supervision, transport and hand tools - amounted to less than 3 per cent of 1994 building costs.

As more and more roads came into service, ILO staff were relieved of recruitment, supervision and payment duties. In their stead, “rehabilitation contractors” were trained to take on responsibility for overall repair work.

Ideal candidates for training as a contractor would already have construction and entrepreneurial experience: they might know how to build a two-storey shop-house or have their own transport business. This allowed courses to focus on practical matters and aim for a 100 per cent success rate. Training was kept short to leave ample work time for applying new skills. Whenever problems emerged on site, people could always come back for a special two-day workshop to set things right. The courses were also opened up to local civil servants, among them several young engineers. It takes top-notch engineers and civil servants to keep contractors on their toes. Both parties to a contractual agreement must know exactly who is responsible for what. In several provinces where no contracts had ever been signed before, capacity was developed to tender and implement public-works contracts.



Contractors don't just oversee

A number of road maintenance committees have been established to look after lower-order rural roads. The committees help to decentralize maintenance efforts and root them in the communities linked by ILO-built roads. Their main job is to work out how best to finance and carry out essential maintenance. Set up by village-based NGOs working with the ILO, the committees bring together community chiefs and elders, representatives of the police and military, and officials from local and national government.

Cambodia's Ministry of Rural Development has adopted labour-based technology as the method of choice for the construction and maintenance of rural roads. The Ministry maintains close ties with some 250 ILO-trained technical staff in local government. Technical staff members within the Ministry, also trained by the ILO, have undertaken a massive \$31 million infrastructure programme funded by the ADB.

The Ministry's accumulated expertise in road maintenance has made it a magnet for donor support. Though donors may hesitate to earmark funds for road-maintenance, they willingly direct sorely needed funds to a dynamic and well-managed ministry.



Ministerial briefing

## *Maintaining waterways*

Like its roads, Cambodia's rural irrigation systems are threatened by a lack of money for maintenance. The management of canals raises special problems of its own because water may not be available all year round in equal or even sufficient quantities. When limited quantities are diverted to suit one farmer closer to the source, none may reach end-users.

Both maintenance problems and water disputes within the Bovel and Baray irrigation systems in Siem Reap province are handled by water-user groups. These groups ensure that the onus for finding acceptable solutions lies with those who stand most to lose from negligent maintenance or who are directly involved in clashes of interest. Usually located around a tertiary canal, a water-user group will vary in size according to the capacity of the canal and the area it serves. Only farmers - women and men - can be members, but it makes no difference whether they are owners, occupiers or tenant farmers.



Only farmers can belong

Supported by local and national government, the groups aim to promote better farming practices, exchange ideas and devise a joint approach to problem solving. One immediate outcome is greater community spirit. Members agree to carry out communal maintenance tasks, which include clearing main canals, reshaping site slopes, cutting brush, repairing small wooden bridges and keeping gates in working order. Other duties involve record keeping, conflict resolution and collecting fines for abuses. Each group elects officers, enacts rules and raises money for canal maintenance. In the year

2000, the 82 water-user groups of Siem Reap province collected 8 million riels to maintain 54 kilometres of irrigation canals.

## ***Maintaining monuments***

In the lush tropical climate of Angkor, vegetation left unchecked will quickly overrun the moats and the grounds on which the temples have stood for a thousand years. As soon as the site of Angkor Wat had been cleared and suitable species planted, the ILO set up a periodic-maintenance scheme to keep it looking trim.

At first, the scheme was financed and managed by the ILO in partnership with the local authority of the time, the Angkor Conservation Office. Cambodian counterparts were recruited, trained and put in charge. After the Government later set up APSARA (see *chapter 5*) to protect and manage Angkor, ILO input was pared down to technical assistance, funding coming from the Government with a boost in the form of "food-for-work" from the World Food Programme. By early 2000,



APSARA had no further need of ILO technical support. After APSARA took possession of the ILO's wheelbarrows, motorized vehicles and other equipment, its ownership was complete.

## *Paying your way*

ACLEDA is another successful ILO-boosted entity now in local hands (see chapter 4). The decision to make ACLEDA an NGO was taken early on by Cambodian staff employed under the project. When considering how to institutionalize ACLEDA's services, they made the entrepreneurial and quite risky choice to steer their own course. At a time when others dreamt of well-paid, "safe" jobs in an international organization, they opted for independence. With ACLEDA now a fully fledged banking institution able to attract savings and capital on commercial terms, their decision seems to have paid off handsomely.



A matter of transmission

(Photo/ILO)

### **Profile: Van Saroeun, micro-financier**

Van Saroeun was among ACLEDA's first staff members and now manages its Siem Reap branch. The ILO recruited him from one of the border camps that became his home and gave him work for several years. His speciality was distributing food. The job made good use of training he had received in accounting, management and law. On his return, the ILO gave him and other ACLEDA recruits a one-month course on how to train others in small-business management. Since then, he has had plenty of practice applying those skills (and many others) to help small-scale entrepreneurs make a reality of their dreams. His own days of study are plainly far from over. He recounts with a glint in his eyes two recent study trips to Bangladesh and Indonesia, where he gained firsthand knowledge of two "very successful" micro-credit schemes.



Van Saroeun

## ***Higher education***

For a country to stand on its own feet, higher education is of paramount importance. The training of a new crop of engineers for Cambodia is taking place in the largely French funded Institut de Technologie du Cambodge (ITC) at Phnom Penh. It offers a range of courses in labour-based technology, which are part of the core curriculum in rural and civil engineering. The courses cover everything from work-site planning to the specific techniques of rural road building. Though originally set up by the ILO in close collaboration with the Institute, all of the courses are now given by Khmer lecturers.

## ***New roads***

For new roads - and development projects - to answer the wishes of the people, the people must get into the planning process early on. Members of each community affected must be apprised of the options, given the means to reach decisions democratically and empowered to see their decisions through.



Education holds the key

Imagine that a road is to traverse a hitherto inaccessible rural area. A large group of people from the area are meeting around a map, which gives the location of an isolated school. Questions arise: is the school still there or was it bombed out or destroyed in a fire? If the building is still standing, would it make more sense to divert the future road to reach it or to build a new one at another spot?

Now imagine similar questions being voiced and discussed about health centres, markets and temples. And visualize the presence of teachers, elders, nurses, farmers, district and village chiefs, monks, the market committee and the representatives of women's groups alongside government officials. Consider too that in Cambodia, such meetings arrive at decisions by consensus not through a majority vote.

This vision is not a fantasy, but a reality that the ILO calls *integrated rural accessibility planning* (IRAP). In Cambodia and other countries too, IRAP has won the support of those directly affected by and involved in rural development. A fixture of the ILO's approach to rural development, it has attracted interest from the ADB and World Bank. Because they are committed to lessening poverty, these institutions, which underwrite large-scale public works programmes, are increasingly keen to

integrate community-planning, labour-based technology, respect for safety and international labour standards, a preference for local skills and tools and the reliance on counterpart staff in a manner exemplified in the ILO's contribution to the rebuilding of Cambodia.



Where there's a will, there's a way

The road ahead may be long. It may also be rough. But, like the soaring towers of Angkor, it will be the Khmers'. Theirs to build, maintain and travel.



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# **THE WORK OF GIANTS**

## **Rebuilding Cambodia**

How do people in a country savaged by war get their lives going again? Following one of the most brutal conflicts of the 20th century, the people of Cambodia spent much of the 1990s digging themselves out of a pit. With help from others, the ILO among them, they have reclaimed a future and a land of rare beauty.