

Influence Network Mapping:

Mapping linkages of Water Users' Associations in IFAD-supported LACOSREP in Northern Ghana

A tool to understand how local and external actors shape the governance of small reservoirs



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The views expressed in this report do not necessarily represent the views, opinions or positions of the institutions that the authors represent. The data presented in this report reflect the opinions of the interview partners and not necessarily the views of the entire community or the water users of the Kassena-Nankana district.

Cover Photo: Interview with the chairman of the Water User Association of the Gia community (Source: Schiffer, 2007)

Acronyms and Abbreviations

AgSSIP	Agricultural Sub-Sector Investment Project
CGIAR	Consultative Group on International Agricultural Research
DoCoop	Department of Cooperatives
DoFore	Department of Forestry
IFAD	International Fund for Agricultural Development
IFAD PT	IFAD, Technical Advisory Division
IFPRI	International Food and Policy Research Institute
INNOWAT	Innovations in Water
LACOSREP	Upper East Region Land Conservation and Smallholder Rehabilitation Project
MoFA	Ministry of Food and Agriculture
MoFish	Ministry of Fisheries
NG	Northern Ghana
Net-Map	Influence Network Mapping Tool
WUA	Water Users' Association (of small reservoir)
WUA exe	Water Users' Association executives
ZEF	Center for Development Research, University of Bonn, Germany

Table of Contents

Acknowledgements.....	3
Acronyms and Abbreviations	4
Table of Contents.....	5
Summary	6
1. Background/Introduction	7
2. Purpose and Objectives.....	8
3. Data Collection	8
3.1 The Interviewing Processes	8
3.1.1 Formulation of the Research Question	9
3.1.2 Selection of Reservoirs and Interview Partners (selection criteria).....	9
3.1.3 Defining Links	10
3.1.4 In the Field.....	11
3.2 Materials Used and Location of Interviews	12
3.3 Limitation of Exercise.....	12
4. Findings from the Exercise	13
4.1. Influence Network Maps of Paga-Nania Community	13
4.2 General Network Structure for Paga-Nania community.....	13
4.2.1 Instruction Analysis	14
4.2.2 Help and Support Analysis	15
4.2.3 Disturbance Analysis	16
4.2.4 Influence of Actors	17
4.3 Outcome from Knowledge Profiling Workshop.....	138
4.4 Conclusions and Recommendations	19
4.5 Lessons Learned.....	20
5. Outlook: Net-Map in the Context of Development Institutions such as IFAD	21
5.1. Using Net-Map in the Process of Planning and Initiating Interventions	21
5.2. Net-Map as Part of the Project Implementation	22
5.3. Net-Map for Monitoring and Evaluation	22
Appendix.....	24
References.....	26

Summary

This report is the outcome of field investigation on how development organisations can use a new participatory social network analysis tool (Net-Map) within the context of community based governance systems such as local water resource management. Net-Map is an interview-based mapping tool that helps the interviewer as well as the interview partners to understand, visualize, discuss, monitor, evaluate and improve situations in which many different actors influence the outcomes of any intervention.

The rationale behind the exercise was to demonstrate how this tool could be used in the context of the International Fund for Agricultural Development (IFAD) or development interventions of similar organizations. Special attention was given to the potentials of the tool to assist in the design/plan, implementation and evaluation of agricultural water projects. This report highlights the field experience in using Net-Map to understand the role of Water User Associations (WUAs) and other actors in local natural resources governance networks in Northern Ghana. The WUAs were developed under an IFAD project aimed at the construction and rehabilitation of small reservoirs as well as the development of participatory management strategies.

Within the scope of this exercise, the tool was applied in two communities in the Upper East Region in Ghana, where successful WUAs are considered to have been established. This report also describes the interviewing process and the strength and weaknesses of the tool. Two network maps drawn in Paga-Nania community are used as an example to draw findings in a qualitative and visual approach. Net-Map was used to identify the actors involved in water governance at these small reservoirs and analyse their interlinkages and influence on the water use. The method and the preliminary findings from the field investigation were presented at a multi-stakeholder Knowledge Profiling workshop in Northern Ghana. The presentation resulted in stimulating discussions among the workshop participants. Both the Net-Maps and the discussions at the workshop showed that WUA executives (chairman, secretary, treasurer) play a crucial role in local water governance and brokers between the communities and external actors, like the Ministry of Agriculture. Although there are hierarchical structures, dense reciprocal “help and support” linkages were found in a balance with some “disturbances” amongst the main water users. The fact that many users engage in more than one water use (e.g. being gardeners and livestock owners or gardeners and fishermen) proved to be a conflict-minimizing factor.

While this exercise mainly consisted of singular, ad-hoc and ex-post activities, Net-Map shows a high potential to be integrated into a bigger conceptual framework of development interventions. Using Net-Map in the process of planning and initiating interventions can help to identify possible drivers of change, power-broker, weak points in the network, main channels of different flows, etc. In this stage it can also be helpful as a door-opener for future collaboration. During project implementation, the tool could be used for the facilitation of group processes to visualize structure and discuss matters of formal and informal governance, which are otherwise difficult to handle. As a monitoring and evaluation tool, Net-Map can be used to cross-check the attainment of project aims such as empowerment of disadvantaged groups or the involvement of all stakeholders in community development activities. The tool enables the comparison of different stages of interventions and thus the possibility to discover what kind of social processes support successful projects and thereby contributing to the improvement of local people’s livelihoods.

1. Background/Introduction

For more than a decade now, the International Fund for Agricultural Development (IFAD) has been extensively involved in small reservoir-based livelihoods interventions in Northern Ghana (NG)¹ which comprised the three poorest regions of the country. One of the most notable IFAD activities has been the construction and rehabilitation of small reservoirs in the Upper East Region through LACOSREP² Phases I & II from 1992 to 2006. In this project IFAD strived for the right balance between agricultural water infrastructure and participatory institutional developments³. As a result, considerable attention was given to the development of capable and sustainable local level water governance structures (Water Users' Associations - WUAs). Management responsibilities of the WUAs at the dam sites include regular operation and maintenance of the infrastructure, fair (seasonal) distribution and allocation of land and water, conflict mitigation between different user groups, collection of water user fees, etc. The WUAs were envisaged as a membership organisation following participatory decision-making processes. Amongst others they were ideally supposed to take over control of the irrigable land in the dry season (from November to April) from the original land owners through negotiated access rights. However, in the rainy season (from May to October) the old/original land owners would mostly take back control over the land and cultivate it until the next dry season. The long term aim for the WUAs is to ensure sustainable management of this established and rehabilitated infrastructure and thereby enhancing the livelihoods of the WUA members (IFAD 2001).

Moreover, donors and policy makers alike consider the increasing role of WUAs in participatory land and water management very important for effective natural resources governance and decentralisation processes⁴. Therefore, in institutional development interventions, WUAs have become the silver bullet to ensure the sustainable management of natural resource, particularly land and water at small reservoirs. However, while the evaluation of the quality of built infrastructure is rather straight forward, it remains a challenge to assess the quality of local water governance and the roles of the WUAs, especially with conventional methods. In addition, successful management of small reservoirs might not only entail governance activities *within* the WUAs and on the local level but also strong links to external agents, ranging from government officials through traders to NGOs and other service providers. As these institutional and governance challenges become more complex and diverse, the international development community, policy makers and researchers are constantly looking for new ways for understanding these complexities and diversities.

