## Evidences

### Study #3364

**Contributing Projects:**
- P456 - Sustainable Groundwater

**Part I: Public communications**

<table>
<thead>
<tr>
<th>Type</th>
<th>OICR: Outcome Impact Case Report</th>
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<tbody>
<tr>
<td>Status</td>
<td>On-going</td>
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<tr>
<td>Year</td>
<td>2019</td>
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**Title:** WLE/IWMI research and capacity building to support sustainable groundwater development and management in Laos influences policies and implementation programs

**Short outcome/impact statement:**

Research carried out by WLE/IWMI supported by the Australian Centre for International Agricultural Research (ACIAR) has had significant influence on groundwater management policies and practice in Laos. Laos adopted specific recommendations of the research for its national groundwater action plan, scaled out piloted sub-national groundwater management plans to other areas, used research results as inputs to a revised law on water resources, and included research findings in the draft national groundwater irrigation strategy.
Outcome story for communications use:
Research and capacity building efforts by the CGIAR Research Program on Water, Land and Ecosystems (WLE) have supported sustainable groundwater development and management in Laos, influencing national policies and implementation programs.

As Laos looks to build their irrigation capacity and cope with climate change impacts, a new National Groundwater Action Plan is guiding the country toward sustainable groundwater access.

The Action Plan was supported through four years of work by WLE and the International Water Management Institute (IWMI). Although the country has more freshwater per person than any other in Southeast Asia (7), most water for irrigation comes from rivers and lakes. Of the 80% of people who rely on agriculture for their livelihoods, only 20% have access to this resource. The rest struggle to grow crops during the country’s eight-month dry spell, and, as climate change progresses, the impacts of drought are increasing for everyone.

Building on the Lao Government’s emerging interest in groundwater development, the project aimed to enhance policies and understanding of the potential for sustainable groundwater management. The researchers took a two-pronged approach. First, they focused on assessing existing groundwater resources and considered how they might best be managed. Specific activities ranged from well drilling and testing, preparing new hydrogeological maps and models, understanding community perceptions of groundwater use and supporting local interns/Masters/PhD students. Second, they investigated the feasibility of groundwater irrigation, including appropriate technologies and practices. The project’s groundwater irrigation trials conducted with farmers showed that growing dry-season cash crops could be made profitable using groundwater. These ultimately contributed to Laos’ new National Groundwater Action Plan (7).

The project, supported by the Australian Centre for International Agricultural Research (ACIAR), was the first ever community-managed groundwater trial in Laos (18) at Ekxang village. Researchers, working with farmers and local authorities, installed two 30-metre tubewells and pumps to bring groundwater to adjoining fields. The researchers calculated that if a similar six-hectare scheme was fully adopted by farmers, the initial investment would cost LAK 18 million / hectare (USD $2000) and the Internal Rate of Return would be as high as 45% (11a).

Based on the project’s success and the implementation of the action plan, a follow-up initiative (12) is now under way. The project will investigate the potential for sustainably expanding groundwater in the drought-prone lowlands of Southern Laos.

Links to any communications materials relating to this outcome:
- https://www.flickr.com/photos/iwmi/8511829045/
- https://tinyurl.com/yckl44ap
- https://www.flickr.com/photos/iwmi/8511794165/
- https://tinyurl.com/ybcgxf37
- https://tinyurl.com/ybvbftdz
- https://tinyurl.com/y7ceodtt
- https://www.flickr.com/photos/iwmi/8512950956/
Part II: CGIAR system level reporting

Link to Common Results Reporting Indicator of Policies: Yes

Policies contribution:
- 507 - Laos national groundwater action plan and irrigation strategy & revised water resources law

Stage of maturity of change reported: Stage 2

Links to the Strategic Results Framework:
Sub-IDOs:
- More productive and equitable management of natural resources

Is this OICR linked to some SRF 2022/2030 target?: Too early to say

Description of activity / study: NA

Geographic scope:
- National

Country(ies):
- Lao People’s Democratic Republic

Comments: <Not Defined>

Key Contributors:
Contributing CRPs/Platforms:
- WLE - Water, Land and Ecosystems

