Chapter 10

Improving rural basic infrastructure

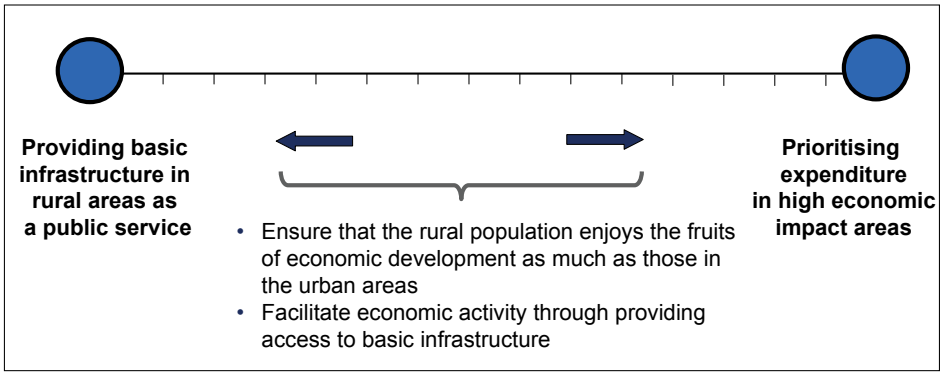
"We aim to ensure Malaysians living in rural areas are connected to the roads network and have access to housing, electricity and clean water. This requires us to manage the polarity between investing in rural and urban areas. The targets we have set ourselves are very ambitious, as we attempt to build 11 times as many kilometres of roads, 2.5 times as many houses, provide 5 times as many houses with electricity, and connect 7 times as many houses to clean water over the next three years, as compared to what we had achieved in 2006-08. I am accountable and committed to achieving these targets by the end of 2012 and seek your support in working with me and my team to deliver these results."

(Dato' Seri Haji Mohd Shafie bin Haji Apdal, Minister of Rural and Regional Development)

Improving the provision of basic infrastructure for the rakyat living in rural areas is another of our priorities. Access to basic infrastructure is a fundamental right of all Malaysians no matter where they live. Roads, housing, electricity and water infrastructure are important for the population's health and socio-cultural advancement and are part of the essential foundations of our nation's economy. Therefore, we need to manage the polarity between spending in high economic impact areas and providing basic infrastructure in rural areas (Figure 10.1).

Figure 10.1

How improving rural basic infrastructure contributes to *1Malaysia*



About 35% of Malaysians live in rural areas (rising to nearly 70% in some states). Currently this large segment of the population benefits least from the economic progress we have enjoyed over the past decades as a nation. Developmental spend is disproportionately skewed towards urban development, and the mix of rural development allocation has dropped markedly from a high of 25% in the Sixth Malaysia Plan, to 12.4% in the Eighth Malaysia Plan.

Ensuring access to basic infrastructure in rural areas ensures more equitable distribution of wealth, facilitates economic activity (e.g., road connectivity facilitates increased trade and commerce as it allows freer movement of goods and services, whilst the availability of electricity and water is essential for many types of industrial activity), and has a direct effect on national GDP. A widely-cited economic index puts the direct multiplier effect of infrastructure GDP spending at 1.5 times the expenditure.[33]

As mentioned in Chapter 2, Malaysia has progressed significantly in the provision of rural basic infrastructure. For instance, in each year[34] from 2006 to 2008,

- 220 kilometres of roads were built or upgraded
- 10,000 households benefitted from electrification
- 18,000 homes were given access to clean or treated water
- 7,000 houses were built or restored in rural areas to benefit the poor

In spite of Malaysia's very considerable achievements in these areas, we need to do more to serve the rural population. There are many villages still not connected by roads, especially in Sabah and Sarawak. More than a quarter of households do not have access to electricity in Sabah and Sarawak. And upwards of 40% of households in Sabah and Sarawak and 12% of households in Peninsular Malaysia lack access to clean or treated water.