In this line, IFAD Technical Advisory Division (PT) Water Desk's on-going Innovation Mainstreaming Initiative (IMI) project (InnoWat) principally aims to build *strategic partnerships* for pro poor knowledge brokering. The goal is to identify and use *innovative tools and instruments* for learning and sharing of knowledge on Agricultural Water Management (AWM). To this end, IFAD collaborated with researchers from the Center for Development Research (ZEF) and the International Food Policy Research Institute (IFPRI) in an in-country collaborative "research for development learning loops" in Northern Ghana. In a learning-by-doing approach, the Influence Network Mapping tool (Net-Map, developed recently by Eva

¹ Northern Ghana comprised the three political administrative regions namely Upper East, Upper West and Northern Region (www.ghanadistricts.com)

² Upper East Region Land Conservation and Smallholder Rehabilitation Project Phases I & II: <http://www.ifad.org/english/operations/pa/gha/i503gh/index.htm>

³ <http://www.ifad.org/english/operations/pa/gha/index.htm>

⁴ <http://www.ruralpovertyportal.org/english/topics/water/ifad/index.htm>

Schiffer, IFPRI) was applied on local land and water governance settings. This participatory tool⁵ was used to explore actors and organisations that influence the water uses of small reservoirs/dams at the community level in the context of the IFAD funded LACOSREP.

Net-Map can generally be used to (1) identify and understand dependency networks pertinent to service delivery and decision making, (2) to monitor and evaluate the intensity and character of effects/impact of such (reciprocal) relations between actors, (3) build and improve networks for improved governance on different scales (e.g. local, district, regional, national and international) and on different levels (e.g. community, policy, project, institutional, etc., levels). Net-Map was developed to provide an easy and open access tool to raise the awareness of actors on their roles through dialoguing and for transparent decision-making processes among the (interlinked) actors.

This report is structured into four chapters with chapter one being the background and introduction of this exercise. The purpose and objectives of the exercise are provided in chapter two. The method of data collection is described in in chapter three. The findings of the exercise are elaborated in chapter four, which incorporates a multi-stakeholder feedback and the lessons learned. The final chapter highlights three possible uses for Net-Map in development institution or organization.

2. Purpose and Objectives

The purpose of this field work was to investigate how Net-Map could be used in the context of IFAD, especially focussing on the design and evaluation of agricultural water projects such as LACOSREP. It was explored how the tool could be used for local awareness creation and for the facilitation of discussions about networks and influence. Furthermore it was explored in what way Net-Map could structure local accountability management and how it could be used by development planners and designers to understand institutional development.

While the main objective was to determine the application of the method in this field, the exercise was also used to collect data. This data will help to better the understanding of how WUAs and other actors govern and manage small reservoirs and what (f)actors promote or hinder the success of WUAs. The exercise intended to evaluate the network-understanding of water users and the extent to which the networks could be activated to ensure effective and efficient performance of WUAs.

Based on the data collected in one community in NG the following chapter explores the different ways in which Net-Map can help to achieve the above mentioned goals.

3. Data Collection

The data collection took place in two communities in the Kassena-Nankana District. As this report is mainly concerned with methodological issues of Net-Map and it's usability in the field, the chapters below give a detailed description of the use of the tool in the field, necessary preconditions for the successful implementation, the field experience of the researchers and lessons learned in the process.

3.1 The Interviewing Processes

The following sub-chapters describe the preparation necessary before going to the field and give a step-by-step account of the use of the tool for the interview process.

⁵ An extensive manual for Net-Map can be down-loaded at:
<http://www.igm.uni-hohenheim.de/cms/index.php?id=pubs>

3.1.1 Formulation of the Research Question

Before going to the field, the objectives and research or evaluation questions to be answered with the Net-Map were set. In the context of the LACOSREP project, it was decided to formulate the general question as:

“Who influenced the use of water from this small reservoir over the past five years?”

In addition the following were some of the guiding questions:

- Which water users are included in the WUA?
- Who are other water users (non-WUA members)?
- Which water users form the WUA executive?
- How are women involved in the water use and in the WUAs?
- Who else influences the water use?
- What did change since the rehabilitation of the reservoir/dam?
- What is the role of the WUA in organizing the water use?
- Were there any groups empowered through the WUA?
- How much influence do the WUA executives have in relation to other WUA groups and other water users?
- Which kinds of conflicts do exist in terms of water use?
- Did the WUA resolve these conflicts and if so, how?

The rationale of these questions was to map out access to land and water of rehabilitated small reservoirs/dams as governed by WUAs and other actors.

3.1.2 Selection of Reservoirs and Interview Partners (Selection Criteria)

The exercise focussed on two dam sites namely, Gia and Paga-Nania in the Kassena-Nankana district of Upper East Region⁶. The choice of these sites was based on the perceived “successful” performance of the WUAs, relying on information from extension staff of the Ministry of Food and Agriculture (MoFA) and previous observations in the field. Furthermore previous work of Hauck made it easy to use a local translator who is familiar with the communities and the Net-Map tool. Fully aware of the “access trap” but unable to avoid it, the two communities’ strategic location to access roads and other infrastructure as well as help from extension staff to identify interview partners helped to cope with the time limitation.

Generally, the use of Net-Map required interview partners who have adequate knowledge of the history and current performance of the WUAs. In this respect, it was considered to be useful to include WUA executive members in the interviews. In the case of Paga-Nania, the WUA chairman was interviewed alone as the other executives could not be reached. In Gia, it was possible to interview three executive members of the WUA. Apart from the network maps of the WUA executives, two other interview settings were arranged. The first Net-Map suggested the selection of fishermen as second interview partners in the Paga-Nania. In Gia however, it was decided to interview a new gardener⁷ who was given an irrigation plot in the last irrigation season to enquire about land distribution issues and “inclusion and exclusion of new WUA members.”

During the two field days, four Net-Maps were drawn involving a total of seven interview partners. There was a gender-bias as all the seven interview partners were male water users. However, one female on-looker farmer was very assertive when questions concerning women’s roles were asked during one of the interview sessions.

⁶For more information on the district, see http://www.ghanadistricts.com/districts/?news&r=8&_ =105

⁷ People refer to garden plots as sizes that usually do not surpass 25x25 m

3.1.3 Defining Links

There are not only cultural and linguistic differences in the interpretation of ‘influence’, but even from individual to individual the understanding varies. A tool like Net-Map aims at helping development practitioners and researcher to understand and consolidate these different perceptions which drive social processes. However, when working with such an ambiguous term, explicit attention must be given to its definition within a specific social context. The definitions used in this exercise were based on the more extensive work of Hauck, who discussed the meaning of influence and the ways individuals can influence local governance with her interview partners in a study on local fishery’s management in reservoirs in the same district. The concepts were translated to the local Kassem language as shown in the photo below. Their English equivalent would be:

- *Instructions (Wade)*
- *Help/Support (Zeinem/Wolin)*
- *Disturbance (Daanem)*

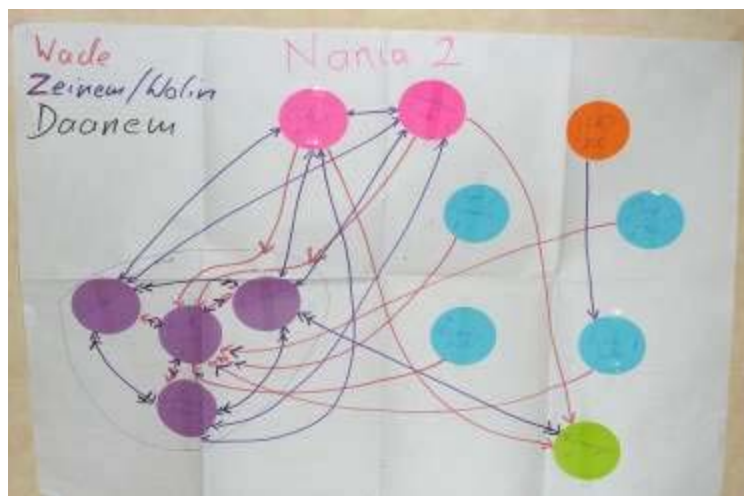


Photo 1: Net-Map of Paga-Nania with Kassem definition of influence (Source: Abukari, 2007)

The questions eliciting these links were:

- Who gave instructions to whom concerning dam water uses?
- Who provided support to or helped (this could be formal or informal, material or financial resources) whom?
- Who disturbs whom? Who has conflicting interests and how are these conflicts being resolved?
- Who of the identified actors influenced the dam water use most in the past years?

3.1.4 In the Field



Photo 2: Net-Map interview with Gia WUA executives (Source: Schiffer, 2007)

The following four steps were used for each interview session:

- *Contextualising the term influence*: At the beginning of the interview, a common understanding was sought by discussing the term influence and the three selected links with the interview partners. The interview partners were asked to give their explanation for each of the three links. Finally they were asked to provide specific examples to buttress their level of understanding.
Each of the three links was given a different colour when the map was drawn (see Photo 1 above). With their own specific colour the names of the links were written in the local language (Kassem) as legend in one corner of a big sheet of white paper.
- *Actors' identification*: The interview partners were asked to identify groups, organisations and institutions (these could be both formal and informal) that had influenced the water use of the small dams through instructions, help/support or disturbance. The names of actors were written on different coloured "post-its" (adhesive paper) to indicate groups and subgroups. For example blue cards were used for traditional authorities, red ones for government agencies and green ones for local water users. The post-its were then distributed on the white sheet of paper, grouping them according to colours (see Photos 1 and 2 above).
- *Drawing the links of actors*: The links were drawn as coloured one-way or two-way arrows between the actor cards. The drawing of links was done systematically and exhaustively for each of the selected influence links.
- *Building the influence towers*: As a final step, the interview partners were asked to 'rank' or score how much each identified actor influenced the water use. The influence was indicated with small disks put on top of each other to build a tower. The more influence an actor had, the higher the tower.

Before ending each interview sessions, which took between one and two hours, the interview partners were asked to modify the network map according to any afterthoughts concerning actors, links or influence. Moreover, the interview partners were given the opportunity to ask the interviewer for any question related to the exercise.

3.2 Materials Used and Location of Interviews

- *Location:* It is advisable to let the interview partners choose a neutral, convenient, and quiet place in a shaded area. Nearby school buildings in the afternoon and on weekends proved useful as well as benches under a nearby tree (see Photo 3 below).
- *Translator:* A local person was hired to translate the questions into the local language which is Kassem. It is advisable to draw a Net-Map with the interpreter before starting the exercise to make sure the procedures and terms used are clear. This interview can be used as part of the pre-testing of the method for the specific case.
- *Materials:* Coloured markers, adhesive tape, big white paper sheets, post-its, a big cloth or mat to sit on, tuck pins, disks to build towers (e.g. bicycles spare parts or checkers' pieces) were the materials used in this exercise. The photo below shows typical interview settings.



Photo 3: Net-Map interviews with some Gia WUA members (Source: Schiffer and Hauck, 2007)

3.3 Limitation of the Exercise

1. The exercise took place in the rain-fed farming season. As a consequence farmers were mostly busy on their farms, which are usually far away from the reservoirs and some of the selected interview partners could not be reached. This contributed to the limited number of interviews and interview partners.
2. The method is rather time consuming, even with limited links. Conducting the exercise especially in the rainy season might have caused some inconvenience and shortcomings in the interview partners' willingness to give exhaustive information. While the time needed differs according to interview question and interview partner, it is realistic to plan for at least one hour for one interview.
3. The information provided by the interview partners is qualitative and subjective. In a more exhaustive approach more Net-Maps would have to be done using primarily a snowballing approach for the selection of interview partners. Nevertheless it is crucial to keep in mind the less empowered groups that might not feature on network maps but whose views are crucial for understanding the pro-poor land and water governance effects of the intervention. In addition, non-network data would enrich the analysis. In this exercise, no triangulation of data with other actors and sources was done.
4. As mentioned above the main objective of this exercise was to determine the application of the method in this field. Thus the numbers of interviews is limited and this exercise could be used as a preparation for a more extensive study including more

The maps of Paga-Nania reflect the structure of the existing local networks as well as the position of the interview partners who drew the maps. It is obvious from the maps that the interview partners have a detailed and extensive picture of their networks both on the local level and concerning the external actors. The maps show that all the three influence links converge and emanate from the WUA executives although in the map of the WUA chairman the executives are included in the term Gardeners/WUA. In network terms, the WUA executives have a high *betweenness centrality*, meaning that they link a lot of actors who are not otherwise linked or are situated on the shortest path between two actors. Some authors relate betweenness centrality to power, as an actor with high betweenness centrality can *control* the interaction between other network members (Krebs 2004). In more concrete terms, if the WUA executives are the only entry point for external interventions to the water users, they can influence how the interventions will be shaped and who on the local level will have access to them. This position in the network is also called *broker*. A broker can close structural holes in the network (e.g. between local farmers and external agencies) which is seen as increasing the social capital of the broker (Burt, 2000). This can also lead to an increased potential for innovation within the whole network (as discussed in Granovetter’s classic argument about the strength of weak ties, Granovetter 1973).

Below the networks are analyzed more closely on each of the three links.

