




**IMPACTS OF IRRIGATION SERVICE FEE ON
IRRIGATION PERFORMANCE AND HOUSEHOLD ECONOMY
IN THE RED RIVER BASIN, VIETNAM**

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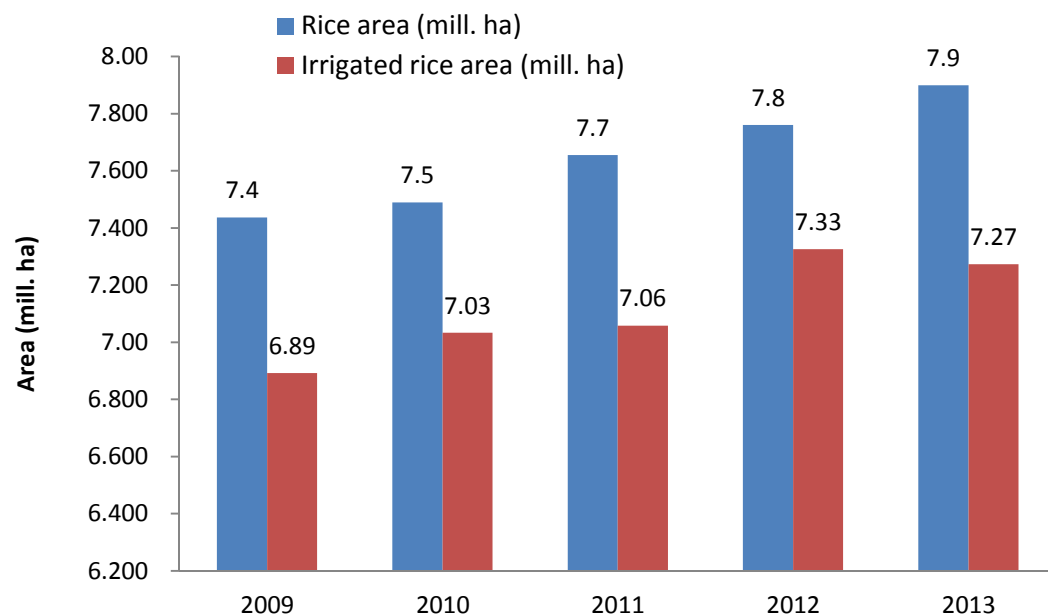
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VIETNAM**

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- **Context of the study**
 - **Objectives**
 - **Method**
 - **Results**
 - **Conclusion**

Importance of irrigated agriculture

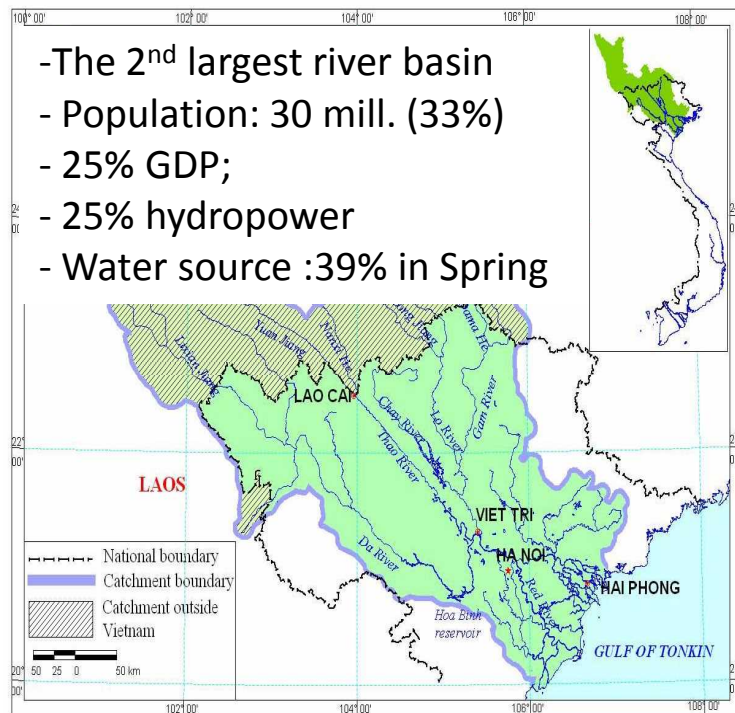
- Annually 7.3 mill ha of irrigated rice (93%)
- Rice production: 28 mill. tons,
- Exported rice: 7 mill. tons
- Food security: (90 mill. people)
- Leading rice exporter (3 bill. USD)



