

Renewable Energy in SADC

Market Opportunities and Challenges

Project Types, Key Risks and Regulatory Environment

SADC Regional Electricity Investment Conference
21 September 2005

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Project Types

- * Geothermal
- * Solar (photovoltaic)
- * Biomass
- * Wind
- * Hydro (including mini and micro)



Key Risks

- * Geothermal: reservoir, additional drilling cost
- * Solar (photovoltaic): improving, but still low energy conversion
- * Biomass: supply of feedstock
- * Wind: wind speed, distance from grid
economic life of turbines
- * Hydro: weather (draught), environmental
displacement of residents, NGO

Regulatory Environment

Experience in Asia

* Automatic retail tariff adjustment (Thailand, late 1990's)
By way of quarterly FX and fuel cost adjustments

* Negative net worth of many SEBs (India, late 1990's)
Farmers not paying electricity bills, state support not subsidy

* Wheeling charge (Japan, early this decade)
Users used be obliged to pay wheeling charge to all the utilities whose transmission lines are used => single postage charge

* Dispute resolution (Japan mid-late 1990's)
Efficient legal/court system

Experience in EAC

* Collection (e.g. government offices and military)
Prepayment scheme (Rwanda)
Mandatory payment with threat to cut supply (Kenya)
Change of collection staff



Brief Look at Wind Power Project

* Wind in Japan

* Historical wind data and 1-2 year on-site data

* Analysis of correlation between the 2 sets of data

* Wind pattern looking cyclical or no pattern at all

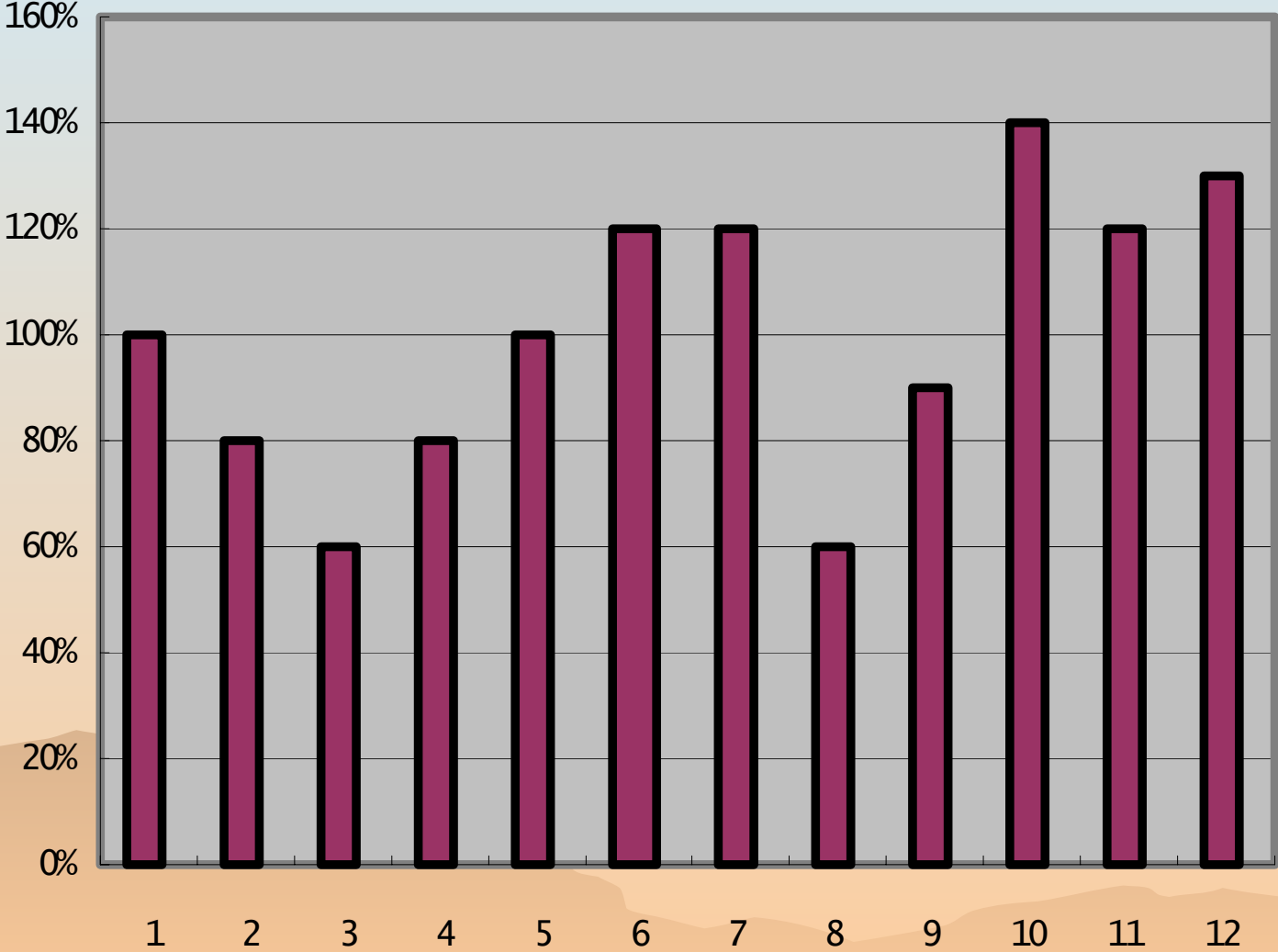
* Could prepare for years when wind is not sufficient
Combination of minimum and target debt service schedule