4.2.1 Instruction Analysis

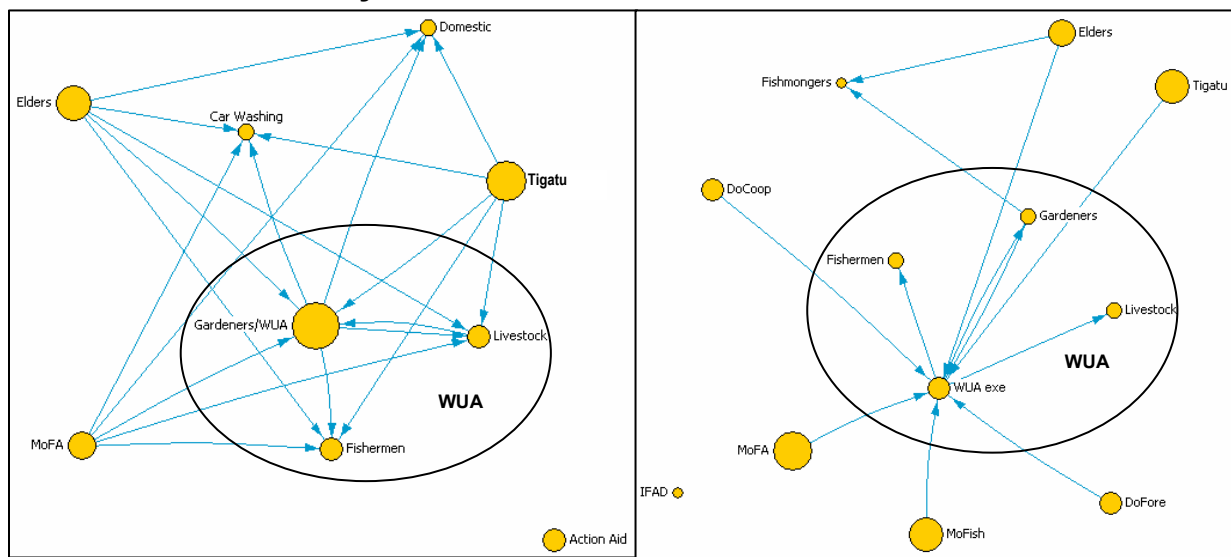


Figure 2: Paga-Nania Instruction Network

Left: Interview with WUA chairman

Right: Interview with two fishermen

The following could be extracted from Fig. 2 and from comments during the interviews:

- Most instructions were one-way links either coming from external or internal actors. However, the Net-Map with two fishermen (right of Fig 2) revealed a two-way link between gardeners and WUA executives and in the interview with the WUA chairman (left of Fig 2), gardeners and livestock owners were described as instructing each other. It was not exactly clear what kind of instructions the gardeners could give to other WUA members in this context.
- All government agencies mentioned gave some form of instructions concerning dam water use to the WUA. However, the Net-Map of the WUA chairman (left

diagram of Fig 2) identified only MoFA as a government agency while the Net-Map with the two fishermen identified several government agencies.

- Both maps show differing views about how instructions are given in the local governance network. Both see MoFA as one actor giving instructions, but while the WUA chairman saw MoFA directly approaching different actors in the network (both within and outside the WUA), the fishermen interviewed saw instructions from various government agencies being channelled through the WUA executives who in turn gives instructions to the users.
- At the community level, the elders and the *Tigatu* (traditional earth priest / land owner) instructed the WUA most concerning: Access to dry season gardening or reallocating plots for irrigation farming.
- None of the dam water users (gardeners, fishermen, livestock, domestic) seemed to *give* instructions to the external actors e.g. government agencies, NGO and traditional authorities (elders and *Tigatu*).
- Fishmongers (mostly women) surprisingly received instructions from dry season gardeners and not from the fishermen. This could be an overlap where some of the fishermen are gardeners or livestock owners.
- Car and motorcycle washers could be seen to receive multiple instructions from external and internal actors e.g. MoFA, traditional authorities e.g. elders and *Tigatu* and Gardeners/WUA executives.

4.2.2 Help and Support Analysis

The figure below shows a dense help and support network which differs substantially from the two Net-Maps in Gia community (see Appendix). The help and support could either be formal or informal ranging from the WUA getting formal, financial support for dam rehabilitation or dry season gardening wire fencing to fishermen giving fish to elders and *Tigatu*.

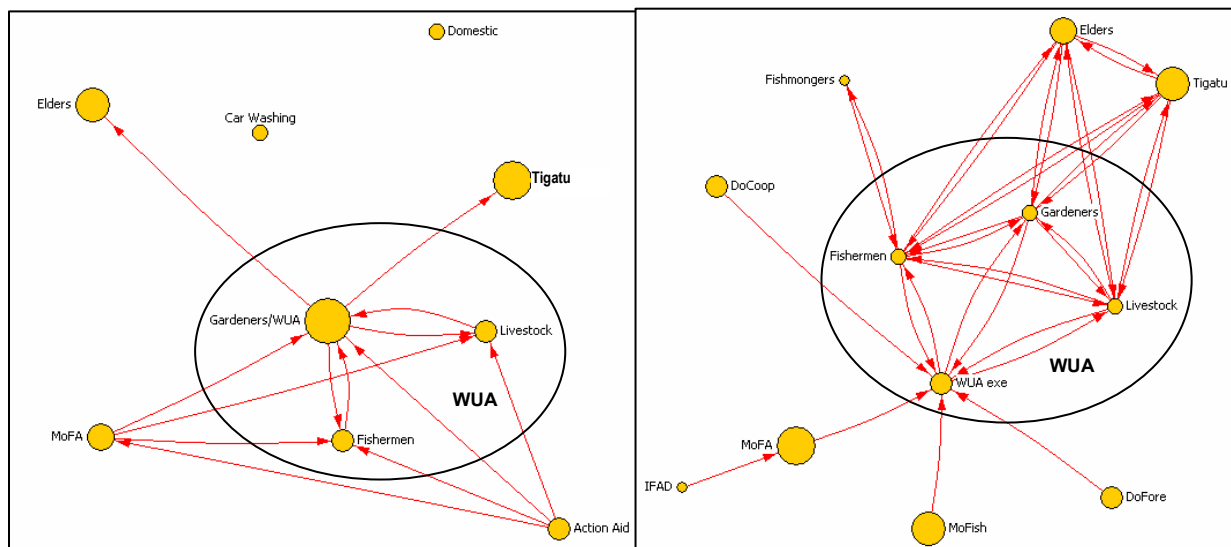


Figure 3: Paga-Nania Help & Support Networks

Left: Interview with WUA chairman

Right: Interview with two fishermen

The following could be extracted from Fig. 3 and from data gathered during the interviews:

- Both maps distinguished between reciprocal help/support and help that just flows one way. They both described a local cluster that helps each other. However, it is clear that

the some external agencies are seen as only providing help and support and this link is non-reciprocal.

- Government agencies provide substantial help and support to the WUA on land and water issues (fingerlings and fishing nets, perhaps subsidised, from Ministry of Fishery, etc.).
- The WUA chairman mapped help & support as direct links between external agencies and the different water users (livestock, gardening, fisheries) whereas the fishermen interviewed stated that all external help flows through the WUA executives to the water users.
- There is intense (reciprocal) informal support and help among gardeners, fishermen and livestock herders (e.g. gardeners giving money to livestock owners to buy animal drugs and livestock owners ploughing their favourite gardeners' plots first during the start of the dry gardening season, etc.).
- Elders and *Tigatu* were seen to support WUA members through the WUA executives in the form of resolving/arbitrating conflicts and providing spiritual guidance on land and water issues to the community.
- WUA executives and gardeners got help and support from the other water users (e.g. some of the farmers helping to weed or prepare WUA executives' plots).
- There is a two-way help and support link between the fishermen and fishmongers where fishmongers pre-financed the purchase or repair of fishermen's nets and got the fish for a cheaper price.
- The Net-Map of the WUA chairman depicts that gardeners were giving help and support to traditional authorities (elders and *Tigatu*) without getting anything back. However, the Net-Map of the two fishermen shows traditional authorities providing help and support directly to the different water users except the WUA executives.
- The Net-Map of the WUA chairman also portrays the NGO (Action Aid) providing a one-way help and support link to the three main water users (gardeners, livestock and fishermen) as well to the only identified government agency (MoFA).