33 A Second Quick Boost From Government Could Spark Recovery: comments by Mark Zandi, chief economist of Moody's Economy.com. Edited excerpts of testimony he gave before the U.S. House Committee on Small Business on July 24, 2008

34 Approximate figures

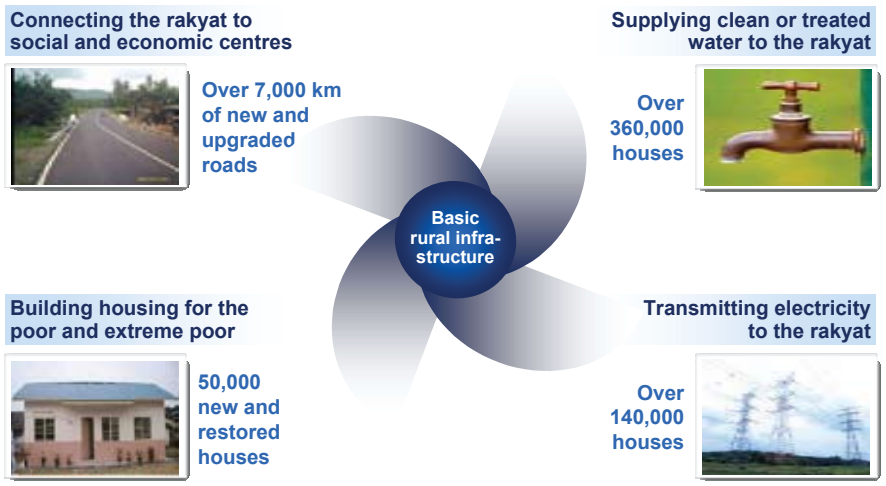
Consequently, we have embarked on a major programme to develop rural basic infrastructure, centred on improving the quality and pace of the provision of roads, water, electricity and housing to the rural population.

10.1 The breadth, scale and pace of the programme will need to be significantly greater than what has been done before

The breadth, scale and pace of our aspiration to increase rural access to basic infrastructure is significant. As summarised in Figure 10.2, the aspiration for 2012 is to construct more than 7,000 km of new and upgraded roads, build or restore 50,000 houses for the poor, electrify over 140,000 households and supply clean or treated water to over 360,000 households.

Figure 10.2

Malaysia is embarking on a major programme of rural basic infrastructure development



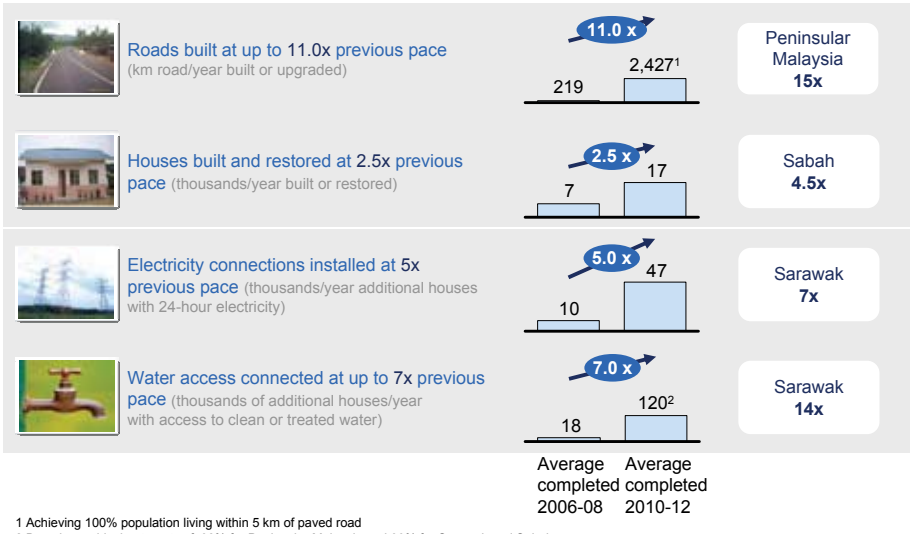
This means that we will have to move much faster. Comparing the pace of delivery in the three years to the end of 2008 with what will be required[35] for the three years from 2010 to 2012 (Figure 10.3):

- Roads: 11 times as many kilometres of roads will be built or upgraded
- Housing: 2.5 times as many houses will be built or upgraded
- Electricity: 5 times as many houses will be connected
- Water: 7 times as many houses will be connected to clean or treated water

[35] Approximate figures

Figure 10.3

Scale and pace of delivery to reach announced targets will be much greater than previous years



1 Achieving 100% population living within 5 km of paved road
2 Based on achieving targets of: 98% for Peninsular Malaysia and 90% for Sarawak and Sabah

Source: KKLW; JKR

10.2 The programme will have huge impact on the rakyat

We are investing significantly to improve rural basic infrastructure. Initial cost estimates suggest that up to RM 18 billion will need to be spent over the next three years to achieve the desired outcomes.

