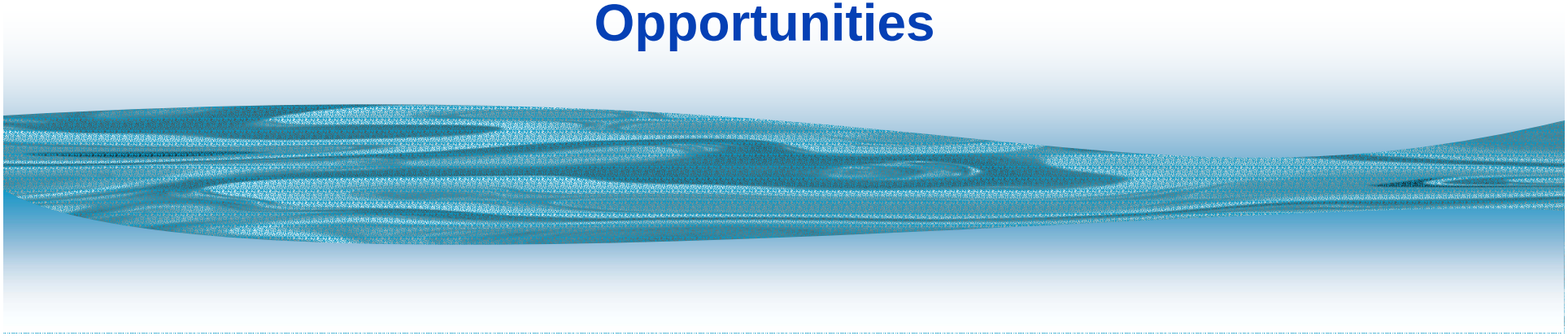
United Nations Symposium on Hydropower and Sustainable Development

