Malaysian Communications and Multimedia Commission

ITU WORKSHOP ON PROMOTING BROADBAND

Government's Role in Promoting Broadband

10 April 2003

10 National Policy Objectives

* Creating a global hub

- Building a civil society

- Nurturing local content and culture

- Ensuring long-term benefits for end-users

- Nurturing user confidence

- Promoting access and equity

- Creating a robust applications environment

- Facilitating efficient allocation of resources

- Developing industry capabilities

- Promoting secure and safe networking

Definition of a C&M Global Hub

Malaysia, with a world class communications and multimedia industry within an effective converged regulatory framework, having the following attributes:

1. infrastructure to suit all sectors of society;

2. adequate financial resources to nurture growth;

3. proliferation of knowledge, skills and entrepreneurship;

4. ability to attract international and regional communications and multimedia traffic and to compete at home and abroad; and

5. offering a wide array of content and application services

Crucial towards creating Global Hub => BROADBAND

Why do we need Broadband?

- **To facilitate convergence, e-government,**
- **To narrow digital divide**
- **To facilitate broadband applications to increase efficiency & effectiveness of business, education, learning, recreation, etc.** *35% of deal-flows brought to our VCs need broadband in order to be economically viable*
- **To realise the knowledge economy & society**
- **To enrich the lives and living conditions of citizens, e.g., healthcare, e-commerce**
- **To accelerate productivity and economic growth**
- **To expedite the 10 national policy objectives**
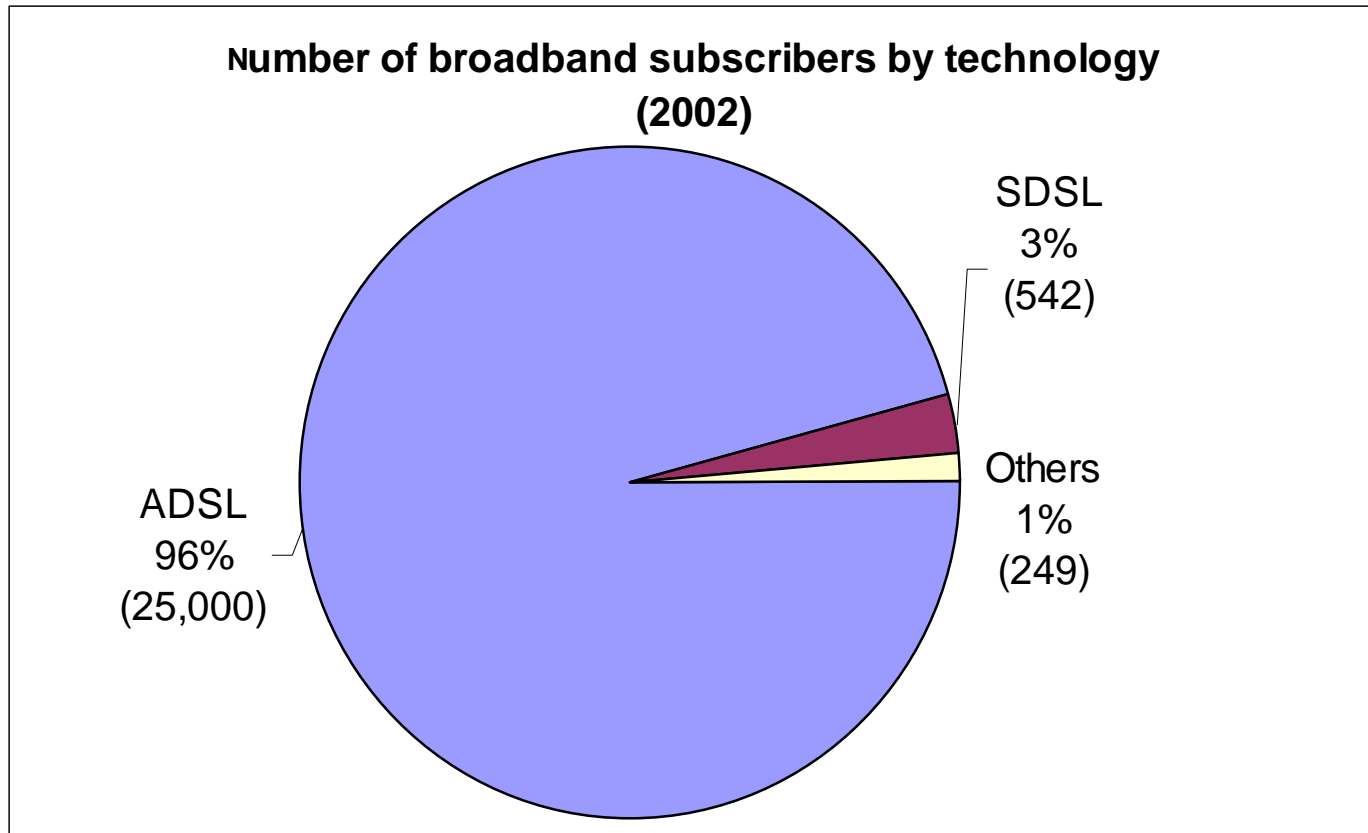- **To facilitate the global hub objective**

Dismal broadband subscriber-base …

	2001			
	'Broadband		Dial-Up	
	Subscribers (million)	Penetration (%)	Subscribers (million)	Penetration (%)
Australia	0.600	3.1	4.200	21.9
China	3.000	0.2	12.00	0.9
Hong Kong	0.415	6.1	2.090	30.8
Japan	1.100	0.9	18.00	14.2
Singapore	0.115	2.8	1.920	46.3
South Korea	6.250	13.2	6.00	12.6
Taiwan	0.610	2.7	3.00	13.5
Malaysia	0.010	0.04	2.115	8.8

Source: Baskerville

…only 25,791 subscribers in 2002…

Number of broadband subscribers by technology (2002)

SDSL
3%
(542)

ADSL
96%
(25,000)

Others
1%
(249)

East and South East Asian broadband markets in mid 2002

Legend:
- Number of broadband connections
- Broadband penetration

Y-axis (left): Connections (millions) — 10, 1, 0.1, 0.01, 0.001

Y-axis (right): Penetration — 25%, 20%, 15%, 10%, 5%, 0%

X-axis: Malaysia, Philippines, Thailand, China, Japan, South Korea, Singapore
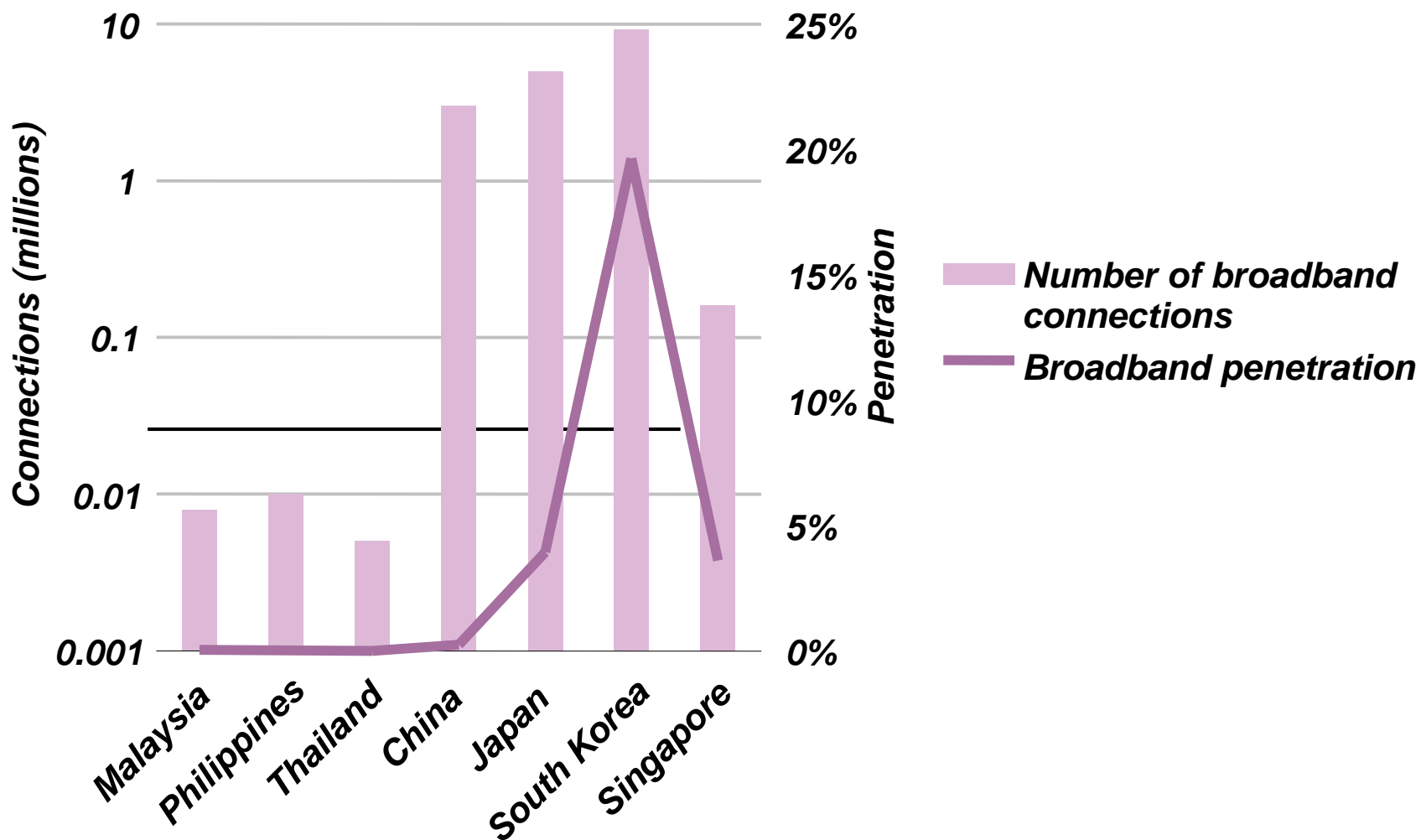
[*Source: Analysys*]

