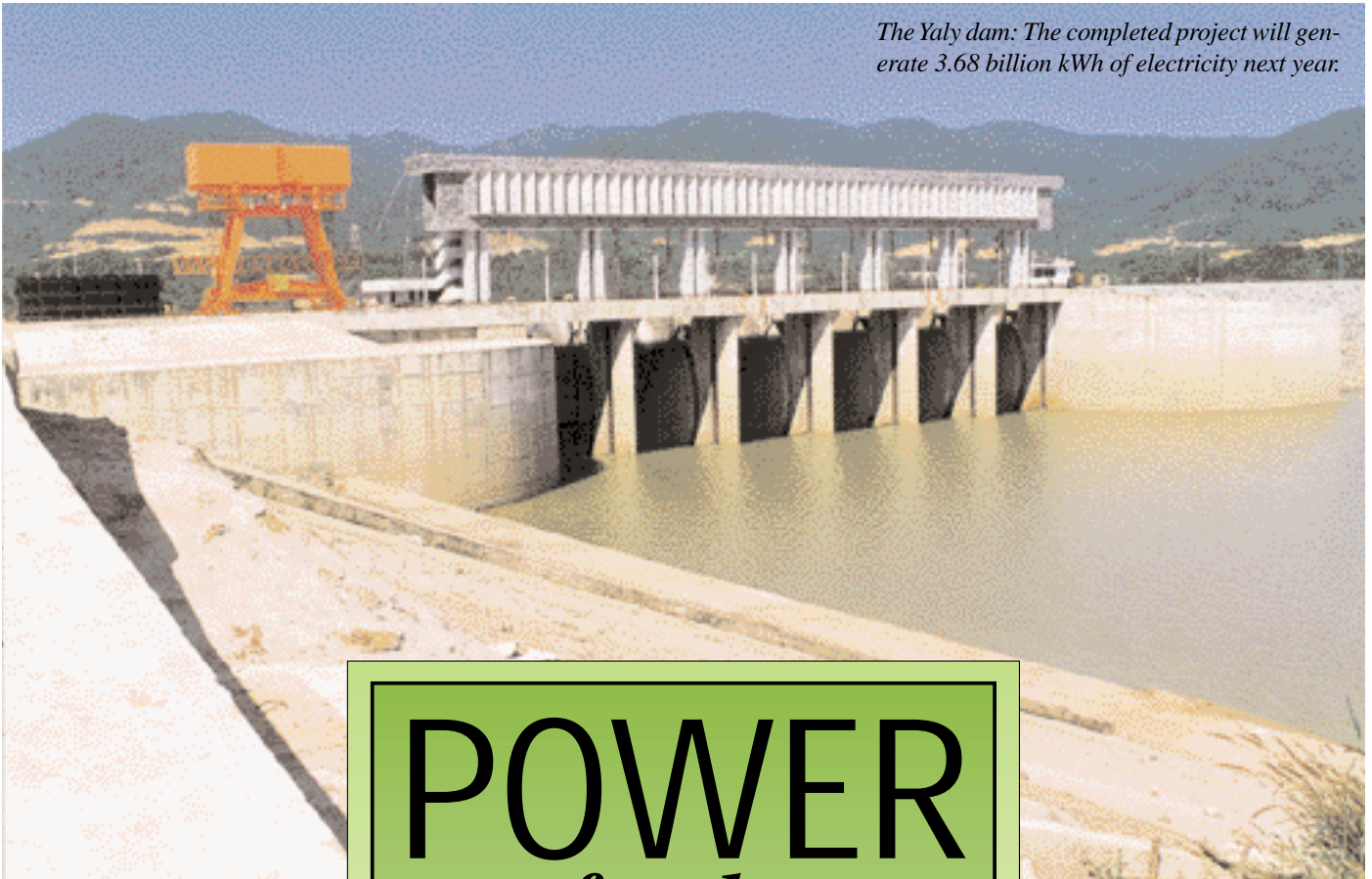


The Yaly dam: The completed project will generate 3.68 billion kWh of electricity next year.



POWER *for the* PEOPLE

A total of 26 power plants are currently scheduled in Vietnam – and several of them are already completed. They will ensure that some 80 million people in south-east Asia's second most populated country will have access to much needed power.

