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Assessing Monitoring and Evaluation Systems in Water and Development Cooperation

a Multi-Actor System Perspective

TUDelft

Assessing Monitoring and Evaluation Systems in Water and Development Cooperation

a Multi-Actor System Perspective

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Table of Contents

List of Figures

List of Tables

List of Abbreviations

DAC	Development Assistance Committee
DGIS	Directorate-General for International Cooperation
DUPC	IHE Delft Partnership Programme for Water and Development
IHE Delft	IHE Delft institute for Water Education
MAS	Multi-Actor Systems
OECD	Organization for Economic Co-operation and Development
SDG	Sustainable Development Goals
ToC	Theory of Change
UN	United Nations

Glossary

Actor	An individual or a group of individuals that can make decisions in an action arena.
Arena	In an arena decisions are made and actors interact with each other regarding a specific goal.
DUPC1	First phase of the DUPC programme, 2008-2015
DUPC2	Second phase of the DUPC programme, 2016-2023
Global South	*"the group of countries that are in Africa, Latin America, and the developing parts of Asia"* (Cambridge Dictionary, n.d.)
Perceptions	The actors' perceptions are their views on their surroundings, such as the arena and its challenges, and the other actors that are involved (Hermans & Cunningham, 2018).
Resources	Resources enables actors to influence their surroundings – including other actors. Example of resources: financial, legal power, network, information (Hermans & Cunningham, 2018).
Values	The sctors' values are goals or objectives that describe what an actor would like to maintain or change, or what is at stake for an actor in a certain arena (Hermans & Cunningham, 2018).

EXECUTIVE SUMMARY

Water and development projects are development cooperation's specifically focused on the water sector such as sanitation, drinking water, and water management. In these type of development programmes, governmental or public organizations that manage the water sector in a country are usually involved. These organizations use their financial resources to support development in low and middle income countries in the Global South, with the aim to achieve societal impact, often by contributing to the water focussed Sustainable Development Goals of the United Nations. As the financial resources often come from governmental agencies, it is public money. For the reason that achieving societal impact comes with its challenges, it is important that the recipients can provide accountability of what is done with the financial resources. This is done with the use of a monitoring and evaluation system, which is often required by donor agencies as a mean to provide accountability.

Monitoring and evaluation systems involve a variety of actors. The system can have a variety of uses. In development cooperation they are mainly used to provide accountability towards donors and to learn how the cooperation can be improved. However, there is not always a good balance between those two uses, as the focus often lies more on accountability, which could cause missed opportunities to improve the effectiveness of the cooperation and therefore the societal impact. Therefore, this research focuses on the actor interactions in water and development cooperation and how the monitoring and evaluation systems influences the societal impact. This research is scoped as a case study of the IHE Delft Partnership Programme for Water and Development (DUPC2). The main research question this study aims to answer is:

How do actor interactions in the monitoring and evaluation systems of development cooperation programmes like DUPC2 influence the societal impact of these programmes?

To answer this research question, a multi-actor system approach is used. This provides a clear view on the actor interactions in the monitoring and evaluation system.

For the multi-actor system approach the monitoring and evaluations system is conceptualised as a combination of different linked arenas. In these arenas actors interact with each other regarding a specific goal. The actors all have their own interest, objectives, and resources and these differences influence the decision-making process. There is also a distinction made between the programme level and the project level. One project was selected for the research on project level, the SMALL project. The SMALL project focusses on water and sanitations in small towns in Uganda and Mozambique. This research focuses on six arenas identified as important parts of the monitoring and evaluation system: programme design arena; project design arena; programme execution arena; project execution arena; programme monitoring and evaluation arene; project monitoring and evaluation arena.

By conducting a total of 12 interviews with actors involved on the programme level of the DUPC2 programme or on the SMALL project level, data was gathered to identify the actor interactions, the connections between arenas and the possible effect it could have on the societal impact of the DUPC2 programme.

In this study the analysis of the results provided three main insights in the monitoring and evaluation system of the DUPC2 programme that could influence achieving societal impact.

The first insight is that the monitoring and evaluation of the project is mainly focused on achieving the outcomes and complying with the indicators that are fixed in the proposal. During the execution of the SMALL project there were some adjustments made to the indicator targets, however the project

indicators themselves were not re-evaluated during the project. Therefore, the monitoring and evaluation of the project is relatively static, as the project outcomes and indicators are fixed even before the project execution starts. For this reason opportunities might be missed to improve the effect the project has on achieving societal impact.

The second insight is that the indicators that are setup in the monitoring and evaluation system of the DUPC2 programme, could influence the societal impact. These indicators are used by the programme to provide accountability towards the DUPC2 programme funder. They include topics important for the funder, such as gender equality, number of students involved, and the balance between southern, northern individuals involved. How these indicators are defined, determines what is actually monitored and measured. When projects use those indicators as the guideline for the execution, the indicator definition might influence the societal impact.

The third insight is that the actor interactions in the DUPC2 programme reflect an (in)formal hierarchy. Such a hierarchy could lead to situations such as a mismatch between desired outcomes and activities, and an unnecessary or undesired push, which can decrease the effectiveness of a programme and therefore can have an undesired effect on the achievement of societal impact.

With these insight in mind, two policy recommendations are given for the next phase of the DUPC programme, DUPC3.

The first recommendation is to pay more attention to the influence the monitoring and evaluation tools, such as the indicator assessment, might have on the outcomes, execution, and effectiveness of the projects. Being aware of what indicators actually measure and how that could influence the projects, might be beneficial when trying to improve the effect the monitoring and evaluation system has on the societal impact.

The second recommendation for the DUPC3 programme is to give more attention to the learning cycle of the projects, by providing them with more feedback. This could create more incentive to make improvements to the project, which might have a positive effect on the achievement of societal impact.

This study contributes to the scientific field by assessing a monitoring and evaluation system used in development cooperation as a multi-actor system. Moreover, by dividing the monitoring and evaluation system in multiple arenas across two levels, this study shows that the actor interactions in different parts of the monitoring and evaluation system influence the effectiveness of the monitoring and evaluation system and its ability to help improve the societal impact.

Finally, it is important to note that there are limitations to the scope of this research. The research objective was to understand how the actor interactions in the monitoring and evaluation systems of development cooperation programmes like DUPC2 could influence the societal impact of these programmes. To find an answer to this, the actors in the monitoring and evaluation system were mapped and the links between arenas in the monitoring and evaluation system were established. However, within the timeframe of this study it appeared not possible to assess the final link between the actor interactions and the resulting societal impact.