Plenary Session
Hydro Development: Investment Challenges and Opportunities



Jamal Saghir

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The World Bank

Beijing International Convention Centre
27-29 October, 2004
Beijing, China

The Story Line :
Some Perspectives from the World Bank

I. Background

II. Financing challenges

III. The Bank's approach – our portfolio and key principles

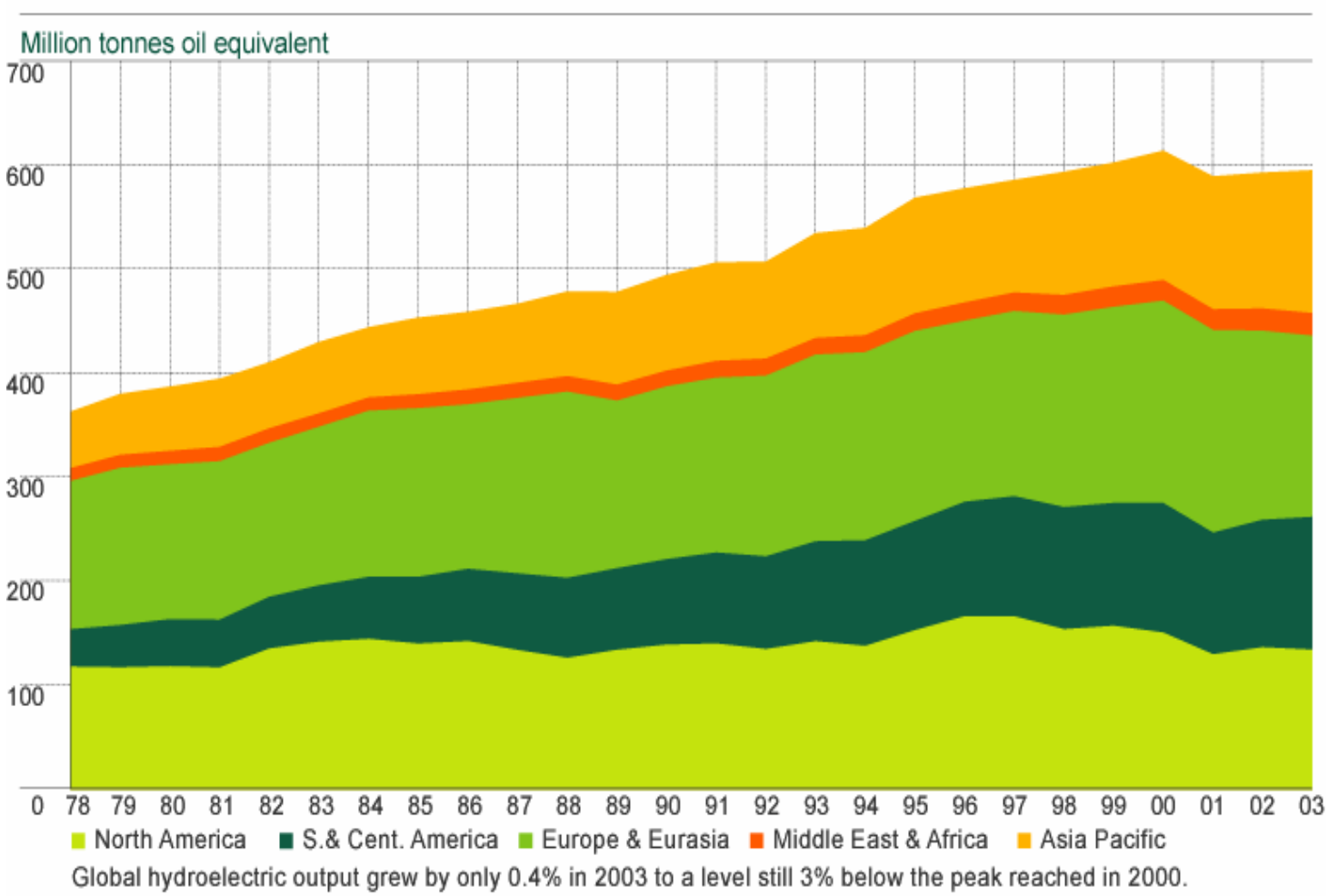
Hydropower: IEA's Energy Demand Context

- Global energy demand increased 4 Btoe from 1970-2000
- Forecast to grow 6 Btoe from 2000-2030
- > 50% of energy growth in developing countries
- Energy production should be adequate
- But at what cost, especially in light of current oil prices

What Will Fuel Energy Demand?

- Natural gas will meet much of the projected need, but
- Electricity demand is expected to be high also
- 71% of energy investments in the next 30 years are expected to be for electricity
- How will electricity demand growth be met?

Hydropower Production is Flat



(Source: bp.com)

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I. Few developmental issues will have an impact on Hydro

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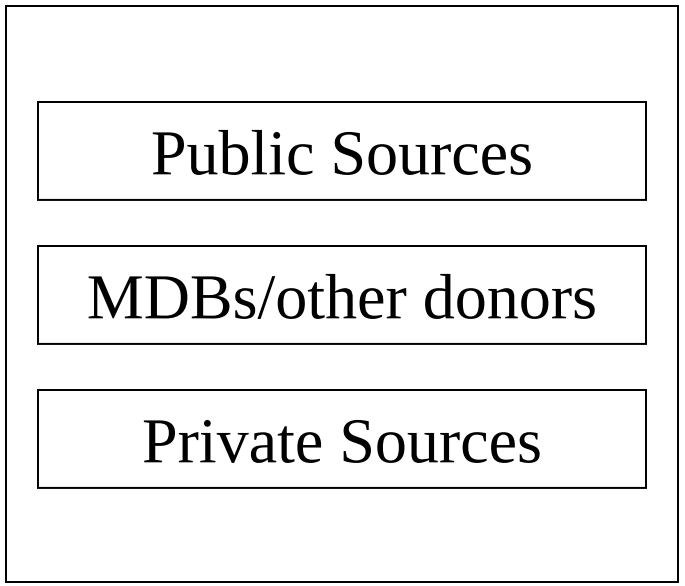
Investment – Needs and Shortfall

- Electricity infrastructure needs in developing countries: about $120 billion of new investment p.a. until 2010 i.e. between 2 and 3% of GDP
- Investment lags: resulting in shortages, system failure and slow system expansion
- Under-investment in the sector: hampers economic growth – ie. China, India, Serbia
- Poor power system reliability and continuity: Shortages, Poor System Reliability & Slow System Expansion

How will these needs be met?

