



Investing in rural people

Spate irrigation for rural economic growth and poverty alleviation

GRANT RESULTS SHEET



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The goal of this programme was to develop spate irrigation policies and programmes that contribute to reducing rural poverty and accelerating economic growth

Goals and objectives

The goal of this programme was to develop spate irrigation policies and programmes, based on action research and documented practical experiences, that contribute to rural poverty alleviation and accelerated economic growth in marginal areas in Ethiopia, Pakistan, Sudan and Yemen.

Specific objectives

- Strengthen networks in the four countries.
- Prepare country policy notes.
- Implement two innovative action research activities per country that can be scaled up.
- Further develop knowledge, including in local languages, and open-source knowledge-sharing.
- Train four international MSc students.
- Incorporate spate irrigation into programmes of universities and agricultural colleges in the four target countries.
- Create a global inventory of spate irrigation and flood-based farming systems.
- Provide technical backstopping to IFAD projects and country programmes.

Specific development challenges

- Spate irrigation systems are far removed from centres of political power and thus have been passed over in policy support, investment and innovation – they were very much the “forgotten breadbaskets”.
- Spate irrigation systems are not part of any education programmes, and thus technical know-how and documented good practices are limited.

Programme components: (a) establishing and strengthening knowledge networks; (b) conducting action research that yields quick results by focusing on promising issues; (c) undertaking practical capacity-building activities and developing a knowledge base of innovations and good practices; and (d) on request, providing technical support to IFAD projects and country programmes.



Facts at a glance

Grant implementing agency

UNESCO-International Institute for Infrastructure

Themes

Strengthening the spate irrigation network; innovative action research; capacity-building, continuous knowledge development and dissemination; technical support to IFAD projects and country programmes

Benefiting countries

Ethiopia, Pakistan, Sudan and Yemen

Total programme cost

US\$1,600,000

IFAD contribution: US\$1,200,000

Cofinancing (other donors):
US\$400,000

Partners

Hydraulic and Environmental Engineering; Hydraulic Research Centre; Mekelle University; MetaMeta; Pakistan Agricultural Research Corporation; Spate Irrigation Network Foundation; Strengthening Partners Organization; Water and Environment Centre – Sana'a University

Effectiveness and duration

11 January 2011 – 30 September 2015

Linkages to IFAD investment projects

- Ethiopia: Participatory Small Scale Irrigation Development Programme
- Pakistan: Crop Maximization Support Project
- Sudan: Gash Sustainable Livelihoods Regeneration Project
- Yemen: Rainfed Agriculture and Livestock Project; Economic Opportunities Programme

Beneficiaries

Beneficiary groups	Benefits acquired
10,000 (30% women) visitors to www-spate-irrigation.org	Better know-how on spate irrigation systems
300 professionals/practitioners (20% women) who attended several training courses	Enhanced knowledge of spate irrigation development and management
200 farmer leaders (10% women) engaged in project implementation	Proven good practices (governance, conflict mitigation, operations and maintenance)
2,000 farmers (50% women) in the target countries	Better access to proven good practices
21 national/local institutions engaged in project implementation	Informed policy statements; understanding of practical investment opportunities
IFAD	Leadership in spate irrigation development and investment programmes
International organizations (Food and Agriculture Organization of the United Nations, German Agency for International Cooperation, International Water Management Institute, World Bank)	Improved knowledge base, outreach and leverage

Main results

Four country networks with a total of 400 members were created through the programme.

Spate irrigation mainstreamed in policy and investment programmes

- Pakistan: US\$300 million spate irrigation investment recommended in the Water Sector Task Force report prepared by the combined donors under the Friends of Democratic Pakistan
- Ethiopia: (a) Flood-Based Farming investment plan endorsed by the Ministry of Water Resources and Irrigation; (b) 20,000 hectares earmarked for spate irrigation development in the Tigray Region Growth and Transformation Plan.
- Yemen: spate irrigation featured explicitly in the Irrigation Sector Policy for the Ministry of Agriculture and Irrigation
- Sudan: spate irrigation policy note endorsed by the Ministry of Water Resources, Irrigation and Electricity.

Extensive knowledge generated and disseminated

- 25 action research initiatives responded to key technical, institutional and socio-economic problems
- Guidelines on Spate Irrigation capturing decade-long field experiences
- 42 practical notes and overview papers, and 30 videos including in local languages, shared in trainings, workshops and seminars
- *The Dry Side of the Indus*, the book exploring spate irrigation in Pakistan, published by Vanguard
- Regional symposium on controlling *Prosopis juliflora*, a major scourge in spate areas
- Six universities in the four target countries incorporated spate irrigation courses.

Actual impact on the ground

- Two schemes based on Spate Irrigation Network (SpN) hybrid design concept implemented by PASIDP in Ethiopia
- Improved earthen diversion bunds with porous spillways operational in DI Khan, Pakistan, by SpN and partners, with active participation of farmers
- Farmers, SpN and local government-championed bypass canal in Gash scheme in Sudan addressed downstream water scarcity problems, with implementation financed by GSLRP
- SpN-promoted electric milk churners started to enhance women's livelihoods in Sudan.

