

World Bank Group Sustainable Infrastructure Action Plan

TRANSPORTATION



WATER & SANITATION



INFORMATION & COMMUNICATIONS TECHNOLOGY



ENERGY

Jae So

Manager, Water and Sanitation Program (WSP)

Energy, Water and Transport Department

Sustainable Development Vice Presidency

The World Bank

Today's presentation outline

- **Context: Infrastructure Critical to Poverty Alleviation**
 - **WB Infrastructure Action Plan (IAP)**
- **Emerging Challenges**
- **WBG Sustainable Infrastructure Action Plan (SIAP)**

Infrastructure critical for poverty alleviation

Growth

Infrastructure Critical to Growth

- § Power load shedding in S. Asia is estimated to cost 1 -2% GDP/ year
- § Poor road maintenance increases vehicle operating costs by approx. 2x to 3x
- § Self supply of WSS costs 2 to 5 x network costs
- § Business surveys (Africa/Asia) cite power & telecom among top 5 constraints to expansion
- § 10% increase in teledensity leads to 0.6% growth in GDP

Poverty & MDG Impact

Impact on Education

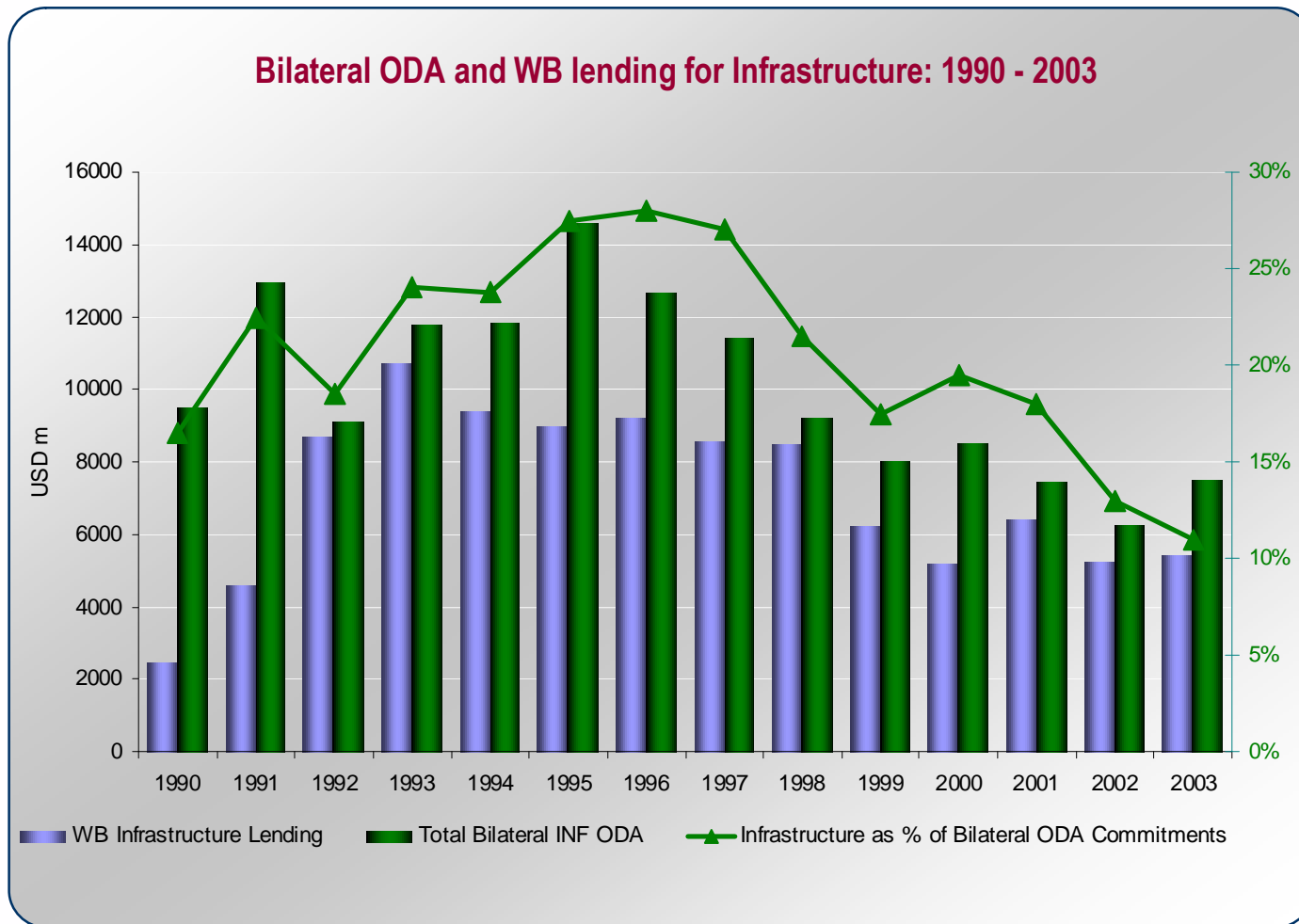
- § The construction of an all-weather road in rural communities in Morocco increased girls' primary school attendance from 28% to 68%

Impact on Health and Poverty

- § The completion of networked water and sanitation services in Ahmadabad, India increased local women's daily profits from vegetable farming by ~ US\$1 per day and reduced the incidence of disease by 75%
- § Modern fuel sources and renewable energy can improve environmental conditions and help reduce the incidence of respiratory illness

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Bilateral ODA for Infrastructure declined to less than \$8 billion in 2003

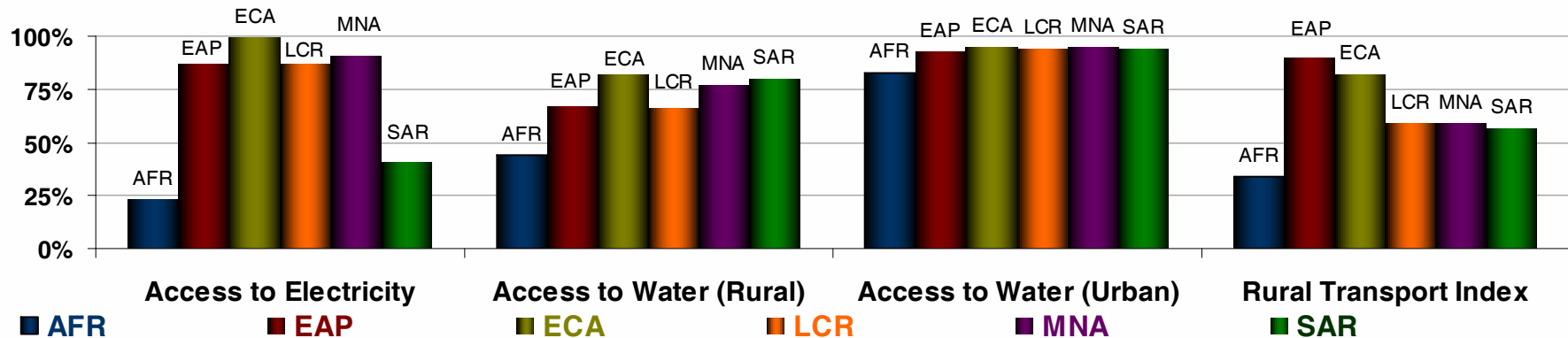


**WB lending
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Gaps in access and financing compounded by policy gaps

Access Gap: Large proportion of population in low income countries still lacks access to basic infrastructure services



Financing Gap

Current spending on infrastructure: 3-4% GDP

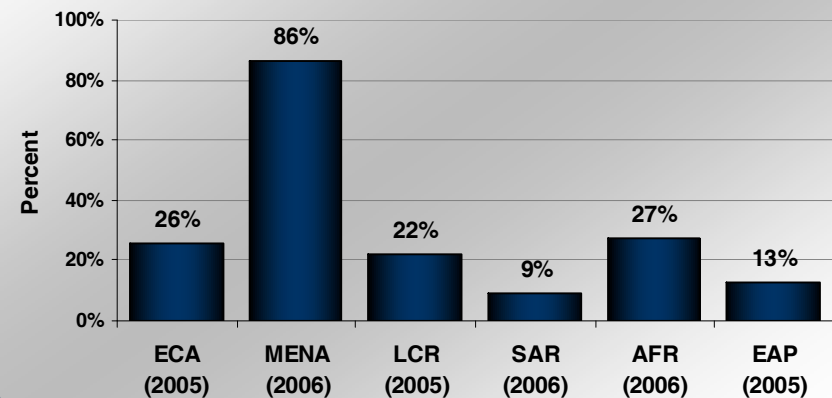
Required spending: 7-9% of GDP

Estimates could exceed \$900 billion/ year, including electricity transmission and distribution, wastewater treatment, urban transport, ports & airports, oil & gas infrastructure

Policy and Institutional Gap

More effective public & private infrastructure service delivery possible with improvements in policy and institutions

Percent of Firms stating that uncertainty about economic and regulatory policy is a major or severe obstacle to the operations and growth of their business



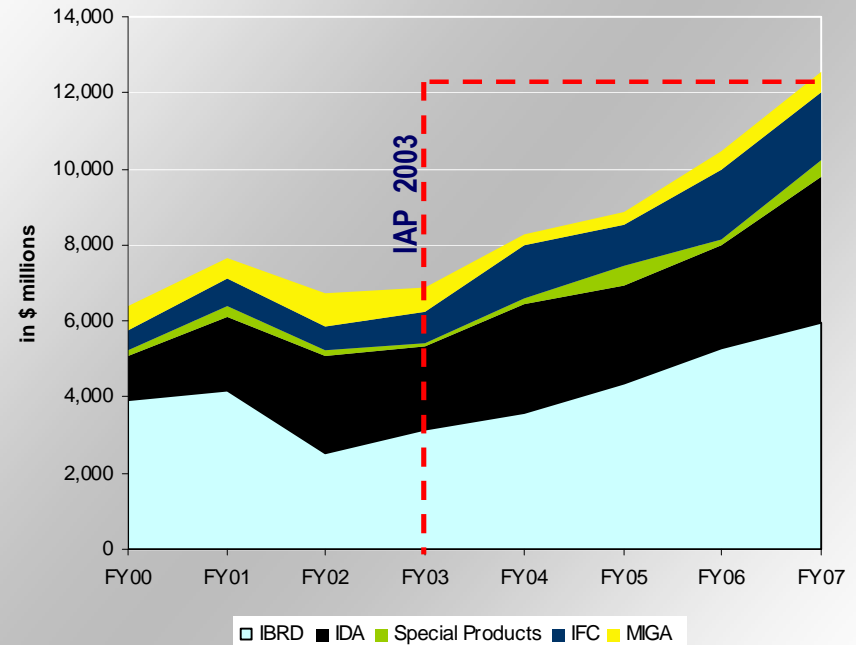
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IAP 2003: World Bank Group “Back in Business”

Three Components of IAP:

- § Respond to increased client demand for infrastructure
- § Rebuild knowledge base
- § Strengthen Bank Group’s instruments and approach to meet emerging client demands
 - New instruments
 - New ways of working together

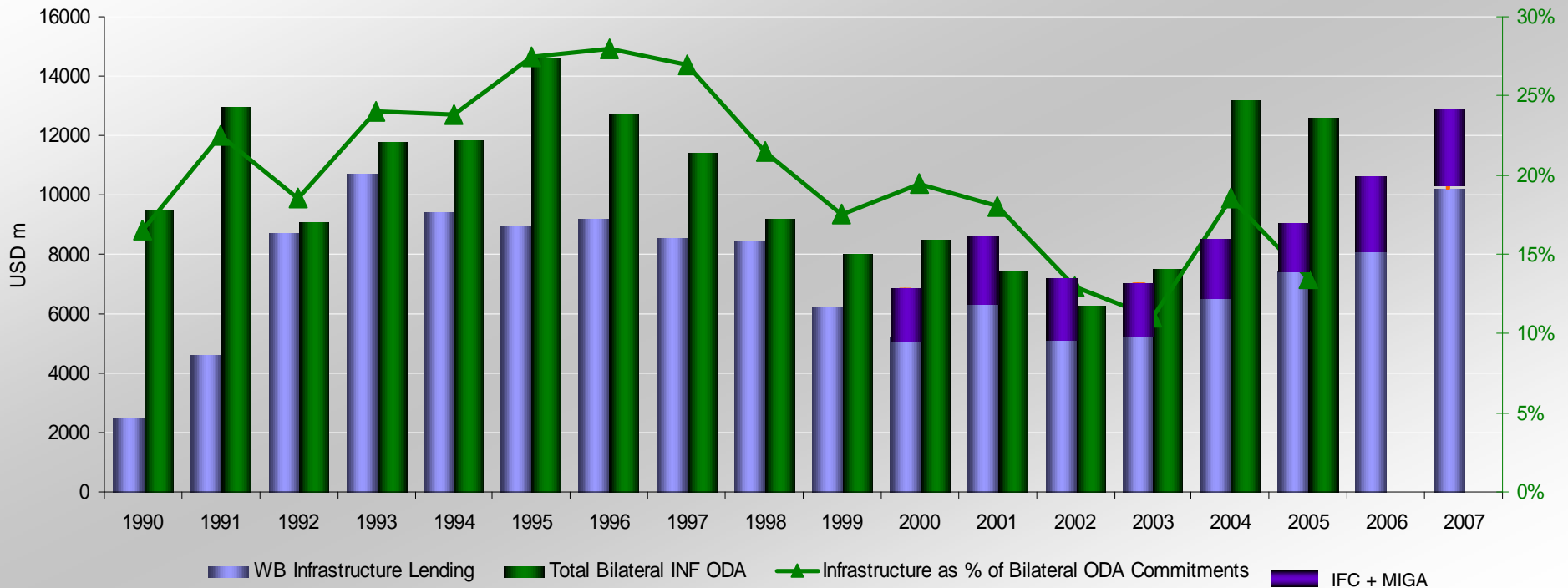
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Working with donors to leverage resources for infrastructure

Bilateral ODA and WBG Lending for Infrastructure: 1990 - 2007



- WBG response confirmed importance of infrastructure to growth and poverty reduction
- Commitment to scaling up support for infrastructure & promote further harmonization

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ADDRESSING CLIMATE CHANGE

is central to development with significant implications for infrastructure planning, management and delivery

RISING ENERGY PRICES

place a premium on diversification, end-use efficiency, and spatial planning

RAPIDLY CHANGING TECHNOLOGIES

bring new opportunities to change the development paradigm and provide new responses to development challenges