10.2.1 The Government will oversee a building programme to build or upgrade approximately 7,000 kilometres of Federal and State roads

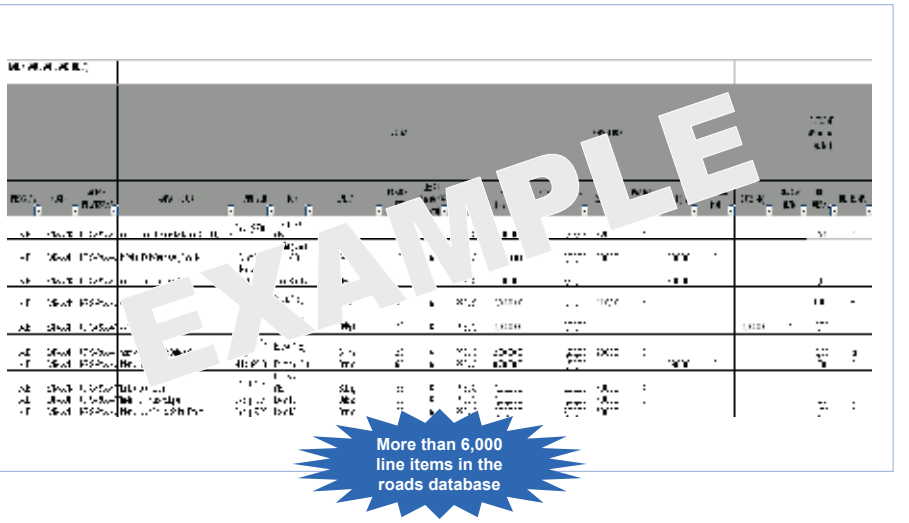
As part of this programme, we will build approximately 1,900 km of roads in Sabah and Sarawak, about 70% of which will be paved and the rest gravel. As a result of the programme, an estimated additional 800,000 people will be connected to the roads network.

In Peninsular Malaysia, where nearly all of the population is already connected to the roads system, the focus will be on paving gravel roads in rural areas. When the programme is completed in 2012, close to 100% of the population in Peninsular Malaysia will live within five kilometres of a paved road.

Each and every road to be built and upgraded across the country in the programme has already been identified in detail – point of origin and destination, total length, width, material to be used, implementing agencies, people connected – to ensure that we have taken all implementation considerations and challenges into account, and to optimise for on-time and in-budget delivery. An excerpt of the planning data for the roads programme is shown below (Figure 10.4).

Figure 10.4

A comprehensive roads project database was created



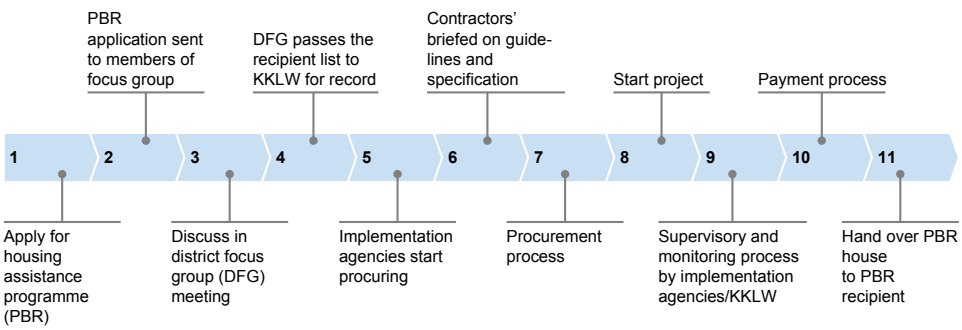
10.2.2 50,000 houses will be built for the rural poor and hardcore poor

Approximately two thirds of the 50,000 houses will be built in Sabah and Sarawak, and the rest in Peninsular Malaysia.

Beyond the massive funding and deployment challenge of building and upgrading 50,000 homes, a key issue we had to resolve is ensuring beneficiaries are truly deserving of these houses. Potential beneficiaries of the housing programme have been identified by district and state level agencies as well as through the e-Kasih portal, the national database on low income households. A district-level focus group assessed the merit of potential beneficiaries and decided on whether households merited inclusion in the housing programme. We asked authorities closest to the situation to select beneficiaries to ensure local realities were taken into account. Figure 10.5 outlines the process used to identify and select beneficiaries for the housing programme.