PART I – DEFINE

1. Research Introduction

This research focusses on water and development projects and how the monitoring and evaluation systems influences the societal impact. This research uses a case study of the DUPC2: IHE Delft Partnership Programme for Water and Development.

1.1. Water and development cooperation

Development cooperation can usually be found in the form of programmes and projects executed by organizations from high income countries. These organizations use their financial resources to support development in low and middle income countries in the Global South, with the aim to improve the living conditions over there. They often aim to do that by contributing to the Sustainable Development Goals of the United Nations. These financial resources often come from governmental agencies. As it is public money it is important that the recipients can provide accountability of what is done with the financial resources. Water and development projects are development cooperations specifically focused on the water sector such as sanitation, drinking water, water resources management. In these type of development programmes, governmental or public organizations that own and manage the water sector in a country are usually involved.

1.1.1. Societal impact

Water and development cooperation aims to have a direct impact on vulnerable people who lack basic needs, such as access to clean drinking water and food security. However, achieving societal impact comes with its challenges. The water and development organizations are often outsiders, from other continents. Which means that there are often differences in cultures, resources, institutional environment and climates. For this reason, a variety of challenges may arise that can affect the effectiveness and the societal impact of the development cooperation.

To understand the effectiveness of the development cooperation, organizations try to measure the societal impact. However, this is extremely difficult in water and development cooperation, especially when it involves policies and political decision making. On one side it is not easy to identify to what degree a development cooperation project had influence on policies and on the other side it is difficult and time consuming to see how policies affect a society. Even though measuring societal impact is difficult, there is still a way to help mitigate the undesired effects and to help improve the societal impact, by doing evaluations.

1.1.2. Evaluating development cooperation

In development cooperation an evaluation is an assessment of the effectiveness and impact of a project or programme based on objectives that are specified. Evaluations can focus on a variety of uses, in development cooperation they are mainly used for accountability and learning. When the focus lies on accountability, then the evaluation is setup in a way that it can show to the donor what was done with the financial resources and what impact it has. When the focus lies on learning then the evaluation is setup in a way that stimulates learning about what can be improved and how to improve it.

Evaluating development cooperation and their impact, helps to mitigate undesired effects on people's life. However, evaluations are often not as effective as they should be and with insufficient evaluations undesired effects might not be identified (Thomas, 2010). One reason is that societal impact can often only be measured after years. This can be a problem since projects are often of limited duration and

the impacts might only be seen after the project has finished. Another reason is that when accountability is part of the purpose of evaluations, tensions can arise due to differences in goals and interests of actors. It can also cause confusion of the role of the evaluation (Liverani & Lundgren, 2007), where some actors perceive it as an accountability tool while others might want to use it to make improvements.

Evaluations are a way to reflect on what was done, they can provide accountability and learning opportunities that could help improve the effectiveness and societal impact of the development cooperation. However, evaluations are not always as effective, which means that opportunities to learn and improve can be missed. Assessing how development cooperation is being evaluated could help with understanding the effectiveness of evaluations and have a positive effect on the societal impact the organizations want to achieve.

1.2.   Monitoring and evaluation systems in development cooperation

One way of assessing these evaluations more effectively is to not just look at the individual evaluations, but at the whole evaluation system (Liverani & Lundgren, 2007; Thomas, 2010). Evaluation systems can be defined as *'procedural, institutional and policy arrangements shaping the evaluation function and its relationship to its internal and external environment'* (Liverani & Lundgren, 2007). Which means that the evaluation systems not just includes the individual evaluation activities, but also the surrounding environment, such as protocols, requirements, objectives and how it is used.

Organizations that are involved with development cooperation usually have a combined monitoring and evaluation system, which is often a requirement installed by donor agencies to provide accountability (Crawford & Bryce, 2003). In these monitoring and evaluation systems the monitoring is a more continuous assessment where records are kept and information is collected on what is going on, so that you can intervene in time if you go astray.

Monitoring and evaluations systems can be created with the same purposes in mind as for individual evaluations, such as learning and accountability. In development cooperation the functions of monitoring and evaluation systems are often focused on increasing the effectiveness of the projects, to analyse the impacts, organizational learning and to improve accountability of development aid (Liverani & Lundgren, 2007). Looking at the entire monitoring and evaluation system can help to analyse impacts, increase organizational learning and to improve the accountability of development cooperation (Liverani & Lundgren, 2007).

Monitoring and evaluation systems are complex, not just because the measurement of societal impact is complex, but also because a lot of different people are involved. In monitoring and evaluation systems there are always multiple groups or organizations involved, such as the organization that provides financial resources and the group that executes the projects. However, also the group that monitors the progress and the group that evaluates the programme. All these groups influence each other and they have their own objectives, interests and perceptions, which could influence the effect the monitoring and evaluation system has on the societal impact. For that reason a monitoring and evaluation system could be assessed as a multi-actor system to gain a better understanding of the influence the actor interactions have.

1.2.1. Multi-actor systems

Within multi-actor systems different actors are involved with each their own views on the problem, priorities, preferences (Enserink et al., 2010). Actors are individuals or groups of individuals, such as organizations and agencies. The actors interact with each other in so-called action arenas. In these

arenas decisions are made and actors interact regarding a specific goal. They all have their own interest, objectives, and resources and these differences influence the decision-making process.

In this research these arenas are defined as bounded systems in which decisions can be made and implemented. An example is a programme design arena, in which the decisions are being made on the goals, objectives and activities of a programme and how these will be monitored and evaluated. Often arenas influence, and are influenced by, other arenas within a system. For instance because certain actors are involved in multiple arenas or because one arena is dependent on the information output of a different arena.

1.3. DUPC2: IHE Delft Partnership Programme for Water and Development

The DUPC2 partnership programme is a cooperation focused on water and development projects, where the Institute for Water Education in Delft (IHE Delft), partners with the Directorate-General for International Cooperation (DGIS) which is part of the Dutch Ministry of Foreign Affairs

IHE Delft is an international graduate water education facility that offers MSc and PhD degrees. They have provided education and training in the water sector since 1957 to mostly people from Africa, Asia and Latin America. IHE Delft wants to contribute to achieving the water focused Sustainable Development Goals of the UN, which they try to do by working on capacity development of the water sector worldwide (IHE Delft, n.d.-a). The DUPC2 programme supports key objectives in the strategy of IHE Delft, such as strengthening partnerships, educational innovation, developing societal relevant new themes and approaches, and diversification of funds (IHE Delft, n.d.-b). In addition to this the DUPC2 programme is also focussed on the priorities of the Dutch Ministry of Foreign Affairs, such as water productivity, water and conflict, Middle East and Northern Africa, and women (IHE Delft, n.d.-b).