RAPID URBANIZATION

increases demand for infrastructure services

RISING FOOD PRICES

80% increase in global food prices over 36 months leading up to February 2008. Increased focus on food security for rural and urban population

GLOBALIZATION & TRADE

of goods and services presents enormous opportunities for developing countries with infrastructure

CHANGING AID ARCHITECTURE

Proliferation of aid channels, ODA fragmentation, earmarking of aid, and emerging new donors

INCREASED PRIVATE INVESTMENT

in emerging markets, especially through local and south-south investments



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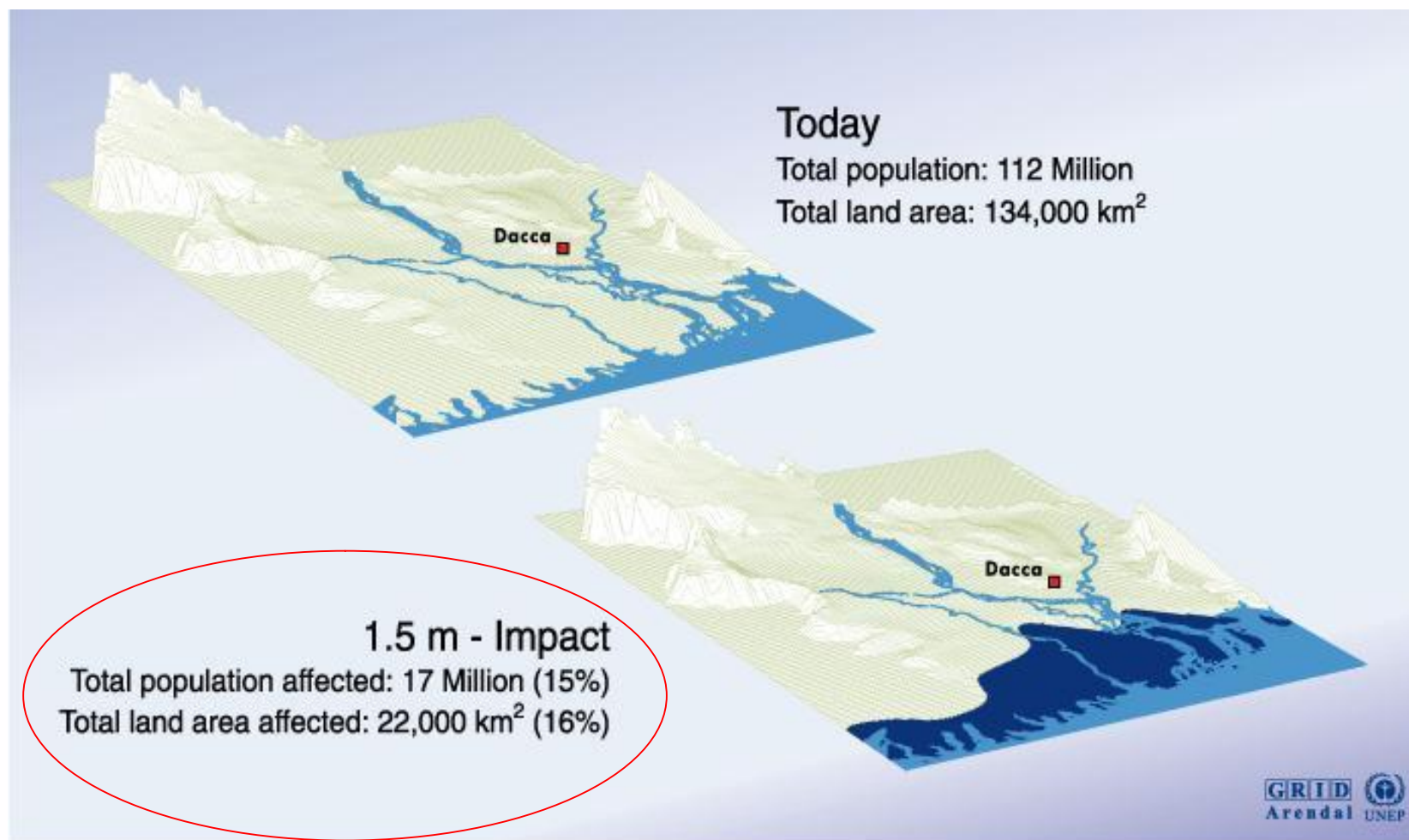
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Climate Risks and Development: “Poor Countries in Danger”

Low Income		Middle Income		High Income	
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Mozambique	Mozambique	Moldova	Indonesia	Philippines	Zambia
Niger	Laos	Mongolia	Mauritania	Egypt	Morocco
Mauritania	Pakistan	Haiti	China	Brazil	Niger
Eritrea	Sri Lanka	Samoa	Mexico	Venezuela	India
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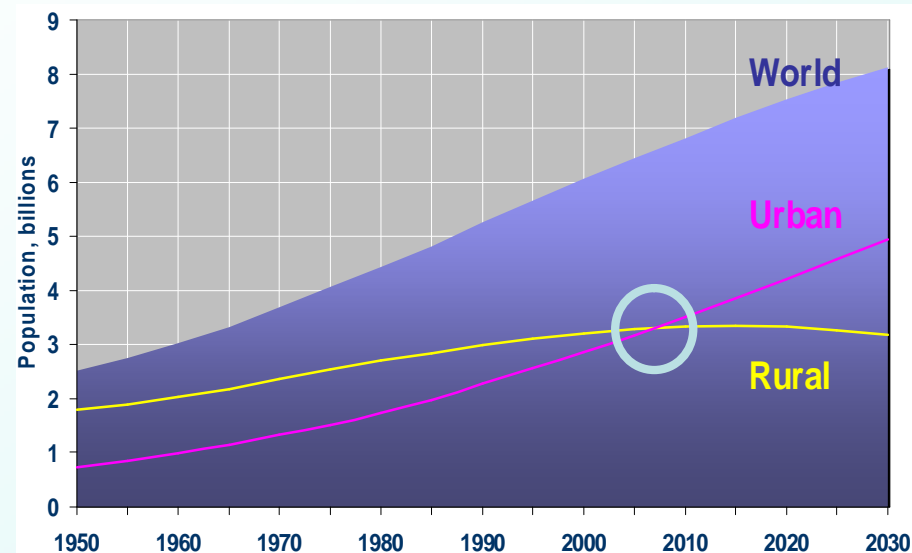


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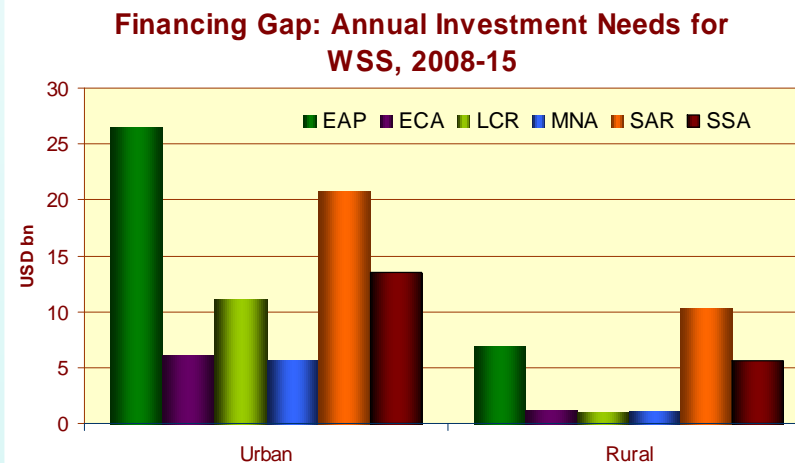
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- § Peri-Urban: About 75% of the population growth over the next 15 years will be in cities of less than 5 million inhabitants, with over 50% in cities under 1 million where services are already in short supply and of poor quality
- § Urban Poor: Rapid growth of slums is also a major area of concern because High density and inadequate urban planning makes the provision of sanitation services in slums a particularly difficult challenge



Urban populations growing rapidly; further widening the WSS financing gap



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 - Maximize effectiveness through cross sectoral synergies
 - Mainstream sustainability
 - Leverage public and private financing for infrastructure

Sustainable Infrastructure Action Plan (SIAP) close linkage with Strategic Framework for Climate Change (SFCC)



Infrastructure service delivery at the core of food security, energy security and climate change agenda

Climate Change

IPCC concluded that warming of the climate system is “unequivocal” and very likely due to the observed increase in anthropogenic GHG emissions

Energy

Energy sector accounts for 80% of GHG emissions

\$3.5 billion WBG financing for energy for low carbon projects

- § Renewable Energy and Energy Efficiency
- § Power Plant Rehabilitation
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- § High Efficiency Thermal

Supports transition to low carbon economy, esp. G5 countries

Water

Adaptation is critical for irrigation, water supply and hydropower

Stepped up assessments of impact of hydrologic variability on water management and services

Restoration and protection initiatives for coastal zone management and coastal assets

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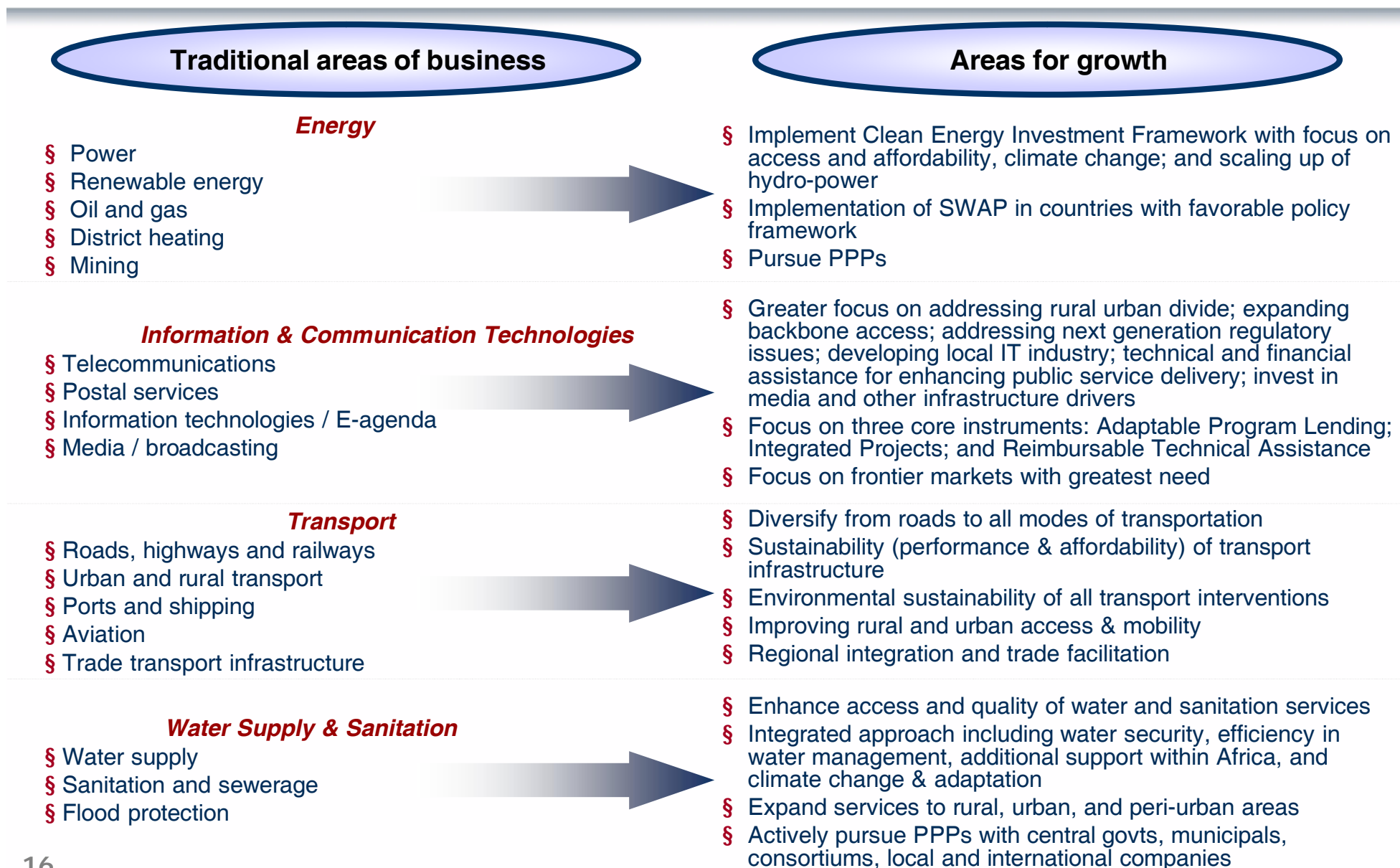
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Motorization grows exponentially w/ urbanization

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Core sectors will continue to support closing the access gap



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Deputy Minister (Energy), Norway (2008)

MITIGATION

Hydropower:

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- is a mature technology
- has ancillary benefits, such as system stability, peaking capability
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Multi-purpose Hydro:

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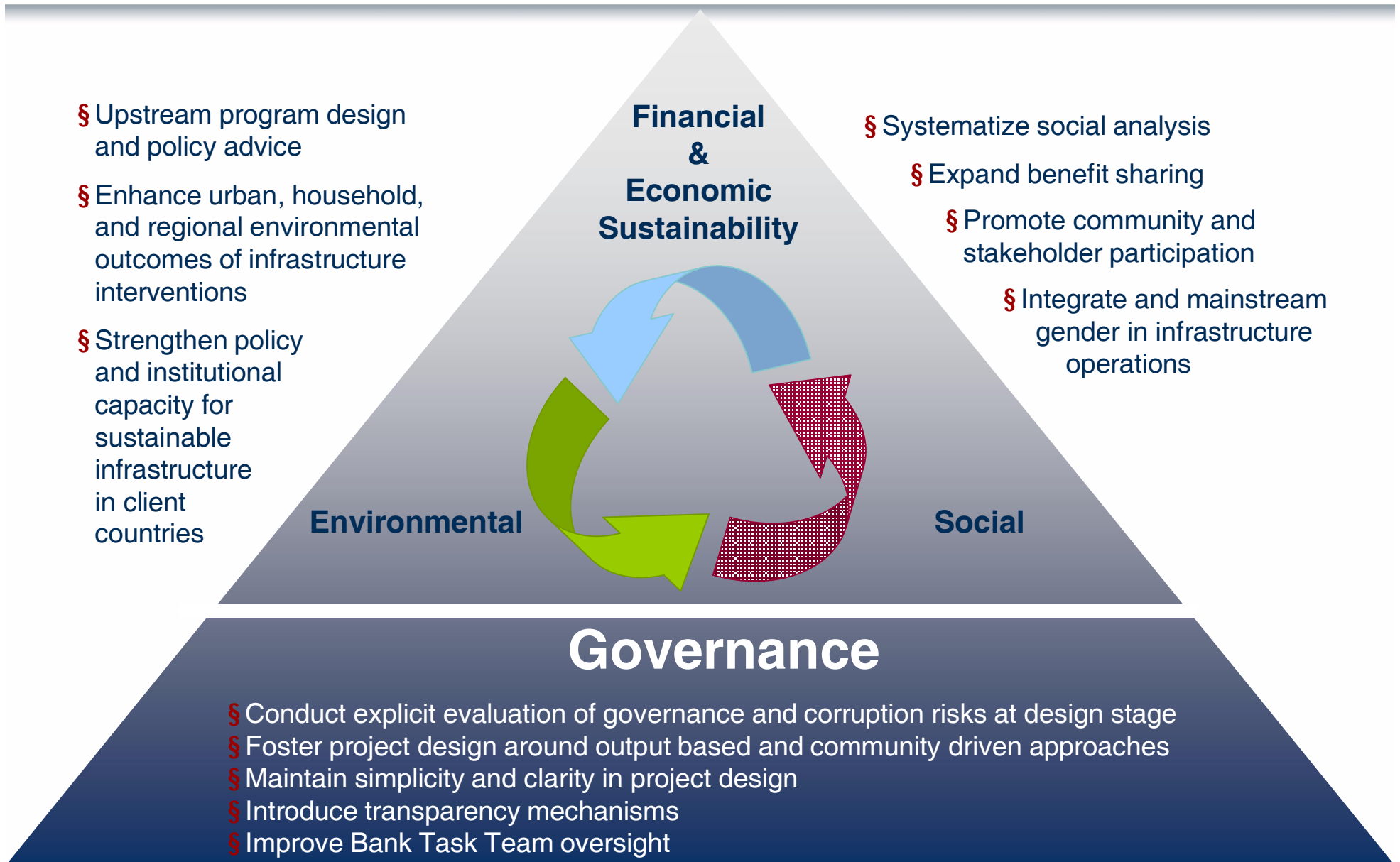
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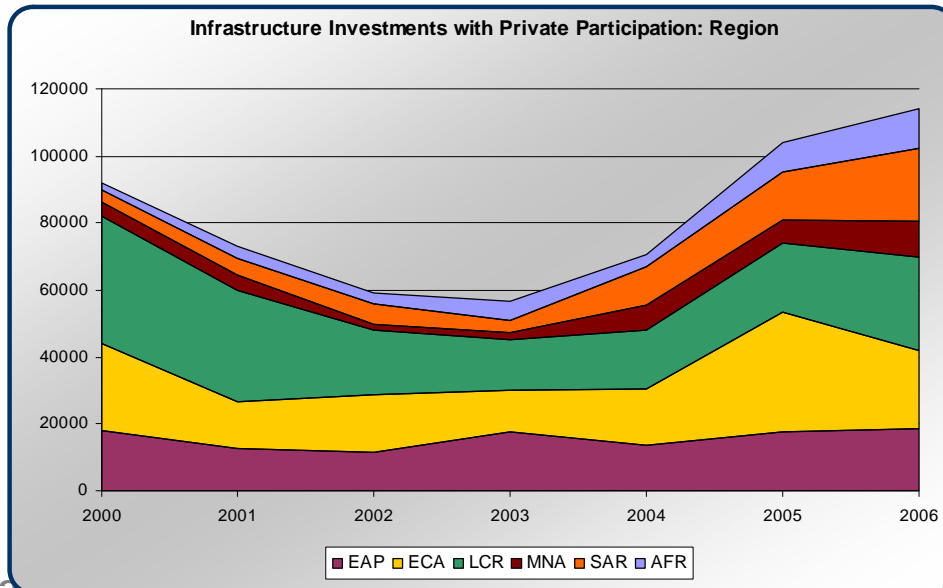
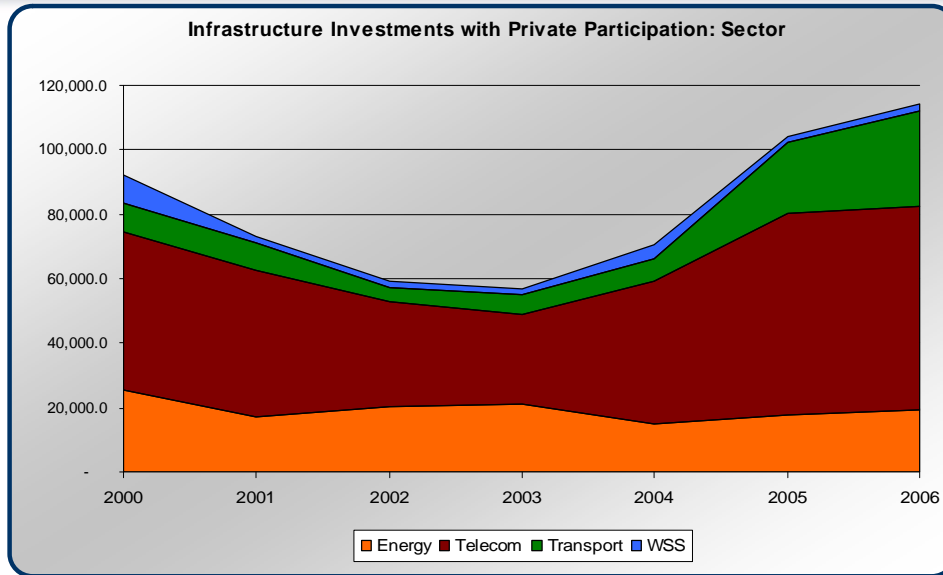
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- § Tlalnepantla/Mexico where the Bank's Decentralization & Structural Adjustment operations helped put in place a adequate conditions for IFC bond issue

WB Infrastructure Response to Crisis

Core action points for Infrastructure Response:

1. Protect existing infrastructure assets
2. Preserve and refocus the infrastructure pipeline
3. Support PPPs in infrastructure
4. Maintain focus on the longer-term project pipeline

Supported through IDA Fast Track Facility

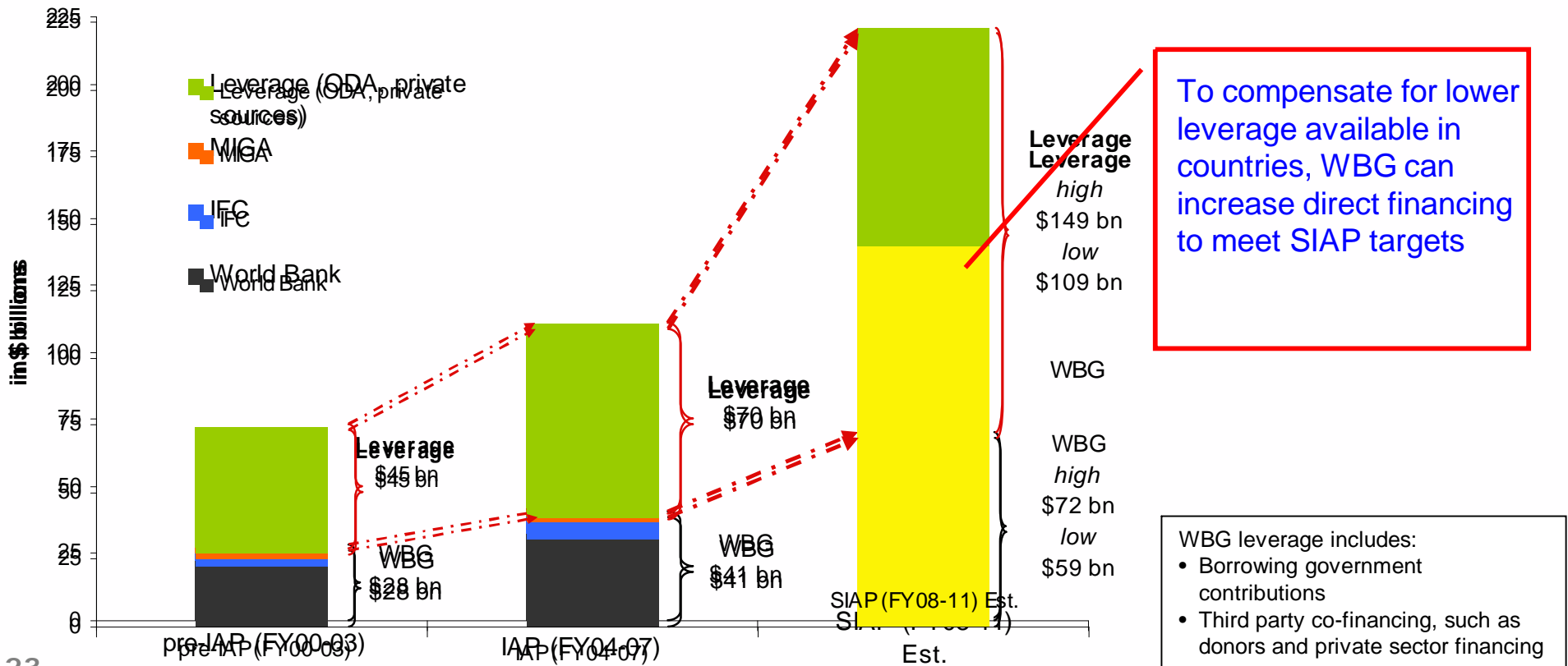
Supported through IBRD capital base

Market Assessments ongoing

WBG SIAP Forecasts FY09-11

Under SIAP WBG committed to **financing between \$59 and \$72 billion** and **leverage an additional \$109 to \$149 billion**.

Under current market conditions, assess potential additional demand from countries.



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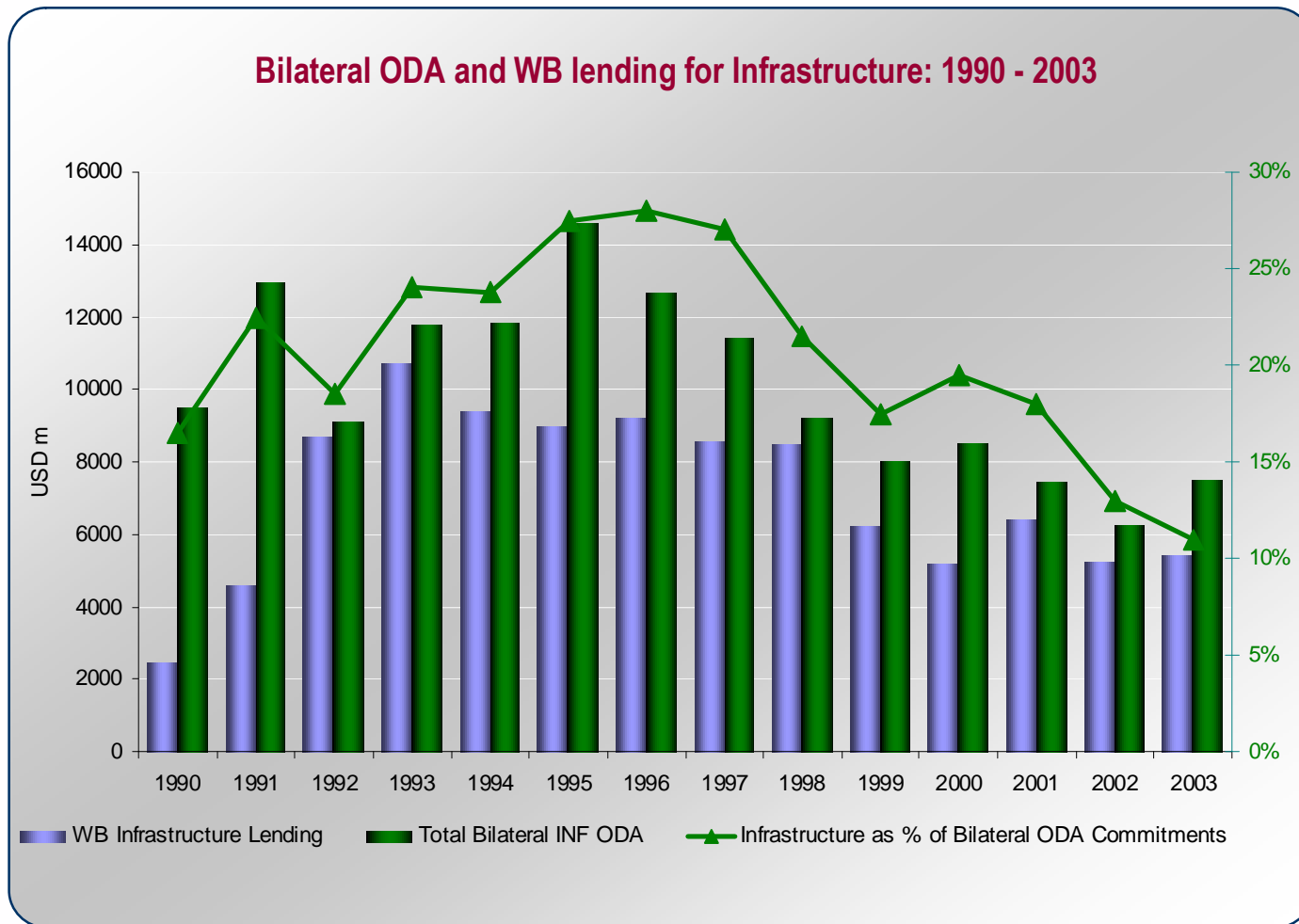
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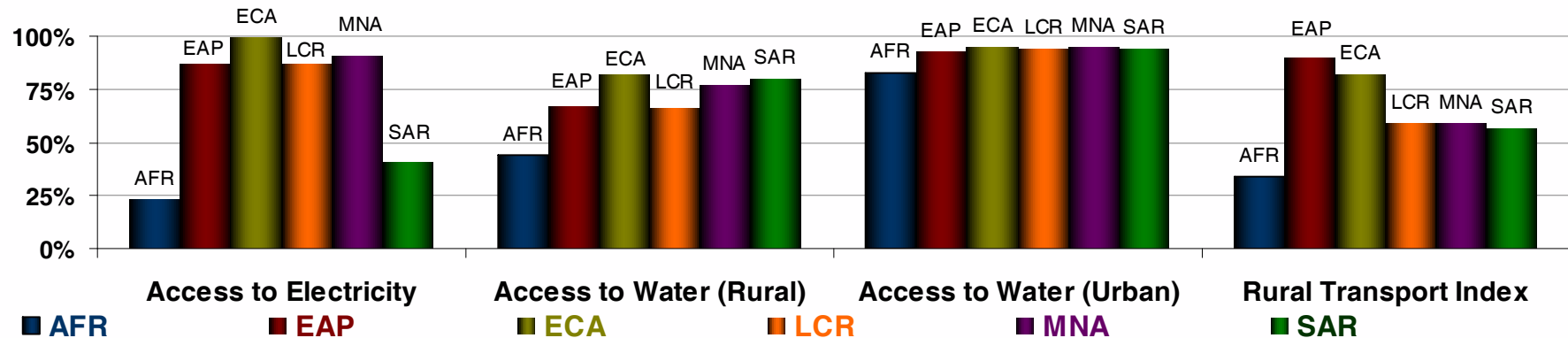