THERE IS
MARKET FAILURE

Internet users in East and South East Asia, mid-2002

Country	Number of Internet users (millions, mid 2002)	Internet penetration (users per head of population)	Country	Number of Internet users (millions, mid 2002)	Internet penetration (users per head of population)
Brunei	0.04	11%	Laos	0.012	0.2%
Myanmar	0.01	0.02%	Malaysia	6.89	30%
Cambodia	0.016	0.1%	Philippines	4.5	5%
China	45.8	4%	Singapore	2.31	52%
Indonesia	4.5	2%	Thailand	4.2	7%
Japan	56	44%	Vietnam	1.25	2%
Korea	25.6	55%			

[Source: Analysys]

Estimated monthly residential Internet expense per capita at mid-2002 (USD)
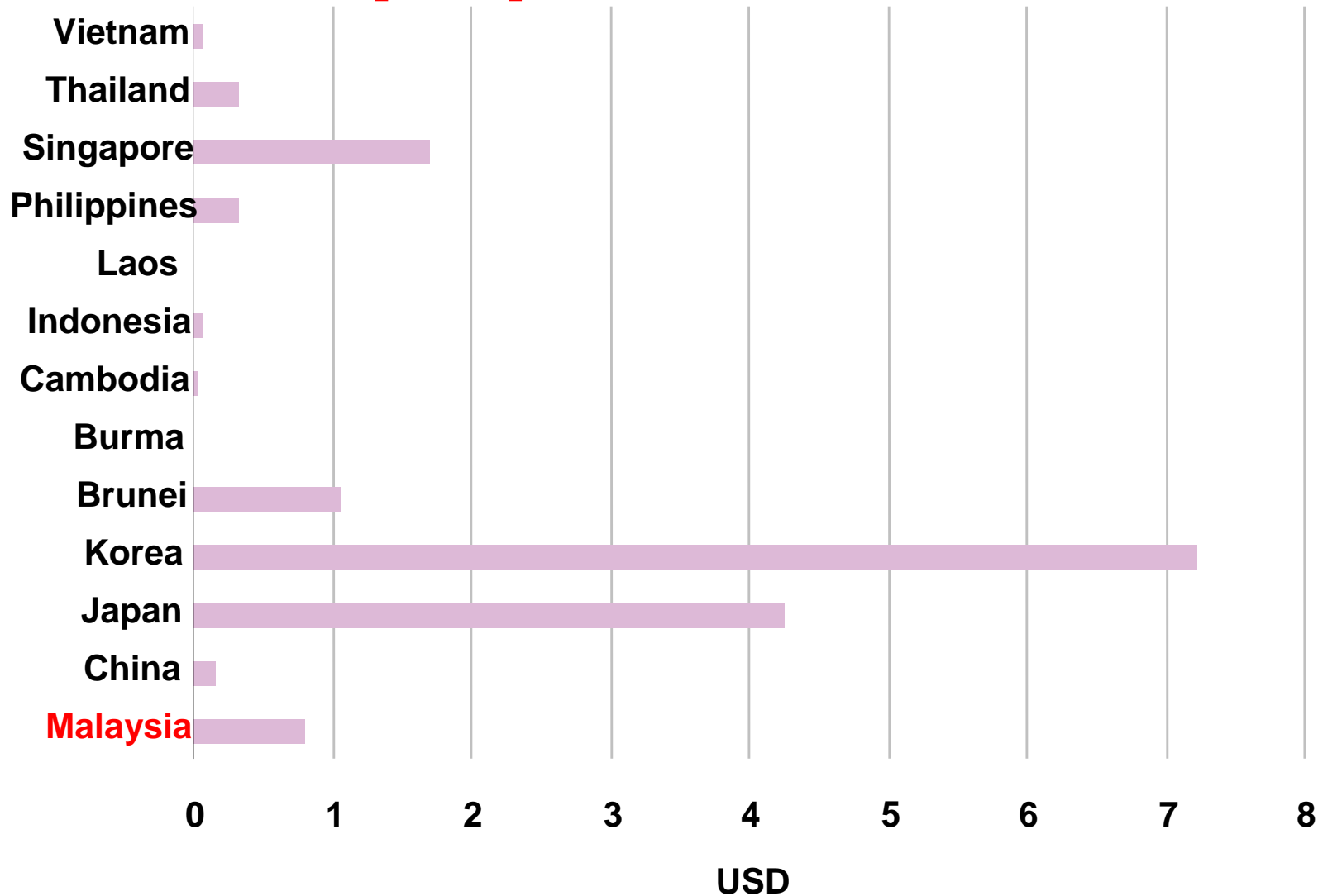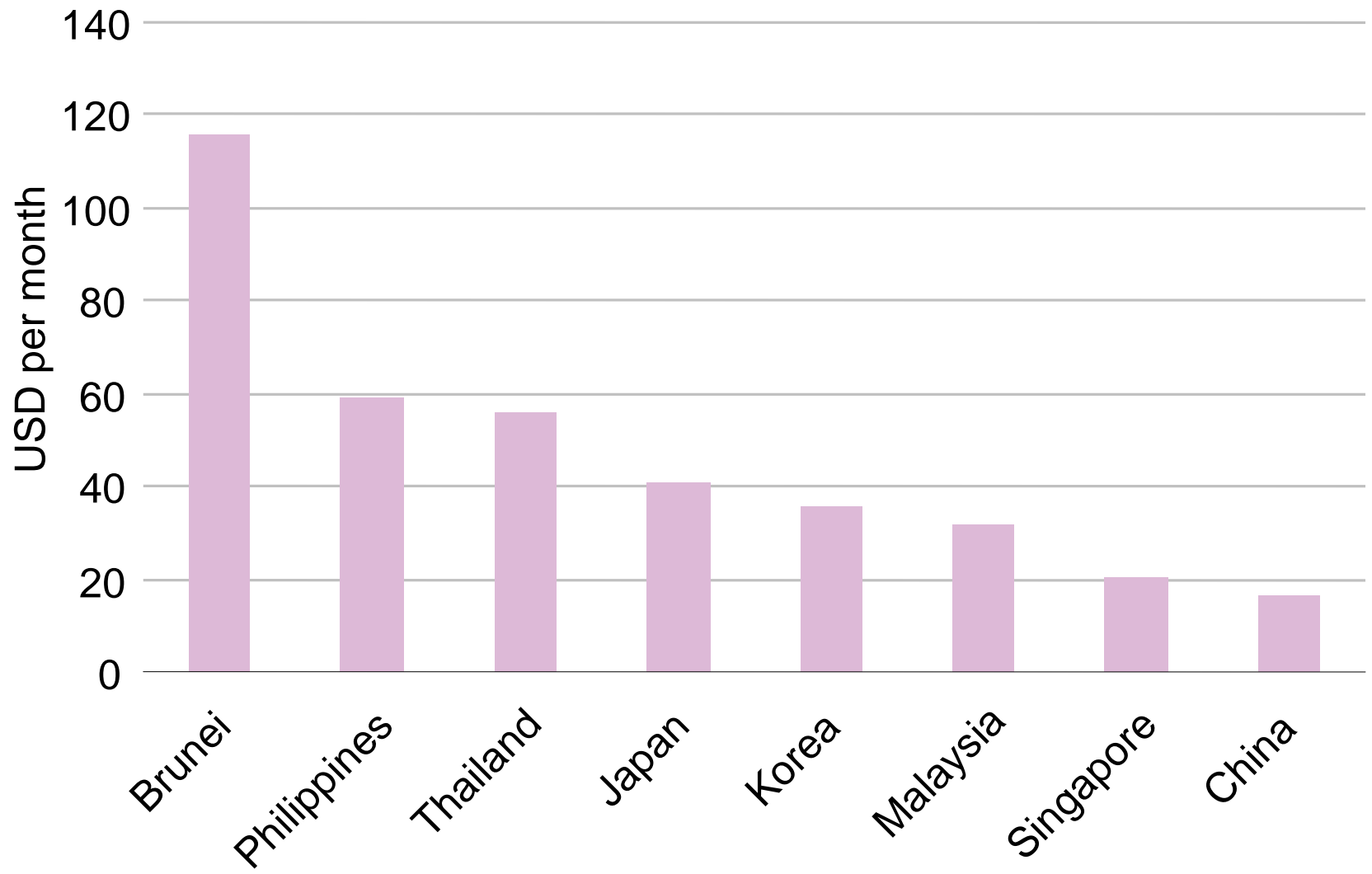

