

# Microfinance and the energy needs in the agricultural value chain

Bernd Balkenhol  
University of Geneva

UMM/Frankfurt School of Finance and  
Management  
Frankfurt, 3-4 July 2014

# Green MF: which value chain?

## RE value chains

- «Household-enterprise»
- Uncertain cash flow
- Affordability and risk of over-indebtedness
- Scaling-up challenge
- Substantial start-up subsidies
- Market still to develop

## RE within agro value chains

- Small tenant and other actors
- Cash flow can be anticipated
- Effect on productivity and incomes
- Attractive entry in agricultural finance for MFIs otherwise hesitant to engage
- Market development potential

# Value chain finance: an important distinction

## Internal («All in one package»)

- Within the value chain, for example, an agro-input retailer offers deferred payment sales to smallholder farmer.
- Interlinked contracts

## External («partnership model»)

- Financing agent issues a loan to a farmer based on a contract with a trusted buyer or a warehouse receipt.
- Moral hazard
- Transaction costs
- Ease of taking collateral (contract and fixed assets)

# Interlinked contracts

Symptomatic of incomplete markets and pervasive information asymmetry

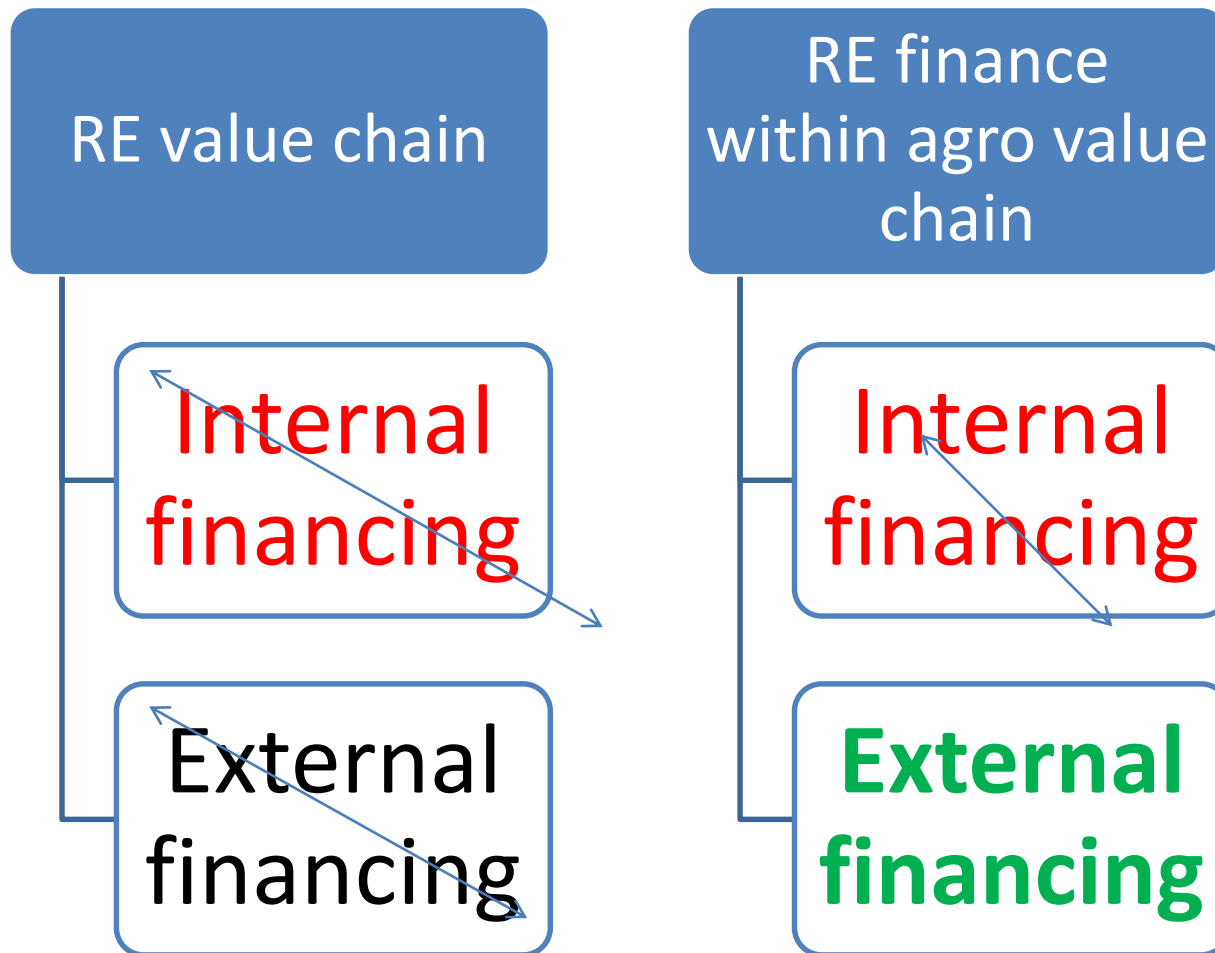
Voluntary or coercive link between a loan and a commodity contract