Atlas Copco has been playing a key role in the overall plan by forging a strong and highly successful co-operation with the Japanese, Vietnamese and other international contractors working on the various power plant projects around the country.

The company has gained a great deal of know-how during many years of operation in Vietnam and has built up a reputation as the ideal partner for contractors bidding for major projects. In addition, knowing that Atlas Copco is a world leader in state-of-the-art drilling technology and able to provide worldwide back-up, they also see Atlas Copco as a committed partner in international projects of this type.

High performance

Everything the contractors need for trouble-free operations is provided by Atlas

Power plants are a priority in Vietnam. The demand for energy grew by more than 10% a year during the high economic growth of the 1990s – and one company is firmly established at the forefront in building up the country's power resources.

Copco at the Vietnam sites. The package includes all service and maintenance work, with the company's local representatives and engineers available close by at its Ho Chi Minh City branch and elsewhere in Asia.

Here, M&C focuses on three projects where the quality and high performance of the equipment has been a main contributor to progress at the sites.

The Yaly 720 MW hydropower project has four 180MW generators, the first of which started up in May this year. It will be the country's second largest

hydropower plant and will be contributing 3.68 billion kWh of electricity to the national grid when all four generators are on line towards the end of 2001.

In danger from landslides and floods, workers dug 14.9 km of tunnels through a mountain to transport construction machines and equipment to the site. They also moved 1.32 million m³ of stone and concrete.

Main contractor

The Song Da Construction Corporation, which has some 20,000 employees and is the

largest contractor in Vietnam, was the main contractor. The company gives high marks for performance to the Atlas Copco equipment it used, which comprised a fleet of 11 mechanized drilling rigs – eight Boomer 352 units and three Boltec bolting rigs.

Other Atlas Copco equipment at the site included a Diamec core drilling rig, rods and bits from Atlas Copco Rock Tools and a Robbins 73 RM DC raise boring system. The package also included spare parts and on-site training and service personnel.

POWER *for the* PEOPLE

► The total length of tunnel construction at Yaly is 16 km. There are two 3.7 km-long headrace tunnels, 9-9.5 m in diameter, and the underground power house is 59 m high, 120 m long and 25 m wide.

There are also four surge shafts with 160 metre heads, 640 metres long and 4.5 metres in diameter, drilled by the Robbins raise boring system.

New technology

Cao Quang Lai, who is now Song Da's Vice General Director in charge of the central region of Vietnam, says: "Atlas Copco brought new technology to Vietnam and to the Yaly site. It was the first time hydraulic rock drilling equipment had been used in the country and we were proud to be the first company to use it.

"We were very pleased with the drill rigs and had no problems with them at all. The production capacity per worker increased by two or three times compared to when we earlier used pneumatic equipment of another make.

"Atlas Copco also sent specialists to the site to train our local operators, technicians, service and maintenance people and they were soon using the equipment efficiently. The all-around support we receive from this supplier was excellent and we have a very close relationship with their base in Ho Chi Minh City."

Do Dong Xuyen, chairman of the Yaly project, adds: "The first turbine at the Yaly site became operational at just the right time – when additional power was



Cao Lai Quang, Vietnam's Vice Minister of Energy: "Atlas Copco brought new technology to Vietnam and the Yaly site."



The Da Mi site: Nearing completion, it will be operational in 2001.



Yaly training session: Nguyen Cong Ick, Song Da's Vice Director (far left) with Atlas Copco representatives and enthusiastic trainees.



At the Hâm Thuãn site: An Atlas Copco Boomer H175 drill rig, one of four similar units handling the drilling there.