Source: Analysys

Availability & competition in East and South East Asian broadband markets, mid 2002

Country	Estimated population coverage by terrestrial broadband	Number of service providers with > 5% market share	Estimated market share of the number one provider	Estimated market share of the number two provider	Estimated market share of the number three provider
China	2%	8	42%	17%	10%
Japan	90%	6	28%	13%	10%
Malaysia	**20%**	**1**	**95%**	**<5%**	**Negligible**
Philippines	1%	2	90%	5%	Negligible
Singapore	99%	3	55%	32%	11%
South Korea	90%	3	47%	28%	15%
Thailand	4%	2	80%	15%	Negligible

[Source: Analysys estimates]

The cost per month of mass-market broadband in South East Asia, end 2002, in US dollars

[Source: Analysys estimates]

Relative rankings of the East and South East Asian broadband markets

Country	Ranking	Score	(normalised)
Korea	1	100%	
Japan	2	84%	
Singapore	3	83%	
China	4	66%	
Malaysia	5	55%	
Brunei	6	48%	
Thailand	7	39%	
Philippines	8	32%	
Cambodia	9	20%	
Myanmar	10	0%	
Indonesia	10	0%	
Laos	10	0%	
Vietnam	10	0%	

[Source: Analysys]

Criteria for ranking by Analysys

The criteria considered are:

• broadband availability (measured in terms of percentage population coverage of terrestrial broadband infrastructure);
•development of competition (measured in terms of concentration of market power amongst the top three broadband service providers, and in terms of the number of service providers with more than 5% market share);
•cost of broadband services; and take-up of broadband (measured as a percentage of population).

…so, we need

A NATIONAL BROADBAND PLAN

Malaysia: A global hub

National Broadband Plan (NBP)
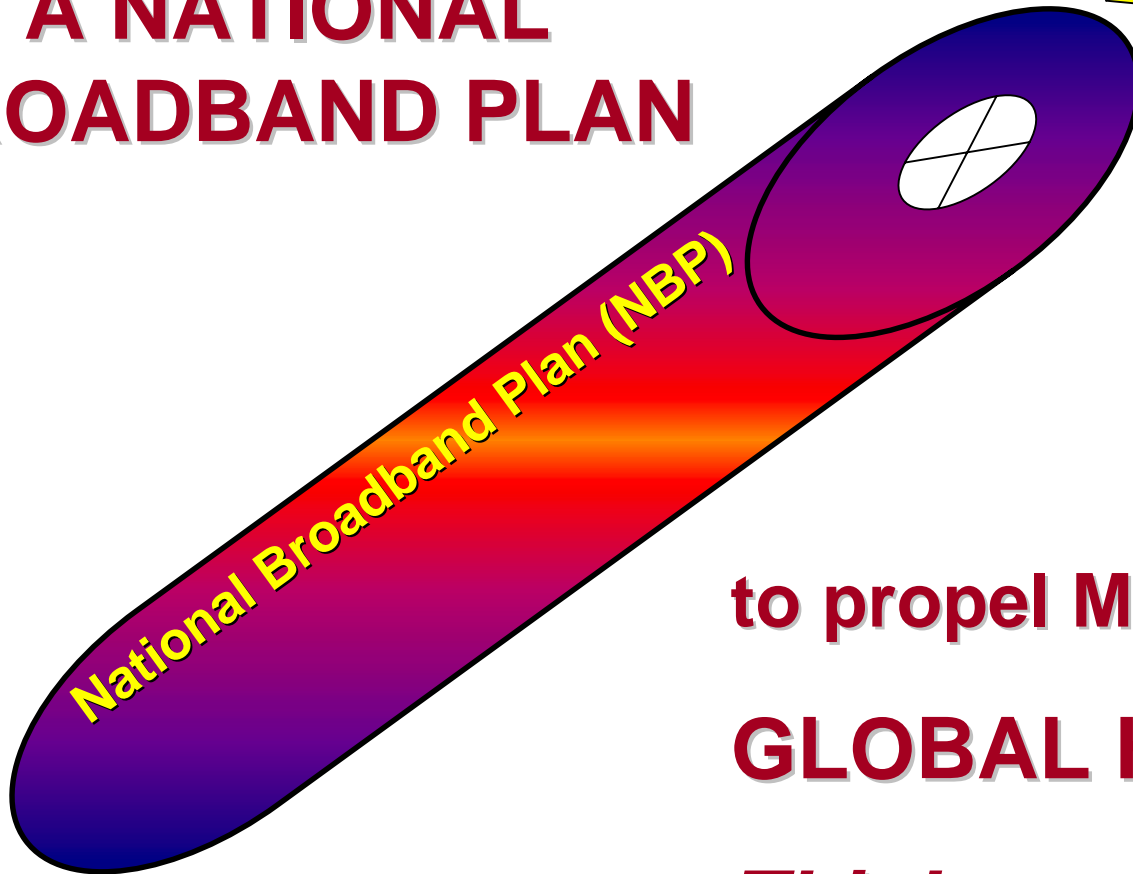
to propel Malaysia as a

GLOBAL HUB by 2007

Think out of the box?

Global Hub Targets FID2

KPI %Penetration Year	2000	2001	2006	Realistic Global Hub 2007
Fixed line	20	20	30	30
Rural (payphones & DEL)	12		18	25
Mobile cellular (2G,2.5G, 3G)	22	31	38	60
Internet dial-up subscribers	7	9	25	30
Set top box --Population coverage			99	
--Take-up		3	20	35
Free to air TV & radio (household)	95	97	99	99
IMT-2000 --Population coverage				50
--Take-up				30
DTTB – Household coverage				99
--Take-up				35
Wireless hot spots (coverage – starbucks, coffee bean, secret recipe, McD, BB walk, Gurney drive?)				NBP
Composite Broadband – Pop Coverage				80
--Take-up				50

The Big Questions

- How to intervene in order achieve our global hub targets with minimum distortion to the market forces?

- How to strike a balance towards planning for a supply-led model for a mid to long term period without spending on unproductive infrastructure?

- How to best strike a balance between mid-band and fibre?

Trade-offs in Intervention Policy

1.Components of broadband provision

Identifying the aspects of broadband provision to focus on (content/applications, services, network transmission, cables, ducts).

2.Timeline

Aligning the intervention timeline to match broadband goals – short-term (2–5 years), medium-term (10 years) or long-term (15–20 years).

3.Supply-side versus demand-side intervention

Achieving the optimum mix of these two aspects of intervention, including the use of combined supply/demand approaches (e.g. public sector demand aggregation).

Trade-offs in Intervention Policy

4. Urban and rural mix

Striking the right balance between focus on urban centres, with greatest economic benefit, and focus on rural regions, to minimise the impact of the digital divide.

5. National, regional and local approaches

Combining centrally-planned approaches, regional initiatives and innovative local solutions to obtain the benefits of each type, whilst also managing the attendant risks.

6. End-user focus

Balancing plans focused on large corporates, small and medium-sized businesses, public sector and residential users, reflecting the importance of broadband for each of these groups and the wider impact of accelerated broadband usage for the economy and for society.