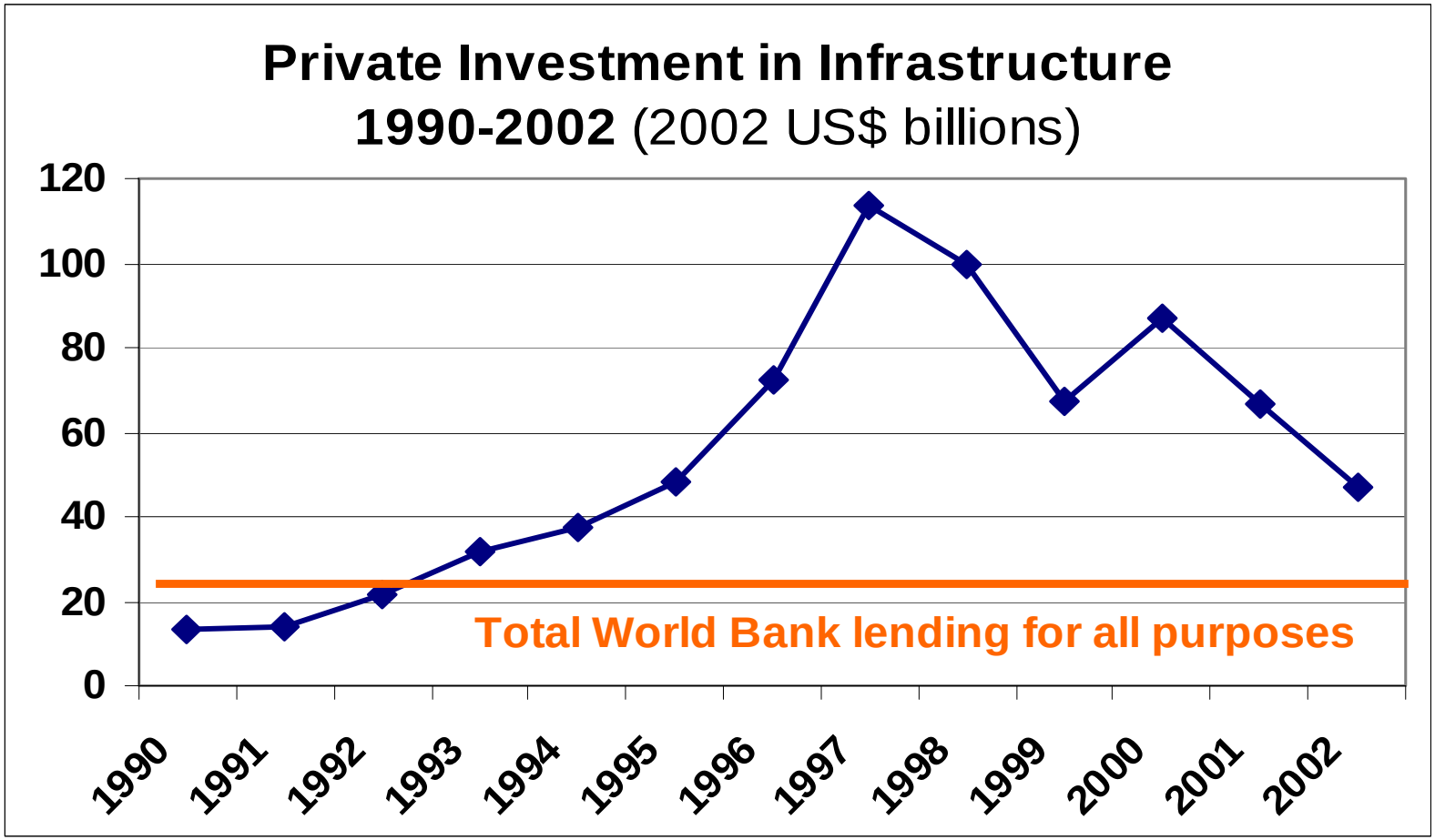
- Careful development of opportunities will be needed
- Need to leverage all sources of funding – no one player can do it alone
- Private participation is critical as countries continue to reform along market principles



Public Sector Experience

- Developing Countries suffer fiscal burdens from energy due to:
  - ~ investments in physical infrastructure
  - ~ non-cost reflective tariffs
  - ~ explicit subsidies for increased access
  - ~ fuel price increases, currency devaluations

- Power and water sectors expenditures must compete with other uses for limited public funds and often are an excessive drain on the budget
- Improved governance of publicly-owned enterprises will help address this issue

