

# Smart villages – the Malaysian approach

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**E**lectricity first made its appearance in the region in 1894, when two prominent local Selangor-based Malayan entrepreneurs, Loke Yew and Thamboosamy Pillay, started to use electric pumps for tin mining. By the mid-1920s, several small generating plants had been established using a variety of fuels including low-grade coal, local wood, charcoal and bunker oil. A few hydro-electric power stations were also constructed, the biggest being the Chenderoh Dam (40.5 megawatts) in Perak and the smallest generating just 2–3 megawatts.

For rural Malaysia, the “let there be light” journey began about five decades ago. Several initiatives to upgrade the lives of the villagers in Malaya, as Peninsular Malaysia was then known – with both Sabah and Sarawak joining Malaysia later – were introduced by the British government. The health conditions of rural villages were studied as early as 1948, funded by the United Nations<sup>1</sup>. Cooperatives were encouraged among small traders and village industries such as sawmills and fishing products; the Cooperative College was established; and the Rural Industrial Development Authority (RIDA) was formed in 1951 with a programme to provide economic support and assistance to Malay farmers and rural inhabitants.

Rigorous studies of rural poverty by Royal Professor Ungku Aziz from the University of Malaya from 1952 to 1988 revealed that the per-person productivity of the region’s agriculture lagged behind that of more developed nations due to a lack of technology and infrastructure, the vicious cycle of debt, and an exploitative marketing mechanism. By the 1950s, electricity was already available, but mainly in the larger towns and tin mines.

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After Independence in 1957, and the formation of Malaysia incorporating Sabah and Sarawak

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in 1963, the economic sectors of rubber plantations and tin mining were still largely owned and controlled by British and Chinese capital. The traditional agricultural sectors, on the other hand, were engaged by small-scale rice-growing farmers and smallholders including the Malays and other indigenous people. In 1957, out of a population of 6.5 million in the Peninsula, 73.4 per cent lived in rural areas, and Tunku Abdul Rahman, leader of the newly independent nation, assigned his Deputy Prime Minister Tun Abdul Razak to take charge of rural development.

### **Electricity and rural development**

Malaysia has come a long way with rural development, aimed at developing physical infrastructure and providing extensive basic amenities to rural residents. Figure 1 summarises measures taken by Malaysia over the last six decades to bring rural society into line with the development of the country as a whole<sup>2</sup>. The Malayan Emergency was declared by the British Administration on 31 January 1948 and the newly independent Malayan government declared its end on 31 July 1960, triggered by the Malayan Communist Party who wanted to establish a communist government in Malaya.

The Red Book Plan was launched in 1960 to be a parallel development programme for all rural areas. The people and leaders were involved not only in the implementation process of development but more importantly in the planning process itself. This transformational experience in rural development saw the village-level establishment of infrastructure such as electricity, water, radio and television, roads and transportation in tandem with other services such as health clinics, post services and police stations.

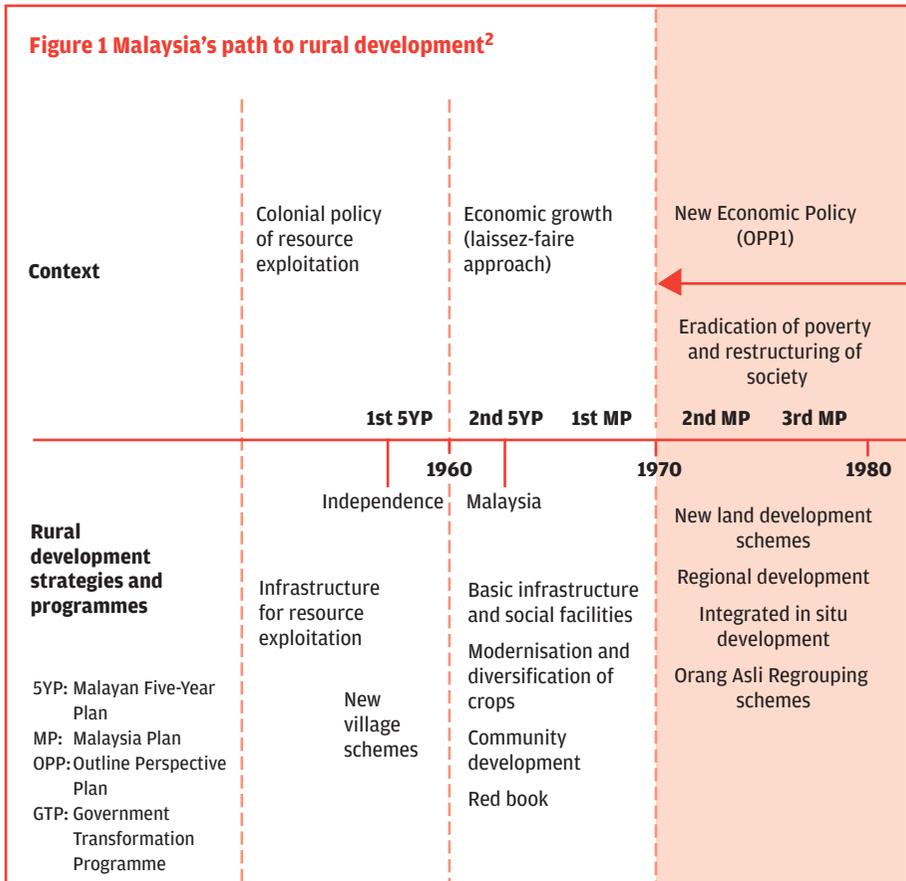
The constant monitoring of the numerous rural projects was not an easy task. The Malayan government adopted a special strategy called the Operations Room Technique (ORT), which focused on winning the hearts and minds of the rural people. It demanded almost military discipline in reporting on the progress of the various projects, and there was a clear chain-of-command structure. The Rural Development Committee comprised the “doers” and the “recipients”, with the direct involvement of officers from the relevant government departments. The Deputy Prime Minister himself made spot checks, especially on those villages that lagged behind.

