Digital Economy Kit

INCLUSIVE

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Indonesia: Fibre-optic cables across an archipelago – Palapa Ring Project

Finances

Building fibre-optic and wireless infrastructure across the world's largest archipelago was expensive and technically difficult. In 2016 the Indonesian government launched the Palapa Ring project to extend fibre-optic and wireless network across every town and district in the country. To implement the project the government adopted a public-private partnership and 'availability payment' model which guaranteed revenues and user demand for private infrastructure providers. The government also introduced a levy on telecommunication firm revenues to help pay for public investments in the network. Internet coverage in western and central regions is now reported to be 100%, and 98% in the east. The project is due to finish by the end of 2019.

The problem

Indonesia is the world's largest archipelago, with 17,000 islands spanning about 2 million sq km of land and sea.[1] In 2014 internet coverage across the country was low and broadband prices were high. Out of a normalised score of 100, Indonesia scored just 45.59 on internet coverage – mainly in the western and central areas – and 54.56 on broadband affordability. [2] Hard to reach rural and mountainous areas in the east had the lowest coverage, as well as the highest rates of poverty.[3] People living in these areas couldn't therefore access government e-services such as healthcare, education and business training, or fully access formal jobs and larger markets.

Last-mile segments of the network were not commercially attractive to private infrastructure providers because of high construction costs and uncertain consumer demand – particularly among the poor – for internet services. The government therefore needed a fresh approach to incentivise private investment in the network.

Solution

In 2016, the government launched the Palapa Ring project. It aimed to extend the fibre-optic and wireless network to cover every town and district in Indonesia, with private infrastructure providers (IPs) laying more fibre-optic cables and building transmission towers, and internet service providers (ISPs) bringing internet to homes and businesses. The project covers western, central and eastern Indonesia and uses 11,000 kilometres of offshore and onshore fibre-optic cables.[4] Different private consortia implement each geographic segment.

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The government adopted a public-private partnership and availability payment (PPP AP) model to make the project commercially attractive to private infrastructure providers and investors. Under the model, private IPs and their investors finance, build and operate the network. Investors are either private entities or state banks.[5] In return the government makes 'availability payments' to the infrastructure providers during the operational lifetime of the network assets. Availability payments cover the IPs' construction costs, operational costs and profits. Payments are conditional on IPs maintaining minimum standards of service, such as on network speed and availability.[6] Payments are guaranteed by the state-owned infrastructure guarantee fund – the IIGF. The size of the availability payment typically depends on the commercial viability of the network segment – lower payments in easy to reach urban areas, and higher payments in rural and mountainous regions. IPs charge internet service providers (ISPs, the firms that sell internet access to customers) usage fees to use the network, yet the government still makes availability payments regardless of ISP usage, thereby taking away the user demand risk and ensuring IP revenues. The government offsets some of its costs by charging ISPs license fees to operate.

Regulators needed to adapt to the new opportunities and risks the new network brought. In 2014 – after consultation with the ministries of National Development Planning, Communication, Finance and private firms – new regulation was introduced. A key part was the introduction of a Universal Service Obligation (USO) fund. Under the USO fund, the government levies a 1.25% tax on telecommunication firms' gross revenues. The tax helps fund the availability payments for the Palapa Ring project, as well as other public infrastructure projects that are unattractive to the private sector. Other regulatory changes were introduced to promote competition through asset sharing and remove entry barriers for new IPs and ISPs, particularly in last-mile areas.[7]

Indonesia has taken a whole of government approach to delivering the Palapa Ring project. The Ministry of National Development Planning leads on strategy, sets objectives and oversees implementation. The Ministry of Communication and Information leads on technical assessments and procurement. The Ministry of Finance carries out financial feasibility studies.

Impact, risks and lessons

Internet coverage in western and central regions is now reported to be 100%, and 98% in the east. The project is due to finish by the end of 2019. While this increase in coverage is very positive, it Is still too early to determine the project's impact on actual internet affordability as the new infrastructure is not in full use yet.

The biggest challenge to the Palapa Ring project was Indonesia's size and tricky geography. The planning designs were different from what was finally implemented. The contour of some villages prevented IPs from using fibre optic lines, so they had to resort to microwave technology. There were also other challenges around social norms in some remote villages. According to a project planner, Mr. Bondan, "Local customs prevented communities from accepting fibre optic networks. It was therefore a very personal process, first to introduce what fibre optic networks are, and secondly to educate people on the positive impacts of the internet."

Government priorities now are to encourage ISPs to begin serving newly connected homes and businesses, and introduce internet subsidies for the poor. The government is also developing programmes to teach basic digital skills to new internet users, and to support SMEs and entrepreneurs to use technology and the internet in their businesses.

But while the PPP AP model was successful in getting the Palapa Ring project off the ground, policy makers in other countries should be aware of the potential risks. The model commits governments to fibre-optic for the long-term – up to 15 years. Without contractual provisions that give flexibility, governments may find it difficult to switch to more cost-effective network technologies like drones, balloons and satellites and other new technologies that may emerge.

Governments should therefore develop policies and regulations in line with their specific technical and industry needs, as Bondan explains: "It is crucial to have a firm knowledge of the geography and how the telecommunications sector works in the country. The fundamental challenge is to find business models that balance the government's requirement to fulfil welfare needs, and the private companies' need to make a profit."

This case benefitted from inputs from Mr. Bondan.

Mr. Bondan is a project planner at the Ministry of National Development Planning, Government of Indonesia.

Endnotes

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