4.2.3 Disturbance Analysis

Figure 4 below shows both external and internal (within the community) disturbance links unlike in the Gia community (see Appendix) where the disturbance was more internally confined. As in the Gia case, interview partners reported disturbance between the different WUA membership groups. It seems that this conflict over water distribution is inherent in the concept of multiple uses of small reservoirs. However, this WUA also experienced disturbance by non-WUA members e.g. car washers.

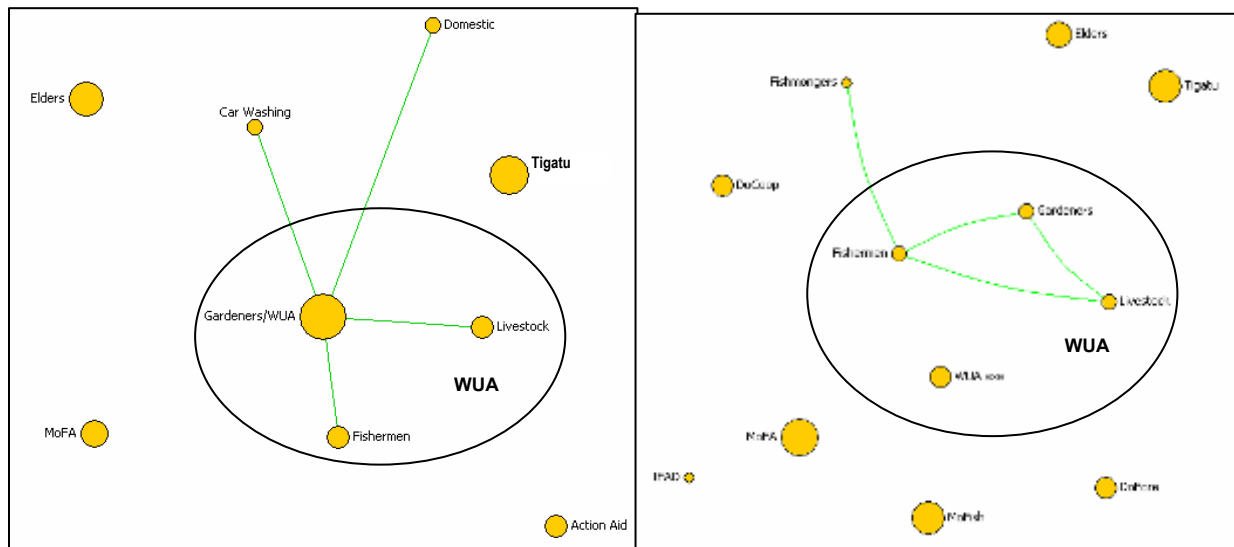


Figure 4: Paga-Nania Disturbance Networks

Left: Interview with WUA chairman

Right: Interview with two fishermen

The following could be extracted from Fig. 4 and from data gathered during the interviews:

- The only external disturbance perceived by local water users were people from a small nearby town, who washed cars and motor cycles in the dam (oil & fuel polluting dam water). This situation has, however, been resolved by a strict ban of these activities supported by all other actors.
- Gardeners and livestock owners disturbed each other concerning competition about dam water and concerning livestock destroying crops. The later decreased with the fencing of the garden.
- Increased water use tensions (among gardeners, livestock owners, fishermen and domestic) occurred during water shortages (mainly from March to April which is the latter part of the dry season). These tensions seemed to have been resolved by the water users themselves on ‘agreed principles’ of banning fishing and gardening activities during that time. However, dam water use priority is given to livestock watering and domestic purposes. The community members placed high importance on livestock as it serves as economic security in times of crisis such as crop failures.
- Fishermen and fishmongers (mostly women) disturbed each other particularly on ‘breaching’ or ‘enforcing’ contract agreement (e.g. fishmongers buying fish from fishermen on credit and withholding money after they sold the goods).
- The gardeners perceived the domestic uses to be disturbing them although it was unclear from the interviews which form this disturbance takes.

4.2.4 Influence of Actors

The figure below depicts how the various actors in Paga-Nania were perceived to have influenced the dam water use based on the influence towers or scale.

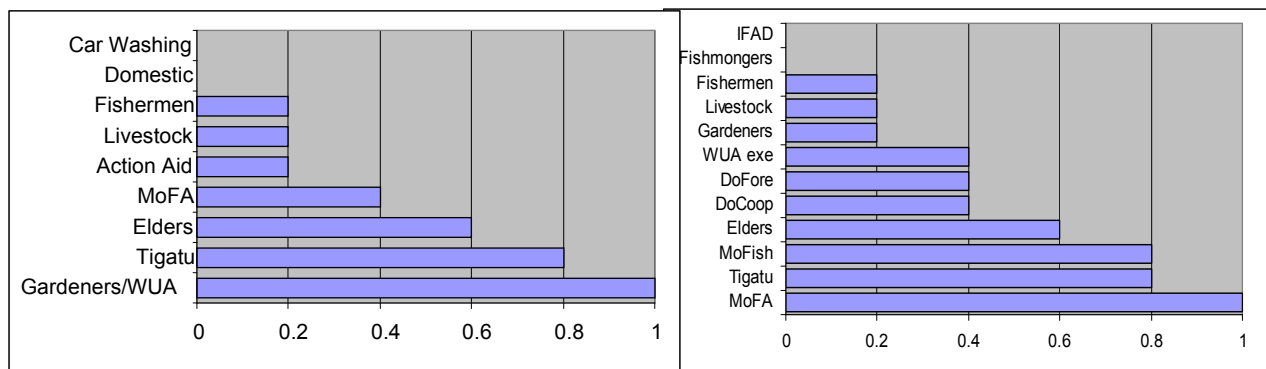


Figure 5: Paga-Nania: Level of Influence of actors on water use according to influence towers

Left: Interview WUA chairman

Right: Interview with two fishermen

The interview partners in Paga-Nania agreed about the influence of some actors and disagreed about others. They concurred that the local water users had a low level of influence on the way the small reservoir was managed. They unanimously agreed that the local traditional authorities (*Tigatu* and elders) were relatively influential in the local water governance. However, the networks differed in the assessment of the WUA executives. While the WUA chairman saw the WUA executives as most influential when it came to decision making about local water use, the fishermen who drew map 2 portrayed the executives in the lower half and held the opinion that both government agencies and traditional authorities were more influential. To them, the MoFA was the most influential actor in the whole governance field. Both interviews rated car washers, domestic users, fishmongers and IFAD as the least influential with regards to concrete local water governance. Action Aid (an NGO) was perceived as having the same level of influence as the livestock owners and fishers in the lower half of the chart above.

4.3 Outcome from Knowledge Profiling Workshop in Northern Ghana

The method and the findings from this exercise were presented at a multi-stakeholder Knowledge Profiling (KP) workshop. The workshop was the climax of the KP mission to Northern Ghana, adding another case to complement the KP manual⁸. Participants were key stakeholders, who were interviewed during the KP field exercise. The workshop provided a co-verification platform to learn and share local knowledge generated, appreciated and deployed in IFAD supported projects.

In this context, the Net-Map presentation was meant to introduce this new tool to the participants. A role play was incorporated to give the stakeholders a vivid understanding of how the tool works. Afterwards the discussions on lessons learnt and issues like sustainability became very much livelier as participants now had a better grasp on roles and responsibilities of stakeholders.