Figure 10.5

District-led approval process for building low-income housing in rural areas



To ensure delivery of houses to a consistent quality standard, the houses built or restored in this programme will be of a standard design. In addition to ensuring consistent delivery quality, a standard design allows for better control over costs: the standard design is broken down to the component materials (steel beams, plywood, plaster, sand, ready-mix, etc.) and standard labour costs, and thus the expected cost of delivery can be planned and managed.

The housing programme is designed to be executed by Class F contractors, small entrepreneurs in the contracting and construction business across the country. Designing the programme in this way ensures maximum participation of rural businesses at the grass roots level in the economic stimulus provided by the housing programme.

To ensure that government funds are spent in the most efficient manner, the cost of the programme has been benchmarked against international best practices of low-cost house construction for low-income households. Malaysia's programme of a standard design executed by local contractors compares favourably to such an international benchmark.

Targets have been cascaded down to the state level, taking into account local delivery realities and constraints. Our overall goal is to ensure we deliver houses within budget and on time.

10.2.3 140,000 additional houses will be connected to 24-hour electricity supply

Peninsular Malaysia already has a high rate of electrification today (approximately 99%). Sabah and Sarawak, in contrast, has lower rates: 77% in Sabah and 67% in Sarawak. Our rural electrification programme will connect 140,000 additional homes by 2012 – 95% of which will be in Sabah and Sarawak.

Connecting to grid-based electricity is the default option for adding connections across the country (83% of new connections). These new connections will build upon the investments we made in recent years to increase electricity generation capacity in different parts of the country.

Some rural areas, however, are distant from electricity generation and transmission infrastructure. In these cases, after thorough cost-benefit analysis, we decided to use distributed power-generation technologies such as solar hybrid power generation or micro hydro-electricity. These solutions will be applied in approximately 17% of the new connections in 2010–12. Figure 10.6 shows a solar hybrid power-generation station in Kampung Pak Kaleh, Pulau Pemanggil.

Figure 10.6

Solar hybrid power-generation station, Kampung Pak Kaleh, Pulau Pemanggil

We reviewed each village where houses to be electrified are located. This rigorous planning will ensure we can deliver to the rakyat within budget and on time. An excerpt of the planning data for the electricity programme is shown below (Figure 10.7).

Figure 10.7

A comprehensive electricity project database was created

Rural Basic Infrastructure: Electricity
Project List Breakdown

Projects spanning across 2 years with impact and cost halved and allocated to 2011
Projects spanning across 2 years with impact and cost halved and allocated to 2012
Total 141,158 52,675,208

No.	Sub Area	Description	Year	Types	Impact I	Impact	Cost (RM)	State
30	Electricity	Kg.Rakyat Baru, Kg.Muhibbah, Menggatal	2010	Grid Connection	97	Hou	758,210.40	Sabah
31	Electricity	Kg.Pinahawon,Kg.Tiku,Kg.Ruminding	2010	Grid Connection	59	Hous	1 39,380.20	Sabah
32	Electricity	Kg.Kionsom,Kg.Kionsom Kecil,Kg.Tebobon Kionsom,Kg.Malaka,Inanam	2010	Grid Conne	1	Houses	2,421.00	Sabah
33	Electricity	Kg.Kitobu,Kg.Kawakaan,Kg.Kironggu,Inanam	2010	d Co		Houses	197,026.20	Sabah
34	Electricity	Kg.Bantayan/Pangasaan,Inanam	2010	Con		Houses	1.20	Sabah
35	Electricity	Kg.Kiambalang,Inanam		Conn		Houses	.00	Sabah
36	Electricity	Kg.Rampayan,Menggatal		onne	2	Ho	2.40	Sabah
37	Electricity	Kg.Kirulau,Kg.Pulutan,Menggatal		nnec	5		746,643.50	Sabah
38	Electricity	Kg.Kodoingan,Kg.Malawa,Kg.Kayu ng, Kg.Boronuon,Telipok		id nect	23	ouses	101,439.60	Sabah
39	Electricity	Jalan D epay. nggiling U eng	2	d C ction	74	Houses	1,212,624.30	Sabah
40	Electricity	Kg. ampulan,Telipo	20	Connection	14	Houses	478,923.00	Sabah
41	Electricity	Kg.B d,Menga tal	201	Grid Connection	18	Houses	832,797.90	Sabah
42	Electricity	Kg.Pa tal	10	Grid Connection	162	Houses	550,142.40	Sabah
43	Electricity	Kg.Por Beambang u	2010	Grid Connection	28	Houses	1,153,453.75	Sabah
44	Electricity	Kg.Togu nggatal	2010	Grid Connection	8	Houses	42,457.20	Sabah
45	Electricity	Kg.Togud Kg. li Moyog, Kg.Mongkusilad Ke Tadong g.Mongkusilad,Kg.Malapi,Moyog	2010	Grid Connection	236	Houses	18,638,702.95	Sabah