Within the Dutch Ministry of Foreign Affairs, the responsibility of DGIS involves the policy, coordination and funding of development cooperation, while focusing on themes that include: 'gender, AIDs, education, sustainable economic development and the environment' (*Directorates-General | Ministry of Foreign Affairs | Government.Nl*, n.d.). The Dutch Ministry of Foreign Affairs is the main funder of the DUPC2 programme and formulates boundary conditions for, and gives approval on the DUPC2 programme design. Every year the Dutch Government allocates budget for development cooperation, so far it has granted a total of €40.1M for the DUPC2 programme implementation between 2016 and 2023 (Dani et al., 2021). IHE is accountable to DGIS in terms of effectiveness of funds used and efficiency (Dani et al., 2021). The DUPC2 programme Management team are responsible for the strategic direction and implementation of the programme and for the allocation of funds to the projects (Dani et al., 2021). The programme funds various projects related to the water and development theme and each project has a project leader from IHE or from a partner organisation. These project leaders coordinate the implementation of projects and they are frequently involved in the definition of DUPC2 policies and in learning exercises to inform decision-making projects (Dani et al., 2021).

1.3.1. Projects

The programme supports over 80 projects around the world in low and middle income countries in the Global South and in these projects they partner with (local) universities, research partners, knowledge institutes, embassies and NGOs (IHE Delft, n.d.-c). The project themes range from *'supporting the development of applicable and sustainable water and sanitation provision models for small towns'* in sub-Saharan Africa to *'Mitigating groundwater salinity impacts'* in Vietnam and

Mozambique, and from *'Capacity Development Support'* in Iraq to a *'Sanitation Learning Alliance'* in Latin America (IHE Delft, n.d.-c).

There is one project central within this research, that project is called **SMALL**. The SMALL project focusses on *'supporting the development of applicable and sustainable water and sanitation provision models for small towns'* (SMALL, 2016) in Mozambique and in Uganda.

1.3.2. Monitoring and evaluation

The DUPC programme is dependent on the funding from DGIS, so it was an inconvenience that the signing of the DUPC2 grant was postponed until an agreement was made to externally monitor the first two years of the DUPC2 programme. The external monitoring was a way to review the progress in accountability of the programme and the implementation of recommendations from previous appraisals (Dani et al., 2018). This was a result of reviews of the first phase of the DUPC programme (DUPC1, 2008-2015). One of the results of these reviews was that a few shortcomings were found in the monitoring and evaluation system of the DUPC1 programme (Dani et al., 2018). Evaluating impacts and learning how to improve these impacts are an important part of providing accountability for the received grants. While the monitoring of activities seemed satisfactory, the learning part was lacking in DUPC1(Krijnen & Stanneveld, 2013). The DUPC2 programme has made improvements, but it is still challenging to measure the project impacts and to learn from and implement the evaluation results (Dani et al., 2018).

In the DUPC2 Partnership Programme for Water and Development, the arena in which the monitoring and evaluation activities are included is such an arena that is influenced by other arenas. For instance by the arena in which the programme objectives are specified and monitoring and evaluating protocols are designed. So to assess the actor interactions in the entire monitoring and evaluation system, this research focusses on the monitoring and evaluation system as a combination of arenas that are linked to each other.

1.4. Research question

There is still a lot to be learned in the field of actor interactions in monitoring and evaluation systems, and how the objectives, interests and perceptions of actors can influence the effect the monitoring and evaluation system has on the societal impact. Therefore, the purpose of this thesis research is to contribute to new insights on approaching monitoring and evaluation systems as multi-actor systems, to assess the current monitoring and evaluation system in place within the DUPC2 programme and to get a better understanding to how the actor interactions affect the societal impact. This leads to the following research question:

Main Research Question:

How do actor interactions in the monitoring and evaluation systems of development cooperation programmes like DUPC2 help to increase the societal impact of these programmes?

Sub Research Questions:

1. What is the role of monitoring and evaluation systems in improving societal impact for development cooperation?
2. What is the influence of actor interactions in these monitoring and evaluation systems?
3. What does the current DUPC2 monitoring and evaluation system look like and how does its design intend to improve societal impact?
4. How do actor interactions influence the DUPC2 monitoring and evaluation system and its

support for societal impact?

      a. How do actor interactions influence the DUPC2 monitoring and evaluation system and its support for societal impact on programme level?

      b. How do actor interactions influence the DUPC2 monitoring and evaluation system and its support for societal impact on project level?

      c. How do actor interactions influence the DUPC2 monitoring and evaluation system and its support for societal impact between the programme and project level?

5. Which general insights are gained from this about the influence of actor interactions on monitoring and evaluation systems and their support for societal impact in development cooperation?

1.4.1. Report setup

Each of the following chapters will focus on finding an answer to one or more sub research question. Sub research questions 1 and 2 will be answered based on the literature review in Chapter 0. This literature review includes the subjects: development cooperation; evaluations; monitoring and evaluation systems; actor interactions in monitoring and evaluation systems.

Sub research question 3 will be answered based on documentation about the DUPC2 programme in section 3.1.

For sub question 4 the interview results and analyses are needed, this question will be answered in Chapter 4, Chapter 5, and Chapter 6. Chapter 4 focusses on the first part, sub question 4a, The answer will be based on the interview results of the DUPC2 programme level. As for 4b, this part of the research question will be answered in Chapter 5, which is based on the interview results on the project level. Sub question 4.c is answered in Chapter 6, by combining the programme and project level. At the end of Chapter 6, sub research question 4 as a whole, will be answered.

In Chapter 7 the result in the previous chapters are summarised and generalised to answer sub question 5 and the main research question.

2. Literature Review

This section provides an overview of the literature that has been reviewed in this research. The literature review helps to answer the first two research sub-questions: *What is the role of monitoring and evaluation systems in improving societal impact for* development cooperation?; *What is the influence of actor interactions in these monitoring and* evaluation systems?.

The chapter starts with a literature review of development cooperation and the impact challenges, which is followed by evaluations in development cooperation and evaluation systems. After this, evaluation systems and actor interactions are discussed, which leads to the conceptual framework used in this research. Then the chapter is concluded and answers to the first two research sub-questions are discussed.