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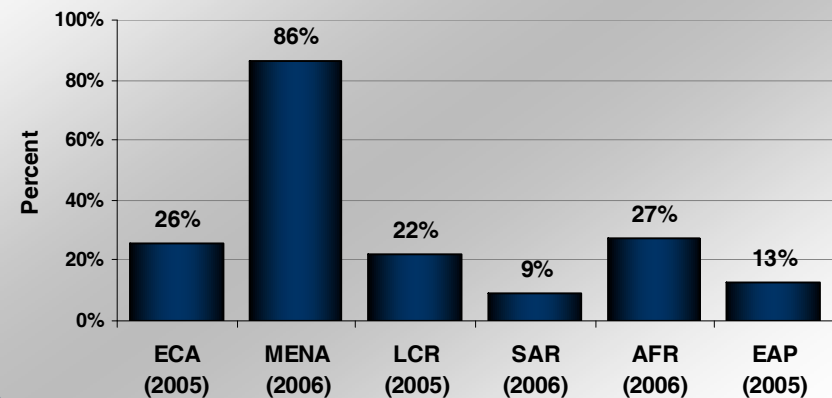
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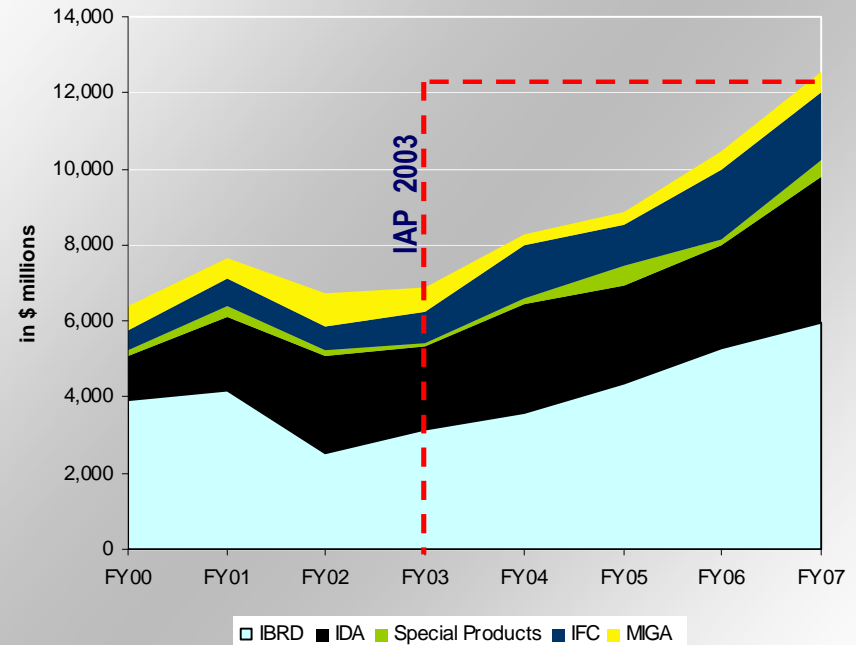
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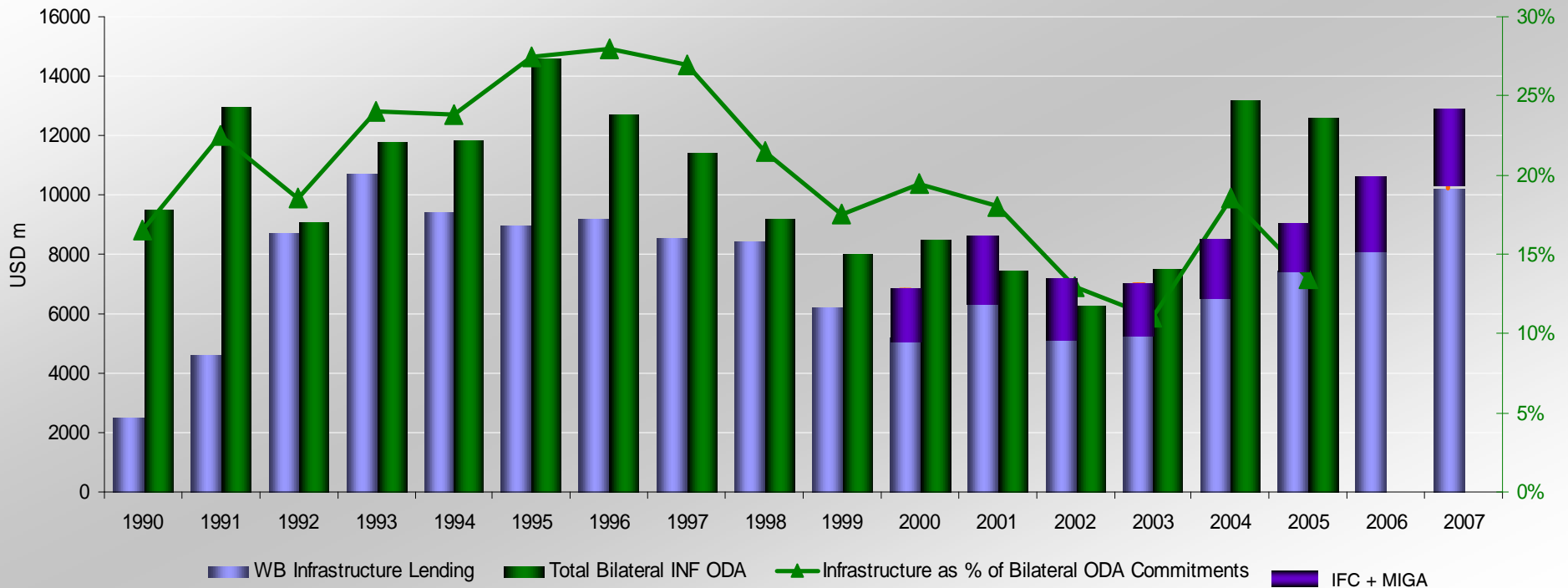
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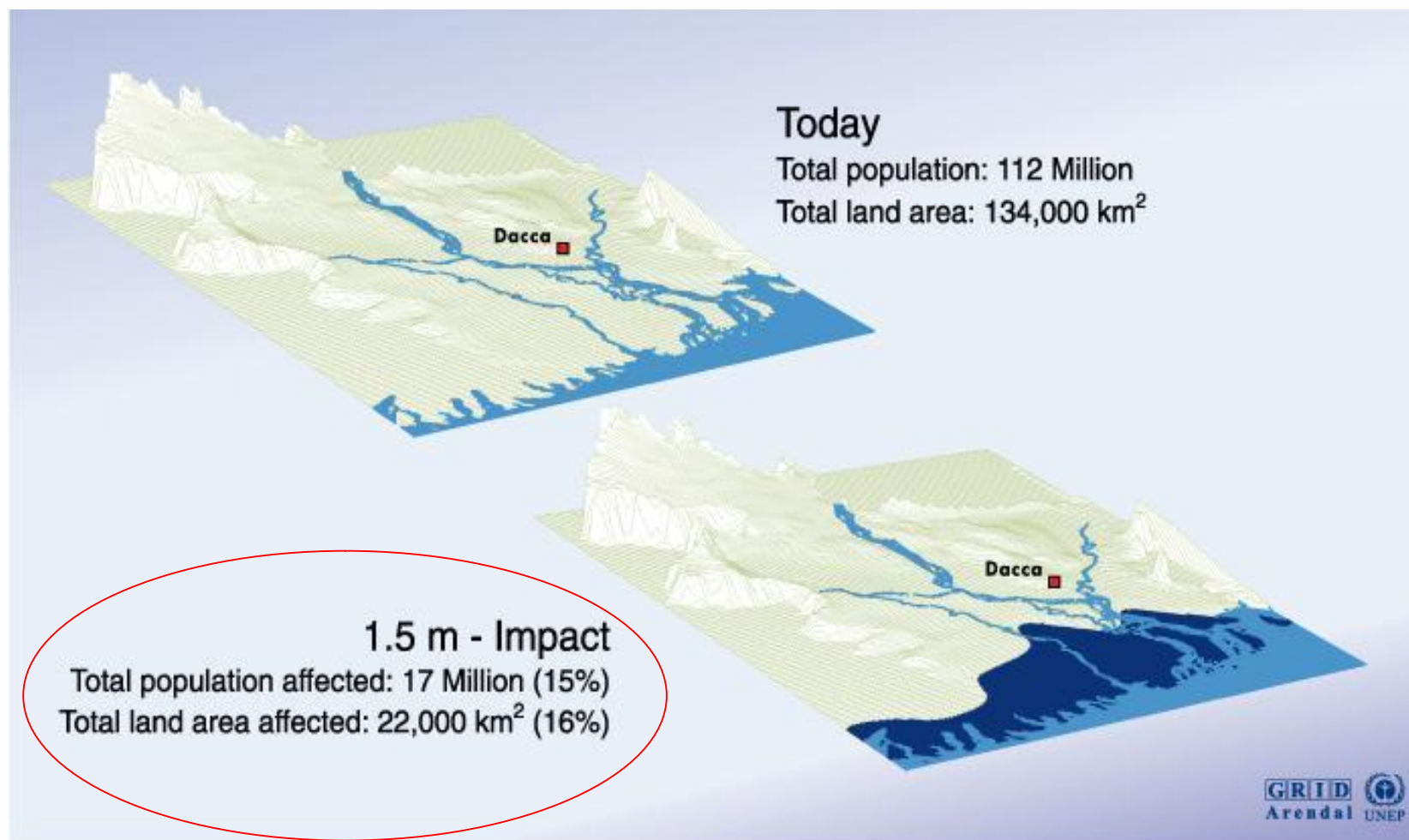
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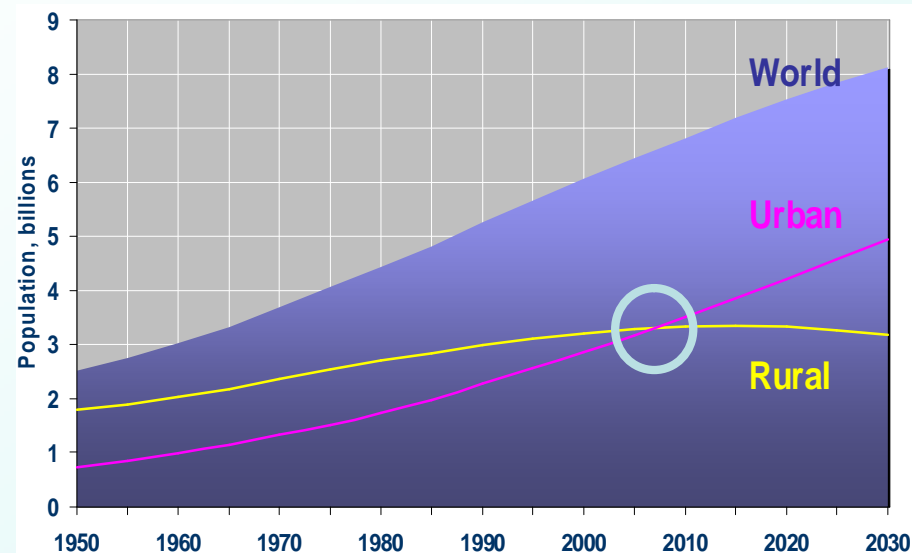