Contributing Flagships:
- F4: Managing Resource Variability, Risks and Competing Uses for Increased Resilience (VCR)

Contributing Regional programs: <Not Defined>

Contributing external partners:
- IGES - Institute for Global Environmental Strategies
- ACIAR - Australian Center for International Agricultural Research
- Ministry of Natural Resources and Environment (Lao PDR)
- NUOL - National University of Laos
- MAF - Ministry of Agriculture and Forestry (Lao PDR)
- KKU - Khon Kaen University

CGIAR innovation(s) or findings that have resulted in this outcome or impact:
No

Innovations: <Not Defined>
Elaboration of Outcome/Impact Statement:
A research project conducted in Laos by WLE/IWMI from 2012-2016 with the support of the Australian Centre for International Agricultural Research (ACIAR) has had significant outcomes. The project included multiple national and international partners and focused primarily on the use of groundwater for agriculture. The project assessed groundwater resources and management and analyzed groundwater irrigation potential, technologies and practices. It delivered important outputs and outcomes in research content, capacity enhancement and awareness-raising (2). Groundwater has now begun to receive recognition in various water and agriculture sector policies and strategies in Laos, in part through this research. Notable examples include:

* The national groundwater action plan was influenced by the research findings in terms of its technical underpinnings and specific recommendations (e.g. a proposal for a national groundwater research and training center, though it has not yet been initiated) (7, 15).

* Sub-national groundwater management plans which were piloted by the research project in one area were subsequently expanded to other areas post-project by the Lao Department of Water Resources, one of the project partners (7, 16).

* A revised Water and Water Resources Law used inputs from the project team (7).

* A draft national groundwater irrigation strategy was heavily influenced by farmer-managed irrigation trials established by IWMI/WLE working collaboratively with the Lao Department of Irrigation and the Institute for Global Environmental Strategies (1).

The beneficiaries of the research include:

* Researchers and government officers such as the Lao Ministry of Natural Resources and Environment and the Ministry of Agriculture and Forestry through improved information/tools and greater capacity to explore, develop and manage the groundwater resources (4, 5, 6, 11).

* Development agencies through improved information and guidance for planning, which enables better integration of groundwater in irrigation development and river basin management (4, 5, 9, 10, 11, 12, 13); and

* Farmers have new climate-resilient options for enhancing their livelihoods (1, 3).

Outcomes achieved by the project can be attributed to a number of factors: (i) close engagement with the next and end users, including government institutions, over extended periods, often as research partners; (ii) alignment of project goals with the development priorities of the Government; and (iii) prioritized support for enhancing the skills of Lao nationals through postgraduate studies, internships and training courses (7). A small sequel project, also supported by ACIAR and WLE, has recently commenced (12).

References cited:

Quantification: <Not Defined>
Gender, Youth, Capacity Development and Climate Change:

Gender relevance: 0 - Not Targeted
Youth relevance: 0 - Not Targeted
CapDev relevance: 1 - Significant

Main achievements with specific CapDev relevance: Continuous engagement with Lao officials, often as joint researchers, combined with workshops on tools has enhanced capacity to manage groundwater sustainably (4, 5, 6, 11).

Climate Change relevance: 1 - Significant

Describe main achievements with specific Climate Change relevance: As a cross cutting issue, the role of groundwater in adaptation underlies much of the work. References 1, 2

Other cross-cutting dimensions: Yes

Other cross-cutting dimensions description: The opportunities and constraints associated with groundwater irrigation were investigated in depth in two contrasting villages. The results showed that differential access to water, land, and capital uniquely shape farmers’ livelihood strategies. The factors that drive farm households’ decisions to invest in groundwater for agriculture were revealed. Understanding how farmers view groundwater in relation to their farm household characteristics and livelihood strategies is essential if groundwater resources are to be successfully used support to agricultural development strategies in Laos (3, 9, 13).

The research brought about spinoff benefits by revealing the hidden costs of insecure land tenure for upland ethnic communities who had been resettled in recent decades and negatively impacted by land concessions (14).

Outcome Impact Case Report link: Study #3364

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