Challenges of irrigated agriculture

Rice irrigation - a major water “user”: 82% of total freshwater withdrawal

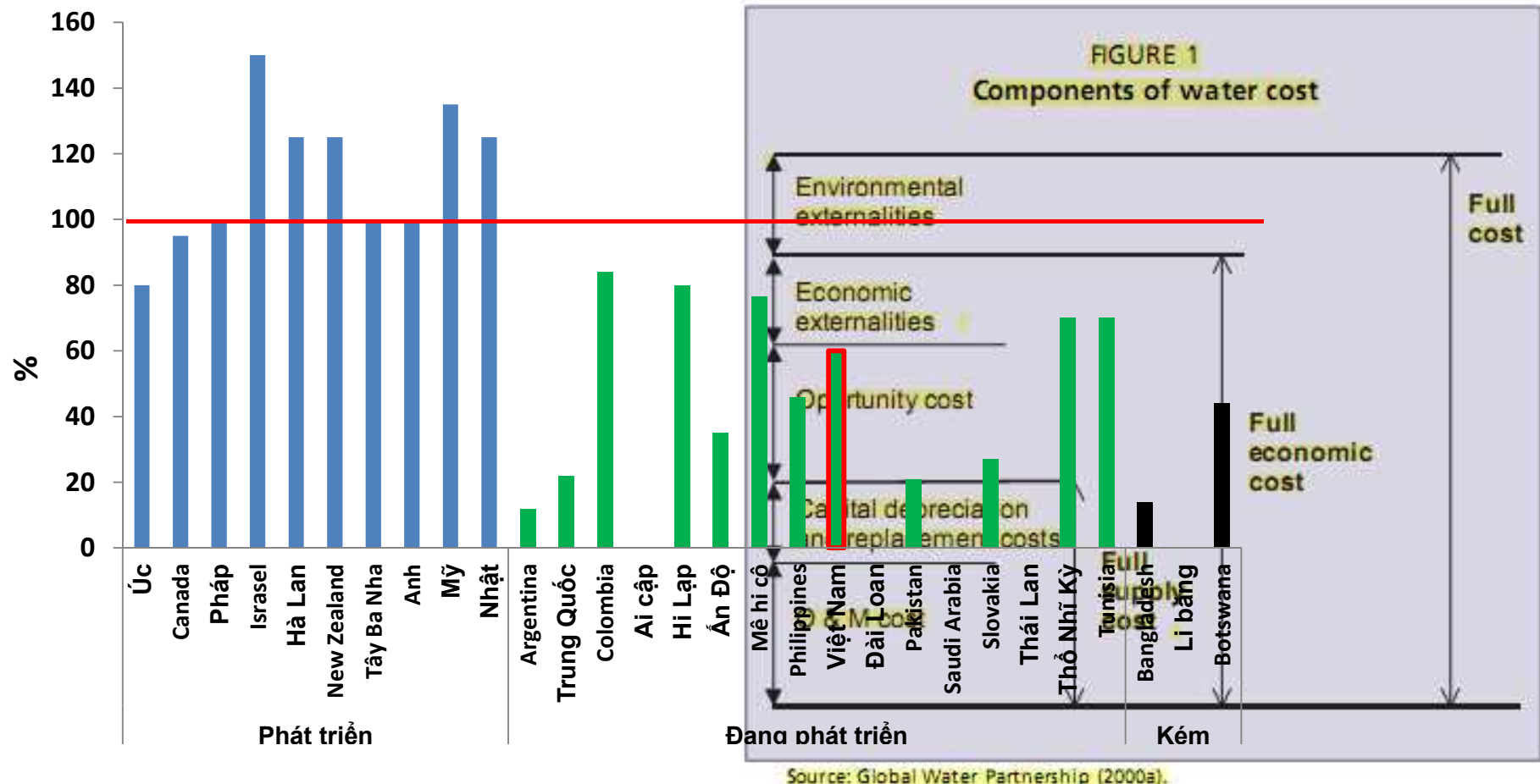
- Increasing competition in different water users
- Rice production vs. hydropower in RRB in Spring crop
- More water scarcity in the context of climate change



Improved agriculture water management?