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## SMART VILLAGES

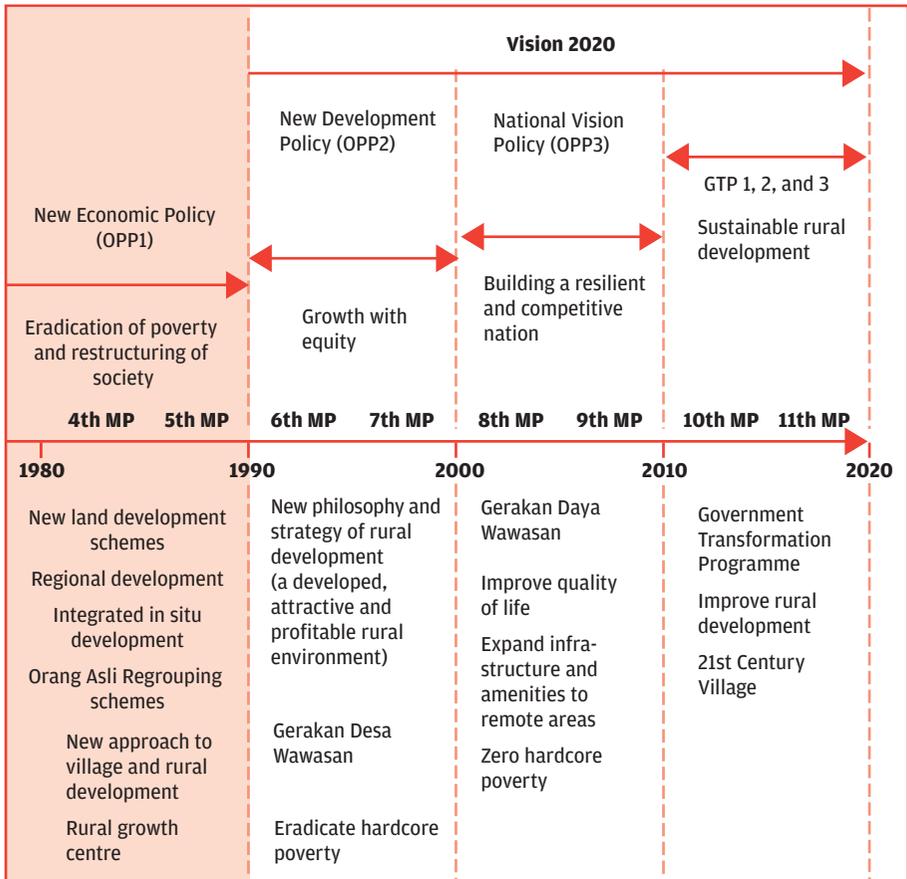
As a first step, off-grid generation using diesel gensets and providing a 12-hour supply from 6.00 pm to 6.00 am were installed in many parts of Malaya. The priority was to light up the domestic houses in the villages. This signalled that the government was bringing about a visible change to the lives of rural people. Before the advent of television, radio broadcasts were a very useful tool of psychological warfare against the communist terrorists, and the Malayan Film Unit, too, made numerous visits to the villages to educate the people



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regarding the various development objectives of the government. These tools were used for introducing rural electrification.