Trade-offs in Intervention Policy

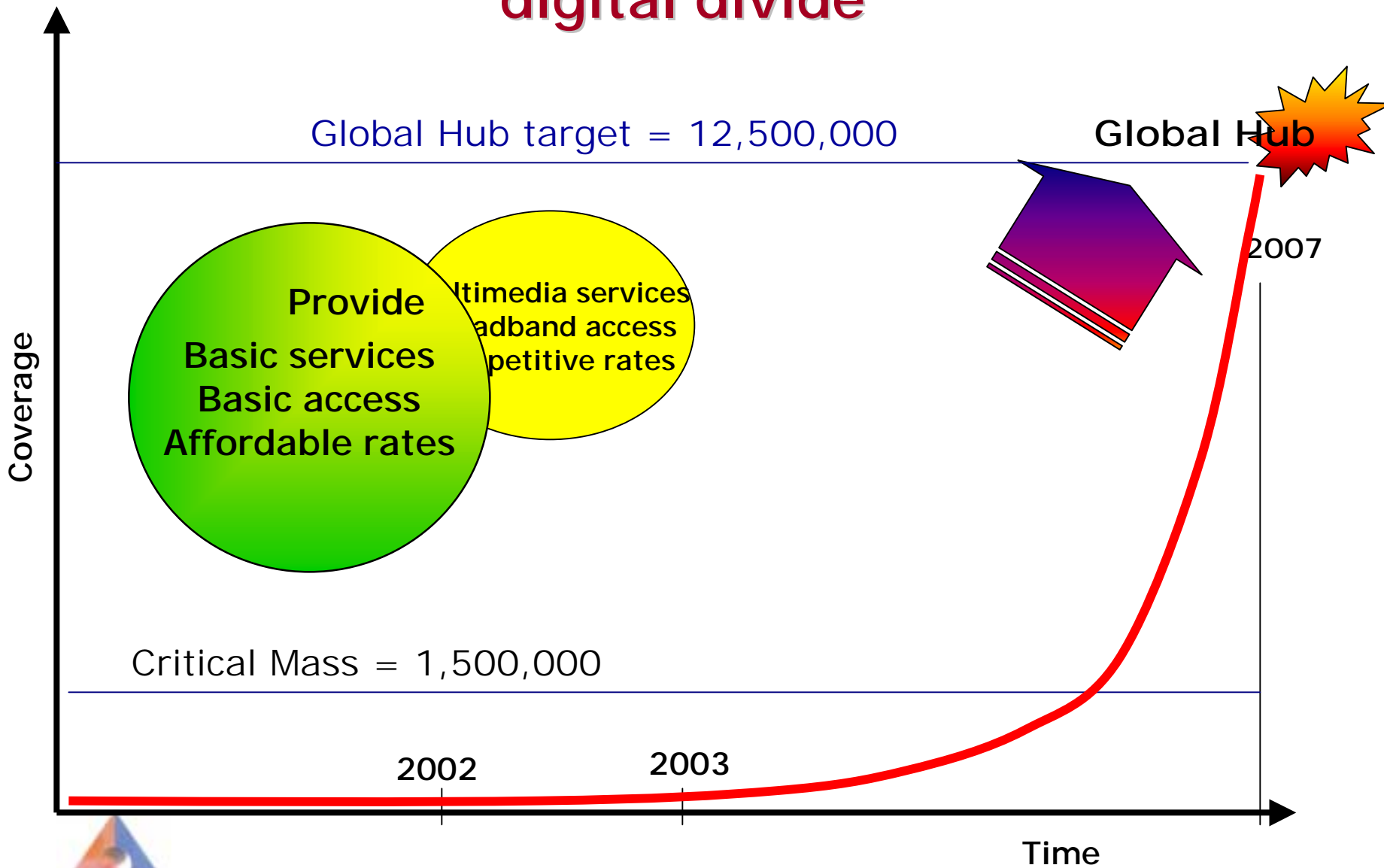|	
6. Regulatory options	**Achieving the optimum balance between regulatory interventions (mandating certain behaviour) and incentive-based interventions (including financial support).**
7. Funding options	**Marshalling private sector and public sector funding for different aspects of the programme in order to obtain best value.**
8. Organisational options	**Establishing an appropriate organisational framework for the governance and execution of the NBP co-ordinated with the other relevant national programmes.**

National Broadband Plan
The single prong strategy for bridging the digital divide

Coverage

Global Hub target = 12,500,000

Global Hub

Provide
Basic services
Basic access
Affordable rates

ltimedia services
adband access
petitive rates

2007

Critical Mass = 1,500,000

2002

2003

Time

As a result…

- A National Broadband Steering Committee (NBSC) was formed
- NBSC comprises the Commission and various Ministries and Government Agencies
- NBSC commissioned study to formulate National Broadband Plan (NBP)

Purpose of Government-led NBP initiative

- Generate supply in terms of broadband infrastructure via various available technologies deemed appropriate
- Stimulate demand to ensure efficient take-up of broadband services
- Explore various funding mechanisms to finance this project
- Identify gaps in existing regulations and where necessary, introduce new ones to facilitate broadband rollout.

Evolution of Broadband application 2000-2007 (Malaysian model)

	2000-2002		2002-2003	2004 ⟶ 2007
Bandwidth	128 Kbps	384 Kbps	2 Mbps	6-10 Mbps ⟶ 20Mbps
Key Technology	Modem, ISDN, leased line	ADSL, satellite,IMT-2000, FWA, limited fibre,		xDSL,FWA, unlimited Fibre, satellite, DTTB
Application	**Stage 1** •Low quality video conferencing	**Stage 2** •Audio streaming •Data streaming •Basic video streaming & video conferencing	**Stage 3** •High quality streaming •Basic desktop video conferencing •Complex graphics & animation	**Stage 4** •Broadcasted multicast streamed media (audio, video,data) •High quality desktop video conferencing •High definition TV video conferencing
Market situation	•Limited use of digital media due to **access** <u>speed limitations and cost</u>	•Increasing adoption of audio-video applications for simple data delivery	•Adoption of complex media tools to meet specialist needs: <u>media driven interaction</u>	•Widespread adoption of high quality audio-video applications in accordance with the financial model for global hub: <u>real time media</u>

The existing roll-out plans of Malaysia's fixed and mobile operators will provide broadband coverage to key urban and suburban centres

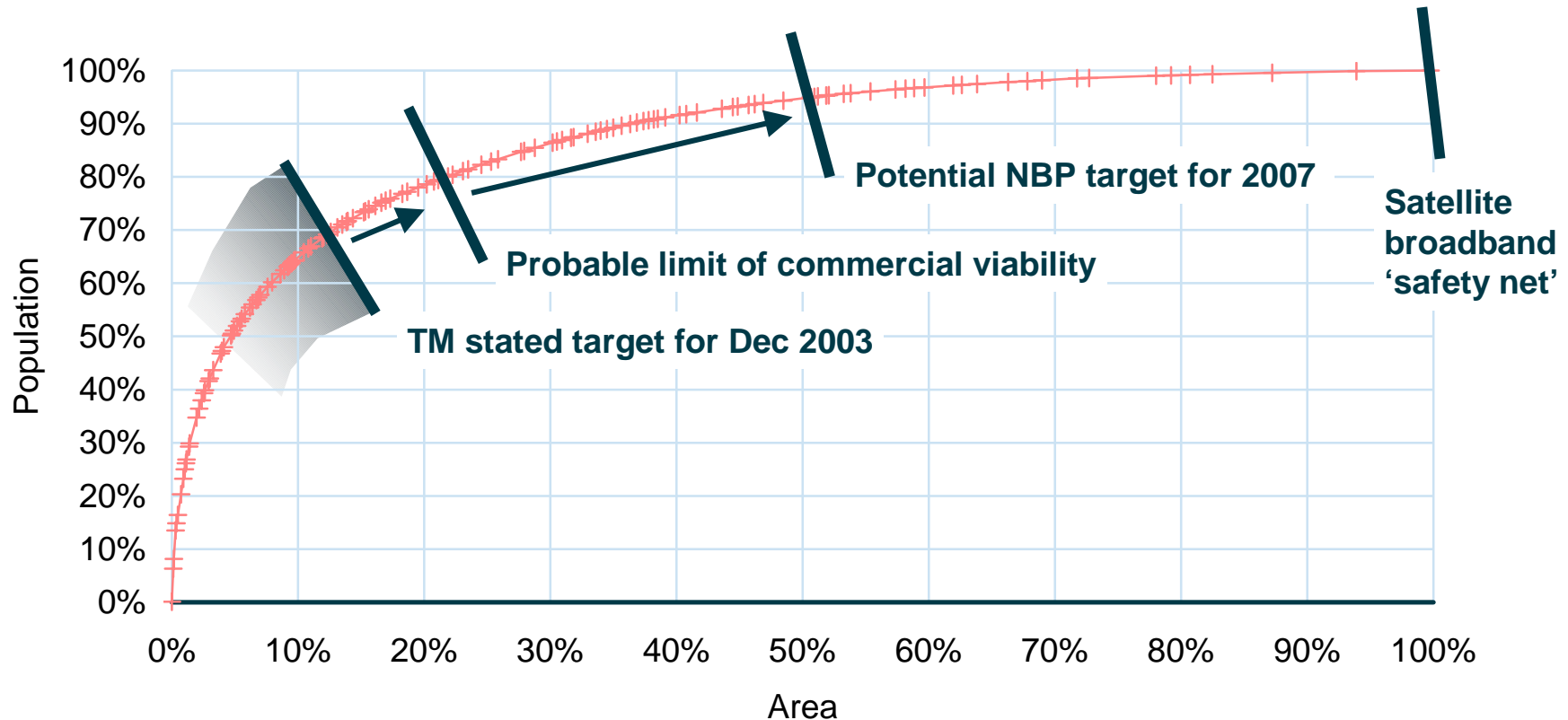|	
Current fixed broadband coverage	• Telekom Malaysia has upgraded 160 of its estimated 886 exchanges to offer DSL service, mainly covering urban areas • New entrants (e.g. Maxis and Time) are providing broadband services over direct fibre access to large multi-tenanted commercial buildings in urban areas • Numerous operators have backbone networks in Peninsula Malaysia. Most have a v-shaped configuration, with routes along both east and west coasts. East Malaysia is less well served, with Telekom Malaysia being the main operator
Future fixed broadband roll-out	• It is anticipated that Telekom Malaysia will have upgraded 560 of its exchanges by the end of 2003, when it will be able to offer service to approximately 80% of the households that it currently offers telephony services to • New entrants have indicated that they plan to continue to focus on business customers in major urban centres where they can economically justify new investment
3G mobile roll-out	• Mobile operators are likely to provide 3G coverage to at least 80% of Malaysia's population by 2007: ◦ this will provide sufficient bandwidth for accessing major applications (e.g. electronic banking) through handheld devices but will not support most desktop PC applications