Irrigation service fees (ISF) in Vietnam

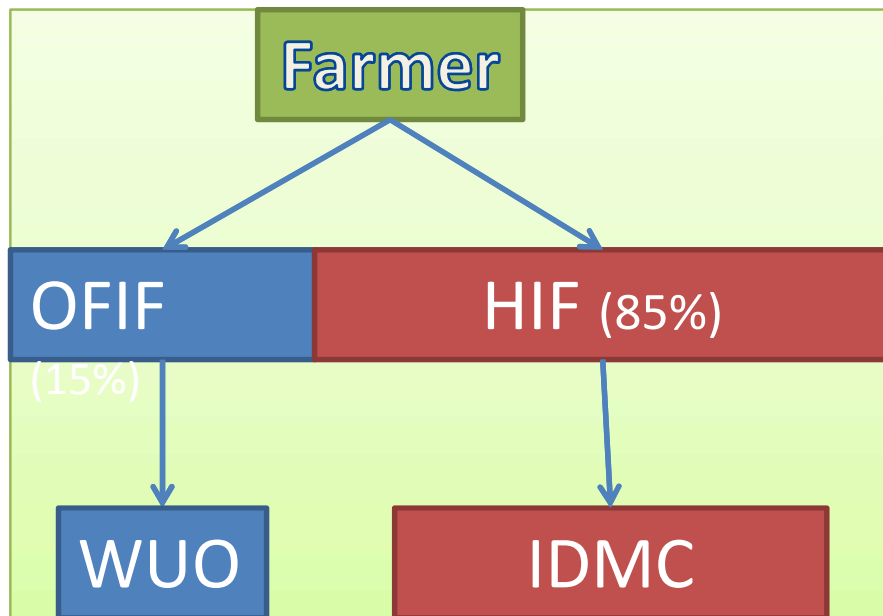
- An effective tool to improve water use efficiency
- Applied in Vietnam since 1960s
- Cost recovery: ISF accounted for 60-70% of O&M cost



Irrigation service fees in Vietnam (cont.)

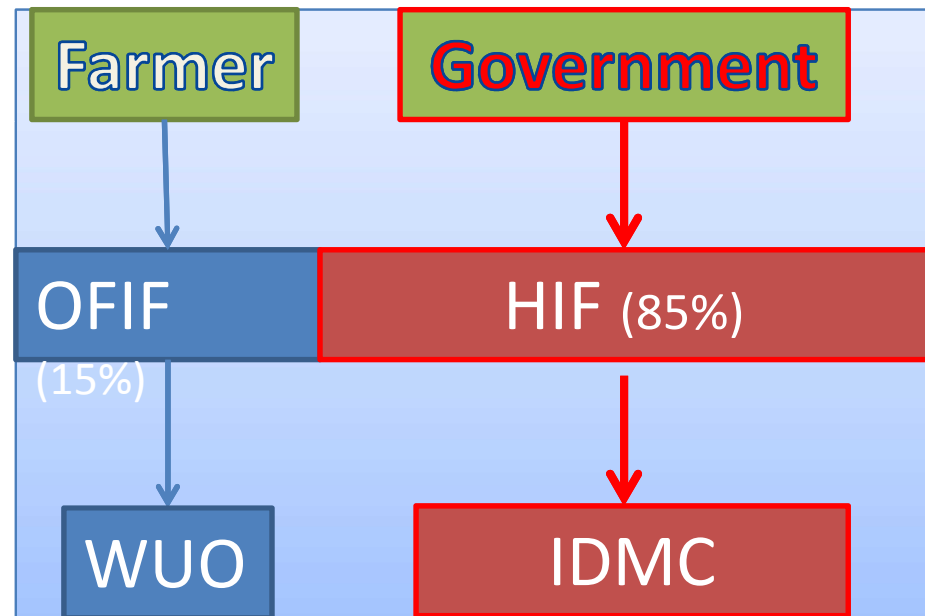
Before 2008, farmer pay ISF

- On-farm irrigation fee (15%)
- Headwork irrigation fee (85%)



Changing ISF policy in 2008

- Decrees: 154, 115, 67
- Govt. subsidizes Headwork irrigation fee



What are impacts of ISF exemption?



River basin?



Irrigation system?