During the workshop, the tool was also used to facilitate an open group discussion in which the participants explored how strengthening the influence of WUA executives and WUA members respectively would impact on the effectiveness and accountability of local water governance. Participants saw that on the one hand, strengthening WUA executives would enhance their capability to effectively interact with external agencies. On the other hand, a very strong executive, faced with a very dis-empowered membership would be prone to struggle with

⁸ The KP manual was jointly elaborated and published by IFAD and GTZ ([which](#) developed the KP originally in Namibia).

internal accountability issues. So it was recommended that alongside the support of WUA executives the membership should be empowered to ensure transparent internal checks and balances. The consequence of this effort is to ensure that WUA executives would be held accountable for their performance by their members.

At the end of the KP workshop, a Net-Map manual was distributed to some of the participants especially WUA executives and MoFA staff.



Photo 4: A cross-section of participants discussing the outcome of Net-Map (Source: Abukari, 2007)

4.4 Conclusions and Recommendations

The influence networks in both communities highlight the crucial role of the WUA executives as influential actors (influence towers) in general and as a bridge between communities and external actors. In other words, WUA executives are seen as the strongest network brokers based on the data collected from the two communities. This is in line with IFAD's goal of supporting local level institutional development. However, the water users themselves were rated as having relatively low influence on how their resource is used and being mainly passive recipients of command and support from WUA executives, traditional authorities and external actors like government agencies and NGOs.

Water users explained how the different users were linked in a densely knit web of reciprocal help and support and disturbance linkages. In the two communities Paga-Nania and Gia, they reported to have found a good balance between the different uses that they rated as legitimate, while being able to exclude those users that are detrimental to other water uses. One facilitating factor here was the fact that many users engage in more than one water use (e.g. being gardeners and livestock owners, gardeners and fishermen). This integration seems to prevent the development of a typical herder/agriculturalist conflict as observed in other parts of West Africa.

However, the communities were selected as success-stories but field experience in other communities in the Upper East Region shows that multi-purpose small reservoirs are bases for potential conflicts between different uses and users. Nonetheless, a more extensive research would be needed to understand how social networks contribute to conflict moderation at the reservoirs.

The core goal of this exercise, however, was to explore how Net-Map could be used in the context of IFAD interventions such as LACOSREP. In the following, positive and problematic (lessons learned) aspects of the field experience are discussed and finally recommendations for the further use of the method in an IFAD context are given.

4.5 Lessons Learned:

- Concepts of links and influence towers seem to be interculturally understandable and accessible to interview partners with little or no formal education.
- A network approach allows considerations for both formal and informal linkages, within the communities and to outside agencies, which seems to provide a realistic picture of the views of local community members.
- Visualisation keeps issues under discussion in front of the interview partner, enables the interviewer to refer to them for clarification and to avoid overlooking crucial points.
- The method allows comparing views of different interview partners who see the influence and links according to their own perspective and position in the network.
- The method allows access to implicit knowledge that is difficult to assess otherwise. By structuring it in a network way, it becomes comparable; in a bigger study it would be possible to construct cognitive social structures of different communities (by stacking the networks collected in each community) and learn how networks, influence and social capital are linked to the community's performance concerning local resource use.
- The method is low-cost and low-tech and can flexibly be adapted to the questions at stake. Therefore, local development practitioners can afford and use it in any development intervention.
- It proved to be a simple tool to understand complex circumstances and it does not take much efforts/resources (time, finance, etc) to train local facilitators to undertake network mapping exercises.
- The tool can be used to facilitate learning and group discussions and to collect data at the same time especially during workshops, seminars or conferences.
- Mapping links like "disturbance" proved to be an un-offensive approach to understanding local user conflicts, which can be crucial for the success or failure of local water governance.
- Locally available materials can be used for visualisation. However, the International Food Policy Research Institute is also in the process of developing a physical Net-Map toolbox⁹ that contains everything needed for this field work and will make it more convenient to use the method.
- Interviews can be time consuming, thus it is important to limit oneself to the crucial links and organize the field work so that it does not overlap with core farming seasons. Depending on the question at stake, the activated networks and influence of actors might change according to season. In order to capture this seasonality drawing networks in the dry-season and in the rainy-season could be useful.
- In the exercise the interview partners were asked to name groups/organisations and not individuals. Depending on the question at stake it is an option to allow naming individual actors, either by names or by roles (e.g. assembly member, opinion leader, chief fisherman). This can help to identify for example possible brokers and drivers of change at the beginning of a field intervention.

- While the network mapping is easy to administer in the community and it is feasible to train local enumerators for a bigger study, network data analysis that goes beyond the small scale of this exercise, needs some profound knowledge of concepts and methods of social network analysis. However, for smaller amounts of data and where community facilitation is the main objective, the qualitative and visual descriptive approach used in this report could lead to a lot of interesting results.
- In a bigger study (more communities and/or more interviews per community) a more quantitative approach to data handling and analysis would be added to the visual/qualitative analysis provided in this report (for further insight into accumulating different network views into a cognitive social structure, see e.g. Krackhardt 1987).
- Many of the interesting questions concern how network parameters are related to external performance indicators (basically understanding how “success” of local water use is linked to the local and external social networks). To be able to answer questions like these, triangulation with non-network data (e.g. about reservoir productivity or household income or impact monitoring, etc.) is required and a time series would be ideal.

5. Outlook: Net-Map in the Context of Development Institutions such as IFAD

The described and analysed field work above served to introduce Net-Map in an IFAD context and to explore possible future uses within IFAD as well as other development organisations and institutions. While this exercise mainly consisted of singular, ad-hoc and ex-post activities, the full potential of Net-Map can be developed when integrated into a bigger conceptual framework of development interventions.

Based on this field work and prior experiences with the tool at different levels, three different uses of Net-Map are proposed for development agencies such as IFAD:

1. For planning and initiating interventions
2. As part of the project implementation
3. For monitoring and evaluation.

5.1. Using Net-Map in the Process of Planning and Initiating Interventions

When planning and conceptualizing interventions, from the local to the national level and from private sector to policy-making level, it is crucial to identify possible drivers of change, brokers, weak points in the network, main channels of information flow, formal and informal alliances in the governance field, etc. Involving all key actors; be it potentially deprived female farmer or the influential policy maker, from the onset of a project helps to plan strategically and to keep the strength and weaknesses of the network in mind. An initial network mapping activity with core actors from very different areas of the potential project landscape can provide these relevant insights within a brief period of time. A fact finding mission visiting the country at stake can gather a complex and solid foundation about formal and informal networks within the timeframe of a few weeks or even less. Experience in previous research by Schiffer shows that especially policy-makers often appreciate the exercise. Most policy-makers interviewed commented about how much they learnt through the Net-Map exercise and the

activity proved to be a good door-opener for future collaboration. Initial network exercises for project planning could take the form of individual or group mapping or a combination of both.