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The geographical availability of broadband will be a key feature of the NBP

Example: 0.5 – 2Mbit/s affordable fixed service availability

Administrative districts ranked by population density

Potential NBP target for 2007

Probable limit of commercial viability

Satellite broadband 'safety net'

TM stated target for Dec 2003

Population

Area

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# The public sector will lead the demand for fibre-speed connections in areas away from the main business clusters

- **The demand for high-speed connectivity from the public sector (particularly educational establishments) is likely to be ahead of widespread demand from SMEs in suburban, rural and remote parts of Malaysia**

- Government expenditure on communications will increase as a consequence of this demand

Estimated demand for connectivity from Malaysian educational establishments

School location	2003		2007	
	Mid-band	Fibre speed	Mid-band	Fibre speed
Urban/suburban	75%	25%	0%	100%
Rural and remote	95%	5%	60%	40%

- Connectivity will also need to be provided between health sites to support the Telehealth flagship project, which includes linking rural clinics with medical experts in cities to facilitate tele-consultation – specific connection requirements will be ascertained following discussions with the Ministry of Health

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Proposed five action areas of NBP
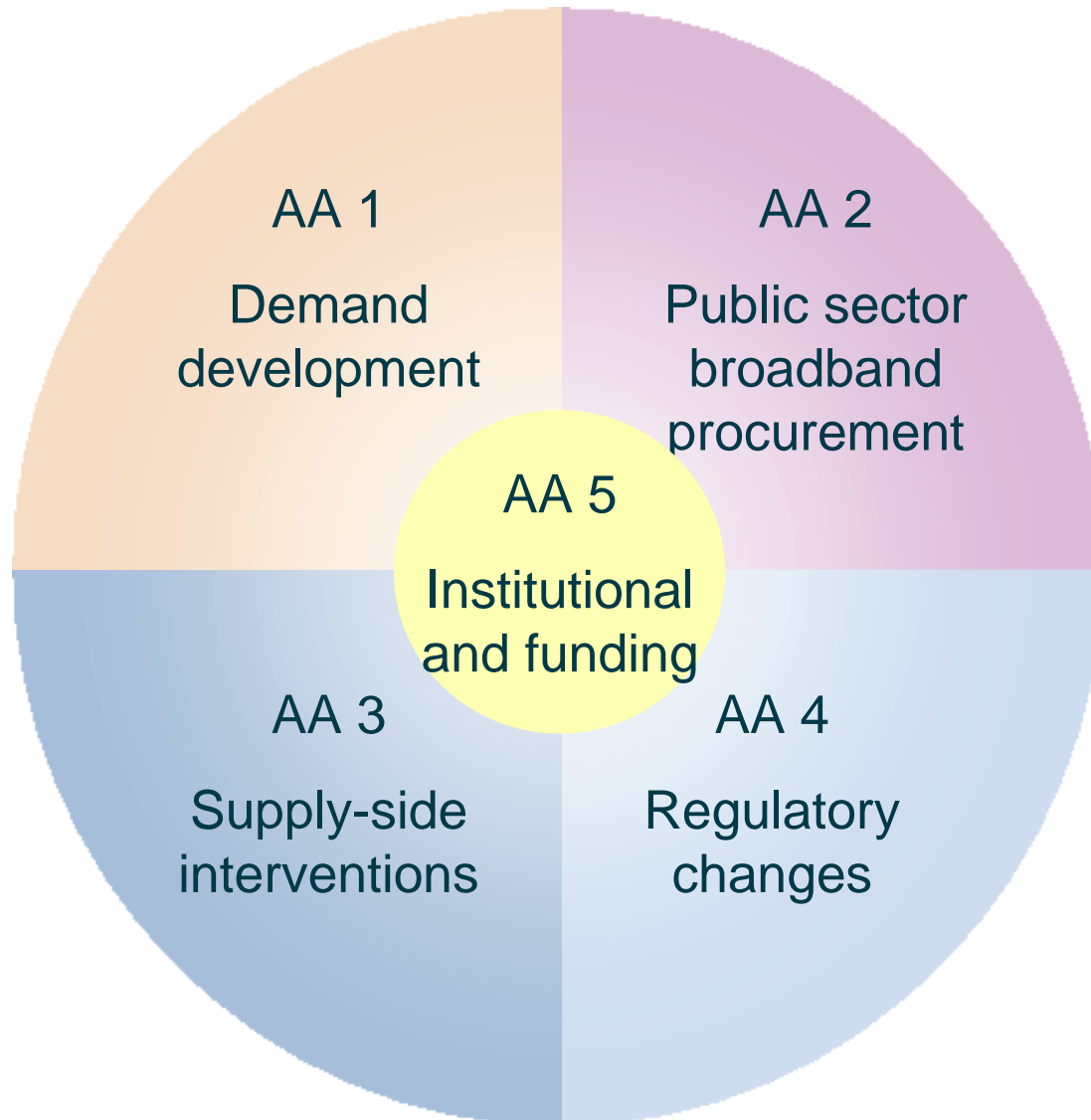
Action Area 1 – Demand development
Measures to encourage take-up of broadband by different user groups

AA1.1	Establish a broadband promotion organisation
AA1.2	Implement personal broadband tax rebate scheme
AA1.3	Provide subsidy for use of satellite service in rural locations
AA1.4	Encourage private sector demand aggregation
AA1.5	Promote development of specialist broadband content and applications
AA1.6	Encourage and provide funding for local broadband initiatives

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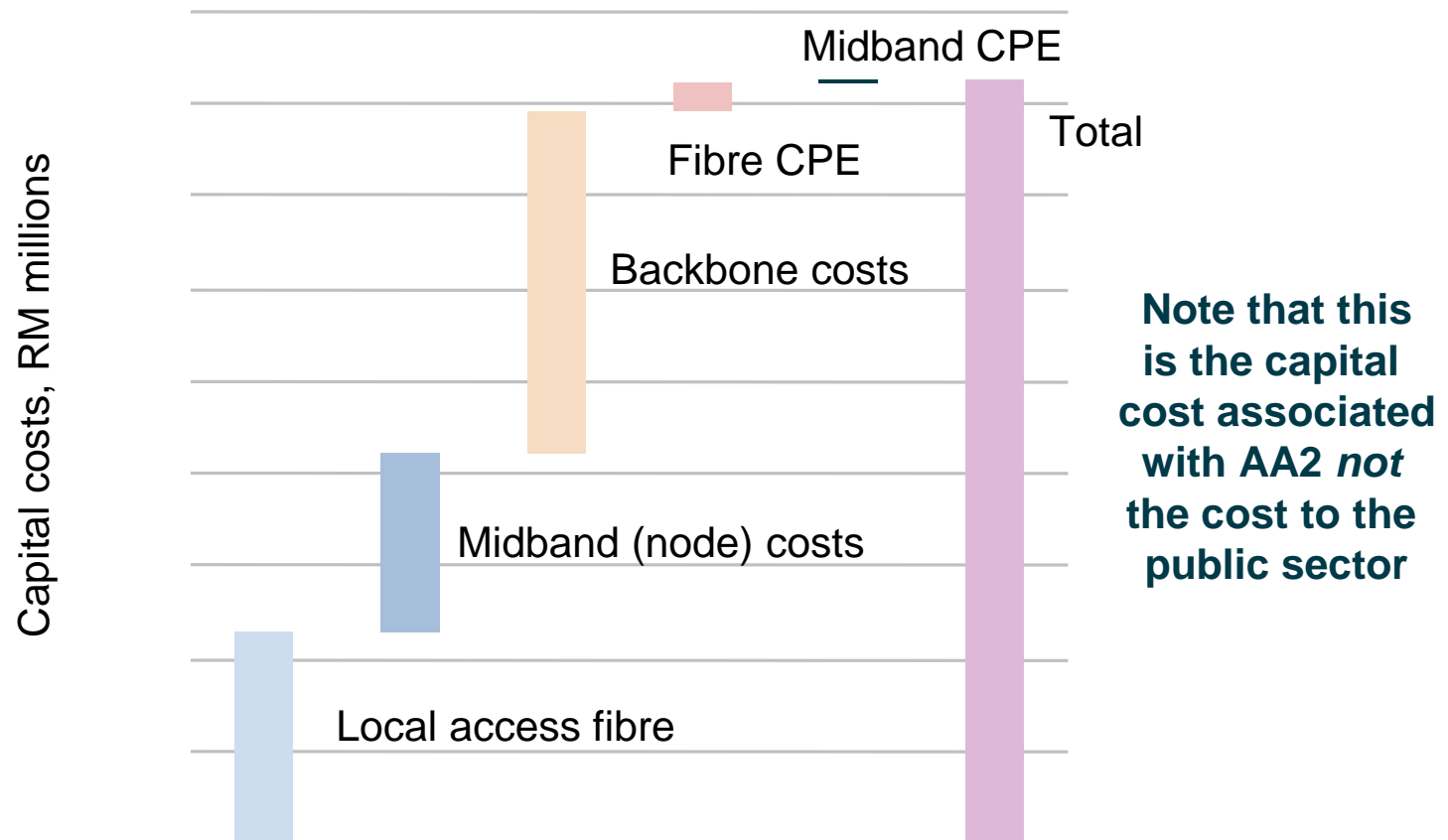
Action Area 2 – Public sector broadband procurement
Aggregation of public sector demand to incentivise provision in rural regions