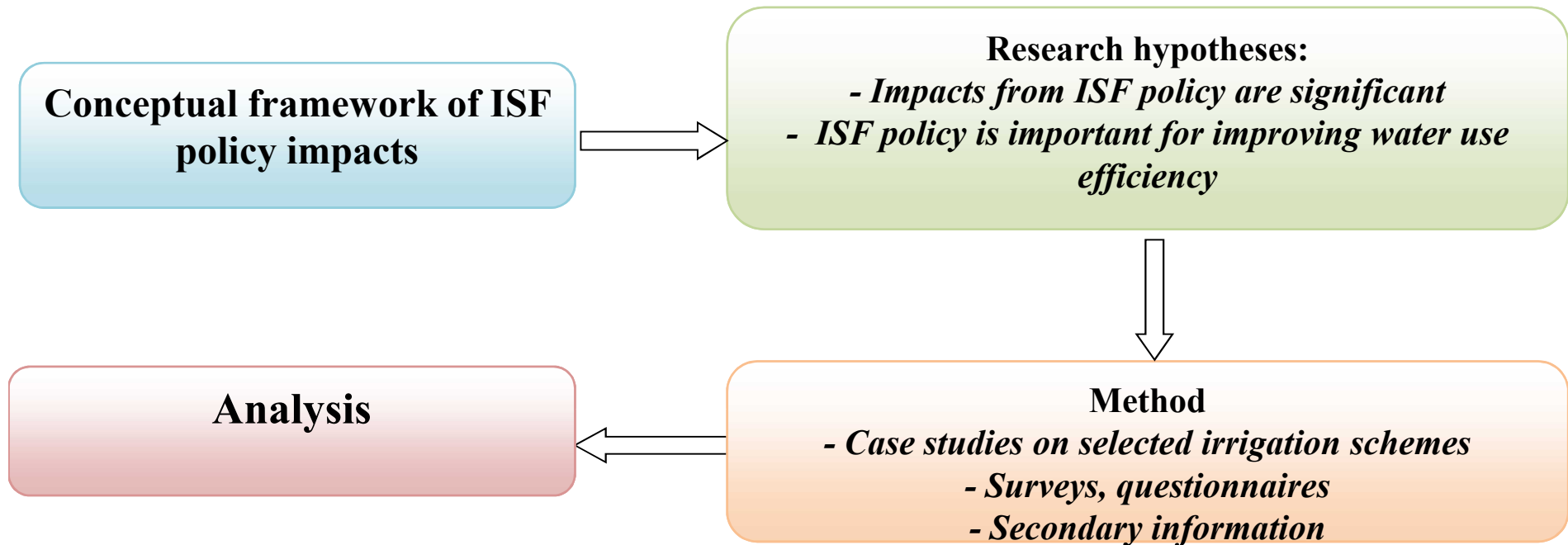


On-farm/household

Objectives of the study

- To evaluate & document the impacts of the ISF exemption policy on different water management levels in the Red River Basin
- To recommend the revision of the current ISF exemption policy.

Method of the study: Research framework



Impact evaluation method (*Difference-in-Difference*) is applied to quantify and evaluate the importance and impacts of the ISF policy at the on-farm/household level.