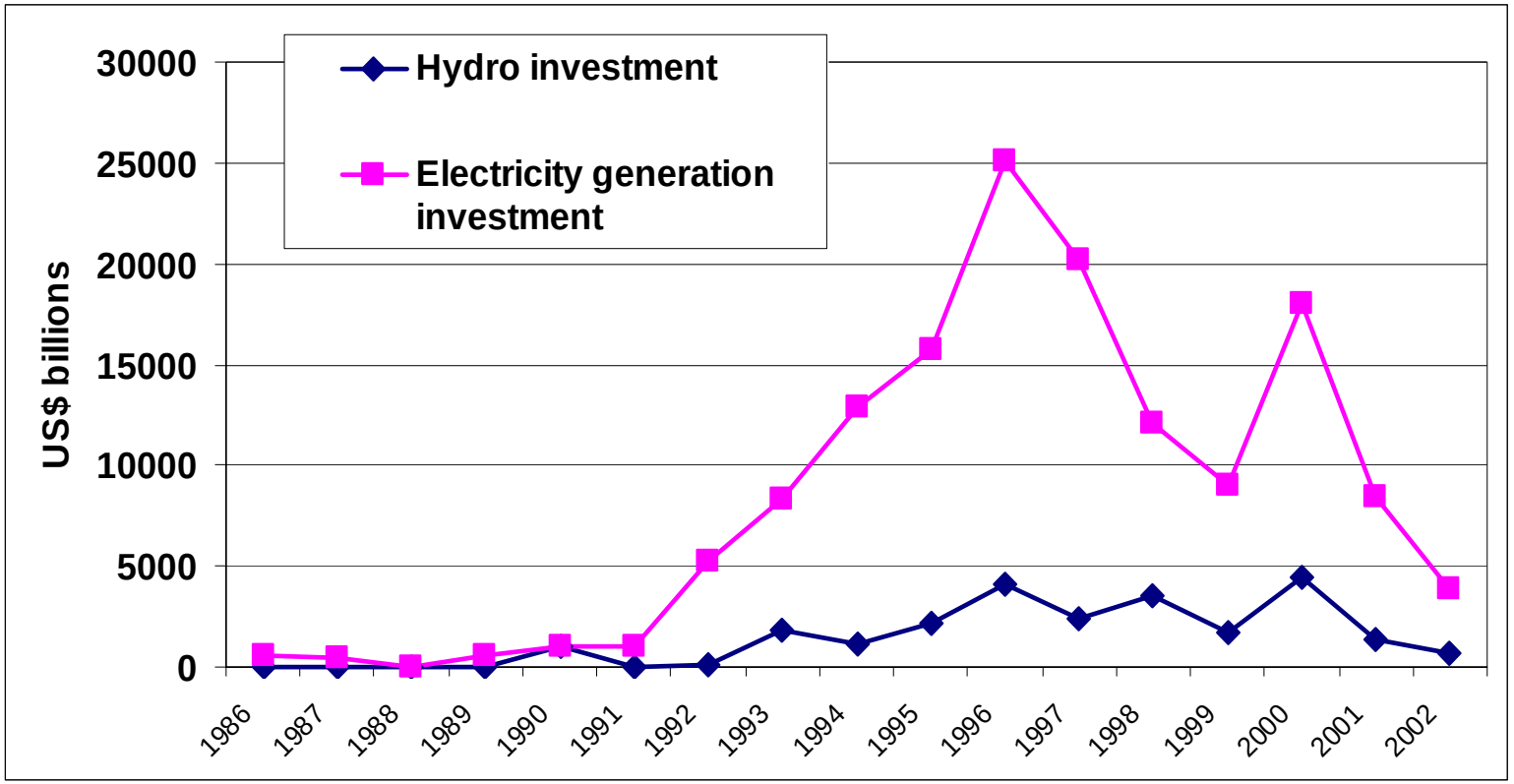


Huge increases during the 1990s…

Sharp declines in late 1990s and beyond (to half of peak levels…)

Levels still high relative to Official Development Assistance

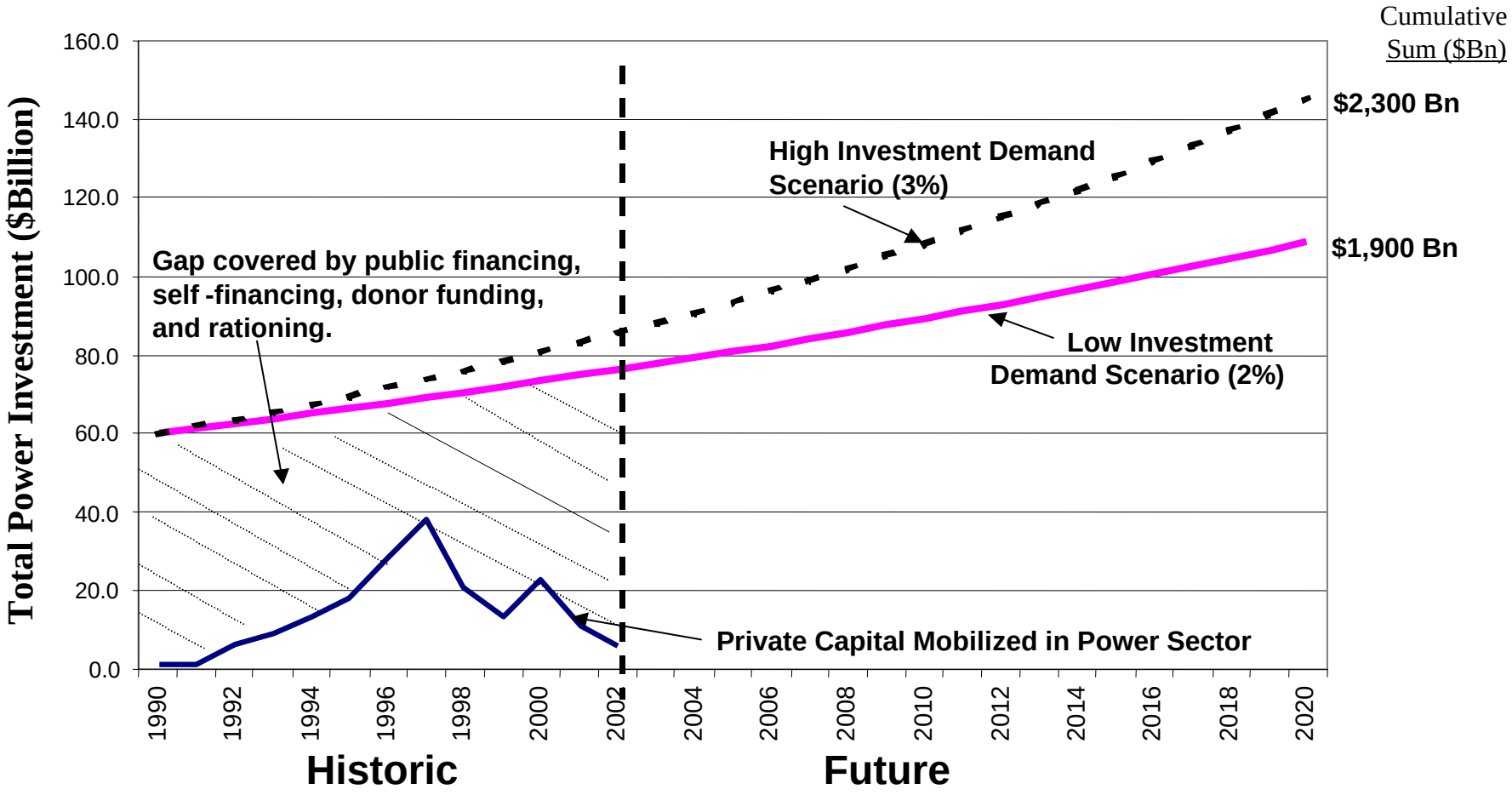
Private investment in developing countries in all electricity generation and hydro (1986-2000)