5.2. Net-Map as Part of the Project Implementation

Apart from providing physical infrastructure, IFAD projects often also aim at empowering local communities through strengthening local governance institutions of the beneficiaries which enable them to manage and preserve the infrastructure as well as participate directly in development activities. The group exercise at the Knowledge Profiling Workshop (see chapter 4.3) is one example of how Net-Map can help groups to visualize, structure and discuss matters of formal and informal governance that are difficult to handle without visualization. In earlier research by Schiffer, drawing a Net-Map together helped a multi-stakeholder river basin water governance board (DFID and World Bank 2007) to exchange implicit knowledge, debate different roles of actors and reasons why some actors were crucial for the network. Based on the maps and groups discussion strategic plans could be developed to use the identified governance network and to improve it in order to achieve their organisational goals. In an ongoing work by Hauck, Net-Map helped to identify conflicts amongst local fishermen and allowed first steps towards reconciliation by making each party's views seen and heard and built an inclusive fishermen association.

Further experience in the field shows that it is rather easy and not very time consuming to train local facilitators and project partners in using Net-Map on the ground and in using locally available materials. However, more extensive training and / or supervision would be needed if the focus is on extensive data collection and quantitative computerized analysis.

5.3. Net-Map for Monitoring and Evaluation

Many development projects aim at empowering dis-advantaged groups, improving their self-organisation and their access and linkages to external actors and institutions (e.g. markets, governmental organizations or the NGO sector). Net-Map, with its special focus on influence, links and goals of actors can be used to monitor a project's impact on these fields and can serve as an early warning mechanism in case developments do not go in the desired direction. Net-Map provides a structured approach that allows for the comparison of the situation before, during and after an intervention, between different sites where an intervention has been carried out or between intervention and non-intervention sites. In combination with more standard performance based indicators, Net-Map can, in the long run, improve the understanding of what kind of social processes support successful project implementation and ultimately the improvement of local people's livelihoods (for a discussion of network analysis in development evaluation also see Davies 2003).

Further Information

The Net-Map web-log provides a forum for discussion about the method, offers an extensive manual for down-load and collects and presents diverse case studies to inspire the further use of the tool: <http://netmap.wordpress.com/>.

IFPRI is in the process of developing a Net-Map field toolbox that contains everything needed to draw influence networks and set up influence towers in the field. This box is expected to be available by the first half of 2008. For further information on release date and ordering formalities, please contact: IFPRI-NetMap@cgiar.org.

For further information on the use of Net-Map in local fisheries management, contact Jennifer Hauck: jhauck@uni-bonn.de.

For further information on the use of Net-Map in the analysis and facilitation of multi-stakeholder governance processes, contact Eva Schiffer: e.schiffer@cgiar.org.

For further information on Net-Map in the context of IFAD interventions, contact Moses Abukari: m.abukari@ifad.org

Appendix

Gia community

The second couple of interviews was done in Gia, where interviews were done with a group of WUA executives (left) and a new gardener and WUA member (right). For the sake of brevity this second case is not analysed extensively but the Net-Maps and influence values are provided for comparison and further exploration.

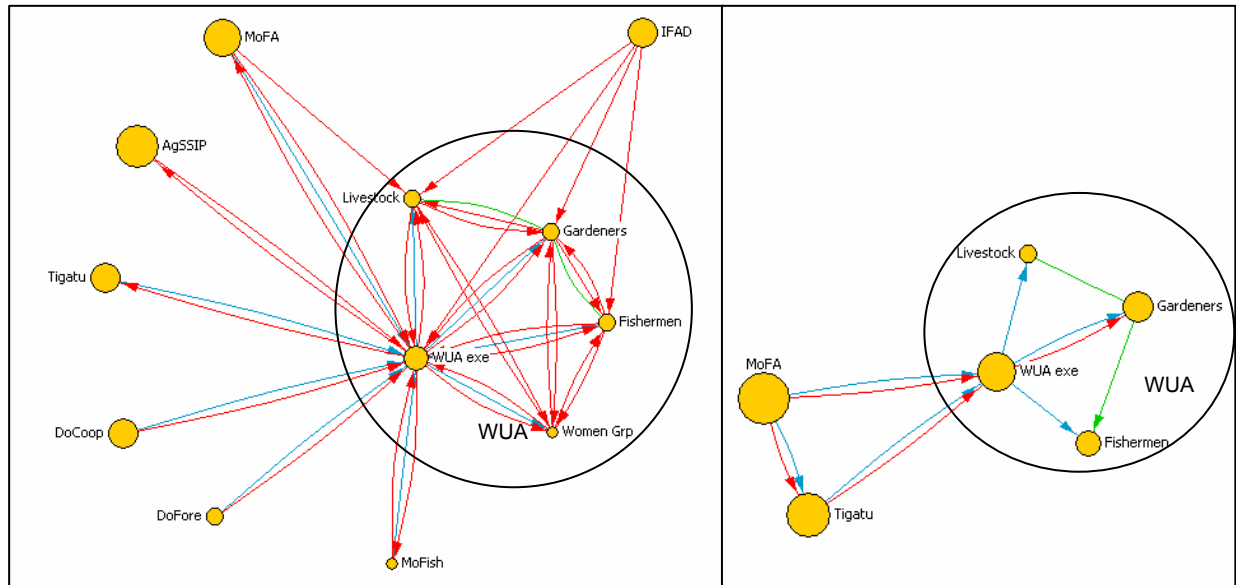


Figure A1: Gia Multi-Link Networks
Left: Interview with WUA executives
Right: Interview with new gardener
Size of node-height of influence tower

Blue- line of instruction
Red-line of help/support flow
Green-line of disturbance

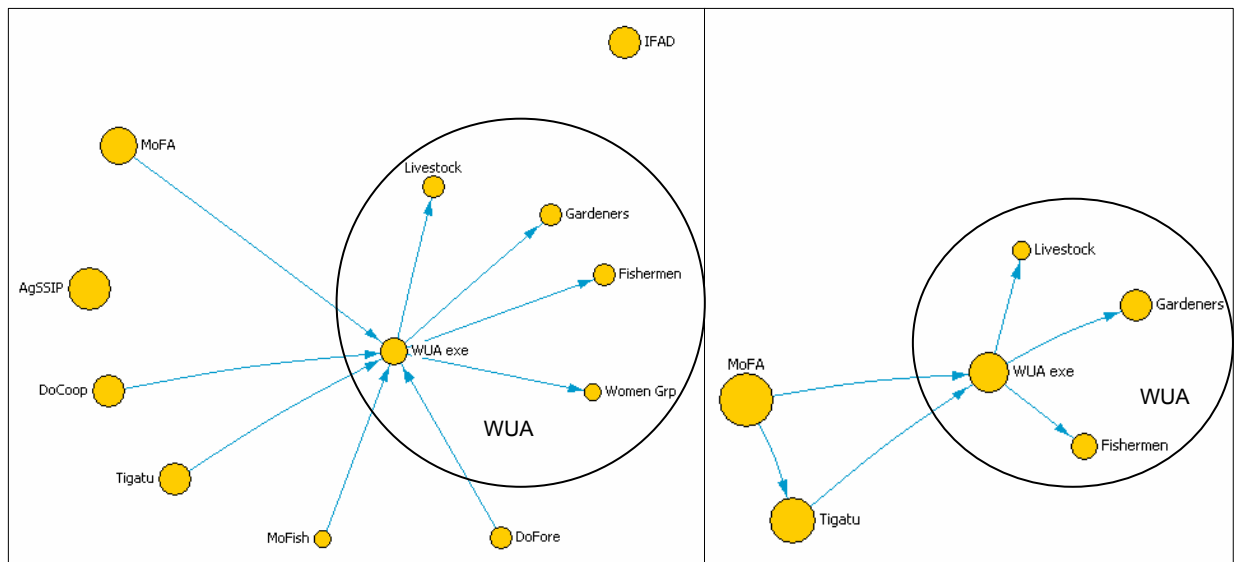


Figure A2: Gia Instruction Network
Left: Interview with WUA executives
Right: Interview with new gardener