Projected additional public sector site connections arising from Action Area 2
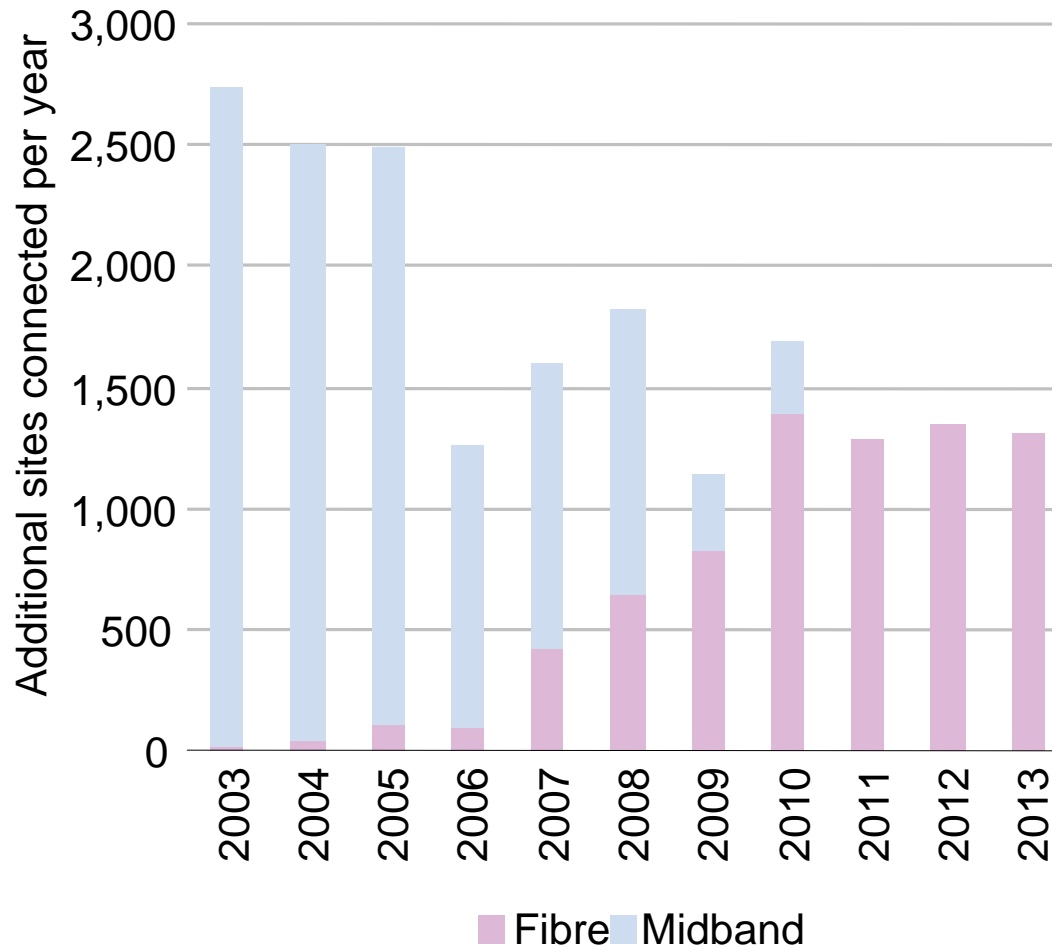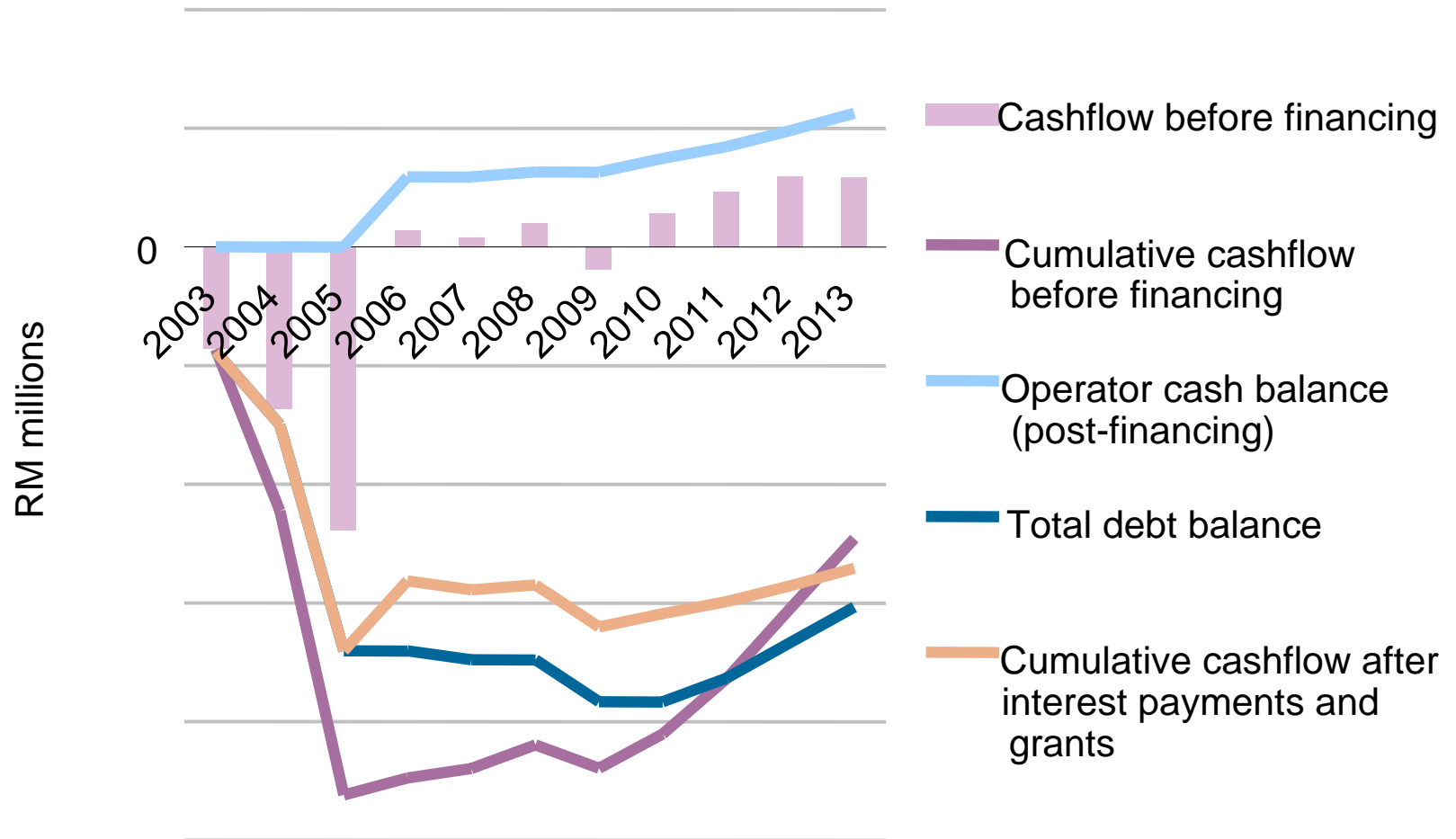
Action Area 2 continued