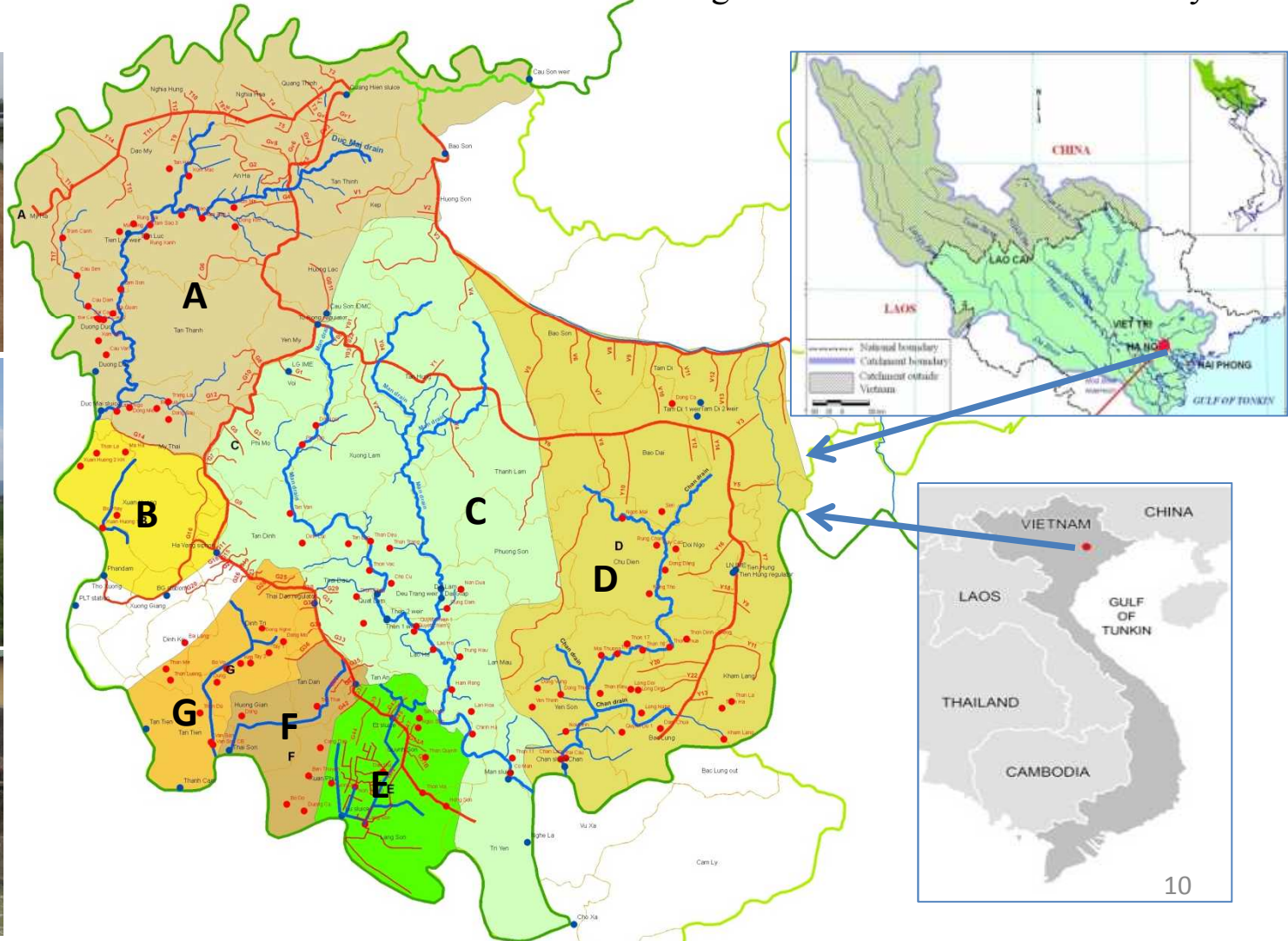
Study area

Red river basin

Cau Son irri. system

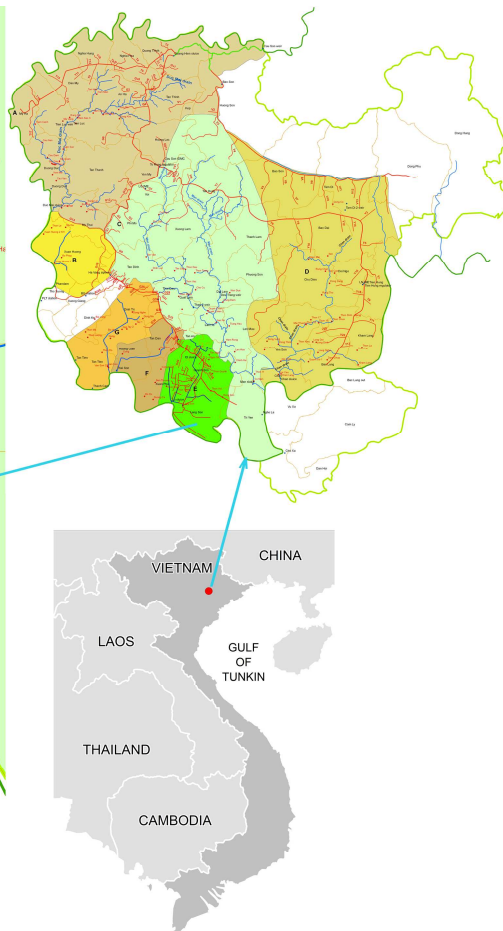
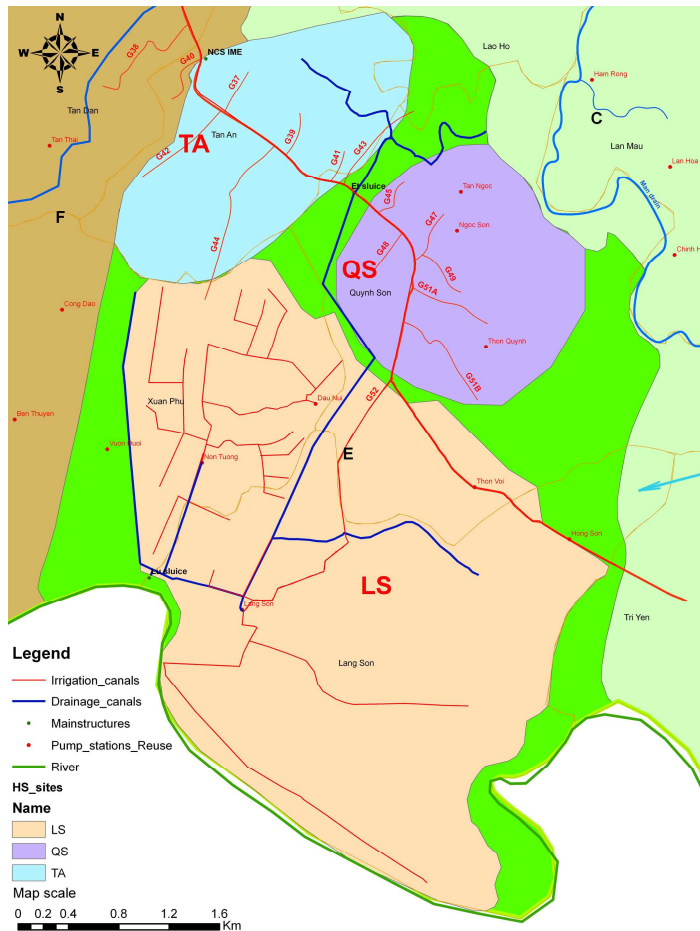