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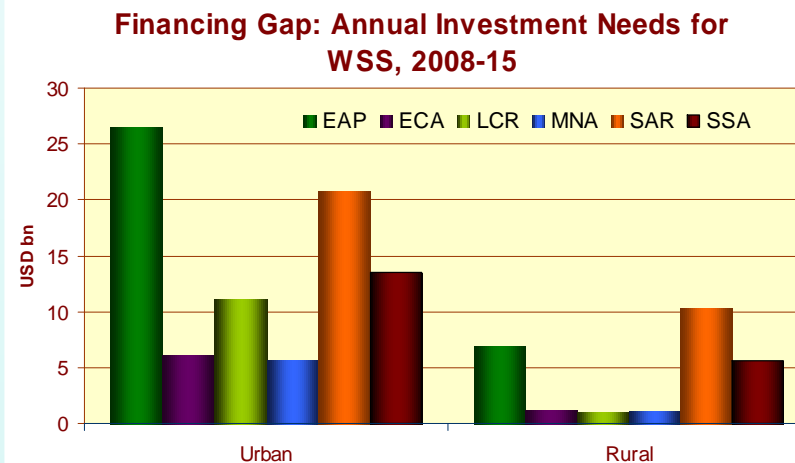
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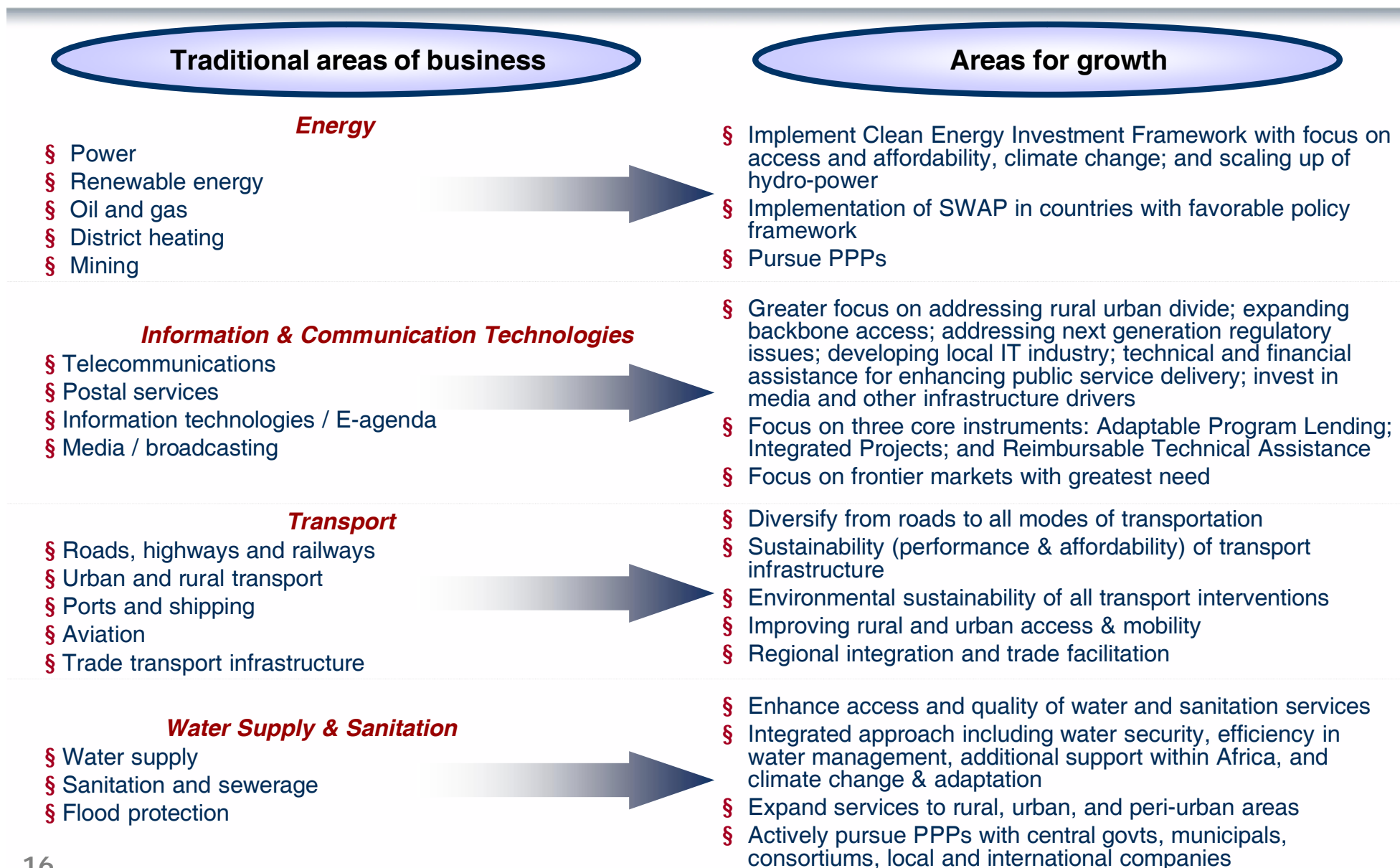
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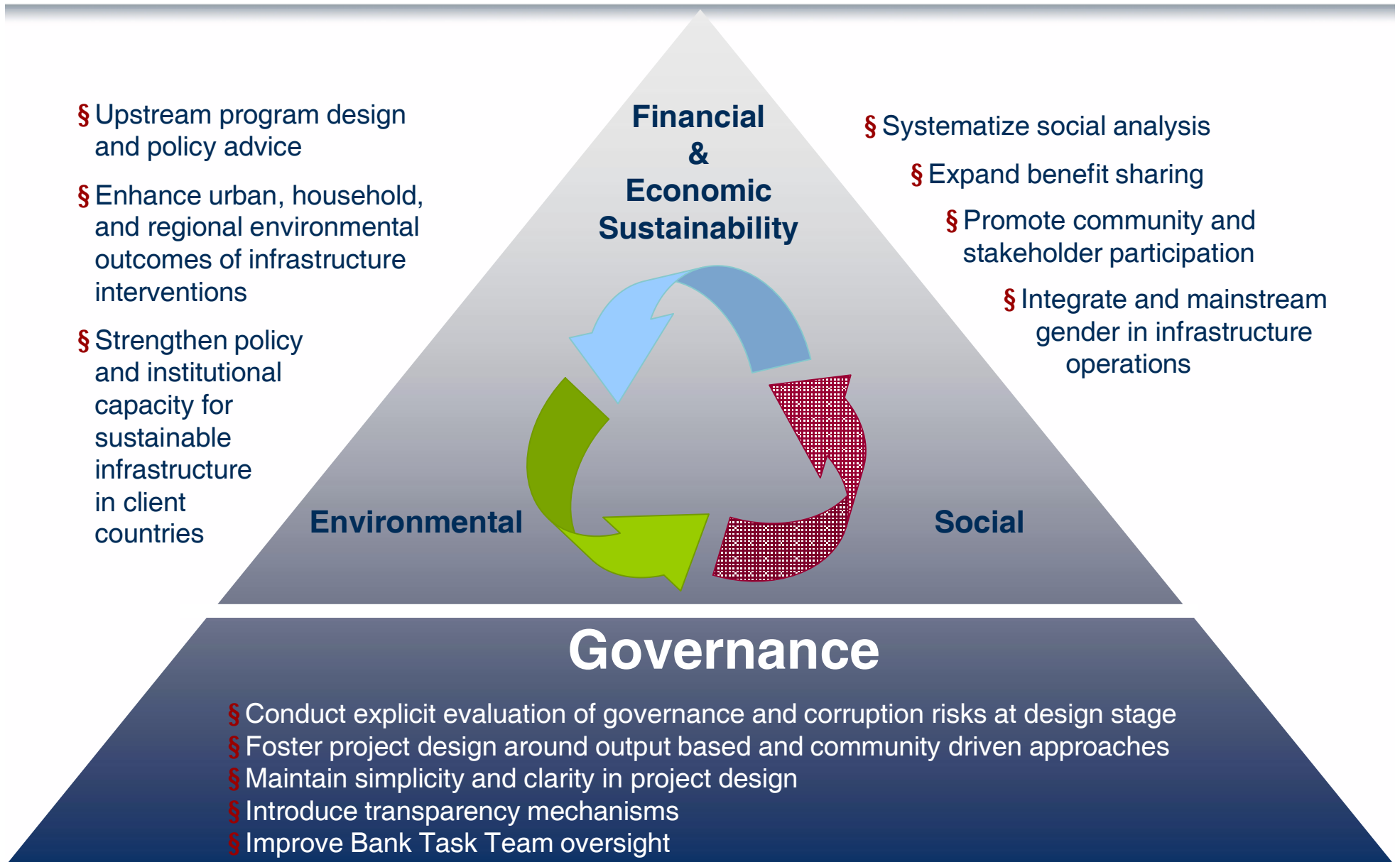
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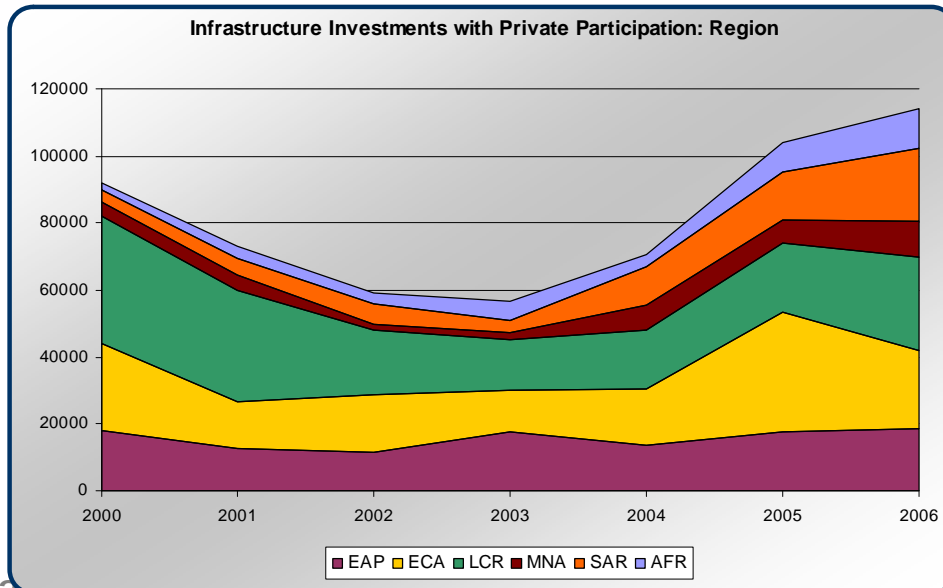
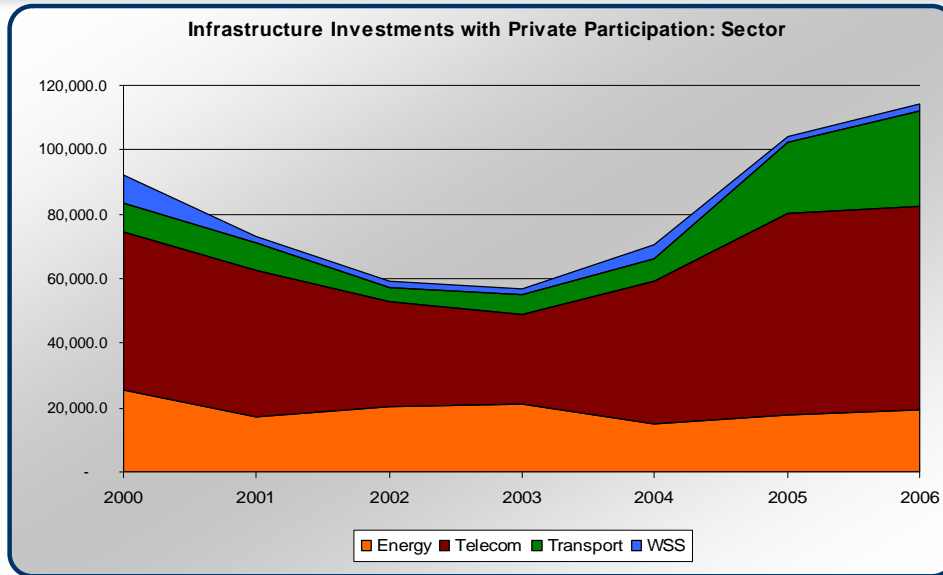
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Core action points for Infrastructure Response:

1. Protect existing infrastructure assets
2. Preserve and refocus the infrastructure pipeline
3. Support PPPs in infrastructure
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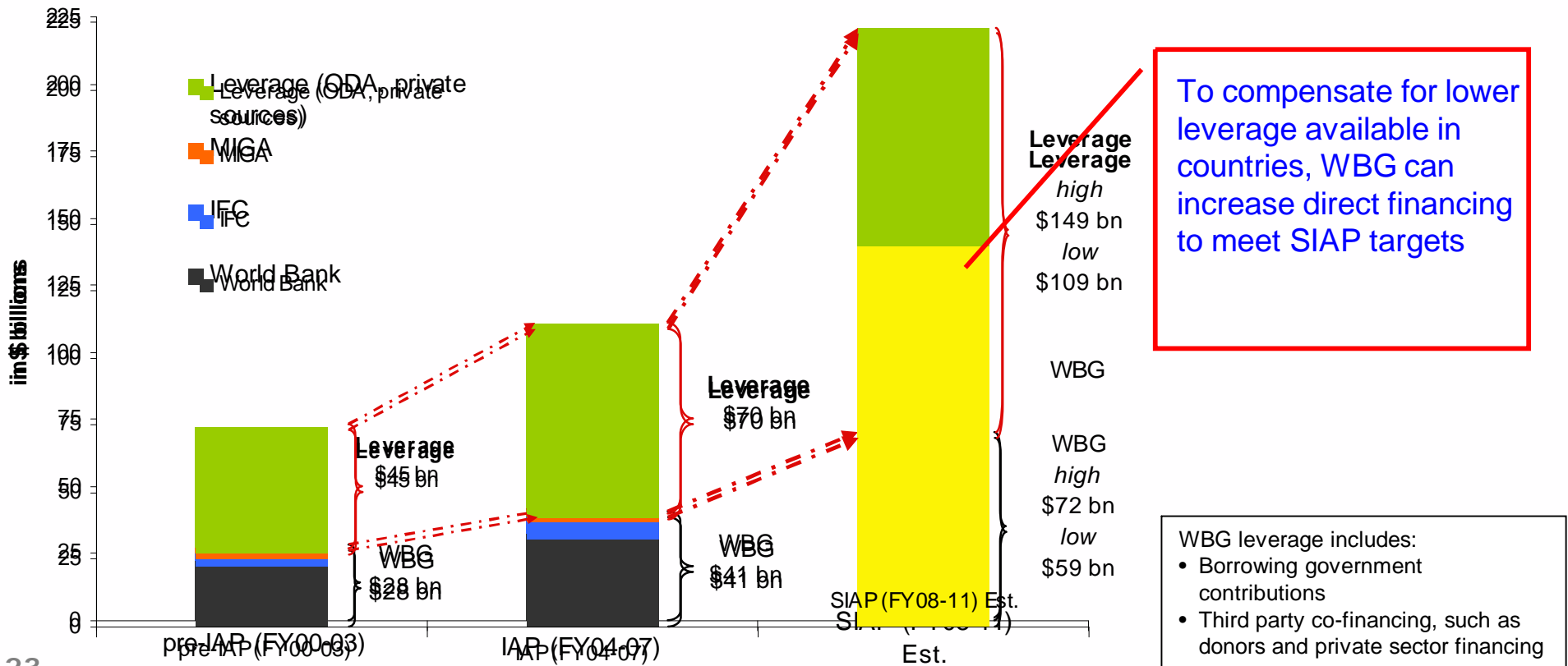
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Market Assessments ongoing

WBG SIAP Forecasts FY09-11

Under SIAP WBG committed to **financing between \$59 and \$72 billion** and **leverage an additional \$109 to \$149 billion**.

Under current market conditions, assess potential additional demand from countries.