- Hydro accounts for **less than 5% of all private investment** in infrastructure in the developing world
- Private investment in hydro in developing countries is **very important**, but
- private investment accounts for only **about 20% of the the $15 billion annually** of public investment in hydro

Investment - a large a growing gap

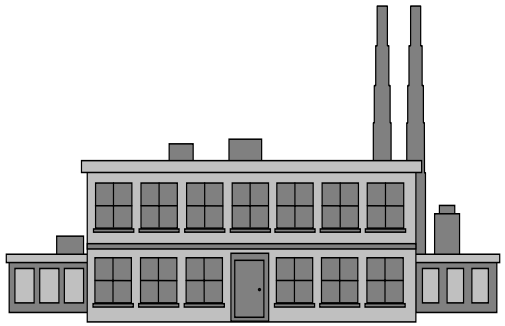
Financing required for the Power Sector in Emerging Markets 1990 - 2020



Source: : World Bank, IEA, Deloitte Touche
Tohmatsu Emerging Markets Group

Conditions for Successful Private Infrastructure Investments

- Economic and political stability of country
- Financially viable projects (adequate and reliable tariff revenues)
- Conducive legal & regulatory environment
- Mobilization of long-term debt financing
- Appropriate risk sharing



Public/Private Financing Issues: Summary

- Public Financing
  - Fiscal Constraints
  - Operational Efficiency of Public entities
- Private Financing
  - Project Risk
  - Political risk
  - Long-term debt –domestic and offshore
  - Management of government
  - contingent obligations

Hydropower – Private Financing Constraints

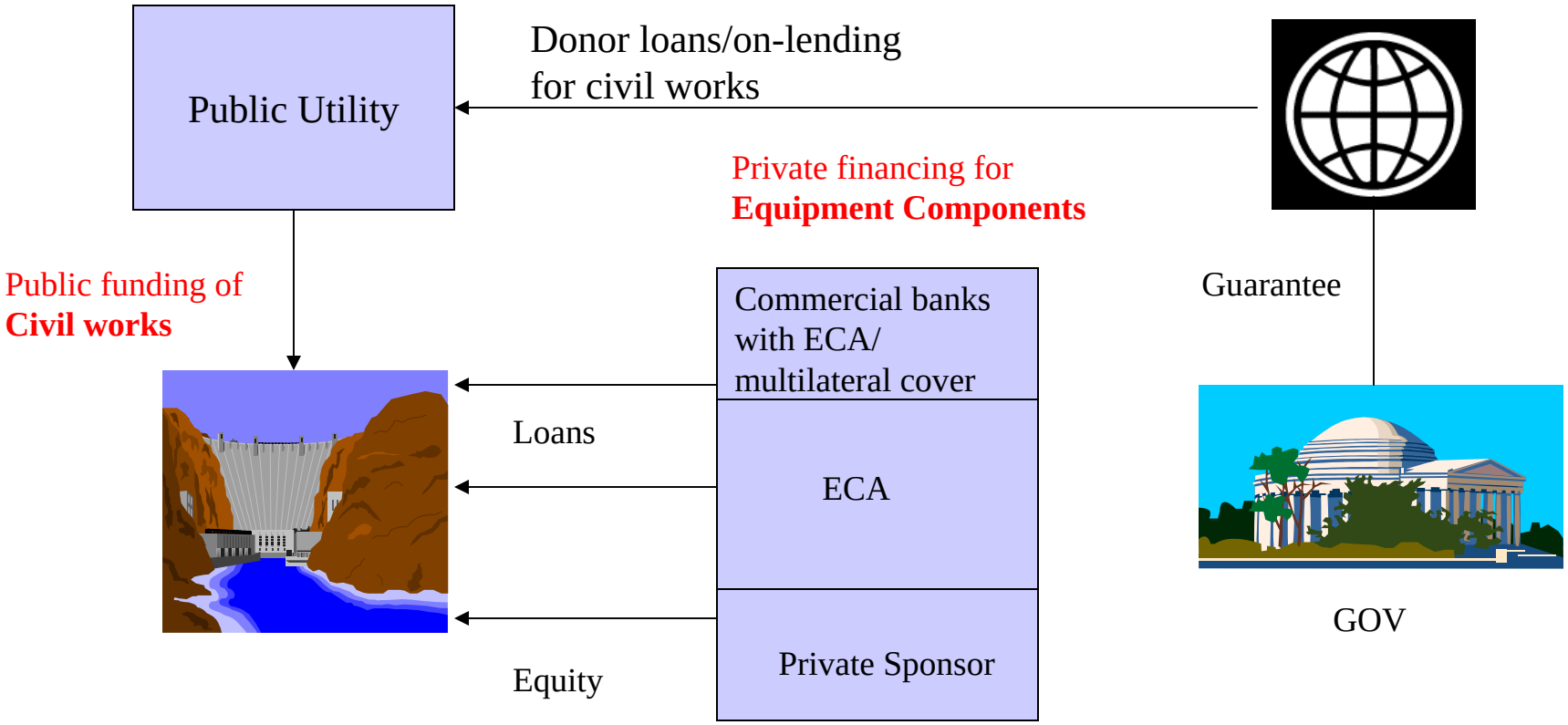
- Capital Intensive during construction
  - ~ High development cost
  - ~ High local cost civil-works content not easily financed
  - ~ Geological risks requiring high level of contingent financing.
  - ~ Long gestation
- Hydrology risks during operation
- Unpredictable nature of social and environmental concerns
- Sovereign Risks
- Power Purchaser Credit Risk