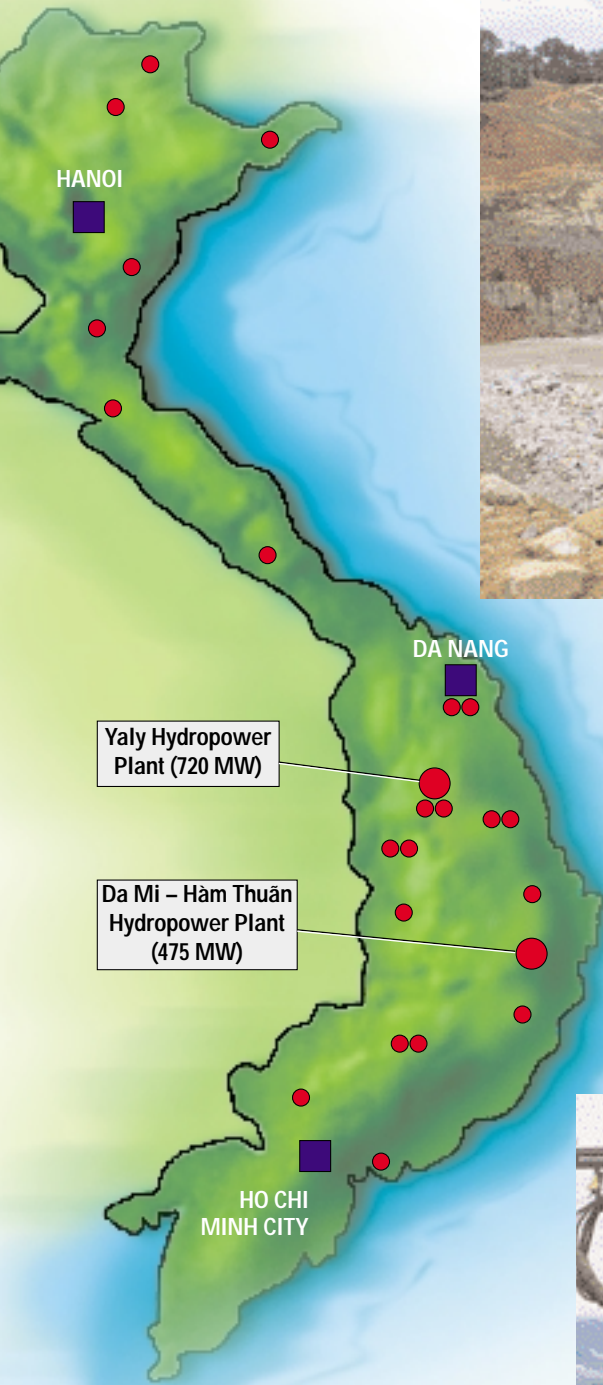
urgently needed for the national grid. Construction of this turbine was completed three years ahead of schedule and the remaining three will become operational at six monthly intervals."

Important role

The combined power stations on the La Nga river – Da Mi and Hâm Thuãn – are nearing completion and will be operational early next year. They will have a

joint capacity of 475 MW, a total yearly output of 1.6 billion kWh and will be the country's third-largest power plants after Hòa Bình and Yaly.

Construction of the new plants was led by the Japanese contractors Maeda (Da Mi) and Kumagai Gumi (Hâm Thuãn), with the Hong Kong/Vietnam-based Tapbo assisting as sub-contractor. Also playing an important role was Lung Lo, a branch of the Vietnam Army in



Some 26 power plants are planned for Vietnam covering the entire length of the country. The Yaly, Da Mi and Hàm Thuân plants (large red dots). Location of Atlas Copco offices (blue squares).

charge of civil construction.

At Da Mi, the Atlas Copco equipment on site included three second-hand Boomer 135 drill rigs. At Hàm Thuân, the operations were carried out with four Atlas Copco Boomer rigs – two Boomer 352 and two Boomer 175 – one ROC 742 HC 01 crawler rig, and 16 Atlas Copco compressors – 12 XAS and four QAS generators. In addition, all of the drill steel used at both sites have been



The site for the combined Hàm Thuân and Da Mi power plant on the La Nga river.



Round table discussion: Bui Quang Ha, Vice Director (left) and Nguyen Van Hung, Vice Managing Director (right) both of Lung Lo Construction Corporation with Atlas Copco representatives.



On the surface: The Atlas Copco ROC 742 HC crawler rig which accompanied the seven Boomer rigs used underground at the Da Mi-Hàm Thuân projects.

delivered by Atlas Copco as well as service containers and service personnel.

Powerful machines

Kumagai Gumi's Hidefumi Ezawa, who was Project Director at the Hàm Thuân project site, says: "The Atlas Copco rigs proved to be very good and powerful machines. And we were also very satisfied with the training, which was carried out by the Atlas Copco people. However,

we did have some problems with maintenance, which was poor, costly and took time. But when the drill rigs were running normally, the performance was up to expectations."

Loans from Japan's Overseas Development Assistance Fund account for 85 per cent of the estimated USD 650 million cost of the power stations, with Electricity Vietnam providing the remainder of the financing .

M&C 3-00