World Bank Group Sustainable Infrastructure Action Plan

TRANSPORTATION



WATER & SANITATION



INFORMATION & COMMUNICATIONS TECHNOLOGY



ENERGY

Jae So

Manager, Water and Sanitation Program (WSP)

Energy, Water and Transport Department

Sustainable Development Vice Presidency

The World Bank

Today's presentation outline

- **Context: Infrastructure Critical to Poverty Alleviation**
 - **WB Infrastructure Action Plan (IAP)**
- **Emerging Challenges**
- **WBG Sustainable Infrastructure Action Plan (SIAP)**

Infrastructure critical for poverty alleviation

Growth

Infrastructure Critical to Growth

- § Power load shedding in S. Asia is estimated to cost 1 -2% GDP/ year
- § Poor road maintenance increases vehicle operating costs by approx. 2x to 3x
- § Self supply of WSS costs 2 to 5 x network costs
- § Business surveys (Africa/Asia) cite power & telecom among top 5 constraints to expansion
- § 10% increase in teledensity leads to 0.6% growth in GDP

Poverty & MDG Impact

Impact on Education

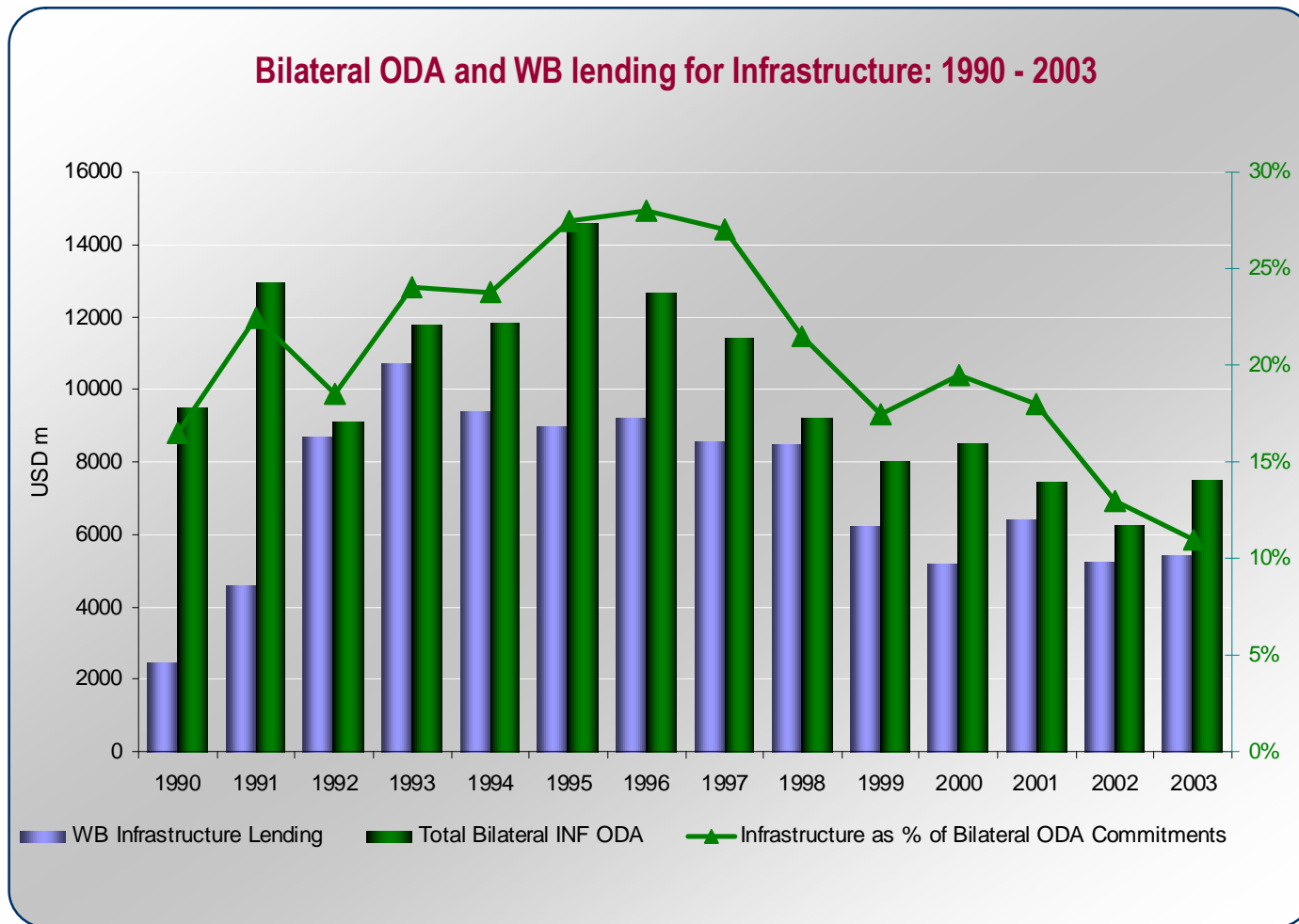
- § The construction of an all-weather road in rural communities in Morocco increased girls' primary school attendance from 28% to 68%

Impact on Health and Poverty

- § The completion of networked water and sanitation services in Ahmadabad, India increased local women's daily profits from vegetable farming by ~ US\$1 per day and reduced the incidence of disease by 75%
- § Modern fuel sources and renewable energy can improve environmental conditions and help reduce the incidence of respiratory illness

Context

Bilateral ODA for Infrastructure declined to less than \$8 billion in 2003

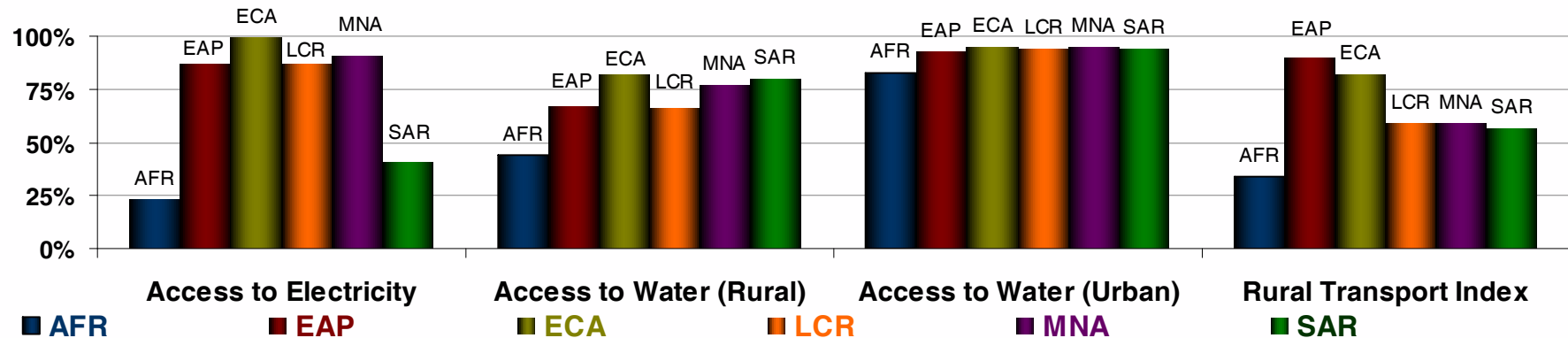


**WB lending
also
declined
during
same period**

Context

Gaps in access and financing compounded by policy gaps

Access Gap: Large proportion of population in low income countries still lacks access to basic infrastructure services



Financing Gap

Current spending on infrastructure: 3-4% GDP

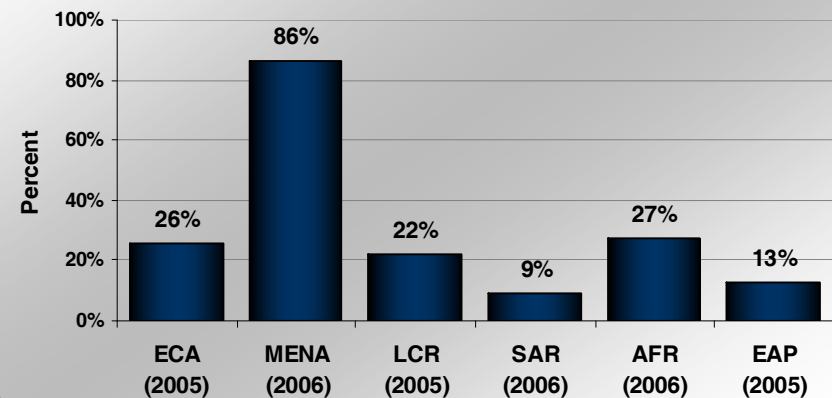
Required spending: 7-9% of GDP

Estimates could exceed \$900 billion/ year, including electricity transmission and distribution, wastewater treatment, urban transport, ports & airports, oil & gas infrastructure

Policy and Institutional Gap

More effective public & private infrastructure service delivery possible with improvements in policy and institutions

Percent of Firms stating that uncertainty about economic and regulatory policy is a major or severe obstacle to the operations and growth of their business



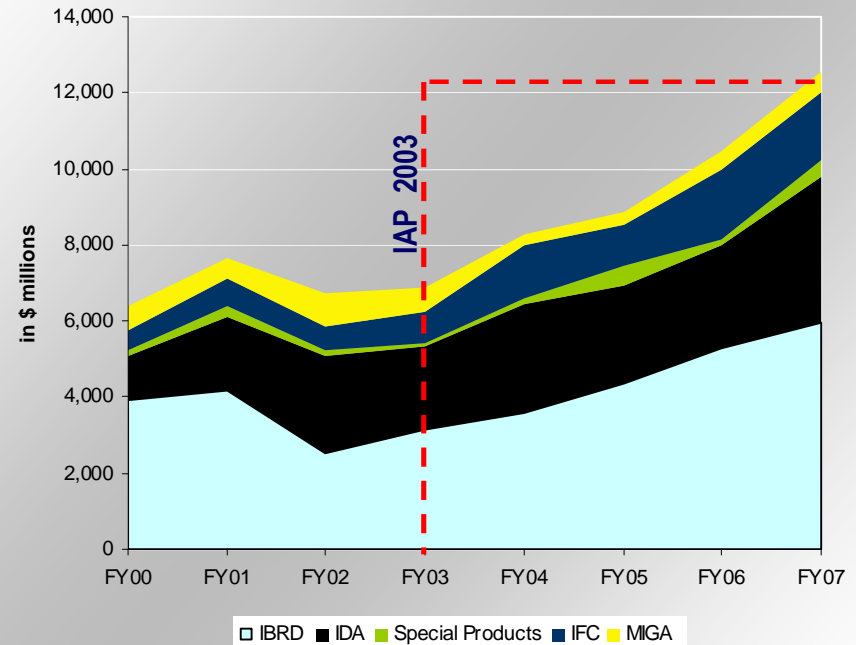
Context

IAP 2003: World Bank Group “Back in Business”

Three Components of IAP:

- § Respond to increased client demand for infrastructure
- § Rebuild knowledge base
- § Strengthen Bank Group’s instruments and approach to meet emerging client demands
 - New instruments
 - New ways of working together

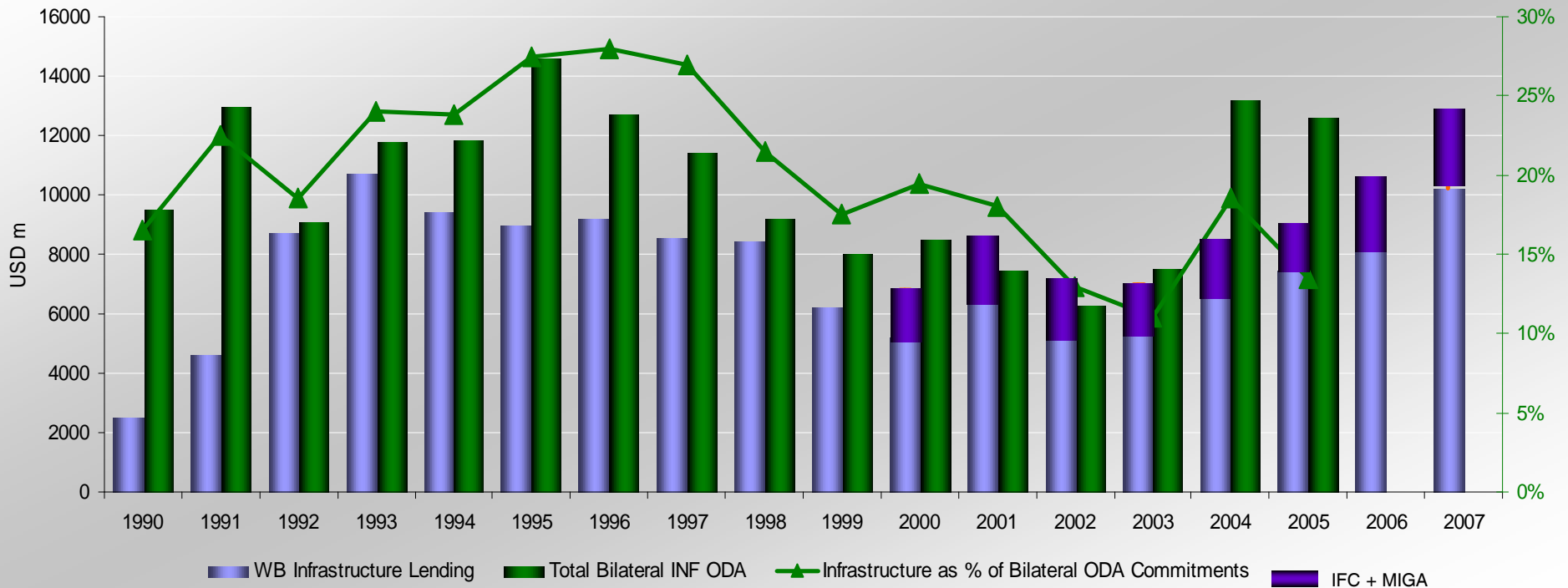
World Bank Group Infrastructure Financing



Context

Working with donors to leverage resources for infrastructure

Bilateral ODA and WBG Lending for Infrastructure: 1990 - 2007



- WBG response confirmed importance of infrastructure to growth and poverty reduction
- Commitment to scaling up support for infrastructure & promote further harmonization

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Rapidly Changing Global Dynamics

ADDRESSING CLIMATE CHANGE

is central to development with significant implications for infrastructure planning, management and delivery

RISING ENERGY PRICES

place a premium on diversification, end-use efficiency, and spatial planning

RAPIDLY CHANGING TECHNOLOGIES

bring new opportunities to change the development paradigm and provide new responses to development challenges

RAPID URBANIZATION

increases demand for infrastructure services

RISING FOOD PRICES

80% increase in global food prices over 36 months leading up to February 2008. Increased focus on food security for rural and urban population

GLOBALIZATION & TRADE

of goods and services presents enormous opportunities for developing countries with infrastructure

CHANGING AID ARCHITECTURE

Proliferation of aid channels, ODA fragmentation, earmarking of aid, and emerging new donors