Financial Instruments

- Choice of instrument(s) needs to consider not only the size of funds, but also the maturity
- Commercial debt does not match the economic life of the assets – requiring careful debt structuring
- To meet financing demands, the Bank will draw on all of its instruments: Bank/IDA, IFC, MIGA, Guarantees, GEF, Carbon Offsets
- Carbon Offsets are playing a growing role…

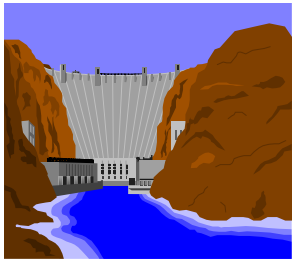
Public-private partnership is a key for successful development of hydropower..

Public-Private Partnership

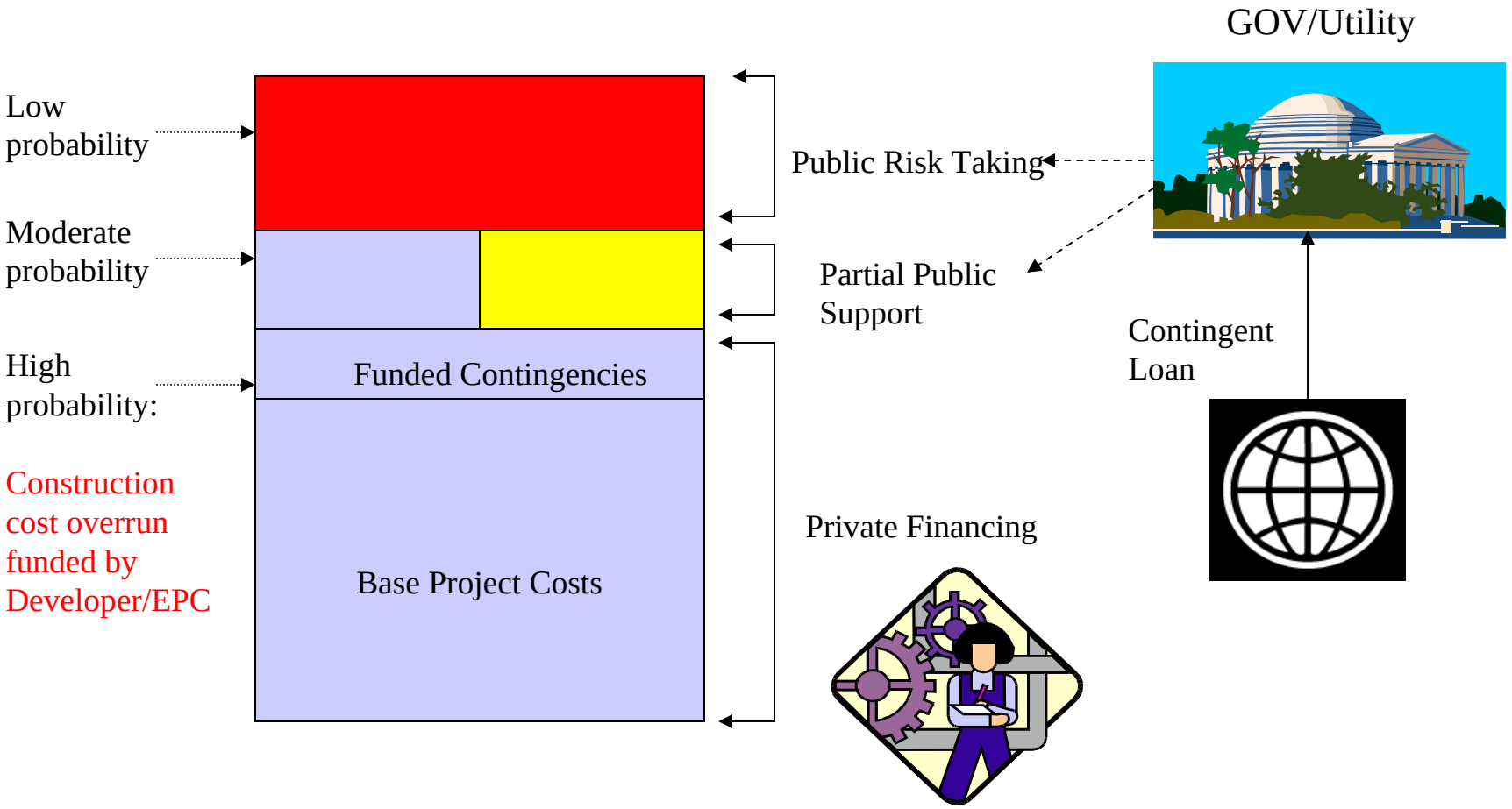


Public Private Partnership

- Public sector uses traditional procurement method for the construction of civil works. *e.g. unit price contract with a target price.*