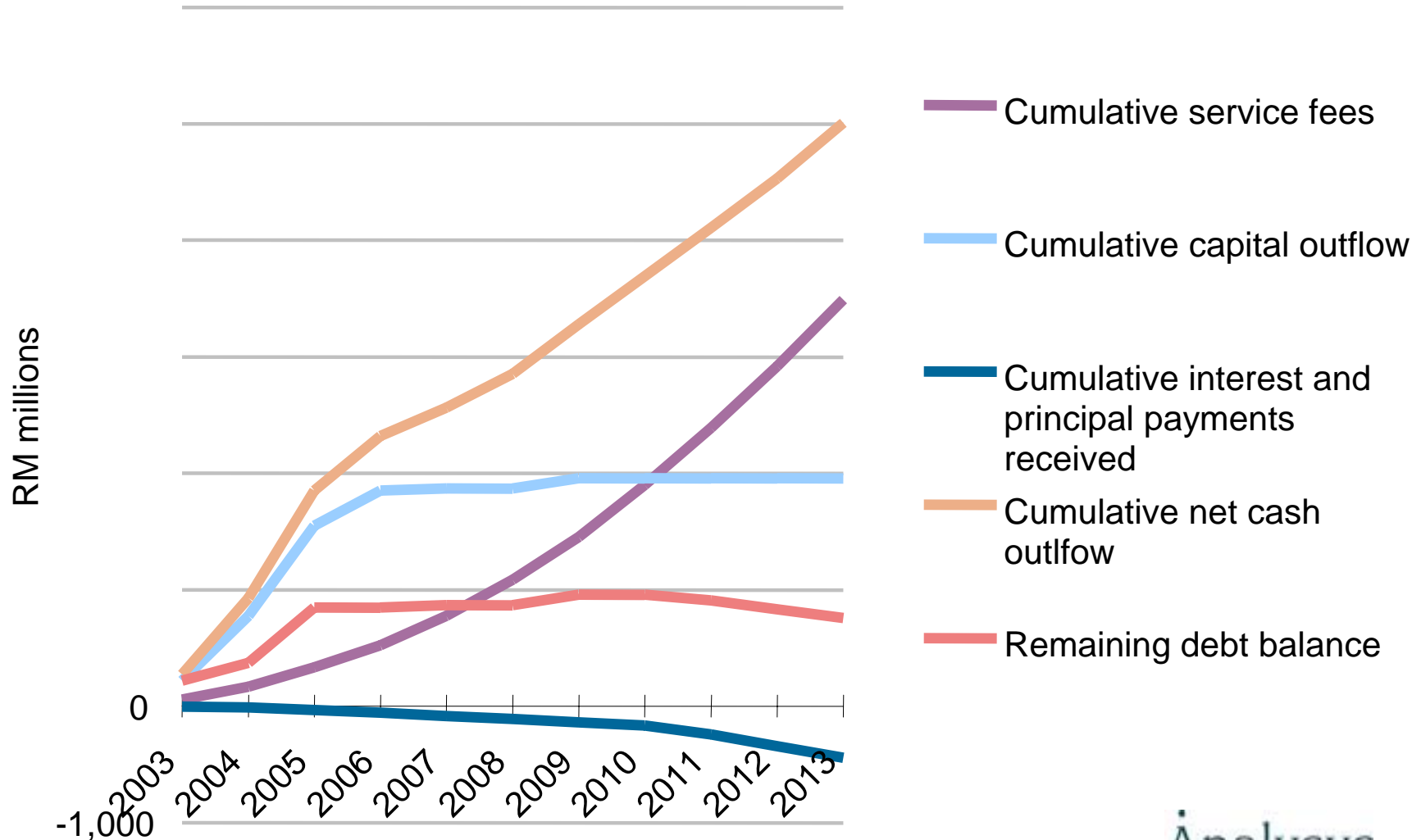Additional investment in network infrastructure arising from Action Area 2

Note that this is the capital cost associated with AA2 *not* the cost to the public sector

Cashflow profile for an operator engaged to provide services through the aggregated public sector broadband procurement

Cashflow before financing
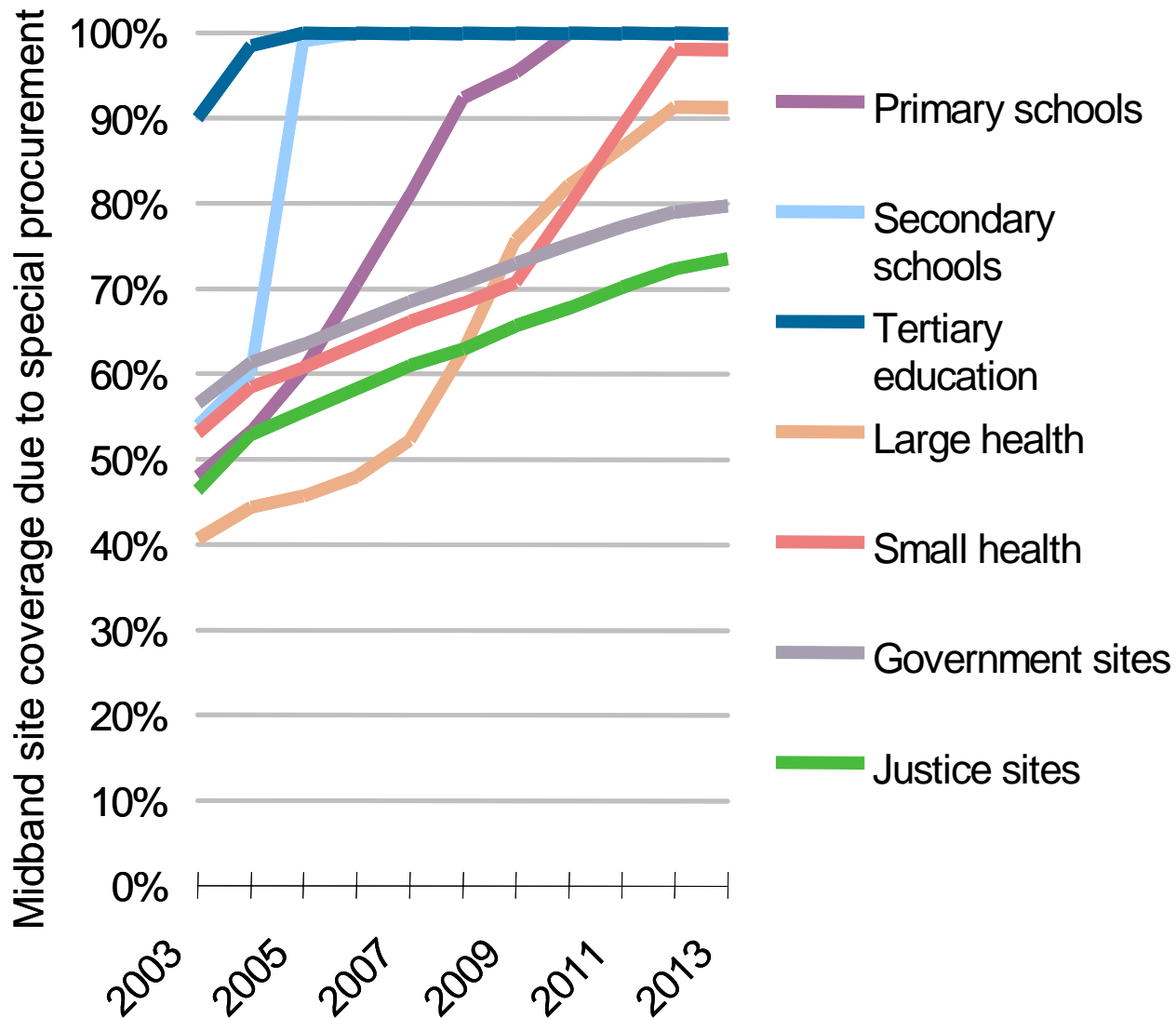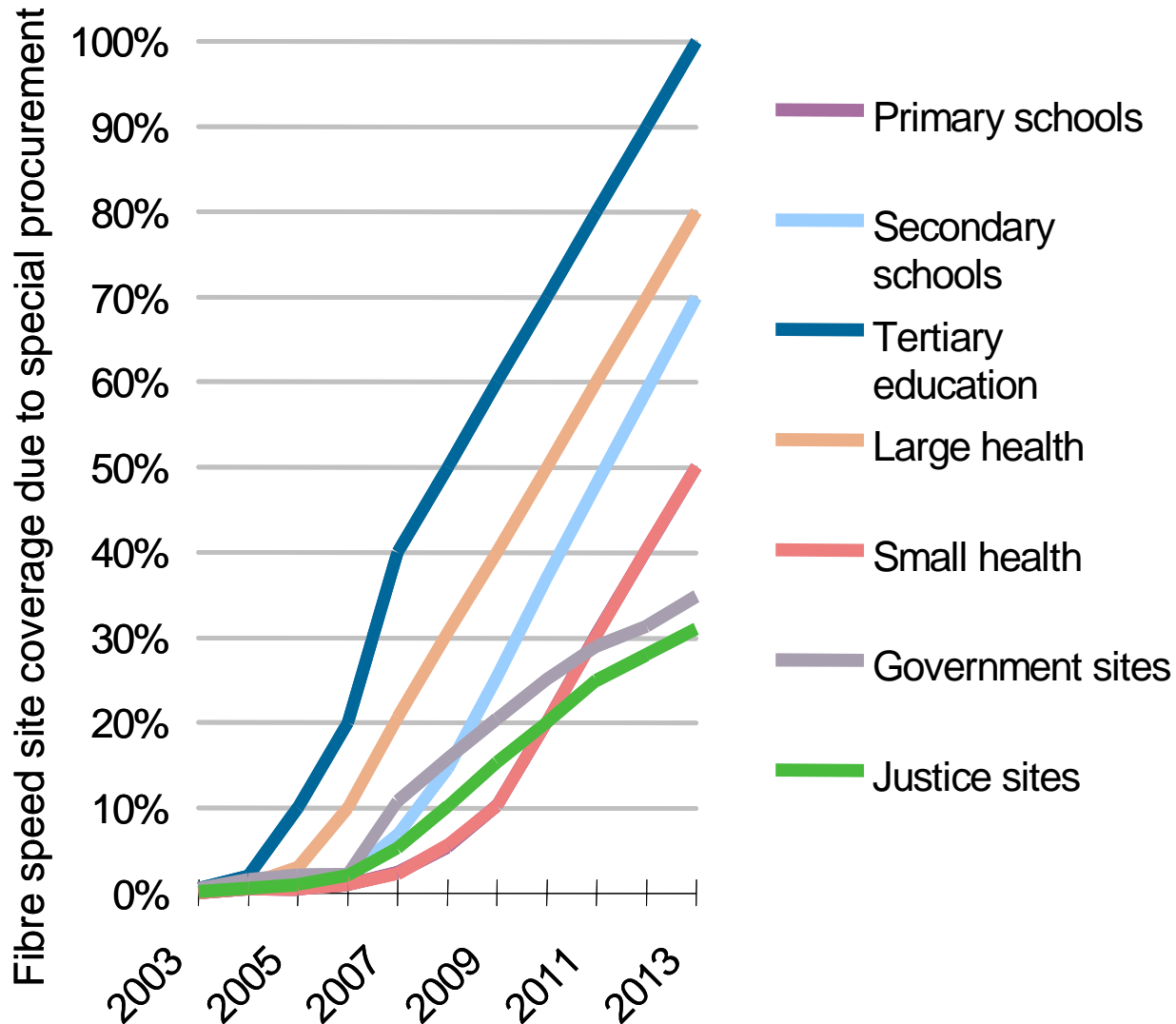
Cumulative cashflow before financing