2.1. Development cooperation

Development cooperation is usually defined as programmes and projects that deliberately intervene to improve the living conditions of people (Ostrom et al., 2002). They aim to achieve societal impact and are often focused on individuals in low en middle-income countries. For development cooperation, collaboration and participation in the focus countries are important aspects. Questions about the societal impacts of development cooperation, and how best to improve this, have been around for several years.

In the early years of development aid there have been a small number of prominent players such as OECD-DAC, IMF, and the World Bank that regulated the development practices (Gore, 2013). As a member of an organization such as the OECD-DAC one must comply with standards and rules adopted by them. Now more organizations are working together and playing a more prominent role, such as the Asian Development Bank; African Development Bank; Inter-American Development Bank; and also China has emerged as a prominent player in international development. This results in an even more complex picture; To increase the effectiveness there are a variety of actors involved, such as: governmental organizations, international institutions, and the private sector (Thabrew et al., 2009).

2.1.1. Societal impact challenges

It is not easy to achieve desirable societal impact with development cooperation. There are a lot of challenges, in this part some of those challenges will be elaborated on: cultural and environmental differences; institutional differences; and multi-actor environment.

Cultural and environmental differences

One main challenge in development cooperation are the different perceptions and cultures of the main actors (Watkins & Swidler, 2013). As a result if something works in theory it is not a given that it will work in practice.

Development cooperation is often an initiative of international organizations or national organizations of higher income countries, who then seek to support activities in low- and middle income countries. It is difficult to understand and work in an environment that is so different than what one is used to. When working together with actors from all over the world even simple actions can cause conflict, such as greeting a partner. It is possible to unknowingly insult someone when your way of greeting is completely different than theirs. For example, in the Netherlands it is common to go directly into business when one meets a partner, while in other countries it is more common to participate in small talk before serious matters are discussed. Culture clashes like this can negatively influence the relation

between actors and conflicts might arise. This can affect the effectiveness of development cooperation.

Besides cultures also the difference in climate and environmental settings are an important factor to consider. The life expectancy of materials and machines depend on the environmental conditions. Can it survive rainy seasons and floods? Does it still work during extreme heats and droughts. Are there resources available for maintenance or repairs? When you're not fully aware of these differences it is difficult to comply with the actual need of the recipients and to find a fitting solution. Therefore it is not uncommon that donors have pushed their ideas and technologies onto recipients, while there could have been better alternative options.

Institutional environment

Institutions depend on the environment they are part of and differences in institutional arrangements can lead to conflicts. According to (Ostrom et al., 2002) the institutional environment in recipient countries is often less robust which result into more difficulties when there are motivation and information problems, such as: 'Corruption, rent-seeking, fiscal illusions, translating citizen preferences accurately' (Ostrom et al., 2002). Ownership is one of the challenges relating to the institutional environment: who is actually accountable or responsible?; who feels responsible enough to actively work on it? For instance when ownership is with a governmental agency in a recipient country, it is possible that an already existing power asymmetry is reinforced (Ostrom et al., 2002).

In addition to this, the institutional environment of donors could also result in challenges. Donors often have restrictions regarding the implementation of aid imposed by their country or organization. These restrictions could come in the form of regulations, policies, available resources, and the availability of experts. However, these restrictions do not only affect the donors, they could also affect the recipients. To give an example, a donor has the ability to control the situation by providing loans under certain policy conditions, these policy conditions are influenced by the donor's environment. Recipients might be reluctant to adopt policies that do not fit their current policies, or regulations (Mori, 2011), but often don't have much choice if they want to receive funding, grants or loans. (Andrews et al., 2013) argues that the politics and process of development aid have resulted in *capability traps,* where governments were pressured or incentivized to adopt policy and practice reforms that do not work for them and no chance was given to initiate alternatives from local actors, so the local agents were excluded from developing their own country.

Multi-actor environment

Collaborating with more actors, which is the case in development cooperation, makes any situation more complex. Each actor has its own objectives, incentives, and resources and this could give rise to conflicts and dilemmas. An example is a difference in priorities, when a recipient is more concerned about economic growth and a donor has more concern for the environment, conflicts can arise (Mori, 2011). (Ostrom et al., 2002) mention collective action problems where multiple actors are collaborating to achieve something that would have been difficult to achieve on their own. Here a lack in information flow with missing or asymmetric information and a lack of motivation can bring about incentives that can obstruct the collective achievement and undermine the sustainability of the development cooperation (Ostrom et al., 2002). In these situations all actors might be looking to maximize their interest when grants are distributed (Mori, 2011).

2.2.   Evaluations

As seen in the previous paragraph, achieving desirable societal impact with development cooperation comes with multiple challenges. There has been a history of development cooperation not having the

desired effect on the societal impact as was hoped for or expected. For this reason it has become more important to look more critical at development cooperation and its impact and a common way to do that is by evaluations.

2.2.1. Evaluations and development cooperation

Evaluations can play a crucial role in dealing with the challenges of development cooperation (Liverani & Lundgren, 2007). Evaluations can help to learn about the effectiveness of certain projects, policies, and programmes, which can then be used to increase the positive development outcomes and societal impacts, by implementing lessons learned in new projects and policies (Thomas, 2010). In development cooperation the accountability provided by evaluations is often needed to report to 'authorities' (Crawford & Bryce, 2003), such as a government that provides funding to organizations for development cooperation. Evaluations are not always as useful as one would want them to be. According to Thomas (2010), the complexity and urgency of development make the evaluation practices often insufficient, which can lead to undesired impacts on the lives of the people in the project countries, and even if the individual evaluations are sufficient the whole evaluation system might still be lacking. For the evaluation purpose it is important that it fits with the audience, that the right information goes to the person who can actually do something with it and it's timely (Thomas, 2010).

2.2.2. Evaluation purposes, approaches and challenges

Evaluations can serve different purposes, they can be used for learning purposes, to provide internal and/or external accountability, or as symbolic function (Hanberger, 2011; Jackson, 2013). Evaluations can have the purpose to learn about what was done, what went great and what was challenging, in order to be more effective or efficient the next time. Or in order to share the gained knowledge with others who might come across similar challenges. In the case of accountability, evaluations can be used to show, for example, how funding was spent and what outcomes were achieved. Was it a cost-efficient use of resources, and a useful investment? Or were the desired outcomes not achieved? However, it is also possible that evaluations only have a symbolic function, in which the only purpose of an evaluation is to be able to say that an evaluation was done (Hanberger, 2011; Jackson, 2013). Here the focus of the evaluation would not lie on learning, or providing accountability, but on providing a report. It would just be an requirement and once it is done it would not really be used further.