Actor with greater bargaining power sets the terms

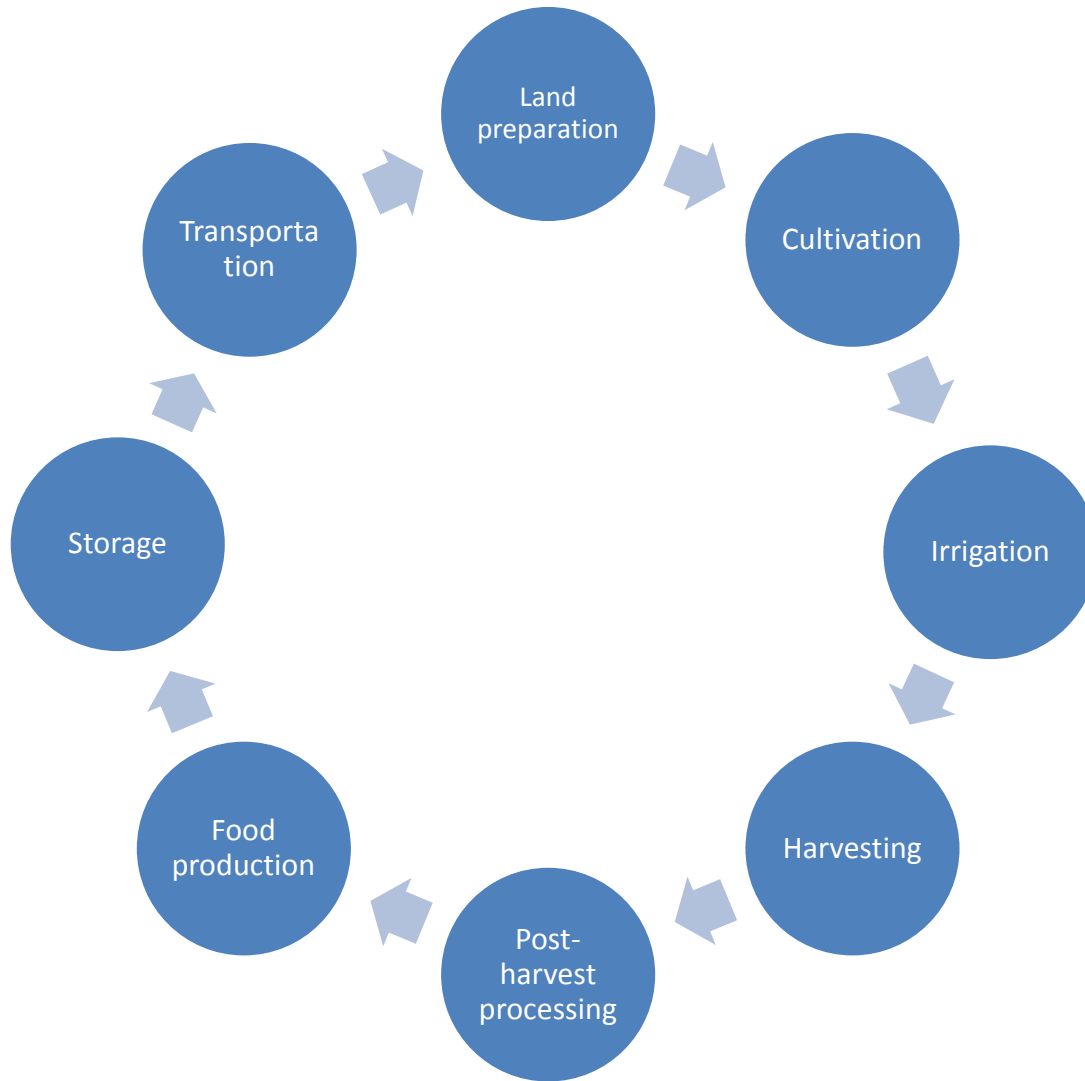
Interest rates and commodity prices are set to ensure compliance of farmer with interest of dominant actor:

- overpricing of agricultural inputs
- underpricing of agricultural outputs
- rationing

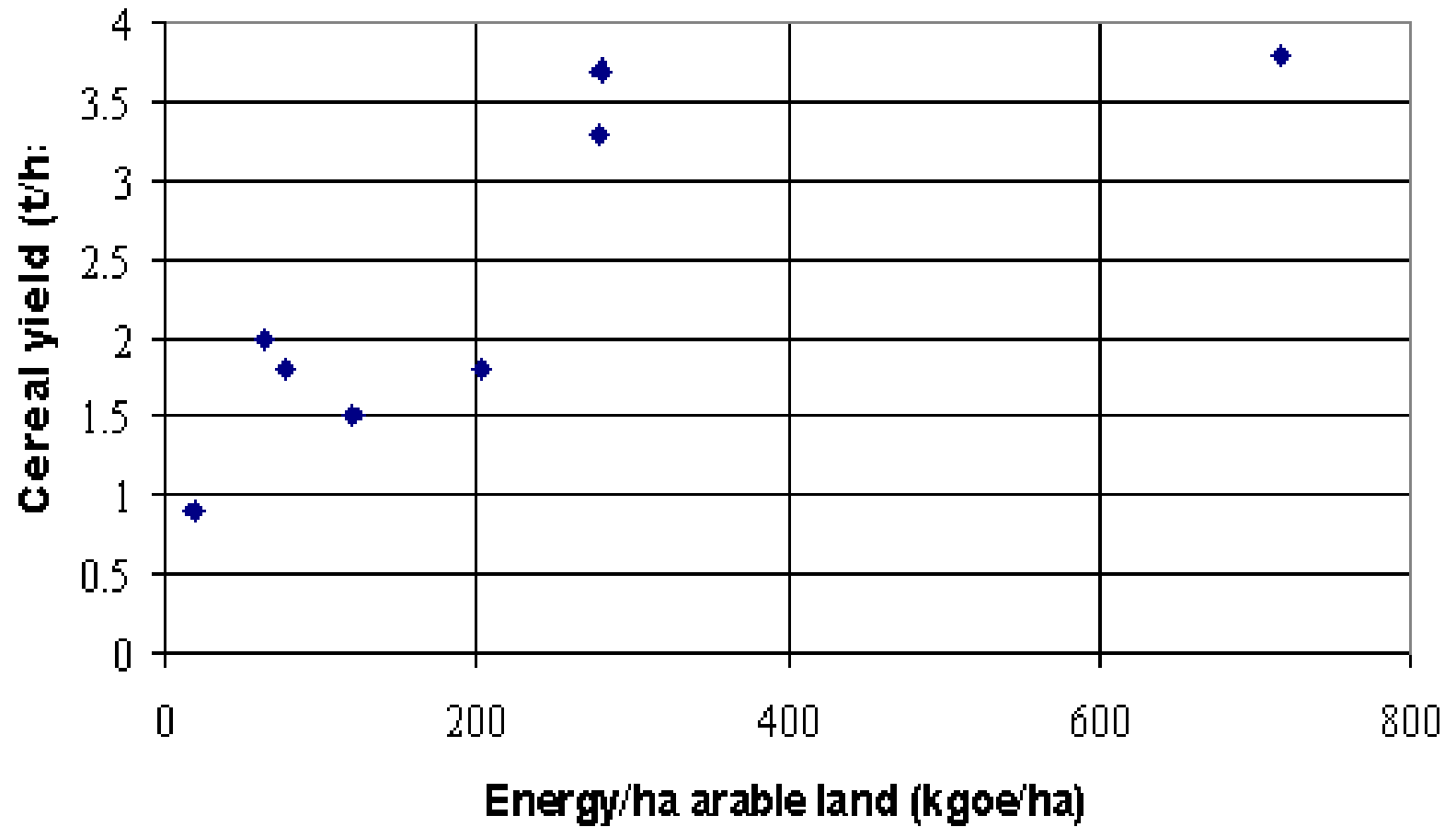
# Value chains and financing models



# Energy use and AVC: entry points



## Energy use and productivity



# Grameen Shakti

Established in 1996 as a not for profit company

reaches nearly 3% of all Bangladeshi HHs (32.068 million), and 6% of poor HHs (16 million)

1800 employees, covering all districts

Every month over 20,000 new SHS are installed

SHS are used by off-grid HHs and enterprises for lighting and power for small appliances

larger SHS can also run computers, refrigerators and pumps, mobile phone batteries