Gaber Sium, a model farmer from Ethiopia - Floods lifted my family out of poverty

Gaber Sium implemented the "floods for multiple use" concept, in close collaboration with the project team, and uprooted poverty from his family of five. His well-prepared 1.25 hectare sorghum and maize field, which mainly relies on direct diversion of floodwater, usually ensures cereal food self-sufficiency and provides livestock fodder. His floodwater-dependent and treadle pump-powered backyard pond irrigates 3,600 fruit trees (including mango, lemon, coffee and guava), generating 40,000 Birr (about US\$4,000) in annual income. Appreciate this inspiring success story at <http://www.thewaterchannel.tv/media-gallery/3268-traditional-spate-irrigation-practices-in-aya-valley>

Pakistan Agricultural Research Corporation (PARC) - Innovation strengthens earthen diversion bunds



Earthen bund with porous stone spillway (SpN, 2013)

PARC, in partnership with SpN and farmers, introduced innovative techniques, particularly the porous spillway, that significantly reduced flood damage to the earthen bunds widely used in DI Khan, Pakistan. The porous spillway allows slow, continuous seepage, preventing upstream floodwater pressure build-up and thus protecting the earthen bund from destruction. Further details are available at <http://www.thewaterchannel.tv/media-gallery/2082-media-1-earthen-diversion-bunds-spillways-in-spate-irrigation>

Women from Gash spate irrigation scheme in Sudan - Electric milk churners made us productive citizens

The objective of the project was to accelerate rural economic growth in spate-irrigated areas. This required women to be engaged in productive activities outside their agricultural activities in the field, aided by technologies such as the time-saving milk churning. The project introduced electric milk churners from Pakistan into Sudan. Twelve women in the Gash spate irrigation scheme found them very useful. In their words, compared to traditional churners they are easier to operate and reduce the time needed to churn 1 litre of milk to 20 minutes (a 50 per cent reduction). In addition, the women can produce three bottles (total 4.5 litres) of ghee per week and sell them on the market for a very attractive price – 140 Sudanese pounds per bottle (US\$17). For photos and videos, see <http://spate-irrigation.org/special-projects/equipment-for-rural-women/>.



Traditional versus improved milk churners (SpN, 2014)

The project supported the mainstreaming of spate irrigation in policy and investment programmes

Lessons learned

- The emphasis on action research, combined with directly implementable outcomes, was very useful to create interest in spate irrigation activities. However, even where there is better understanding and insight, more work is required to bring action on the ground.
- Interest among farmers was high, following the farmer-to-farmer learning events. Several farmers are still in contact with their peers in other areas, and this helps to disseminate ideas. Rooting SpN among the direct beneficiaries becomes increasingly easy with the spread of new means of communication (e.g. text messages, television

programmes featuring farmer innovations and success stories) and is the way to move forward for SpN, as well as for IFAD.

- Concentrating on well-defined (niche) topics improved the internal coherence of the programme and made it easy to develop a profile. This issue could be emphasized more in grant design and mid-term reviews.
- Working through a large network of practitioners and professionals and engaging young people helped develop critical local presence and ensure uptake of new ideas and research outputs. Internships for young talent and networking may need to feature more prominently as cross-cutting themes in IFAD grants.

Way forward

The grant put spate irrigation firmly on the map and it helped to document promising practices in various countries. During the engagements, it became clear that much ground could be covered in terms of spate irrigation and that the niche topics it represents pave the way for a strong community of practice. At the same time, it was realized that spate irrigation is part of a larger category of agricultural production systems, i.e. flood-based farming. Apart from spate irrigation, this includes flood rise and recession farming, inundation canals and the productive and multi-functional use of flood plains in general. It was realized that all of these flood-based systems are being ignored or have been forgotten, in spite of their ecological and economic value, for instance in sub-Saharan Africa. In addition, similar systems are managed very differently – for example in Bangladesh, Myanmar and Viet Nam. Hence there is an opportunity to strengthen capacity and networking on this broader definition of flood-based farming.

The grant was implemented through SpN, for the most part a network of spate irrigation professionals and practitioners that was set up in 2004. The activities under the grant allowed the network to grow substantially (from 100 to 700 people) and build a team of specialists familiar with the opportunities offered by spate irrigation. Recognizing the need and the potential for the SpN to consolidate and grow, and to become more engaged in implementation activities, the Spate Irrigation Network Foundation was registered in August 2014. The plan is that the Foundation will become a self-standing organization, bringing together farmers and practitioners, and liaising with those involved in implementing projects.

Knowledge generated

To support efforts to scale up or replicate success, as well as ensure that grant outputs and outcomes travel long distances and to varied audiences, extra outreach effort was channelled into producing videos documenting success stories that demonstrate how spate irrigation has transformed farmers' lives. Posters, practical notes and brochures were also produced, including in local languages. Since 2014, the focus has been extended beyond spate irrigation to include other flood-based farming systems such as flood plain agriculture, flood-spreading weirs and inundation canals. Despite the generation and dissemination of extensive knowledge products that were tailor-made for different audiences, achieving tangible impact on the ground – a central objective – remained in jeopardy. This prompted a major strategic shift. In mid-2012, the project redirected substantial resources to the often forgotten local partners – farmers and practitioners, and young professionals operating in remote areas. For instance, the network supported the participation of a model farmer from Ethiopia and a practitioner from Sudan in the 2012 World Water Week in Stockholm. In December 2012 and 2013, an extensive farmer-to-farmer exchange programme was implemented that led to field visits by over 100 Ethiopian, Sudanese and Yemeni farmers to the largest spate irrigation systems in Eastern Sudan and Yemen. Between 2010 and 2014, the network sponsored 12 young professional men and women attending the annual short course on spate irrigation held in the Netherlands (at UNESCO-IHE). These and other similar opportunities have been instrumental in developing local champions who are fully committed to representing the project and its activities on the ground.

All knowledge products can be freely accessed at: www.spate-irrigation and www.thewaterchannel.tv

Project website: <http://spate-irrigation.org/>; <http://www.thewaterchannel.tv>; <http://metameta.nl/>



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