INCREASED PRIVATE INVESTMENT

in emerging markets, especially through local and south-south investments



INFRASTRUCTURE SERVICE DELIVERY

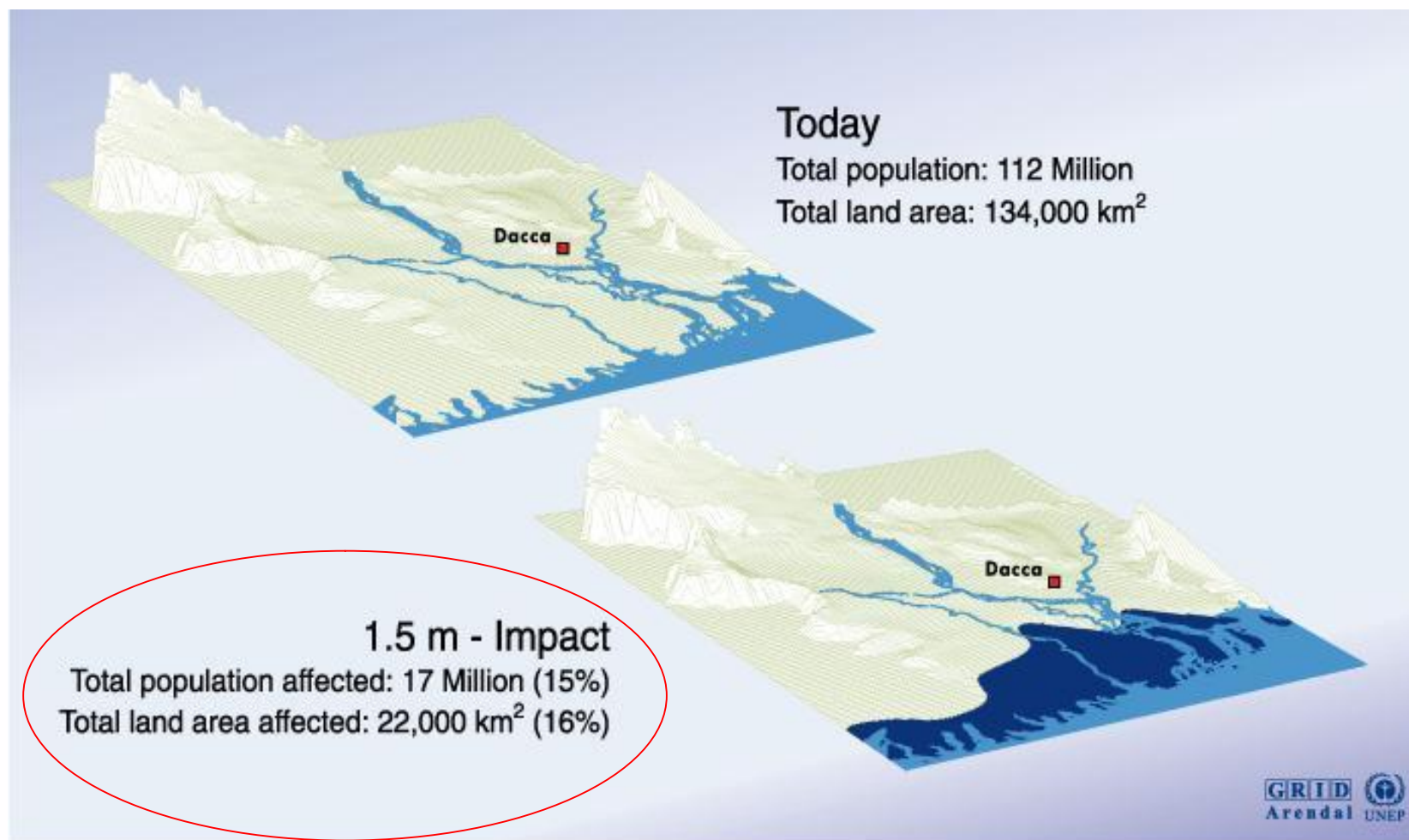
Emerging Challenges

Climate Risks and Development: “Poor Countries in Danger”

Low Income		Middle Income		High Income	
<i>Drought</i>	<i>Flood</i>	<i>Storm</i>	<i>Coastal 1m</i>	<i>Coastal 5m</i>	<i>Agriculture</i>
Malawi	Bangladesh	Philippines	All low-lying Island States	All low-lying Island States	Sudan
Ethiopia	China	Bangladesh	Vietnam	Netherlands	Senegal
Zimbabwe	India	Madagascar	Egypt	Japan	Zimbabwe
India	Cambodia	Vietnam	Tunisia	Bangladesh	Mali
Mozambique	Mozambique	Moldova	Indonesia	Philippines	Zambia
Niger	Laos	Mongolia	Mauritania	Egypt	Morocco
Mauritania	Pakistan	Haiti	China	Brazil	Niger
Eritrea	Sri Lanka	Samoa	Mexico	Venezuela	India
Sudan	Thailand	Tonga	Myanmar	Senegal	Malawi
Chad	Vietnam	China	Bangladesh	Fiji	Algeria
Kenya	Benin	Honduras	Senegal	Vietnam	Ethiopia
Iran	Rwanda	Fiji	Libya	Denmark	Pakistan

Emerging Challenges

Bangladesh: Likely Impact of Sea Level Rise on Low Lying Lands

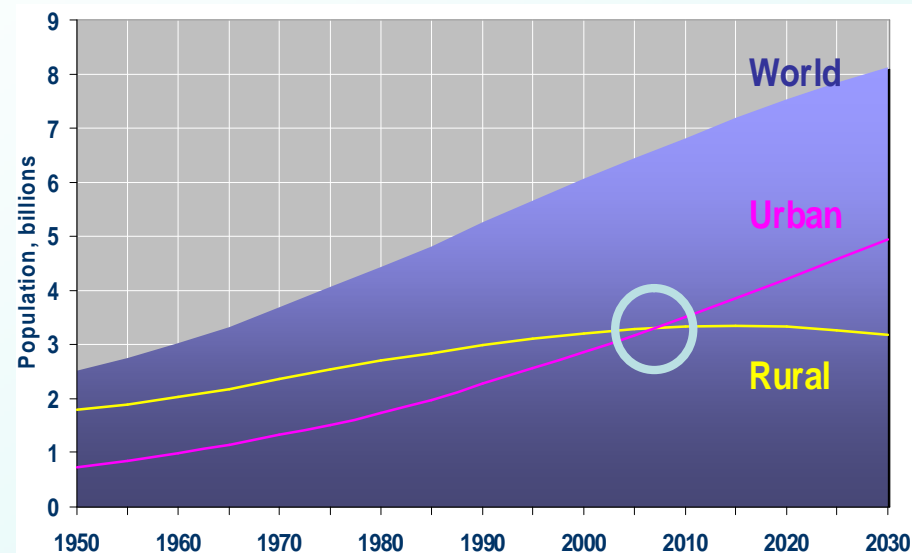


Source: UNEP/GRID Geneva; University of Decca; JRO Munich; The World Bank; World Resources Institute, Washington, D.C.

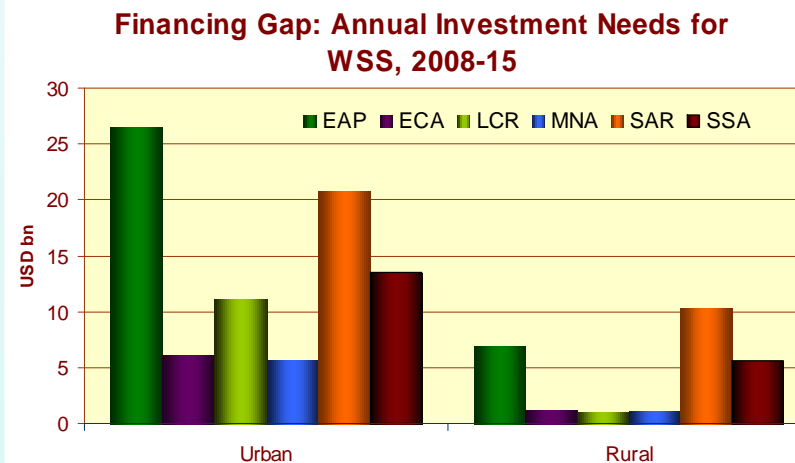
Emerging Challenges

Meeting the Service Delivery needs of Rapid Urbanizing Population

- § Africa's urban population quadrupled between 1971 and 2001
- § Asia's is expected to double by 2030
- § Peri-Urban: About 75% of the population growth over the next 15 years will be in cities of less than 5 million inhabitants, with over 50% in cities under 1 million where services are already in short supply and of poor quality
- § Urban Poor: Rapid growth of slums is also a major area of concern because High density and inadequate urban planning makes the provision of sanitation services in slums a particularly difficult challenge



Urban populations growing rapidly; further widening the WSS financing gap

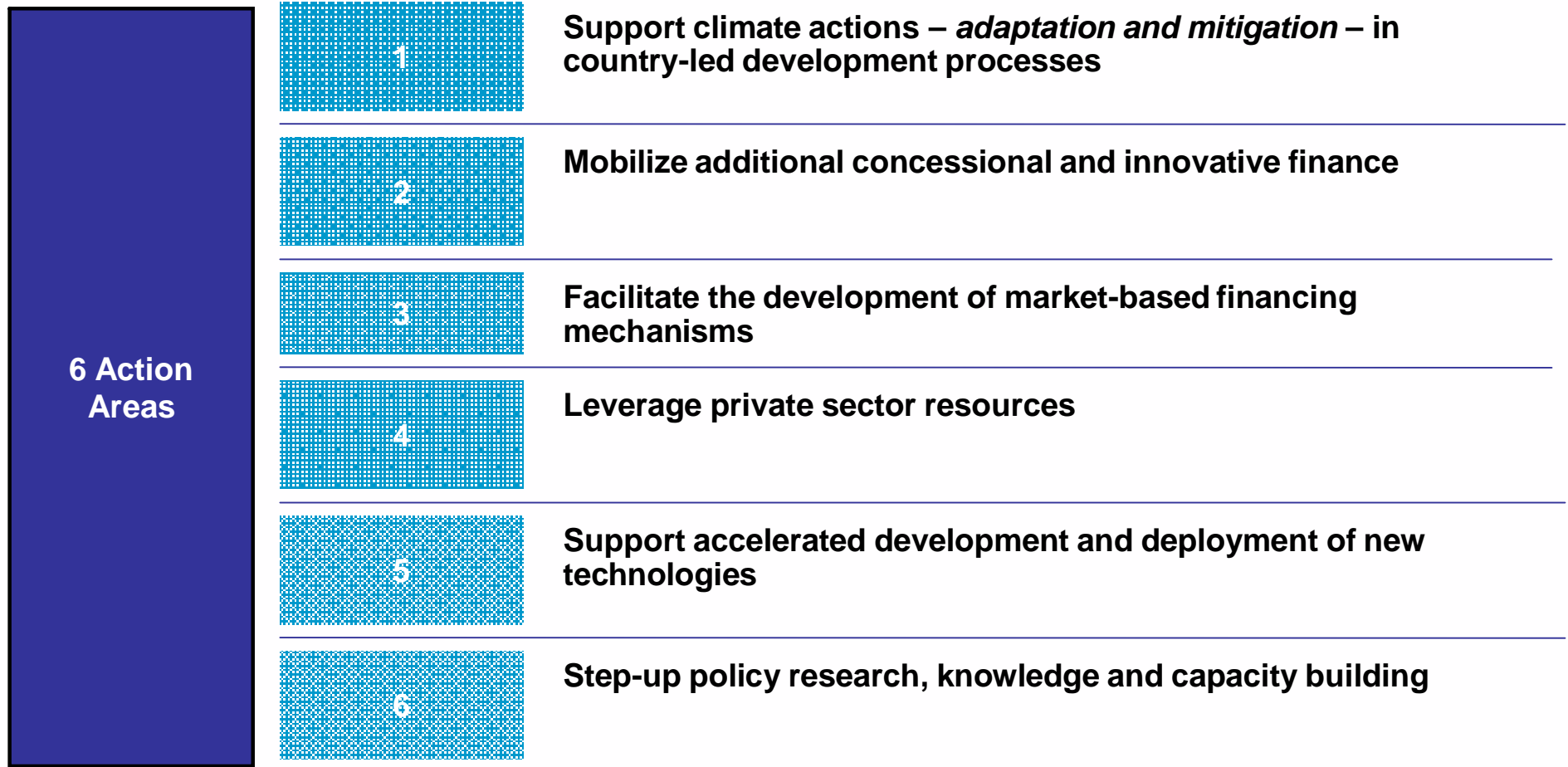


Source: World Development Indicators; World Bank estimates

Today's presentation outline

- **Context: Infrastructure Critical to Poverty Alleviation**
 - **WB Infrastructure Action Plan (IAP)**
- **Emerging Global Challenges**
- **World Bank Group Sustainable Infrastructure Action Plan (SIAP)**
 - Core Sector Strategies to meet access gap in infrastructure
 - Maximize effectiveness through cross sectoral synergies
 - Mainstream sustainability
 - Leverage public and private financing for infrastructure

Sustainable Infrastructure Action Plan (SIAP) close linkage with Strategic Framework for Climate Change (SFCC)



Infrastructure service delivery at the core of food security, energy security and climate change agenda

Climate Change

IPCC concluded that warming of the climate system is “unequivocal” and very likely due to the observed increase in anthropogenic GHG emissions

Energy

Energy sector accounts for 80% of GHG emissions

\$3.5 billion WBG financing for energy for low carbon projects

- § Renewable Energy and Energy Efficiency
- § Power Plant Rehabilitation
- § Gas Flaring Reduction
- § High Efficiency Thermal

Supports transition to low carbon economy, esp. G5 countries

Water

Adaptation is critical for irrigation, water supply and hydropower

Stepped up assessments of impact of hydrologic variability on water management and services

Restoration and protection initiatives for coastal zone management and coastal assets