Operator cash balance (post-financing)

Total debt balance

Cumulative cashflow after interest payments and grants

RM millions

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Public sector cashflow profile for the procurement of aggregated broadband services

Legend:
- Cumulative service fees
- Cumulative capital outflow
- Cumulative interest and principal payments received
- Cumulative net cash outlfow
- Remaining debt balance

RM millions

0

-1,000

2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013

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Forecast midband coverage of public sites due to special procurement

Y-axis: Midband site coverage due to special procurement (0% to 100%)

X-axis: 2003, 2005, 2007, 2009, 2011, 2013

Legend:
- Primary schools
- Secondary schools
- Tertiary education
- Large health
- Small health
- Government sites
- Justice sites

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Forecast fibre speed coverage
of public sites due to special procurement

Action Area 3 – Supply-side interventions

Measures and financial incentives to encourage infrastructure deployment

AA3.1	Assess supply-side capital financing incentives
AA3.2	Facilitate introduction of low-cost broadband satellite services
AA3.3	Encourage establishment of a national telehouse and broadband exchange(s)
AA3.4	Establish a pre-registration scheme for broadband customers
AA3.5	Provide funding to subsidise coverage in areas not served

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Action Area 4 – Regulatory changes
Initiatives to encourage investment and innovation

| AA4.1	Improve Internet peering
AA4.2	Consider regulating the provision of wholesale private circuits
AA4.3	
AA4.4	Resolve radio spectrum issues
AA4.5	Consider introduction of wholesale equivalent to retail broadband services
AA4.6	Harmonise NBP interaction with USP programme
AA4.7	Consult on the need for additional regulatory changes

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Proportion of Capital costs for NBP
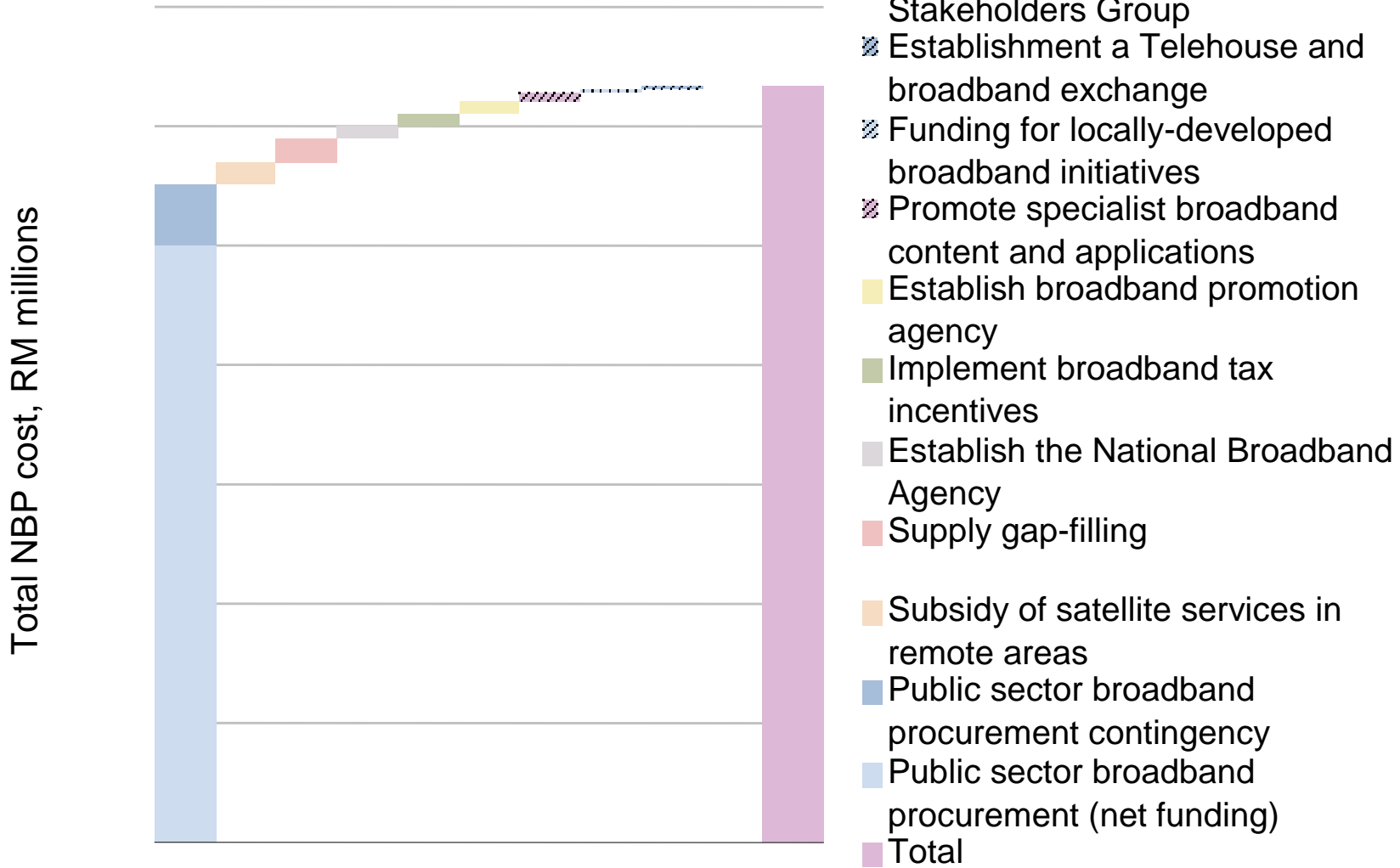
Summary of Government's Role

In promoting Broadband
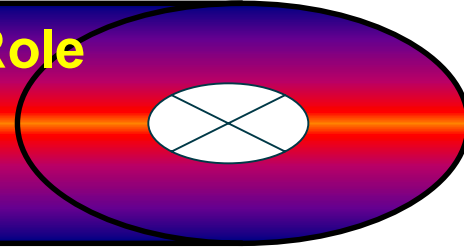
- **Transparent, Technologically neutral, Competitive & non-discriminatory environment**

- **Funded by a mixture of public and private investments**

- **Government/public sector demand driven with minimum distortion to the market place**

- **Prioritise public sector broadband demand - schools and healthcare?**

- **Think out of the box - NBP is for ten years 2003-2012 but aspires to reach global hub status by 2007 with 50% household penetration rate**

- **Fully integrated with 8 Malaysia Plan & 9 Malaysia Plan**

- **Matched to the strategic needs of economy and society and to reflect different dynamics of stakeholders, infrastructure , service and application & content**

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THANK YOU

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MALAYSIAN COMMUNICATIONS AND MULTIMEDIA COMMISSION