- Public sector finances, constructs and leases the civil work to the private operator in return for lease fees.
- Private sector finances the power house and operate and maintains the dam and the hydropower plant.



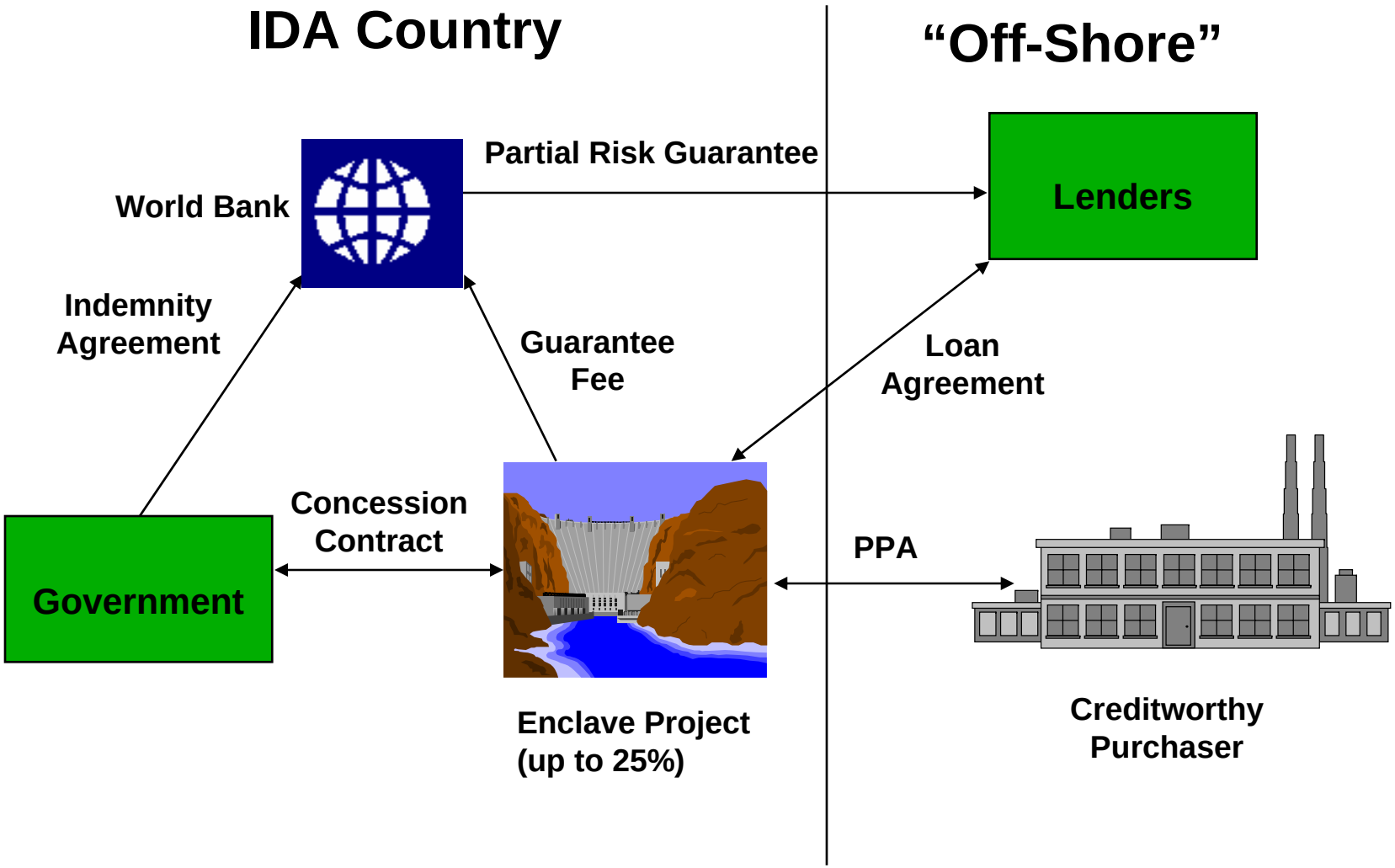
Public Private Partnership
Sharing of Construction Risks



Risk Mitigation Instruments

- Sovereign risks involving legal/regulatory frameworks remain as major constraints to attract private financing.
- Especially so for large hydropower projects involving water storage and complex interface with various public parties.
- ECAs and Multilateral institutions offer political/regulatory risk mitigation instruments for private financiers: *e.g. World Bank Partial Risk Guarantees*.
- Not mutually exclusive with other public financing support (e.g. for civil work contingency).