More than 3,700 line items in the electricity database

10.2.4 360,000 additional houses will be connected to clean or treated water

The percentage of houses connected to clean or treated water currently varies from approximately 89% in Peninsular Malaysia to 57% in Sarawak and Sabah. To reach our aspirations, we need to supply clean or treated water to an additional 360,000 houses between 2010 and 2012.

Connecting to the reticulation network is the default option for adding connections across the country (95% of new connections). While some new connections will build upon the investments we made in recent years to increase water treatment capacity in different parts of the country, others will require new water treatment plants – 36 water treatment plant projects will need to be completed to serve rural areas.

Some rural areas are quite far from existing water treatment plants and water mains, or are in areas with very low population density. In these cases, after thorough cost-benefit analysis, the decision was made to use alternative solutions such as tube wells, gravity wells or rain water recovery. These solutions will be applied in approximately 5% of the new connections in 2010–2012. Figure 10.8 shows a rainwater filtration system in Kampung Stass, Bau, Sarawak.

Figure 10.8

Alternative water solutions in Kampung Stass, Bau, Sarawak

We reviewed each kampong where houses to be connected to clean or treated water are located. This rigorous planning will ensure we can deliver to the rakyat within budget and on time. An excerpt of the planning data for the electricity programme is shown below (Figure 10.9).

Figure 10.9

A comprehensive water project database was created

National Key Result Area
Rural Basic Infrastucture Water Sublab

NO.	DESCRIPTION	YEAR	TYPE	IMPACT I	IMPACT I UNIT	ST	STATE
1	Mukah Bedengan Sg Duan	2010	Special	268	Houses	20,000,000	Sarawak
2	Mukah Bedengan Sg Duan	2011	Special	268	Houses	8,700,000	Sarawak
3	Bekalan Air Punang	2010	WTP	0	Houses	2,000,000	Sarawak
4	Bekalan Air Punang	2011	WTP		Houses	3,000,000	Sarawak
5	Bekalan Air Puncak Borneo	2010	Special		Houses	15,000,000	Sarawak
6	Bekalan Air Puncak Borneo	2011	Spec	683	Houses	000,000	Sarawak
7	Bekalan Air Puncak Borneo	2012	Speci		Houses	00,000	Sarawak
8	Bekalan Air Selangau	10	TP			3,900,000	Sarawak
9	Bekalan Air Selangau		TP			20,000,000	Sarawak
10	Bekalan Air Selangau		W		Houses	10,000,000	Sarawak
11	Bekalan Air Kapit	20	W		Houses	2,900,000	Sarawak
12	Bekalan Air Kapit	111	TP	4	Houses	13,000,000	Sarawak
13	Bekalan Air Kapit	12	TP	4132	Houses	10,000,000	Sarawak
14	Saratok Regional - Supply - phase			300	Houses	7,100,000	Sarawak
15	Saratok Regional W phase		WTP	300	Houses	12,300,000	Sarawak
16	Saratok Regional W. - phase	2	WTP	400	Houses	25,700,000	Sarawak
17	Serian Regional Wate pply - Phase I	2010	WTP	1402	Houses	20,000,000	Sarawak
18	Serian Regional Wate ply - Phase I	2011	WTP	1500	Houses	40,000,000	Sarawak

More than 4,200 line items in the water database

10.3 The Government will ensure that enablers are in place to ensure success

As our goals for improving rural basic infrastructure are ambitious, we will put in place measures so we can coordinate, monitor and implement the plans to achieve them. We are battling three constraints – (a) optimising the time required to build and upgrade roads and houses and to connect houses to electricity and water, (b) ensuring sufficient resources (manpower, materials, machines) and (c) putting in place a programme management and governance structure to ensure close monitoring and coordination across the four programmes and across the country.