Transport

China’s energy use for transportation will grow 6% per year

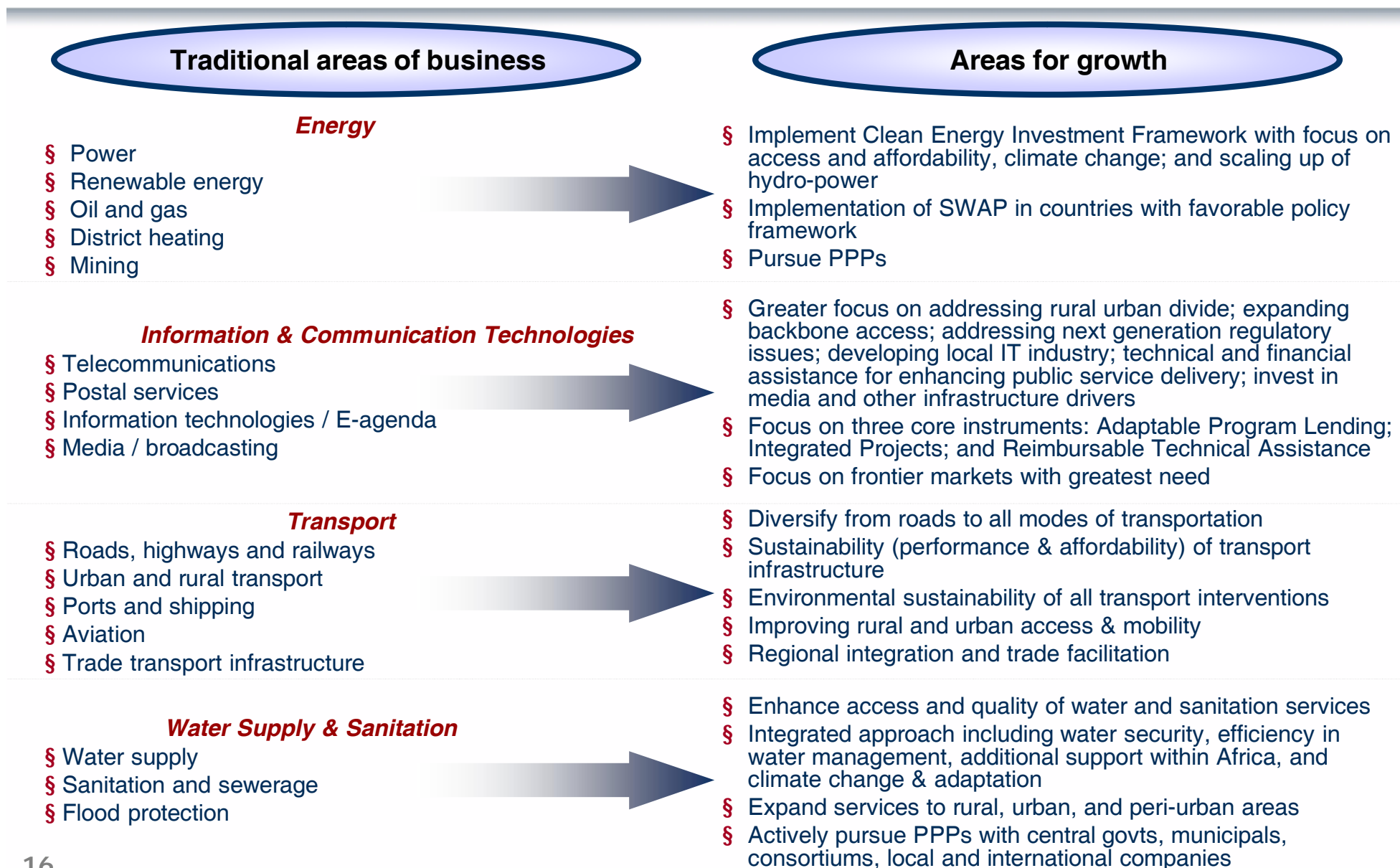
India’s will grow 4.7% per year for the next 20 years

Motorization grows exponentially w/ urbanization

Improved planning & mgmt of transport infrastructure – critical policy and technology choices

SIAP: What will we do?

Core sectors will continue to support closing the access gap



Sectors and technologies to respond to global challenges

“Hydropower is the *big brother of renewables*”
Deputy Minister (Energy), Norway (2008)

MITIGATION

Hydropower:

- accounts for 88% of renewable energy
- is a mature technology
- has ancillary benefits, such as system stability, peaking capability
- can store energy

ADAPTATION

Multi-purpose Hydro:

- contributes to a minimum platform of infrastructure for water security
- can help mitigate extreme events (droughts and floods)



SIAP: What will we do?

Maximize effectiveness through cross-sectoral themes

Transport

Energy

Water

IGT

Infrastructure Response for Climate Change Mitigation and Adaptation

- § Underpinned by WBG Strategic Framework on Climate Change
- § Transport: Increased support to design, planning, and strategy for urban transportation and urban planning
- § Water: Enhanced focus on sustainable management of water resource base
- § Energy: Scaled up actions on Clean Energy Investment Framework
- § Development, testing, and improvement of methodologies for carbon foot-printing and climate risk screening
- § Launch of Climate Investment Fund, including clean technology fund by FY09 and robust program for 5 countries by FY11
- § Increasing aid harmonization and mobilization of aid resources through innovative partnerships: GFDRR

Spatial Dynamics: Rural Urban Integration

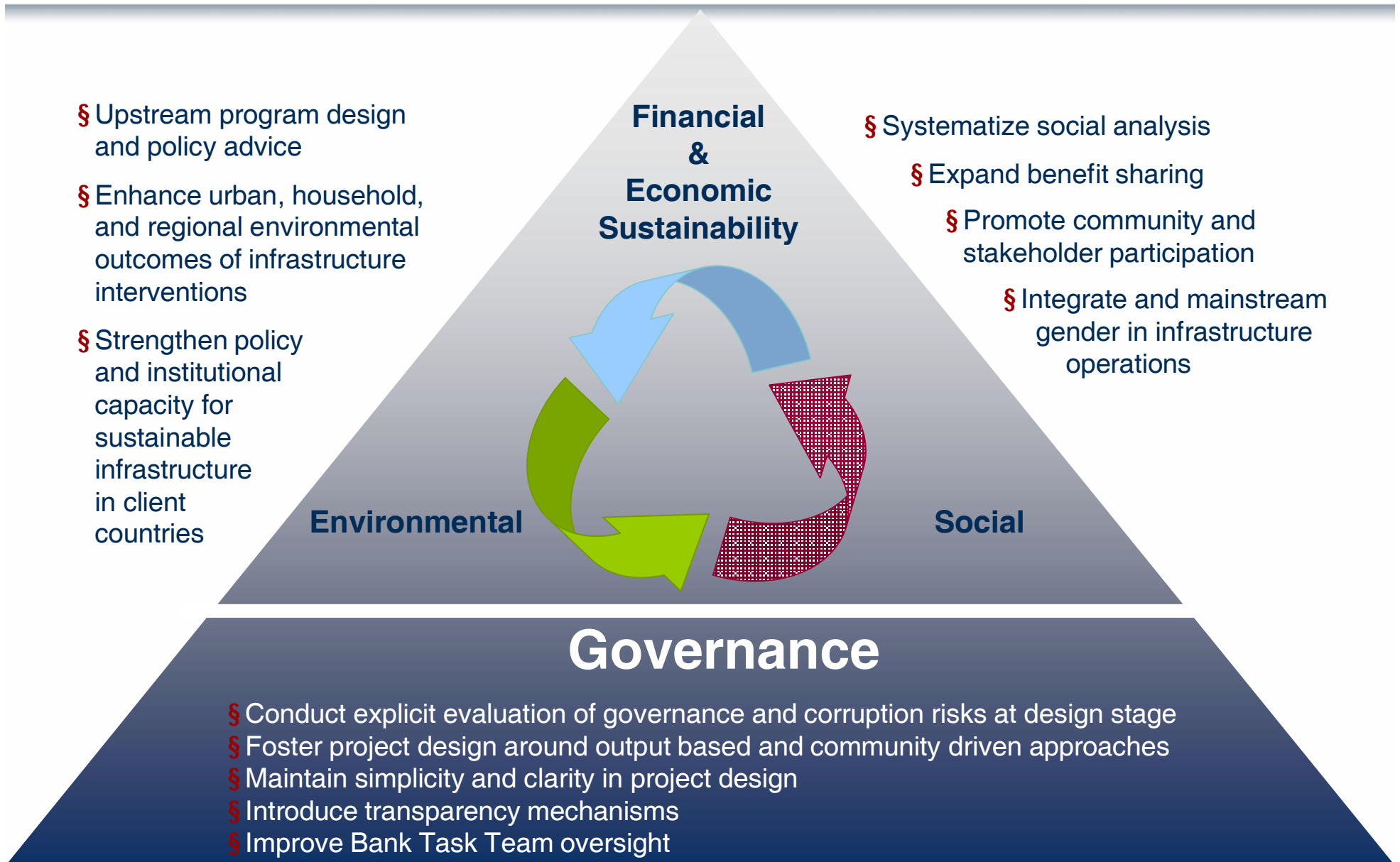
- § Africa's urban population quadrupled between 1971 & 2001; Asia's expected to double by 2030
- § SDN integration opened new avenues to analyze rural-urban issues in pragmatic and holistic way
 - Ø WDR FY09: "Spatial Disparities and Development Policy" & operationalizing WDR FY09
 - Ø Increasing regional & multi-country approaches to delivering infrastructure
 - Ø Selected urban programs to be implemented during SIAP: "Building Livable Cities in Africa"; Collaborative Capacity Building Programs in Urban Management; Revitalizing WBG support to Slum Upgrading and Urban Infrastructure Funds

Expand Public Private Partnerships and Crowd in the Private Sector

- § WBG interventions along three dimensions
 - Ø Increasing government capacity to partner with private sector is critical input to the partnership
 - Ø Direct leveraging facilities for private investment (WB, IFC, MIGA)
 - Ø Scaled up support to cross-cutting partnerships and partnerships

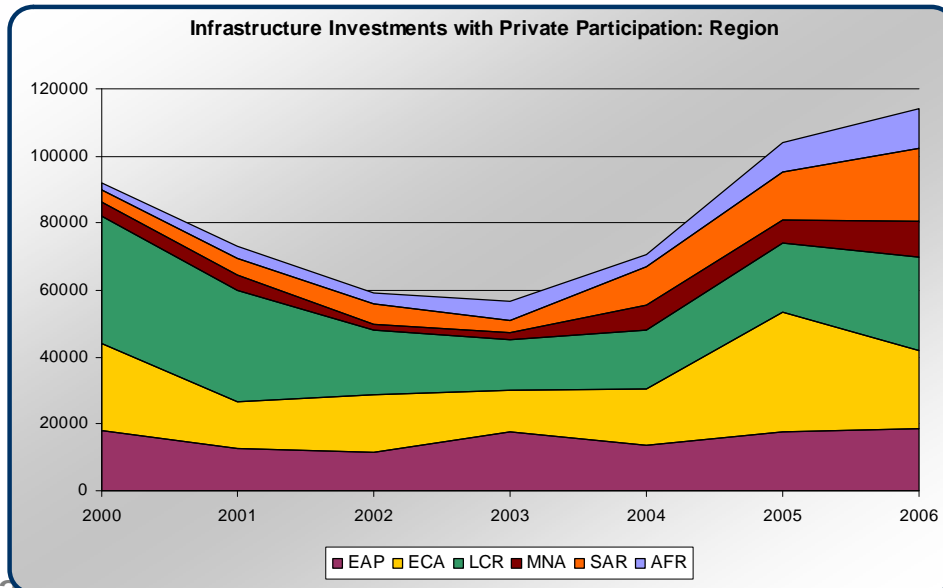
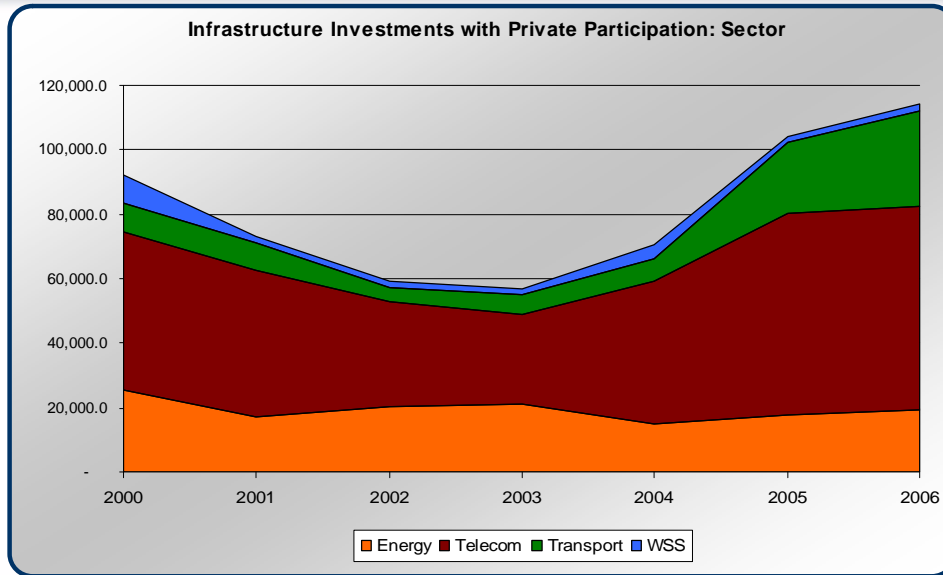
SIAP: What will we do?

Mainstream environmental and social management supported by a platform of strong governance



SIAP: What will we do?

Expand public private partnerships and “crowd-in” the private sector



WBG will expand efforts to leverage private sector through:

Ø Support governments to strengthen PPP environment

Ø Direct private sector leveraging facilities

Ø Scaled up support to new financing & partnerships

SIAP: Strengthening WBG collaboration

Working across World Bank Group – Unique combination expanding the scope of reforms and bankable projects

Guarantees and New Instruments to Reduce Risks

- § Support to sub-national governments for infrastructure development, using WBG risk mitigation products
- § West Africa Gas Pipeline - \$115 million partial risk guarantee from IDA
- § Bujagali hydropower project WB/IFC/MIGA mobilized for finance, risk management, and social and environmental sustainability



Enhancing Capacity in Client Countries

- § PPIAF - creates the environment and institutions for Private Public Partnerships
- § IFC Advisory Services to structure model transactions
- § Johannesburg TA for Municipal Fund' subsequent PCG support to the city's infrastructure investment programs
- § \$125 million IFC A loan to Karachi Electric Supply Corporation with WB TA assistance on to establish a regulatory agency

Sector Reforms and Targeted Subsidies for the Poor to Catalyze Private Investment

- § World Bank policy advice on sectoral reforms to client governments
- § GPOBA – output based aid providing subsidies to the poor
- § Promigas, natural gas distribution for low income families. An IFC project with OBA
- § Tlalnepantla/Mexico where the Bank's Decentralization & Structural Adjustment operations helped put in place a adequate conditions for IFC bond issue

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