# GS: scaling up thanks to subsidies

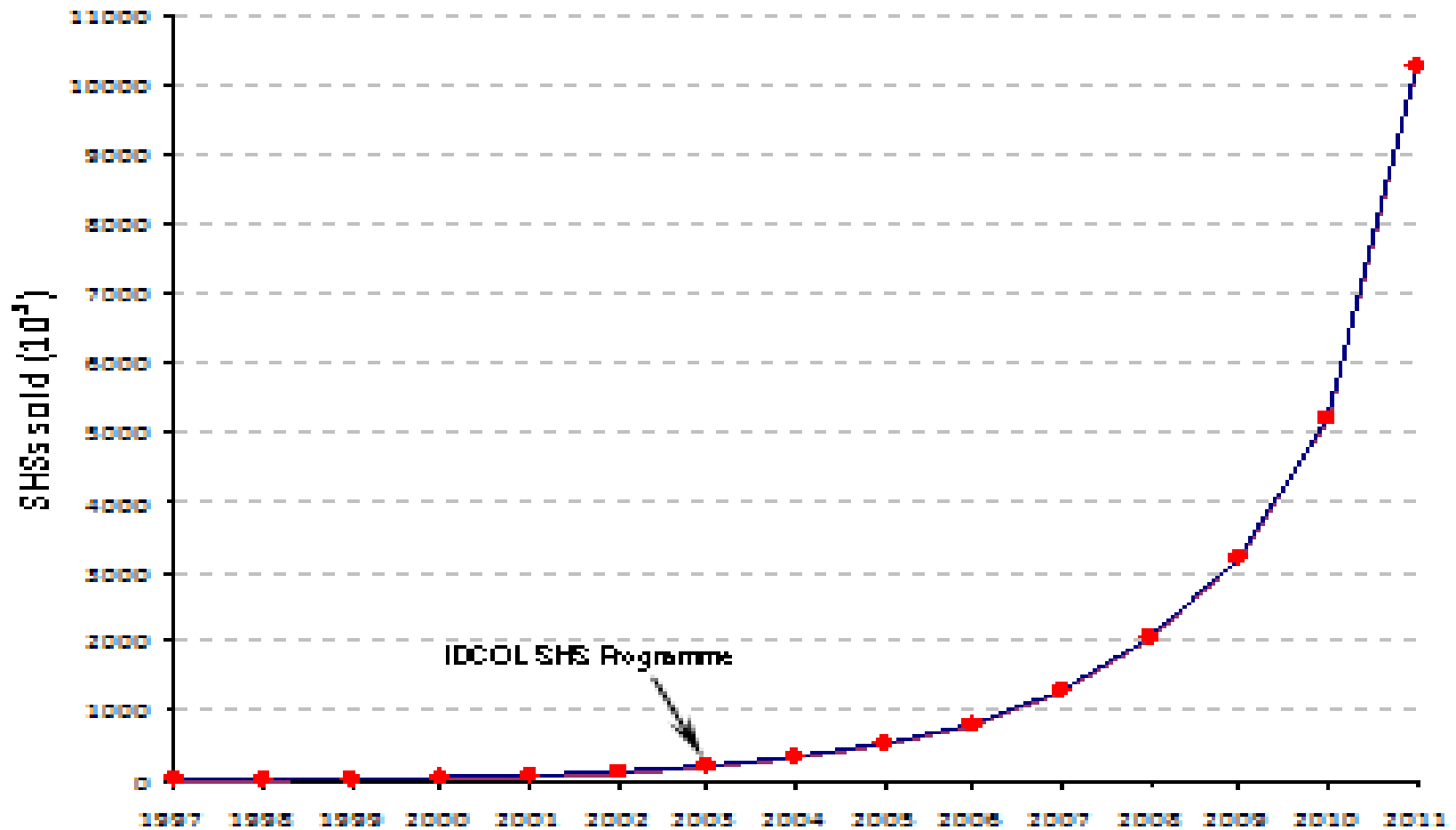


Figure 1. Cumulative SHS sales. IDCOL

# Financing a SHS with GS

## Box 2: GS/IDCOL Calculation for a 50 Wp SHS (USD)

(a) Solar Home System Cost .....	440
(b) Buy-down Grant from IDCOL .....	40
(c) Remaining Cost (b-a) .....	400
(d) HH Down payment [15% of (c)] .....	60
(e) Remaining Cost (c-d) [credit to customers] .....	340
(f) Loan from IDCOL to PO [80% of (e)] .....	272
(g) Contribution of PO as loan to customer (e-f) .....	68

# Grameen Shakti: lessons

GS uses microfinance, but it is not a MFI. Still, it has lessons

- for technology providers:
  - One RE device
  - Wide range offered with prices from \$ 105 to \$ 775
  - Long warranties: 20 years for panel, 5 for battery, 3 for charge controller
  - Service guarantee for 3 years
  - Buy back option, once buyer gets connected to the grid.
- for MFIs:
  - Varying down payments, minimum 15% (70 euro on average)
  - Corresponding price discounts
  - RE device as collateral.

# Affordability: RE loans not per se out of reach!

	PRASAC (Cambodia)	AMRET, CMK, TPC, Vision Fund (Cambodia)	BRI (Indonesia)	CARD NGO (Philippines)	Grameen Shakti (Bangladesh)
RE energy	biogas	Solar (SHS 30-50 Wp)	SHS	solar	Solar 50 Wp
Requirements	20 kg of animal dung pd per HH		Collateral	CARD membership	Varying discounts depending on importance of down-payment (if full, then 10%); minimum down payment: 15% (on average \$ 60)
Technology provider	PICO Sol	KAMWORKS			Grameen Shakti
Average green loan size \$	1000	600			340
As % GDP p.c.	115%	64%			45%
Average loan size generally \$	2062	816 (AMRET)	1978 (average outstanding balance)	120	
As % GDP p.c.	230%	87%	67%	5,46%	
Term months	24	24-36		12-36	24-36
interest	1,2% pm			24 % pa	8% - 12% depending on maturity. Very poor HHs pay 10% and make installments in 42 months Monthly installments aligned to previously paid sums for kerosene.