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Hunger for Water

Water Governance in Irrigated Agriculture in Malaysia and Vietnam

Topic and Research Question

Water is one of our planet's most precious resources. While the world's population is constantly growing, resources get scarcer and are in need of effective management. Tying in closely are concerns of food security. As agriculture accounts for around 70% of the world's total water consumption and the world's population is growing constantly, it is estimated that food production will have to increase by 50% by 2030 (Özerol and Bressers 2017). The governance of freshwater resources in irrigated agriculture is one component that can have a great impact on food security and thus, people's livelihoods. Considered as a 'wicked problem', i.e. an issue that has multiple overlapping and interconnected subsets of problems and affects various interest groups, water governance in irrigated agriculture also stands in close connection to sustainable and economic development.

Asian countries have a per capita water availability of 6,380m³, which is less than half of the world's average. Furthermore, the continent has many arid or semi-arid areas and many countries are close to be considered under *water stress* or have already reached that point.

Thus, the main objective of this master's thesis is to analyze and compare the current state of freshwater governance in irrigated agriculture in the Southeast Asian countries of Malaysia and Vietnam and answer the research question: "What are the similarities and differences in water governance in irrigated agriculture in Malaysia and Vietnam?"

State of the Art

Water governance in irrigated agriculture is a multidisciplinary topic. It requires an approach that integrates aspects from social as well as ecological science.

The literature review revealed that there are various approaches to water governance, each emphasizing different aspects. Among these, integrated water resources management is one of the most commonly used, as it considers the spatial as well as sector-diverse structure of water governance and can thus highlight its complexity.

In regards to water governance for irrigated agriculture, a cross-sectoral approach is needed, as not only institutions and policies should be addressed but also different sectors (i.e. water and land) and actors. Bressers and Kuks (2003) developed a conceptual model for governance that demonstrates governance's

many-sided nature. Based on this model, Özerol, Bressers and Coenen (2012) developed criteria that enables comparison of different countries while, at the same time, focusing on the alignment of practices across scales and levels as well as allowing for the inclusion of different actors.

Methodology and Approach

Criteria of Cross Sectoral Alignment

| Criterion | Categories |
|----------------------|--|
| Actor Representation | Actors and levels, participation, resources |
| Issue Boundaries | Problem definitions and objectives, networks and instruments |
| Working Procedures | Strategies and instruments |

Source: Adapted from Özerol, Bressers, and Coenen 2012.

Based on the literature review, the thesis follows an eclectic and integrative approach. The proposed criteria of cross-sectoral alignment by Özerol, Bressers, and Coenen (2012) were used to develop an analytic framework that allows analysis and comparison of cross-sectoral alignment for water governance in irrigated agriculture with indicators that focus on different governmental set-ups, projects, and focus areas.

For the frameworks' application, databanks as well as a diverse set of literature and documents, including academic writings, grey literature, research from international collaborations projects, development agencies' reports, and government documents were used.

Main Facts

Malaysia's water governance for irrigated agriculture follows a mainly centralized approach. Governmental actors are present at the national and regional level, while farmers' are represented through farmers' organisations, which are under the authority of the Ministry of Agriculture (MOA). The role of NGOs in the sector is negligible. Responsibilities for water resources management split mainly between MOA and the Ministry of Water, Land and Natural Resources (KATS), thus causing sectoral fragmentation. Instruments used are mainly financial and infrastructural. MOA undertakes investments.

Vietnam's organizational structure follows a centralized approach. However, there are decentralization tendencies on the local level. Irrigated agriculture is represented on the national and provincial level; farmers are represented through WUAs, international

organizations, and NGOs. Dominant actors are the Ministry of Natural Resources and Environment (MONRE) and the Ministry of Agricultural and Rural Development (MARD), who also make budget and investment decisions. The Asian Development Bank and the World Bank are active investors in the sector, too. Instruments are mainly financial and infrastructural in nature.

| Criterion | Category | Malaysia | Vietnam |
|----------------------|----------------------------|----------------------------|---|
| Actor Representation | Organizational structure | Mainly centralized | Mainly centralized (decentralized on local level) |
| | Actor dominance | • MOA • KATS | • MONRE • MARD |
| Issue Boundaries | Alignment national & local | No • Fragmented Sector | No • Fragmented Sector |
| Working Procedures | Investment / distribution | Government • MOA | Government • MARD • MONRE International • World Bank • ADB |

Extract of applied matrix. Source: Own design.

Results

Both countries have similarities in their management of water resources in irrigated agriculture as well as differences.

Malaysia and Vietnam both follow a mainly centralized approach in their organizational structure. However, even though decentralization is acknowledged as an efficient tool throughout academic literature, only Vietnam shows signs of decentralization on the local level.

Dominant actors in irrigated agriculture are the respective ministries for water and agriculture. Responsibilities are shared between these two in both countries, leading to friction and competitive behavior as well as unaligned resources. This is also reflected under the criterion issue boundaries, which shows that the

alignment of national and local practices is insufficient in both countries. Malaysia as well as Vietnam both have a fragmented sector with unaligned resources, caused by the separation of bureaucratic responsibilities between water and agricultural authorities.

Similarities as well as differences can be found in the instruments used. Infrastructural and financial instruments are favored. However, they form in which they are applied differs. This is mainly dependent on two factors: (1) the already existing irrigation infrastructure in a given country; (2) the influence of ODA.

One of the most outstanding differences between both cases is the investment structure for irrigated agriculture. Whereas Malaysia relies mainly on government investment by MOA, Vietnam has an investment structure, which is split between MARD and MONRE but also includes investment by multilateral organizations such as the World Bank and the Asian Development Bank. Further, the inclusion of farmers through water-user associations and the involvement of international actors and NGOs is better developed in Vietnam than it is in Malaysia.

The research showed that water governance in irrigated agriculture is indeed a 'wicked problem' that is also on the agenda of policy makers but does not put enough focus on the inclusion of farmers. Used to increase rural employment and achieve food security, strategies have to be adapted to a country's specifics to be effective and sustainable and must include all actors involved.

References

All references can be found in the full version of the MA thesis available at <http://othes.univie.ac.at>.

About the Author

Hanna Andrea Sand holds a BA degree in Sinology and Theatre, Film and Media Studies from the University of Vienna, Austria. She has worked in China, Germany, and Austria. Research interests include freshwater governance as well as international relations in South and Northeast Asia.

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