

Scaling up micro-irrigation systems: Outcome report

The SCAMPIS project aimed to improve the food security of 30,000 vulnerable smallholders in three countries through the use of micro-irrigation systems (MIS) and natural fertilizers and pesticides.

Low soil fertility and water scarcity limit the productivity of land cultivated by poor smallholder farmers everywhere, and climate change is worsening the problem. SCAMPIS worked to address these problems in Guatemala, India and Madagascar.

SCAMPIS, which began in December 2008 and concluded in July 2012, promoted micro-irrigation technologies that enable farmers, especially women, to make best use of limited water and to buy natural fertilizers and pesticides at affordable prices. Its objectives were to:

- Improve food security
- Improve water management to increase the water available for agriculture
- Help smallholders mitigate water scarcity during dry seasons
- Improve soil fertility
- Strengthen private sector supply chains to deliver micro-irrigation technologies and equipment



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Results from Guatemala, India and Madagascar

Increased productivity per plot (growing tomatoes; yield increase per 100 m² plot per cropping cycle):

- Guatemala: +125 kg (45%)
- India: +224 kg (564%)
- Madagascar: +140 kg (119%)

Increased income per family (growing tomatoes, dollar increase per 100 m² plot over 4 weeks):

- Guatemala: +US\$30 (55%)
- India: +US\$40 (514%)
- Madagascar: +US\$27 (150%)

Time spent irrigating (hours per 100 m² plot per month)

- Guatemala: -42 hours (49%)
 - India: no previous irrigation
 - Madagascar: -43 hours (38%)
- Average reduction in time spent irrigating: 65 per cent

Decreased expenses on chemical pesticides per 100 m² plot

- Guatemala: -US\$46.2 (91%)
- India: no previous irrigation
- Madagascar: -US\$2.34 (88 %)

More food for the family: Micro-irrigation frees farmers from dependence on rainfall, allowing them to grow vegetables during the dry season. This leads to more diversity in family diets, improving health.

More income: With more output, farmers can now sell produce at the local market, increasing family incomes. This is a strong incentive for farmers to invest in micro-irrigation.

Time and labour savings: Use of technology reduces pests and makes it easier to weed and collect water, reducing the overall time spent cultivating irrigated crops.

Water and cost savings: The same amount of water now produces more vegetables, translating into a longer cropping season and a shorter hungry season. Reduced incidence of pests reduces costs.

Affordable and sustainable technology: Since micro-irrigation allows for a higher production, the rural poor can save on each harvest, along the life cycle of the equipment, and are eventually able to afford to purchase new equipment from the market.

Longer cropping season (number of weeks per 100 m² plot per year):

- Guatemala: +4 weeks
- India: +4 weeks
- Madagascar: +8 weeks

Increased family savings (US dollar equivalent for tomato crop over 100 m² plot every 4 weeks)

- Guatemala: US\$22 (254%)
- India: US\$40 (3,056%)
- Madagascar: US\$14 (359%)

Water saved (litres per 100 m² plot per 4 weeks)

- Guatemala: -25,900 litres (66%)
 - India: no previous irrigation
 - Madagascar: -14,200 litres (53%)
- Average water saving: 46 per cent of water consumption

Number of harvests of low-value crops needed to buy a renewal of 100 m² kit at market price

- Guatemala: 2 harvests
- India: 1 harvest
- Madagascar: 0.5 harvest

Country	Guatemala	India	Madagascar
Implementer	Fundación de la Caficultura para el Desarrollo Rural	International Development Enterprises – India	Agronomes et Vétérinaires Sans Frontières
Beneficiaries	<ul style="list-style-type: none"> • 13,880 households reached • Initial goal: 10,000 households 	<ul style="list-style-type: none"> • 11,905 households reached • Initial goal: 10,000 households 	<ul style="list-style-type: none"> • 4,694 households reached directly, 9,312 households reached with partners • Initial goal: 10,000 households
Strategic innovations	<ul style="list-style-type: none"> • Developed new school gardens using MIS and natural fertilizers • Worked through groups of farmers and coffee producer cooperatives • Complemented micro-irrigation practice with capacity-building in nutrition (nutritious recipes and more diet diversity), health and hygiene • Connected local retailers to national providers of low-cost micro-irrigation technologies 	<ul style="list-style-type: none"> • Developed equipment markets where none previously existed in Koraput and Gajapati districts, Orissa region • Worked with self-help, village-based microfinance group of 10-30 women • Implemented promotional strategy from district to village level • Collaborated with regional rural development programmes: Orissa Tribal Empowerment and Livelihood Programme and Integrated Tribal Development Agency 	<ul style="list-style-type: none"> • Developed equipment markets: from manufacturing to distribution and promotion at village level • Proposed client-specific subsidies policy • Created new job opportunities in manufacturing, promotion and profitable farming • Worked with groups of farmers, independent farmers and agrocooperatives • Brought together a wide range of stakeholders and clients to ensure sustainability • Linked to a number of projects to scale up micro-irrigation (Capfida; PPRR; EU; AROPA; FAFAFI; PROSPERER; AD2M)
Technical innovations introduced	<ul style="list-style-type: none"> • Downsized the commercially available 600 m² MIS to 100 m² and 50 m² MIS for vulnerable smallholders • Introduced natural fertilizers (vermiwash and vermicompost) to maintain soil fertility and increase production • Introduced natural pesticides to reduce crop losses at little cost • Provided filters for drinking water to ensure water quality • Introduced practices for intensive cultivation, crop diversification and synergies between crops 	<ul style="list-style-type: none"> • Locally produced 100 m² and 20 m² MIS: farmers find it extremely easy to use and to maintain • Surface treadle pump to lift water from a stream or well: farmers are less dependent on rainfed farming • Natural fertilizers (vermiwash and vermicompost) maintain soil fertility and increase production • Introduced natural pesticides to reduce crop losses at little cost 	<ul style="list-style-type: none"> • Adapted design and local manufacturing of 100 m² and 50 m² MIS • Designed and locally manufactured pedal pumps using recycled plastic material (registered innovation) • Built capacity for sustainable extension services in intensive cultivation, crop diversification and synergies between crops

SCAMPIS Management team
International Fund for Agricultural Development
Via Paolo di Dono, 44 - 00142 Rome, Italy
www.ifad.org/english/water/scampis
scampis@ifad.org