

# Importance of Micro Irrigation and Commercialization of Smallholders for Food Security

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## Presentation Overview

### Briefly about IDE

- Smallholder Irrigation Market Initiative (SIMI, 2003-9) Experience:
  - Commercializing smallholders
  - Micro irrigation technologies
  - Impact on food security
- Findings and Recommendations

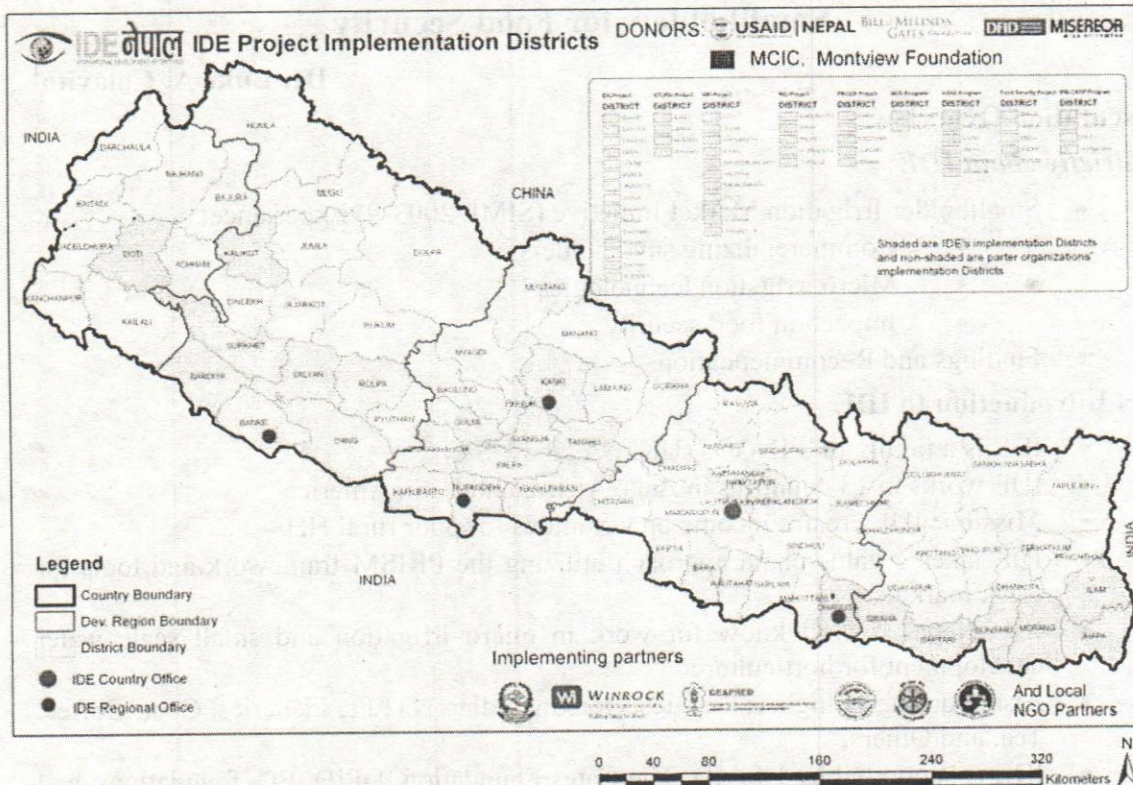
### Brief Introduction to IDE

- IDE is a family of 3 INGOs (UK, CA, and USA)
- IDE works in 13 countries in Asia, Africa, and Latin America
- **Mission:** IDE creates income opportunities for poor rural HH
- IDE takes a value-chain approach utilizing the PRISM framework and tools for weak markets
- IDE Nepal is well know for work in micro irrigation and small scale water development for horticulture
- Also working in high-value subsectors including NTFPs, Fisheries, Goat, Coffee, Tea, and Others.
- IDE is supported by USAID, The Gates Foundation, DFID, EC, foundations, and others.
- IDE is implementing the USAID IPM CRSP which has developed IPM technologies for horticultural crops including grafting technology adapted from Bangladesh
- IDE has strong partnerships with GON Agencies