In public sectors, performance based accountability is an important factor in evaluations (Moynihan & Ingraham, 2003; Van Thiel & Leeuw, 2002). Performance based management focusses on the actual measurement of outcomes and impacts to increase the effectiveness and efficiency of policies (Van Thiel & Leeuw, 2002). Development aid organizations usually have to produce data on their performance and impact for accountability and in practice evaluation systems often overlap with performance management (Van Thiel & Leeuw, 2002).

A common method used for evaluations is a Theory of Change (ToC) approach. This approach refers to a model that specifies the underlying logic, assumptions, influences, causal linkages and expected outcomes of a development program or project (Jackson, 2013). This model is created by collecting and analysing performance data (Jackson, 2013). Theory of Change approaches have become more prominent in recent years, also in impact evaluations propagated and used by international agencies such as the World Bank (Gertler et al., 2016).

Challenges in evaluations can be both internal and external (Porter & Hawkins, 2019). There might be an external pressure from an actor outside the project to provide desirable outcomes. This pressure could possibly lead to undesirable outcomes being neglected in an evaluation. As for an

internal challenge, there could be the lack of objectivity from evaluators, and people could affect the evaluations outcomes of their own projects without being aware of it. An example of this is when evaluators are personally invested in the project and have a more optimistic view of it, without being aware of their bias. When someone is personally invested in a project they might have a more optimistic view (Porter & Hawkins, 2019), which might be caused by the will to succeed, or the need to acquire more funding. A complicating factor of a different nature is the establishment of linkages between development interventions and impacts; Very often, the impacts of development projects do not occur immediately and could take years to show.

2.3.   Monitoring and evaluation systems

Looking at the entire system surrounding evaluations will help to increase effectiveness, analysing impacts, organizational learning and to improve the accountability of development aid (Liverani & Lundgren, 2007). If one only looks at a single evaluation activity, one could miss the opportunity to get a better understanding about the system surrounding it, such as the procedures, and the environment.

In evaluation systems more than just individual evaluation activities are covered (Leeuw & Furubo, 2008). In the literature one can find a variety of criteria and characteristics that are used to define evaluation systems. Liverani & Lundgren (2007) define evaluation systems as: "procedural, institutional and policy arrangements shaping the evaluation function and its relationship to its internal and external environment". Hanberger (2011) defines evaluation systems as: "routines put in place to handle everything in a stand-alone evaluation from the terms of reference through to the point when the evaluation ends, including quality assurance, dissemination of findings, and compiling some kind of response to conclusions and recommendations." Hanberger (2011) further says that a distinction should be made between stand-alone evaluations and evaluations that involve information streams. According to Leeuw & Furubo (2008) an evaluation system is characterized based on the following four criteria: (I) 'existence of a distinctive epistemological perspective'; (II) 'organizational responsibility'; (III) 'permanence'; and (IV) 'focus on the intended use of results of evaluations'. While Porter & Hawkins (2019) argue the importance of three components for the sustainability of evaluation systems. In order to be sustainable, evaluation systems should be '(i) networked, (ii) use-focused, and (iii) undertake processes aligned with agreed-upon quality standards'.

In development cooperation, monitoring and evaluation (M&E) usually go together (Crawford & Bryce, 2003; Porter & Goldman, 2012). It is often a requirement installed by donor agencies to have a project monitoring and evaluation system (Crawford & Bryce, 2003). M&E systems can be created with the same purposes in mind as for individual evaluations, such as learning, or accountability. In development cooperation the functions of monitoring and evaluation systems are often focused on increasing the effectiveness of the projects, to analyse the impacts, organizational learning and to improve accountability of development aid (Liverani & Lundgren, 2007). Analysing monitoring and evaluation systems can help with maintaining quality and impacts (Liverani & Lundgren, 2007), by providing the opportunity to adapt ones monitoring and evaluation system.

2.4.   Actor interactions in monitoring and evaluation systems

Monitoring and evaluation systems work in relation to their social and organizational environment, and how they work is dependent on the institution and the role it plays in the actor network (Liverani & Lundgren, 2007) In these environments different actors interact, following certain patterns of social

interactions and rules that influence these patterns. Therefore, perceiving evaluation systems as multi-actor systems can provide a better understanding of their structure and functioning.

2.4.1. Multi-actor systems

Multi-actor systems involve different actors with each their own views on the problem, priorities, preferences (Enserink et al., 2010). In this type of system the relations between the actors are organized more as a network instead of a hierarchy (Enserink et al., 2010), where the network encompasses the relations and interdependencies among the actors (de Bruijn & ten Heuvelhof, 2018). When addressing policy problems in a network, actors cannot force their preferred solution or policy on the other actors, which means that no individual actor has full power in a multi-actor system (Enserink et al., 2010).

In multi-actor systems there are two main conceptual levels: the network level, with actors, relations, rules, and arenas, and the actor level, which includes values, resources and perceptions (Hermans & Cunningham, 2018; Jenkins-Smith et al., 2014; Ostrom, 2005). The relations between actors on the network level are based on interactions like sharing information, funds, resources, etc. (Hermans & Cunningham, 2018) and these interactions are often based on existing patterns of behaviour. Describing these behavioural patterns through rules or institutions help with making the interactions more predictable and therefore more reliable (Hermans & Cunningham, 2018; Ostrom, 2005).

Multi-actor models help with understanding the actor environment and informing the decision making in complex multi-actor systems (Hermans & Cunningham, 2018). In evaluation systems there are different ways for actors to use evaluations, some might have an interest primarily in the accountability function of evaluations, while others focus more on the learning aspect of evaluations. These different interests can be challenging for evaluation systems, due to tensions that might arrive. Another challenge is the resource dependency and how that might result in a power imbalance. To give an example, a power imbalance could occur due to the dependency of a recipient on funding allocated by a donor. This makes the different objectives and the resource dependencies a key feature of evaluation systems as multi-actor systems.

2.4.2. Action arenas, actors and their characteristics

Hermans & Cunningham (2018) summarized the actor and network level concepts in the conceptual framework seen in Figure 1. This framework is partially based on Ostrom (2005) and Jenkins-Smith et al. (2014). It shows the action arena in which decisions are being made and actors interact with each other. The arena is connected to a system of interest. Actors react to this system or try to influence the system of interest, such as by imposing rules. To specify this arena it is necessary to scope the situation of interest and to define the boundaries of the actor network and its rules (Hermans & Cunningham, 2018; Ostrom, 2005). For each individual actor the diagram shows three concepts: values, resources, and perceptions.