10.3.1 Reducing the time needed for administrative processes

We will revamp existing processes to become more efficient. Doing things "the old way" would mean that it would be physically impossible to achieve our goals within three years. For example:

- The current open tender process for roads consumes four to five months from initial advertisement to award. This duration will be halved by using more standard templates, processing in parallel where possible, accelerating communication between parties (e.g., through use of e-mail) and scheduling a weekly tender board.

- While there is significant variance, land acquisition consumes an average of eight to eleven months (from submission of initial plan to payment of compensation and handing over of site). This time will be reduced to six to eight months through similar actions and levers to those we will use to accelerate roads.

These time reductions will be accomplished by improving productivity and using 'lean' processes. We will not sacrifice good governance to meet the need to build faster.

Similar to the examples above, we have identified process improvements to reduce the time for tendering contracts for roads, electricity, houses and water by 40–50%.

Example: Reducing the tendering process time for water project contractors from 12–15 months to less than 8 months to be able to deliver new projects in 2010

Challenge: The current tender process can take 12–15 months to complete. As a result, projects initiated in 2010 would not begin during 2010.

Solution: Tender processes were reviewed in depth to identify ways to be more efficient. As a result of this review, time savings of up to 50% were identified and are being implemented. As a result, some 2010 water projects will actually see water flowing within the year. Specific actions and interventions that will be made to the water contractor tender processes include:

- Using standard templates and formats where possible
- Allowing soft copy (CD) with read-only format tender documents
- KKLW Technical Department leading the inspection for tender documents
- Appointing a tender evaluation committee early
- Scheduling the Tender Board meetings in advance

10.3.2 Increasing the supply of manpower, materials and machines critical to delivering the rural basic infrastructure

We will ensure that the supply of manpower, materials and machines are adequate, by facilitating the supply and availability of enough machinery (e.g., excavators, compactors), material (e.g., electricity cabling, pre-mix) and manpower (e.g., contractors, consultants).

The supply of low-voltage cable (90–120 millimetre) across Malaysia is a case in point: 79,000 kilometres of this cable is produced annually by 15 domestic producers. The incremental demand from the NKRA electrification programme represents 18% of domestic supply. We are working with producers to ensure that production capacity is increased in line with increased demand to avoid scarcity and price increases. If necessary, we will facilitate importation of supply with the same objectives.

Another example is the supply of feeder pillar protection equipment: 36,000 pieces of this equipment is produced annually by 10 domestic producers. The incremental demand from the NKRA electrification programme represents 38% of domestic supply. However, discussions with these producers revealed there is more than 50% spare production capacity available. We are working to ensure that this spare production capacity will be ready when the demand increases.

Similar assessments have been done across key categories for manpower (e.g., different classes of contractors, consultants), material and equipment for the different regions (Peninsular Malaysia, Sabah and Sarawak), for roads, houses, electricity and water. Where we expect shortages (e.g., for generation sets in Sabah and Sarawak, welding sets in Sabah and consultants for water-related projects in Sabah), we are working directly with suppliers to ensure that there is a sufficient supply when required and exploring import options where real constraints exist.

10.3.3 Ensuring effective programme management and a governance structure to monitor and coordinate across programmes

We will monitor all of the projects at a detailed level to ensure they are on track using the SPP II system. SPP II is a well-established system managed by the ICU under the Prime Minister's Department.

Each of the rural basic infrastructure projects is recorded in the SPP II system with the desired delivery outcome and the name of a person accountable for ensuring that the project is delivered on time and within budget.

The purpose-built governance mechanisms for the rural basic infrastructure programmes (led by the Ministry of Rural and Regional Development) will use the information drawn from SPP II to monitor progress. Figure 10.10 shows a screenshot from the SPP II tool. We will intervene when needed to ensure that we meet our targets. As described earlier, the Government will go down to the 3-foot level to ensure on-budget and on-time implementation (e.g., monitoring the exact roads and housing units to be built).