Project	Years	Donor	Description
Rural Prosperity Initiative (RPI)	2006-2010	Gates Foundation	<ul style="list-style-type: none"> <li>• Multi country program to increase incomes by micro irrigation</li> <li>• Facilitating 8,000 smallholders to increase annual income by \$250</li> </ul>
Smallholder Irrigation Market Initiative (SIMI)	2003-2009	USAID (IDE sub)	<ul style="list-style-type: none"> <li>• Over 70,000 HHs directly increased their incomes by over Rs. 15,000</li> <li>• Generated the full time equivalent of over 240,000 jobs directly and indirectly</li> </ul>
Education for Income Generation (EIG)	2008-2013	USAID (IDE sub)	<ul style="list-style-type: none"> <li>• IDE is implementing the income generation programme in high-value commodity subsectors, including a focus on micro irrigation and essential oil processing</li> <li>• IDE is developing agricultural training packages for EIG</li> </ul>
IPM CRSP	2009-2015	USAID (IDE sub)	<ul style="list-style-type: none"> <li>• Developing and disseminating integrated pest management (IPM) packages for 5 vegetable crops, coffee and tea</li> </ul>
Research into Use (RIU)	2008-2010	DFID (IDE Prime)	<ul style="list-style-type: none"> <li>• Program using the DFID developed Participatory Market Chain Analysis (PMCA) approach to enable smallholder producers to access markets.</li> </ul>
Food Facility	2010-11	EC IDE Sub	<ul style="list-style-type: none"> <li>• IDE leading implementation of the projects agricultural interventions for increasing incomes thru high value commodities and food security through improving access to seed and agricultural inputs. The program will directly work with 6,000 food insecurity HHs in the Midwest and indirectly benefit over 12,000 HHs in food insecure communities.</li> </ul>

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### SIMI Overview

- Donor USAID: implemented by WI (prime), IDE, CEAPRED, SAPPROS, AEC ANSAB, District NGOs, with GoN agencies
- SIMI has facilitated 70,208 HHs to adopt micro irrigation technologies
- Increased annual income by over USD 200
- Coverage: 55% women, 15%+ dalit, over 40%+ Janajati / Madeshi
- Created directly and indirectly over 240,000 jobs

### SIMI Approach: Smallholder Commercialization

- Social Mobilization and Agricultural Training
- Supply chain development for micro irrigation and agricultural inputs/technologies
- Output marketing - collection centers
- Small-scale water development - multiple use water systems
- The public sector is crucial for investment in public goods and coordination and strengthening of value-chain actors to take advantage of opportunities
- Cross cutting: Gender/Dag empowerment, governance, OVC health and nutrition



### Local Service Provider Effect

Vegetable income for SIMI households with input provider in same VDC vs. not in same VDC 2008-2009 (USD)

Comparison	Treatment	Control	Difference	n	T-Score
SIMI inputs in VDC – SIMI inputs not in VDC	258	162	95	197	4.12

Vegetable income for SIMI households using collection centers vs. not using collection center 2008-2009 (USD)

Comparison	Treatment	Control	Difference	n	T-Score
SIMI CC – SIMI non-CC	292	160	132	168	4.74

The study also shows that SIMI CC farmers receive 20 percent higher prices for their vegetables than do farmers in the control group

### Micro Irrigation Technologies

All Technologies promoted by IDE are manufactured in Nepal and marketed thru a private sector network of manufactures, wholesalers, dealers, and mistris.

#### Micro Irrigation – Treadle Pump

- IDE has developed the manufacturing base for treadle pumps
- Treadle pumps can irrigate up to 2,000 Sq-Meters and cost about \$40 with drilling costs
- Farmers can easily earn Rs. 20,000 and more with a treadle pump
- Treadle Pumps are a stepping stone to pumps sets

#### Micro Irrigation – Drip Systems

- IDE has developed low cost individual systems that cover from 80 sq meters to 2,000 sq meters
- Small systems cost only \$25 and can give \$100 return from one crop
- Drip systems decrease water use by up to 70% and increase plant yields by up to 50%
- IDE will test a new generation of drip systems for Nepal in partnership with NARC

#### Micro Irrigation – Sprinklers

- IDE has recently developed the capacity in Nepal to manufacture micro sprinkler heads
- Sprinklers are low cost, good for non-row crops and nearly as efficient as drip irrigation
- IDE systems require a head of only 10 meters and are designed for terraces



### **Multiple USE Water Systems (MUS): PPP: DOA, DOI, Local Government, Smallholders, VC actors and IDE/ facilitators Allow for density of MIT adoption**

- Less than \$100 per HH with annual returns around \$200 per HH
- 120 MUS serving 2,000 HHs
- Health benefits and reduces workload of women
- There is now an understanding of MUS benefits and interest
- Challenge is it crosses lines between agriculture and drinking water

### **SIMI Food Security Impact**

- HHs increased consumption of vegetables (about 15% of consumption)
- HHs increased production and productivity of food crops
- HHs increased expenditures on food by \$12 per month and consumed more nutritious foods
- For selected HHs with children under 5 SIMI had a Nutrition/Health training which further increased impacts
- SIMI extended the service provider network. High value crops justify service providers in pocket areas but these service providers also increase food crop productivity

### **Key Findings / Recommendations**

- **Smallholders can be the most efficient producers:** given access to appropriate technologies, knowledge, market channels, and an enabling environment
- **Irrigation is critical for successful smallholder commercialization:** including adoption of micro irrigation technologies and piped water irrigation systems (note surface water systems get most of the investment but are not suitable for horticultural crops)
- **Local Service Providers:** Need to develop input suppliers and collection centers within production pockets
- Horticultural development targeted to the poor will have a strong food security benefit. The key is to increase the income and productivity of the food insecure.