Figure 1. Conceptual framework for a multi-actor system approach, source: Hermans & Cunningham (2018).

Values

When looking at the actor level, the values are there to apprehend the intention behind actions and the motivation of actors (Hermans & Cunningham, 2018; Jenkins-Smith et al., 2014). According to Hermans & Cunningham (2018), values are relatively

abstract concepts that are for instance visible in the goals or objectives that describe what an actor would like to maintain or change, or what is at stake for an actor in a certain arena.

Resources

As a way to understand how actors can influence the action arena, resources are identified. Control over resources enables actors to influence their surroundings – including other actors. Some examples of resources are financial resources, legal power, network, information, or specialized skills (Hermans & Cunningham, 2018). The usage of these resources is driven by the actors' values and perceptions.

Perceptions

The actors' perceptions are their views on their surroundings, such as the arena and its challenges, and the other actors that are involved (Hermans & Cunningham, 2018). In actor models, the perceptions include the causal beliefs held by actors; what can cause, or has caused, change in other actors or in the system of interest? Identifying actors' perceptions helps to understand the behaviour caused by the actor's thoughts about actions and expected outcomes (Hermans & Cunningham, 2018). These perceptions are developed by (un)consciously filtering and interpreting what they hear by communicating with other actors (Bots, 2008).

Actors are not just limited to one arena, which means that at the same time, actors could meet each other in different arenas (de Bruijn & ten Heuvelhof, 2018). According to Ostrom (2005) action situations in multi-actor systems seldom occur completely independent of other action situations. Two action situations or arenas can be linked or adjacent to each other (Kimmich, 2013; McGinnis, 2011; Ostrom, 2005; Sendzimir et al., 2010). Outcomes generated in one arena can influence other arenas or help determine the rules under which interactions occur within the other action situation(McGinnis, 2011; Sendzimir et al., 2010). When actors also participate in adjacent action situations simultaneously there could be more possibilities to find solutions for the dilemmas, for example by drawing upon resources in the adjacent situations (McGinnis, 2011).

Linked action situation can exist on one level of analysis, but also across levels and even in between levels (McGinnis, 2011). There can be an 'organizational linkage', where in larger organizations different departments influence each other (Ostrom, 2005). What happens in an overall management department can affect what happens in a project execution department. The same goes for donor programmes that consist of a variety of projects. What happens on the programme level affects what happens on the project level and vice versa.

2.5. Conceptual framework

The conceptual framework used in this research can be seen in Figure 2. It combines a multi-actor system approach based on the conceptual framework in 2.4.2. with linked arenas based on McGinnis (2011), Ostrom (2005), and Sendzimir et al. (2010).

The monitoring and evaluations system in this framework encompasses three different arenas: design, execution, monitoring and evaluation. These arenas are the main phases often found in development programmes or projects. First a project is designed and agreements are made on what the purpose and desired outcomes are. In the execution arena the project design is executed. The execution of a project is what is being monitored. The outcomes of the execution is what being evaluated, often based on the desired outcomes agreed upon in the project design.

Often, these three arenas of design, execution and monitoring and evaluation, exist on different levels. The conceptual framework distinguishes a programme and a project level. Programmes consist of

multiple projects, which together help to realize a larger and longer-running programmatic ambition. Within projects, especially large-scale projects, sub-projects, stages or work packages may exist. Programmes may be linked to larger policy arenas. These additional levels, and their adjacent arenas, are not shown in the framework, mainly for reasons of readability and focus.

Within these three arenas the focus lies on the actor interaction and their dependencies to each other related to their resources. Each arena summarises the main actors involved and their values, resources and perceptions, and their interactions with each other. The input and output arrows indicate relations between the arenas within the monitoring and evaluation system, and they indicate the relation between the monitoring and evaluation system and the societal impact of development cooperation. The outgoing arrows represent the arena outcomes, which can directly or indirectly influence the monitoring and evaluation arenas and societal impacts. The incoming arrows represent the inputs that influence an arena from outside its boundary, such as requirements that have to be followed.
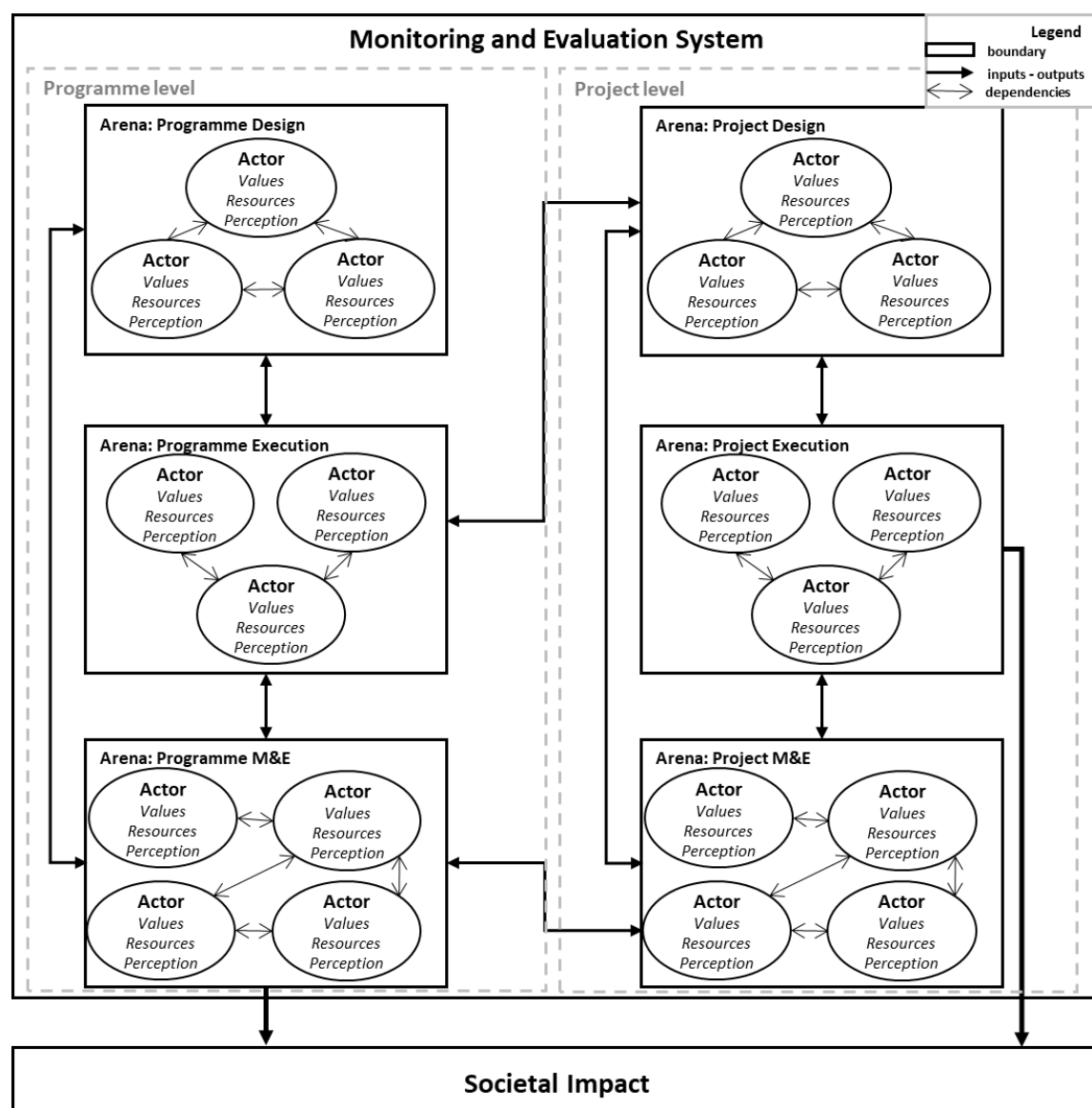
Figure 2. The conceptual framework used in this research of a monitoring and evaluation system that includes six arenas and that is divided by programme level en project level.