Figure 10.10

Performance will be tracked in SPP II

EXAMPLE

NKRA	Sub NKRA	Nama KPI	Unit Ukuran	Mod Pemantauan KPI	Tarikh Terkini Kemaskini (Sebenar)	Status	Target	Stretch	Sebenar	Jurang (Sebenar - Target)
Rural Basic Infrastructure	Electricity	SBH: PERATUS PERUMAHAN YANG AKAN DISAMBUNGKAN DENGAN BEKALAN ELEKTRIK	%	-	-		-	-	-	-
Rural Basic Infrastructure	Electricity	SWK : PERATUS PERUMAHAN YANG AKAN DISAMBUNGKAN DENGAN BEKALAN ELEKTRIK	%	-	-		-	-	-	-
Rural Basic Infrastructure	Housing	PM: BILANGAN RUMAH BINA BARU DAN BAIK PULIH YANG AKAN DIBINA UNTUK 250K MISKIN DAN MISKIN TEGAR SEHINGGA TAHUN 2012	BIL	Tahunan	29/10/2009		0.00	0.00	0.00	0
Rural Basic Infrastructure	Housing	SABAH : BILANGAN RUMAH BINA BARU DAN BAIK PULIH YANG AKAN DIBINA UNTUK 250K MISKIN DAN MISKIN TEGAR SEHINGGA TAHUN 2012	BIL	Tahunan	29/10/2009		0.00	0.00	0.00	0
Rural Basic Infrastructure	Housing	SARAWAK : BILANGAN RUMAH BINA BARU DAN BAIK PULIH YANG AKAN DIBINA UNTUK 250K MISKIN DAN MISKIN TEGAR SEHINGGA TAHUN 2012	BIL	Tahunan	29/10/2009		0.00	0.00	0.00	0
Rural Basic Infrastructure	Road	PM: JARAK JALAN BERTURAP YANG AKAN DIBINA SEHINGGA TAHUN 2012	KM	Tahunan	29/10/2009		0.00	0.00	0.00	0
Rural Basic Infrastructure	Road	SABAH: JARAK JALAN YANG AKAN DIBINA SEHINGGA TAHUN 2012	KM	Tahunan	29/10/2009		0.00	0.00	0.00	0
Rural Basic Infrastructure	Road	SARAWAK: JARAK JALAN YANG AKAN DIBINA SEHINGGA TAHUN 2012	KM	Tahunan	29/10/2009		0.00	0.00	0.00	0

Source: Data Management Lab

10.4 We commit to the rakyat on the following rural basic infrastructure outcomes

Table 10.1: NKPIs and targets for Rural Basic Infrastructure

Focus area	KPI	Baseline	2010
Roads	• Length of newly paved roads (Peninsular Malaysia)	• N/A - target represents increment	• 210 km
	• New roads constructed (Sabah and Sarawak)	• N/A - target represents increment	• 192 km in Sabah and 145 km in Sarawak
Housing	• Number of newly built / restored houses	• N/A - target represents increment	• 5,819 (Peninsular Malaysia) • 4,988 (Sabah) • 5,819 (Sarawak)
Electricity	• % of houses with access to electricity	• Peninsular Malaysia: 99%	• 99.6%
		• Sarawak: 67%	• 72.6%
		• Sabah: 77%	• 80.8%
Water	• % of houses with access to clean or treated water	• Peninsular Malaysia: 89%	• 91.8%
		• Sarawak: 57%	• 62.1%
		• Sabah: 57%	• 58.7%

10.5 Early signs of progress seen on rural basic infrastructure

The delivery challenge we face to meet our targets for improving rural basic infrastructure is significant, driven by the sheer scale and spread of the effort. There are signs however, that our capacity to deliver is already ramping up. For instance, in 2009 we completed

- more than 17,000 houses for the rural poor and extreme poor
- more than 240 km of paved roads in Sabah and Sarawak

The agencies in charge of delivering this infrastructure have not waited for the start of 2010 to begin planning. They drew up detailed implementation plans in 2009 to ensure that no lead time was lost to planning for these massive undertakings.

10.6 Going forward, we will intensify our efforts to reduce the cost of infrastructure delivery

Even as we make progress in the four focus areas, we are already making plans to implement more complex initiatives in the next phase, e.g., delivering more for less to reduce the cost of new infrastructure. We are continuously looking to increase the impact of funds we spend on infrastructure programmes, and various ministries and agencies are collaborating to analyse whether existing and new technologies can be applied to reduce the average cost of providing basic infrastructure to the rakyat. Delivery plans will be updated if relevant alternative solutions are identified and proven.