Drainage area: **44.600 ha**
 Irrigation area: **19.200 ha**
 CS canal scheme: & Pump stations: **230**
 Drains: **7 sub-catchments (A-G)**
 Management: IDMC /local community



Study areas: on-farm and household economy

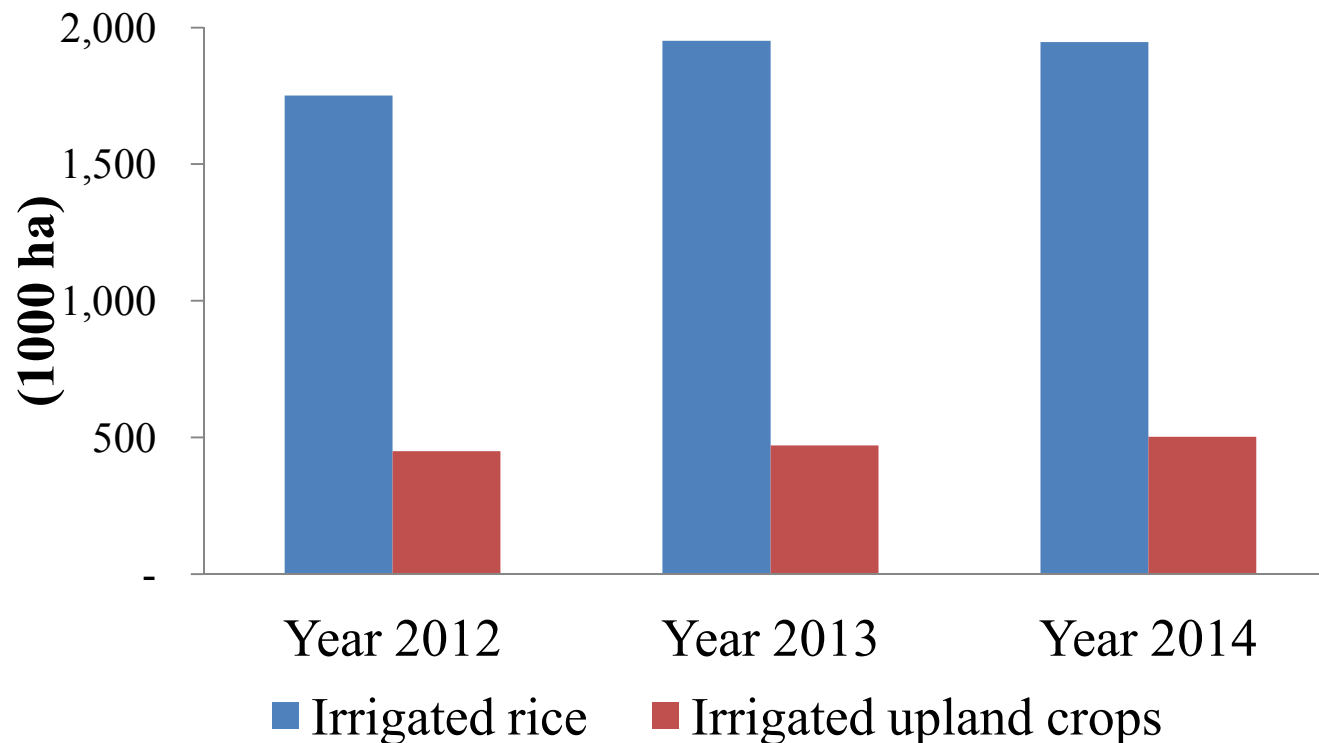
Surveyed: 100 hhs of 2008, 2009
 Years of survey: 2010, 2014



Results: Impacts at the Red River Basin (25 provinces)