IBRD Enclave PRG in IDA Countries



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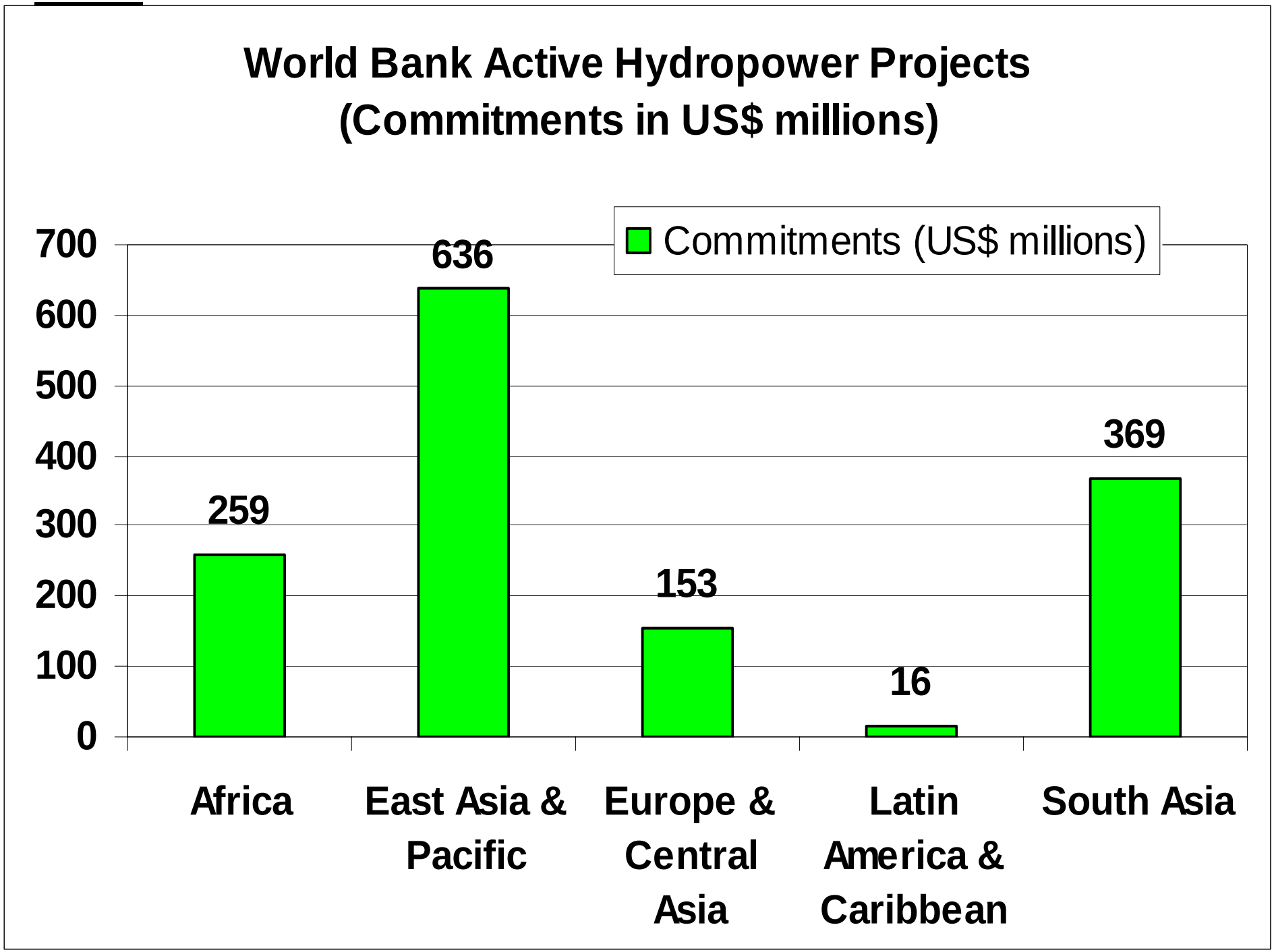
World Bank Active Hydropower Projects
(Commitments in US$ millions)
Commitments (US$ millions)
700
600
500
400
300
200
100
0
259
636
153
16
369
Africa
East Asia & Pacific
Europe & Central Asia
Latin America & Caribbean
South Asia

Conclusions: Key Principles/Challenges

- Pro-actively identify opportunities for borrowers through funding of studies and support for capacity-building
- Diversified portfolio, with mix of small and large, rehab and new
- Focused support for large projects in the short term
- Use of the breadth of our lending tools

Conclusions: Key Principles/Challenges (2)

- Projects will be integrated into national energy, water and expenditure plans
- Cross-cutting skills will help identify the multiple benefits
- The Bank's safeguard policies will be fully respected
- Above all, involvement will be firmly rooted in the goal of alleviating poverty

Thank you