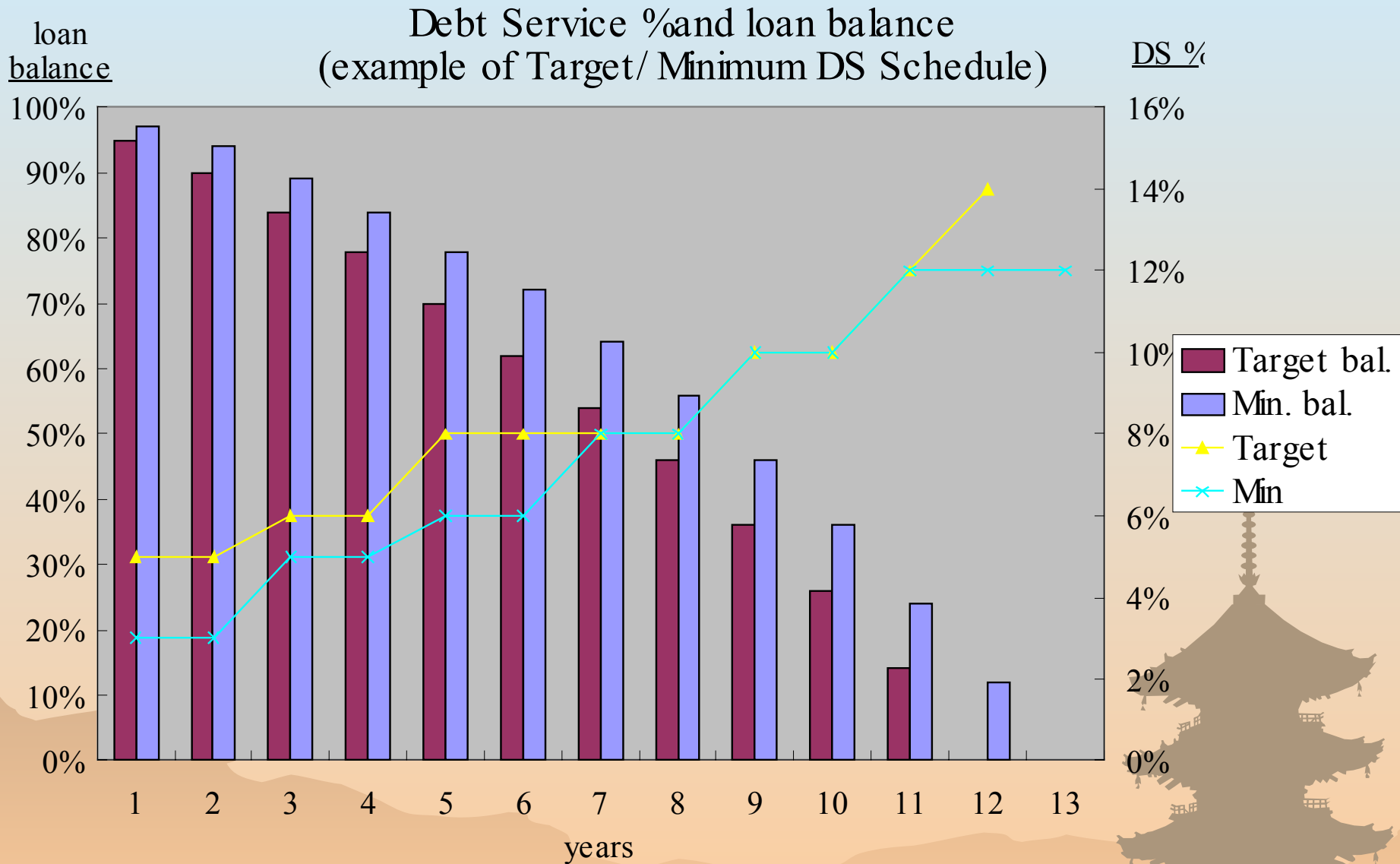
* Possible correlation between few rain and strong wind
(possible merit in combining Hydro and Wind Projects for exceptional years)

Cashfbw before Debt Service

% vis

Average





Brief Look at Hydro Project

- * Huge development potentials

Inga 3 Grand Inga, Mphanda Nkuwa, Cahora Bassa North, etc.

- * Electrification of rural areas using off-grid micro-hydro scheme (e.g., Uganda, Kenya)

- * Too much hydro dependence to be avoided (e.g., Ghana)

=> Case for regional interconnection



CDM

- * Japan committed 6% reduction (Kyoto protocol)
- * Japan and Africa, similarity in requiring effort
 - Japan: highest target given already lowest energy intensity of industries
 - SSA: existing industries not emitting lot of green house gases
 - => Focus required on green-field renewable energy projects

Japan Carbon Finance (JCF)

- * Japanese Public Private Partnership, including JBIC and JDB
- * Looking for Projects producing Carbon Credit
- * Also provides technical assistance to be approved as CDM project
- * Carbon deductions are paid for annually during the project life

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