The rural electrification programme, mainly funded by the federal government, played a pivotal role in rural development. As the grid system continued to expand, the diesel sets were dismantled and the villages connected to a 24-hour supply. A review of rural





electrification was made in July 1978 for the Fourth Malaysia Plan. It was envisaged that rural electrification for Peninsular Malaysia would be completed by the year 2000. However, Sabah and Sarawak took a little while longer, primarily because the rural population was even less accessible than those in the peninsula.

In 1990, the National Electricity Board was directed by the then Prime Minister, Dato' Sri Dr Mahathir Mohammad, to look at mini-hydro plants as a source of off-grid electricity. Overall, the various attempts at rural electrification were peppered with more successes than failures, and it was noted that rural industries using electricity were somewhat limited. Realising this, the state governments, along with the federal level, organised various programmes and activities to further develop small and medium enterprises (SMEs) in rural areas by providing assistance in terms of production, product development, creating new products, management, funding, technology, promotion and marketing, and building business chains, to cite a few initiatives.

### ***The Government Transformation Programme (2010–2020) for rural development***

The building blocks of the Government Transformation Programme (GTP) introduced in 2010 were designed to provide a roadmap towards achieving the status of a developed country by 2020<sup>3</sup>. For rural development, GTP 1.0 (2010–2012) focused on implementing rural basic infrastructure (RBI) such as road improvement, access to clean water, 24-hour electricity and infrastructure maintenance. GTP 2.0 (2012–2015) targeted the more interior and remote sites. GTP 3.0 (2016–2020 and beyond) will herald the era of science, technology and innovation with the mindset of a developed country in rural areas.

In the context of electrification, considerable success has been achieved in both established and new villages. The International Energy Agency (IEA) estimated that in 2012, only 1.3 per cent of the Malaysian rural population remained without electricity<sup>4</sup>. Statistically, from 2013 to 2015, 47,840 rural houses would be connected to 24-hour supply<sup>3</sup>. The breakdown

is as follows: Peninsular Malaysia 4,200 houses; Sabah 11,886 houses; Sarawak 31,754 houses.

***Small projects involving rural people have demonstrated that basic IT skills can be acquired in a very short time, and enhance quality of life in many ways***

Off-grid solar hybrid systems have been successfully installed in several parts of Malaysia, particularly on islands. However, the

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more remote villages – 0.5 per cent of the population in Peninsular Malaysia and 5.0 per cent in Sabah and Sarawak – present greater challenges, as bringing the indigenous population into the mainstream of development requires psychological and anthropological acumen and continuous education, besides funding and supporting infrastructure. Indubitably, electrification would open wider opportunities for learning and access to education and business.

***The success of Malaysia's 21CV projects should convince implementers that a holistic approach should be taken with electricity as the underlying enabler***

### **21st century initiatives**

A recent bold new initiative is the 21st Century Village (21CV) – a programme that encourages youth to remain in the villages (*kampungs*) and to work and start businesses *in situ*. The overall target was to create 132 new 21CVs, initially by 2015, and now extended to 2020 depending on the availability of funds. Activities in the 21CVs encompass a number of economic sub-sectors including agriculture, tourism, plantations and cottage industries. An estimated figure of about 37,800 households or 189,000 people are expected to benefit from this programme<sup>3</sup>. They are selected by the state government from identified rural poor as well as the unemployed.

The 21CVs have and will be developed using the following initiatives:

- 39 state-driven modern integrated farms;
- 15 private-sector-driven large-scale fruit and vegetable farms;
- 39 enhanced village cooperatives in tourism, plantation and cottage industries;
- 39 encouraging selected university, technical and vocational graduates as youth entrepreneurs.

The selection of the villages was based on those that have land available, those with successful cooperatives operating businesses, and those with potential or unique resources that can be developed into sustainable rural businesses. They will be evenly distributed between Peninsular Malaysia, Sabah and Sarawak, with funding from federal, state and private-sector sources. The government has spent MYR 145 million (US\$ 39 million) on projects for the development of basic infrastructure in rural areas under GTP 2.0, of which MYR 137 million (US\$ 37 million) was allocated for the 21CV and Desa Lestari (Sustainable Rural Area) programmes, while another MYR 8 million (US\$ 2.2 million) is for

large-scale farming programmes. The outcome is a jump-start to bring the rural areas into a suburban culture.

**21st century remote villages**

Remote villages need to be addressed differently. The Institute of Social Informatics and Technological Innovations at Universiti Malaysia Sarawak (UNIMAS) has applied a four-stage holistic approach. Social scientists are involved in community engagement and needs analysis in the first phase; followed by the involvement of technologists, economists and business academics in the planning and design process in the second; technology access and deployment in phase three; and finally evaluation and reflection involving all the disciplines in phase four<sup>5</sup>.