Left: Interview with WUA executives

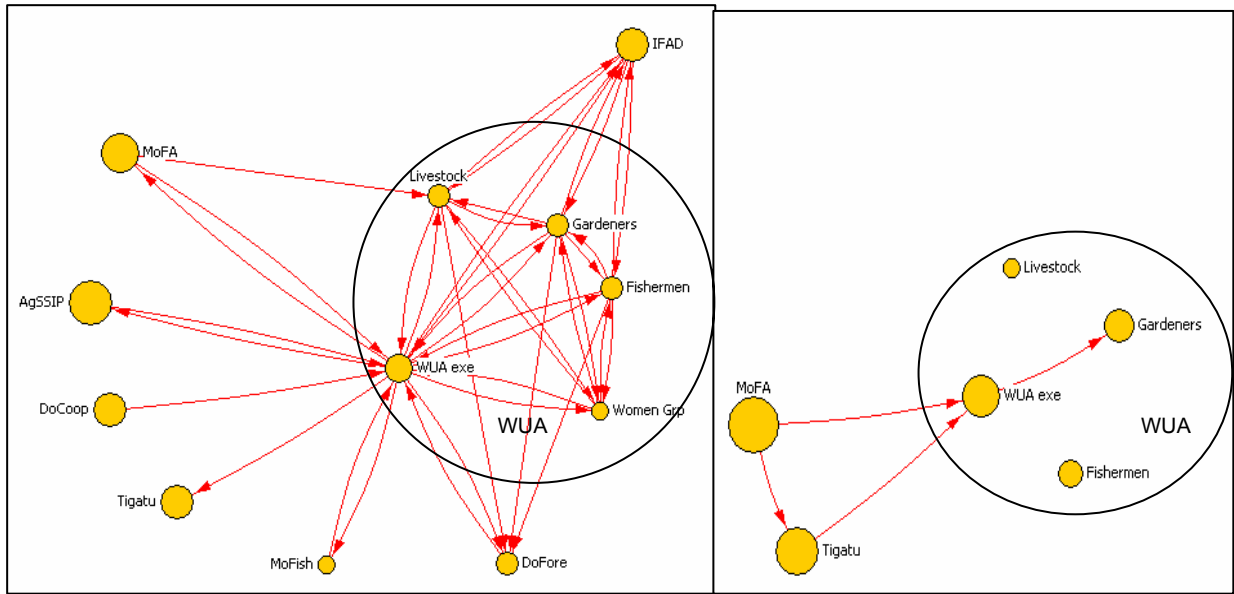


Figure A3: Gia Help/Support Network
Right: Interview with new gardener

Left: Interview with WUA executives

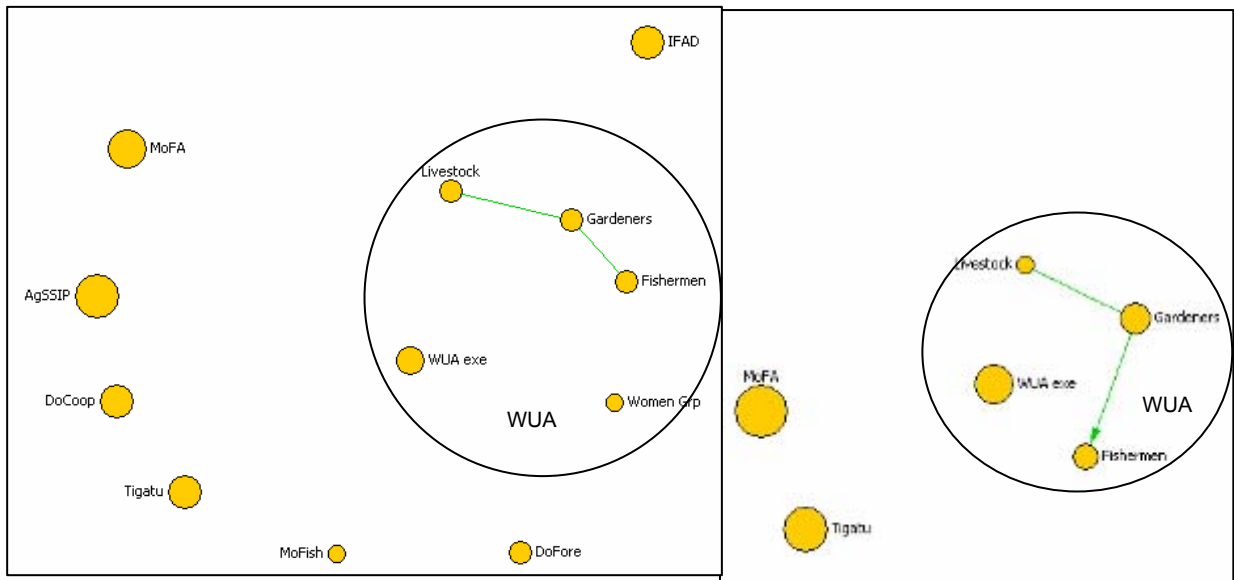


Figure A4: Gia Disturbance Network
Right: Interview with new gardener

Left: Interview with WUA executives

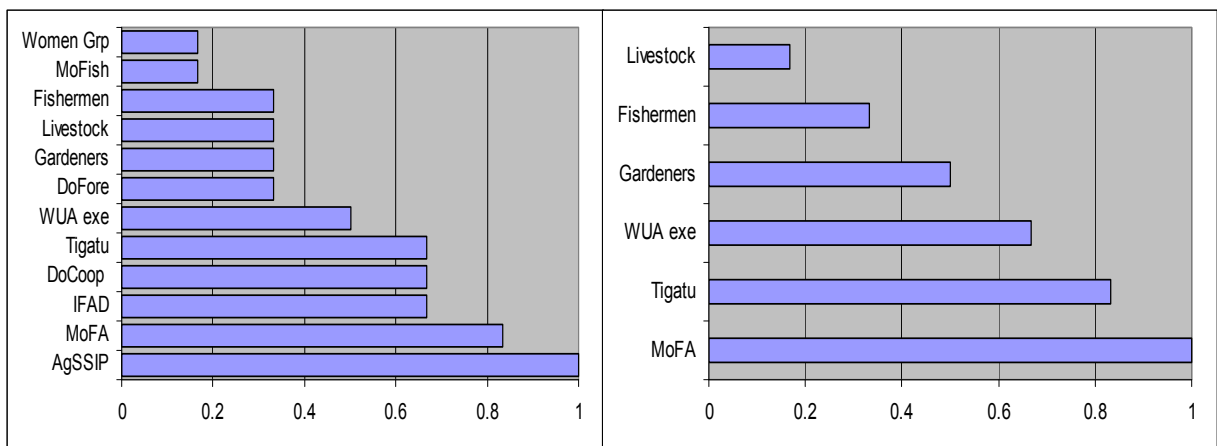


Figure A5: Gia: Level of Influence of actors on water use according to influence towers

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