Increase of irrigated area since ISF policy applied

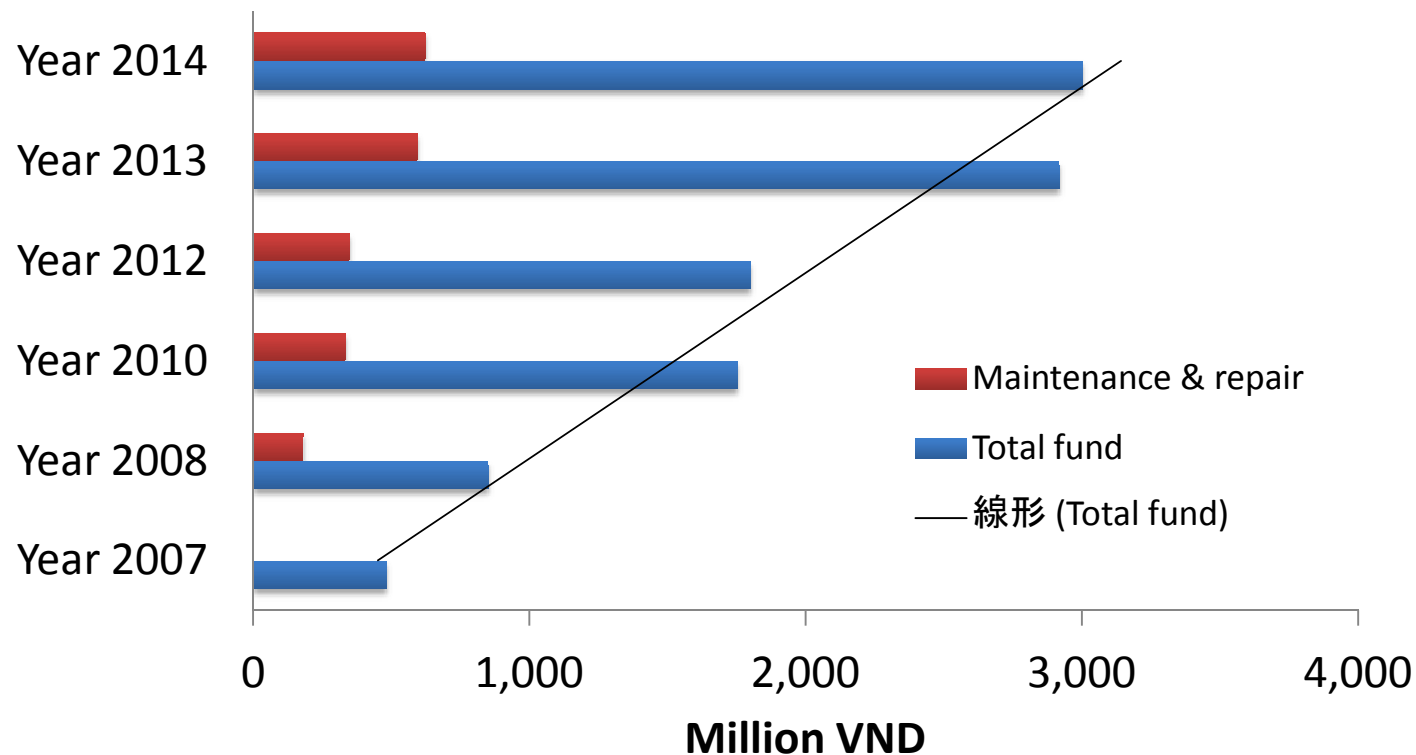
- Annual irri. area increased 63.800 ha (3% culti. area).
- The ratio of irrigated area to cultivation area increased from 85% to 91% (2008-2014).



Results: Impacts at the Red River Basin (25 provinces)

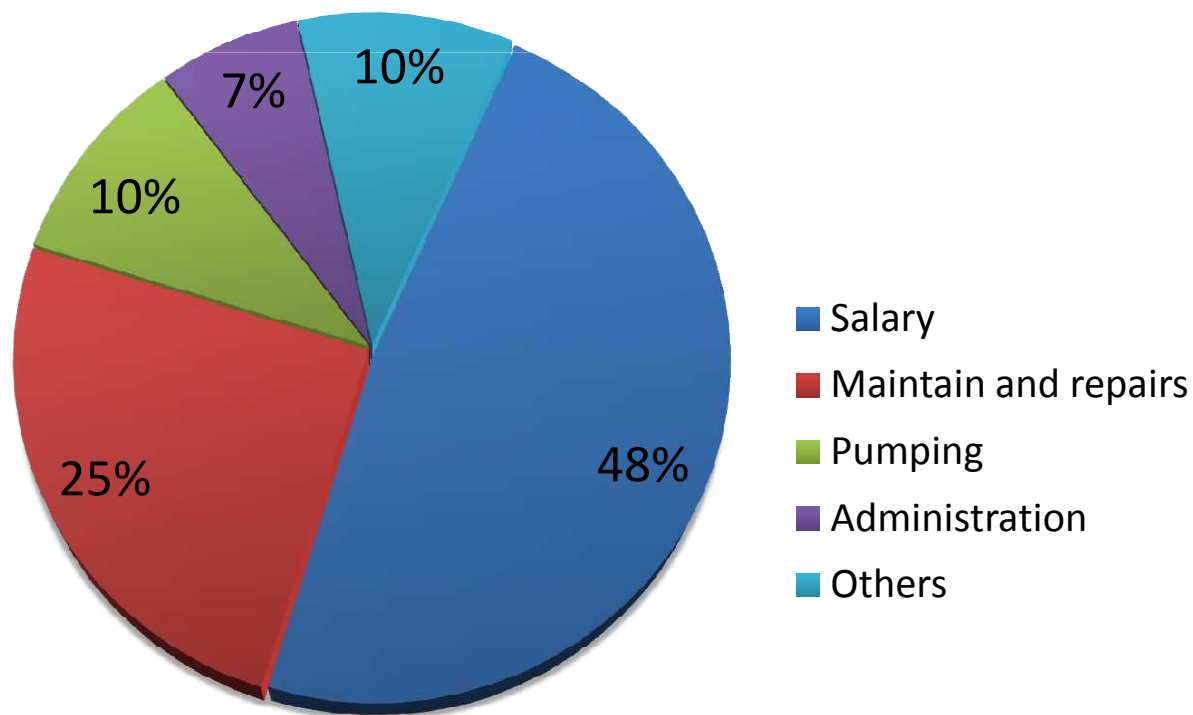
Increased O&M fund & decreased input cost for farmers:

- Total O&M fund risen significantly (3.5 times) from 846 to 2,998 bill. VND (2012-2014). 6 – times before vs. after the exemption.
- About 5,200 structures and 4,300 km of canals repaired.
- Farming cost decreased by 5-10% on average.



Results: Impacts at irrigation systems

- **High salary cost:** 25% increased staff in IMCs & WUOs → large salary cost (48%).
- **Water losses,** low water use efficiency in many irrigation schemes.
- **Weak cooperation** between IDMCs and WUOs.



Results: Impacts at on-farm and household levels

On-farm irrigation performance

- On-farm irri performance measured by flexibility, reliability & equity features.
- Flexibility, reliability and equity were very significant ($p < 0.01$) and negative.
- Performance of on-farm irrigation management was adversely affected.

Impacts on on-farm irrigation performance

Outcome variables	Diff-in-Diff	Standard error	T	p> t
Flexibility	-0.258	0.051	-5.07	0.000***
Reliability	-0.258	0.051	-5.02	0.000***
Equity	-0.248	0.061	-4.06	0.000***

* Means and Standard Errors are estimated by linear regression

Inference: * $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Results: Impacts at on-farm and household level

Agriculture productivity

- No influence on rice yield ($p > 0.1$) .
- *Similarly with other studies* found no impact of adoption of irrigation technology
- The impact on cultivation labor was not significant

Impacts on agriculture productivity

Outcome variables	Diff-in-Diff	Standard error	T	$p > t $
Rice yield	7.750	7.396	1.05	0.296
Labor for cultivation	-5.057	9.110	-0.56	0.579

* Means and Standard Errors are estimated by linear regression

Inference: * $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Results: Impacts at on-farm and household level

Household economy

- No influence on cultivation and total income, cost, except net cultivation income.
- ISF = 1-2% of total income, = 4-5% cultivation income (like *Cook et al.*)
- Positive impact on net income of cultivation could be by decreased cost

Impacts on household economy

Outcome variables	Diff-in-Diff	Standard error	T	p> t
Cultivation income	1.20E+06	8.70E+05	1.34	0.183
Cultivation cost	-3.80E+05	3.80E+05	-0.99	0.324
Net cultivation income	1.50E+06	7.20E+05	2.12	0.035**
Total income	8.60E+05	6.70E+06	0.13	0.897
Total net income	3.00E+06	4.00E+06	0.77	0.445

* Means and Standard Errors are estimated by linear regression

Inference: * p<0.01; ** p<0.05; * p<0.1

Conclusion

Both negative & positive impacts on irrigated agriculture by ISFE

- Improved irrigation facilities
- Substantially increased government budget (6 times)
- Low effectiveness/incentives in IDMC, WUO functions
- Low on-farm irrigation performance (26% of total irrigated area)
- No impact on agriculture productivity and household economy

Policy recommendation

- The policy on ISF exemption should be revised and follows the manner of service-oriented management (water pricing) – new law!.
- Form of subsidy for farmers by the Government should be changed.

Expectations to NARBO

- NARBO will continue promoting and coordinating Asia countries to share their knowledge and experiences in water management
- Supporting for researches, capacity building in water governance (law, policies) via training courses, workshops:
 - Development of relevant decisions on water resources: law and/or sound policies (water pricing)
 - Effective implementation of water-related regulations
 - Good lesson learnt, practices on water management in the context of climate change
- Providing technical support/advice for water planning; operation and maintenance of water facilities.
- Supporting for regional cooperation for improved water management of transboundary river basin (eg. Mekong river)

Thank you for your attention!

