

„China's Brightness Program“

Off-Grid Power Supply

PV for Rural Electrification

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Frank Haugwitz / GTZ Beijing



Brightness Program



Brightness Program

First Phase: Township Program

- Authorized by State Council in late 2002
- Goals
 - To electrify 1066 remaining unelectrified townships in 7 western provinces of China
 - Support government's western China development policy
 - Contribute to poverty alleviation
 - Use renewable energy where grid extension is not economically feasible



Township Program

- Funding
 - 200 Mio. EUR - central government support
 - 470 Mio. EUR - total investment (incl. Provinces)
- Execution
 - Responsibility of the National Development and Reform Commission (NDRC) and local provincial offices
 - Competitive procurement at provincial level
 - Entire process mid 2002 to end 2004



Township Program

- Technology Approach
 - Village hybrid power systems
 - Primarily PV/battery
 - Some wind and some back-up diesel generators
 - Small hydro
 - Small amount of SHS
- Installations to date
 - Hybrid Village Power Systems: 662 villages, 15.7 MW
 - Small Hydropower Systems: 302 villages, 274.8 MW
 - SHS: (Data Being Collected)



Township Program

Installed Capacities and Distribution

Province	Village PV-Hybrid Systems	Installed Capacity (kW)	Small Hydro Systems	Installed Capacity (kW)	SHS	Installed Capacity (kW)
Shaanxi	9	100	16	21,985	0	0
Qinghai	112	3,943	0	0	NA	NA
Gansu	20	995	8	35,190	0	0
Xinjiang	110	1,417	1	110	2,886	144
IMAR	42	752	0	0	1,525	61
Sichuan	40	1,817	205	202,475	NA	NA
Tibet	329	6,694	72	15,080	NA	NA
Total	662	15,718	302	274,840		



Township Program - Issues

- Extremely rapid program execution
- Execution focused on bidding, contracting, and system installation
- Financial support of hardware and installation only
- Procurement documents contained minimum standards and quality assurance guidelines
- Power for minimal household use & gov't facilities, emphasis on hardware, productive use of energy were not encouraged



Township Program - Key Problems

- Ownership of systems still in the making
- Tariff structures not consistent and weak
- Systems commissioned and operational but have not formally completed an acceptance procedure
- No sustainable training for local system operators
- O&M and replacement costs not being covered e.g. costs for battery replacement estimated to EUR 50 Mio.
- So far, technical problems have not surfaced en masse and among end users a general satisfaction prevails !



Brightness Program

Second Phase: Village Program

- 11th Five – Year Plan (2006 – 2010)
- 1,5 Billion EUR investment
- 10.000 out of 28.000 un-electrified villages
- Technology mainly Hydro, 5 kW Village Sys., SHS
- Commitment for an initial pilot phase
- More flexible and open to intl. Influence



Thank you for your attention !

German Development Cooperation (GTZ) China
Renewable Energies in Rural Areas Program

Tel: 0086 (0) 10 - 6590 - 0466

Fax: 0086 (0) 10 - 6590 - 6783

Frank.Haugwitz@gtz.de

www.gtz-renewable-energy-program.org.cn