An instructive example is given by a project in Bario, Sarawak (Figure 2). To reach it from Miri used to take a three-day boat journey followed by a four-week trek in dense tropical forest. Nowadays, you can reach it in an hour in a small plane or in 18 hours travelling along logging roads. In spite of considerable urban migration, the Kelabit, an indigenous people of the Sarawak/North Kalimantan highlands, numbering about 1,200 individuals, still live in long-houses and a number of smaller houses in 17 widely dispersed villages around Bario.

**Figure 2 Improved livelihoods in isolated communities**

**A UNIMAS project bringing information technology to isolated communities in the rice-growing region around Bario has offered villagers opportunities for economic activities including handicrafts and ecotourism.**



### Box 1 Advantages brought about by electricity beyond lighting and basic comforts<sup>5</sup>

- **Education**, encompassing students, teachers and the community.
- **Preservation of culture, oral tradition and traditional knowledge**, including ease of documentation through ICT.
- **E-commerce**, including ecotourism, the offer of accommodation for home-stay, selling of handicrafts and the famous Bario rice.
- **Agricultural advances**, including gathering, classifying and sharing information regarding Bario rice.
- **E-health**, enabling medical information exchange between Bario, Miri and Kuching.
- **Empowerment of the community** through connection with the outside world.
- **ICT**, with satellite internet access enhancing the telephone and wireless network.

UNIMAS embarked on several projects in Bario. One was a research initiative to introduce information and communication technologies (ICT), VSATs (Very Small Aperture Terminals), telephones and internet access to villagers. A direct outcome of this technology is an increase in both domestic and international tourists to Bario. As a matter of fact, a National Ecotourism Plan for Malaysia was published in 2011<sup>8</sup>. Its implementation – by giving villagers the opportunity to provide modest but clean food and safe accommodation as well as guides and handicraft production – has boosted local incomes.

Another project that is worthy of note, entitled Ngerabit eLamai, was completed in 2012 at Long Lamai, Sarawak, where the population largely belongs to the Penan community<sup>6</sup>. These two projects should convince implementers that to make the necessary impact, a holistic approach should be taken with electricity as the underlying enabler (Box 1).

Although the state government had funded several renewable energy schemes such as micro-hydro and solar hybrid projects, the unmet demand opens up opportunities for non-governmental organisations (NGOs) to participate in the electrification effort through micro-hydro sets and the like. However, they face challenges from the authorities. Initial investment, although lower than when the government undertakes the projects, is still substantial and sustainability is a real issue. Nevertheless, the government may want to consider more engagement and strategic partnership with these NGOs to carry out some of the projects.



One such example is already taking place in Sabah. The Sabah Women Entrepreneurs and Professionals Association (SWEPA) selected a 40-year-old illiterate grandmother to go to the Barefoot College in Tilonia, India, for six months to learn how to install, repair and maintain solar-cell renewable energy equipment in her village, serving some 100 villagers<sup>8</sup>. In short, opportunities exist for experimenting with several alternatives, with a view to bringing down the cost and promoting the latent energy and voluntarism of NGOs. Nevertheless, electricity has its inherent dangers and safety cannot be compromised. Hence rules and regulations relating to competent operation and maintenance must be adhered to at all times.

### **Conclusion**

While broad sweeps of economic development are covered by government transformation initiatives, truly meaningful and sustainable rural development also calls for creative ideas and innovative inputs from ecologists, scientists, anthropologists, psychologists, experts on arts and culture, tourism operators, engineers and geologists, apart from the traditional development economists and agriculturists. The UNIMAS model is worthy of serious consideration in this respect, not only in Malaysia but also in other developing countries.

Small projects involving rural people have already demonstrated that basic IT skills can be acquired in a very short time, and they have enhanced the quality of life in more ways than one. Ecotourism has been successfully enhanced albeit in a limited way. Information regarding diseases affecting humans, plants and animals could easily be made available through wider IT usage. Even teachers in remote villages can be trained through e-learning. For Malaysia, this is ideally the new horizon; this should be the most apt agenda for the GTP 3.0 for 2016–2020 and beyond. The smart village concept promises economic success in the rural landscape. However, the 21CV model is expensive and requires competent management. Consequently, other approaches have to be continuously investigated and piloted in parallel.

The eradication of poverty in rural areas is a multi-level and multi-faceted challenge. It is a never-ending pursuit. It demands dedication and attention at the very top of the administration. It dwells on education and training for the villagers; it promotes SMEs amongst them, using localised, available raw materials for development into marketable products; it also encourages ecotourism and agriculture, all the while leveraging on the progress of electrification in the country.

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