2.6.   Conclusion literature review

This literature review focused on the first two sub research questions: *What is the role of monitoring and evaluation systems in improving societal impact for development cooperation?*; *What is the influence of actor interactions in these monitoring and evaluation systems?*.

In this literature review it was found that monitoring and evaluation system can play a role in improving the societal impact by improving the effectiveness of a development cooperation programme. In development cooperation multiple challenges can occur when trying to achieve societal impact. These challenges are often related to aspects, such as cultural differences, the institutional environment, and the multi-actor environment.

In development cooperation there is often a Northern partner that provides (financial) resources to a Southern partner. The partners have different cultures and values, that might result in conflicts. These conflicts could have a negative effect on the relationships in the cooperation and possibly reduce the societal impact.

As for the institutional challenge, the institutional environment in the countries of the Southern partners might not always be stable. This could give rise to challenges such as corruption, maintaining and sustaining the cooperation results and long term impact, and the challenge if the resources actually ended up where they were needed.

Development cooperation are multi-actor environments, each actor has goals and objectives, and they can use their resources to influence the decision making process. There can be a mismatch between what a Northern partner is willing to provide and what a Southern partner desires or needs, this could have an undesired effect on the societal impact. It is not uncommon that Northern partners have provided resources that were not essentially needed, or have pushed their ideas and technologies onto Southern partners, while there could have been alternative options better suiting the Southern partners.

Monitoring and evaluation systems in development cooperation usually have an accountability and a learning function. Especially the learning function can help improve the societal impact for development cooperation if it leads to actual changes being made to a programme or project.

In this literature review it was also found that actor interactions play an important role in the monitoring and evaluation systems. The actor interactions influence the effectiveness of monitoring and evaluation systems and how it is used; does the focus lie more on accountability or on learning? The actors' differences in values, perception and resources play an important role in the effectives of the monitoring and evaluation system to improve societal impact. The interactions in the programme or project monitoring arenas: monitoring and evaluation arena; design arena; execution arenas, can all influence the monitoring and evaluation system.

This is summarized in as a conceptual framework, Figure 2, that provides an abstract, theoretical answer to the Research: *How do actor interactions in the monitoring and evaluation systems of development cooperation programmes like DUPC2 help to increase the societal impact of these programmes?*. This conceptual framework will be used in the next sections to structure an empirical investigation into the workings of the DUPC2 evaluation system.

Working on these challenges could improve the societal impact of the cooperation. In the literature review in chapter 0 some of these challenges are identified, related to aspects such as cultural differences, the institutional environment, and the multi-actor environment.

3. Research Methodology

This section presents the research methodology. First the DUPC case study is introduced, after that the application of the conceptual framework to this case is explained and the method of data collection is described, interviews.

3.1. Case study background: DUPC2 partnership programme

For this research an exploratory case study of the monitoring and evaluation system of the DUPC2 partnership programme is used. The DUPC2 programme (2016-2023) is the second part of the DUPC partnership programme between IHE Delft and DGIS. By encouraging collaboration in partnerships, the DUPC2 programme aims to strengthen the water and development sector in low and middle income countries. The main programme objective is 'to provide tangible contributions to solving water and development challenges in the Global South, by equipping and empowering people and organisations in partnership with partners from these countries' (IHE Delft, n.d.-c). The focus of the DUPC2 programme includes the following components: education and training; research and innovation; knowledge sharing and networks; capacity strengthening and community of practice; and management and learning (IHE Delft, 2020).

Within this case study the focus lies on two governance levels within the DUPC2 programme: the DUPC2 programme level, and the project level. These two levels are based on the DUPC governance overview made by Dani et al. (2021), Figure 3. In this overview the governance structure is divided in three levels: project implementation and support; programme management and support; strategic level. The DUPC Management and supporting departments in IHE are involved in the decision making in all governance levels. The DUPC2 Management is responsible for the daily management, implementation and decision making of the programme, and consists of IHE Delft employees.

3.1.1. DUPC2 programme level

The programme level in this research is based on the combination of the strategic level and the programme management and support level, as seen in Figure 3. On the strategic level strategic decisions are being made regarding the DUPC programme design. On this level the IHE Rectorate is the representative of IHE Delft. The funding provided by DGIS plays a significant role. The DUPC Committee gives recommendations for the strategic direction and implementation of the programme and is involved in the selection of larger projects (Dani et al., 2018).

The DUPC2 Committee has three IHE staff members, which are different from the members of DUPC2 Management and the Rectorate. In addition to this, the DUPC2 Committee has four regional members. These are members from partner organizations in the regions where DUPC is active. The regional committee members can be found in Vietnam, Zimbabwe, Jordan, and Colombia. In this research the DUPC2 Committee can be referred to as a whole or sometimes is split into an IHE committee part and a regional committee part, in consideration of the
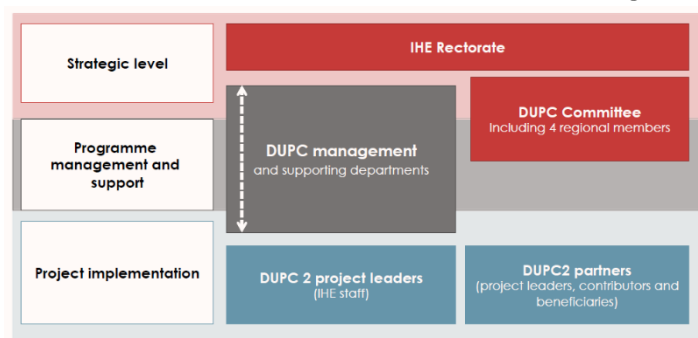
Figure 3. DUPC governance overview. Source: Dani et al. (2021).

expected differences between being involved in the programme committee as an IHE staff member or as a member of a partner organization.

In the programme management and support level the programme as a whole is executed, monitored, evaluated. Here the DUPC Management is joined by the DUPC Committee. The project level in this research is based on the project implementation and support level, as seen in Figure 3. On this level the individual projects are designed, executed, monitored and evaluated. On this level the DUPC Management is joined by IHE project leaders and IHE staff, and by the DUPC2 partners that can also act as project leaders, contributors and beneficiaries. Project leaders are the link between DUPC2 programme management and project management.

3.1.2. Project SMALL

For the project-level in DUPC2, project SMALL is used as a sub-case study. This project was chosen on the basis of a few criteria: project must be going for a few years already, preferably finished; the project leader must be willing and it must be possible to conduct interviews with the Southern partners; data on the project and evaluations must be available; there must have been at least one knowledge sharing activity organized; the project should be on the larger side, since this might give a better opportunity to analyse it through the different organizational levels and expect some visible societal impact.

Project SMALL is a research and innovation project in Uganda and Mozambique that was executed between 2017-2020. The project focussed its research and implementation in the field of water supply and sanitation (WSS) service provision in small towns (SMALL, 2016). On these locations the coverage of public services such as access to water and sanitation are still limited (SMALL, 2016). SMALL is an interdisciplinary research financed under the research and innovation project call within the DUPC2 programme and it is led by people from IHE Delft.

In this project local water operators and universities, IHE Delft, and associated partners joined in a partnership (SMALL, 2016). The project partners were Makerere university and the National Water Sewerage and Corporation in Uganda, and the Centro de Biotecnologia, which is a department of the Eduardo Mondlane university and Collins Ltd, a water operator in Mozambique. The associated partners were EAWAG, VEI and RIVM. VEI, Vitens Evides Internaional, is an organization initiated by Dutch water operators to make a contribution to SDG6: sustainable water and sanitation for everyone. VEI aims to share their knowledge and skills to help make water operators around the world stronger (VEI, n.d.). EAWAG is the Swiss Federal Institute of Aquatic Science and RIVM is the Dutch National Institute for Public Health and the Environment.

The project leader was one of the initiators of the project. It is an important actor, that is the connector between the DUPC2 programme and the project. Project leaders in the DUPC2 programme can be both from IHE Delft or from a Southern partner. In the SMALL project the project leader is an employee of IHE Delft. In addition to the project leader, IHE project staff is also an important actor in the SMALL project. They represent IHE Delft in the project, and work closely together with the project leader, who they help with the management of the project.

3.1.3. Monitoring and evaluation system

The DUPC2 programme has a combined monitoring and evaluation system. According to Dani et al. (2021) DUPC2 has a good monitoring and evaluation system that has helped with the programme accountability towards IHE Delft and DGIS, and with keeping the projects on track. The DUPC2 programme has made improvements to their monitoring and evaluation system over the years. DUPC2 projects are designed with a logical framework as a tool to focus on quantitative indicators, based on tangible outcomes or effects that lend themselves to be measured. The specific indicators are used to measure the performance of the projects and to compare them with the expected results of the DUPC2 programme (Dani et al., 2021). However, it remains challenging to measure the project

impacts and using the findings of the monitoring and evaluations for learning purposes is limited (Dani et al., 2018, 2021).

So far there were two DUPC2 programme wide evaluations done by an external party named Technopolis group, which is a policy advisory group that specializes in evaluations and impact assessments. This was in accordance with agreements made in the DUPC2 proposal, regarding the programme's monitoring and evaluation (Dani et al., 2018). According to Dani et al. (2018) the purpose of the mid-term evaluation in 2018 was to provide an evaluation of the performance of the DUPC2 programme to IHE Delft and DGIS, and to learn to improve the programme and provide input for future plans. In the second external evaluation, Dani et al. (2021), the focus of the evaluation was formulated as accountability and learning. This was done assessing the programme results and the institutional arrangements (Dani et al., 2021).

For the DUPC2 programme it is important to improve the already existing learning aspect of the monitoring and evaluations system. In 2019 a DUPC Impact Initiative was started to support DUPC projects in better managing for impact and in better capturing and learning about their impacts. (Hermans et al., 2021).

The monitoring and evaluation of DUPC2 is among others aimed at improving the societal impact of the DUPC2 projects, which occur in the project level. Projects are required to submit mid-year reports and annual plans to the DUPC2 programme, who needs them for the programme wide monitoring and evaluation. For these reports, templates exist in which multiples aspects are included such as: reflect on progress, monitor outputs, and assess needs for modifications to the project designs. The interconnectedness of the programme and project levels and their influence on the monitoring and evaluation make it important to look at the monitoring and evaluation system of DUPC2 as linked arenas in the programme and project level.

Due to the variety in actors with their own objectives and resources, the monitoring and evaluating on the programme level could possibly have different purposes than the project monitoring evaluations. The programme level influences the project level by how the DUPC2 programme executes their programme design, such as the allocation of funds, or monitoring and evaluation requirements. So even though societal impact only occurs at the project implementation arena, it is still influenced by the decisions made and processes in place in the other arenas across levels.

3.2. Conceptual framework for the DUPC2 case study

For the DUPC2 programme case study three types of arenas were analysed on both the programme and the project level within the DUPC2 programme, see Figure 4. These arenas correspond with the phases the DUPC2 goes through on these levels. Though the actual monitoring and evaluation activities are part of the monitoring and evaluation arena, the monitoring and evaluation system encompasses all six arenas. For the reason that the rules set up for monitoring and evaluation are decided upon in the design arena on both levels and what is monitored and evaluated is what is happening in the execution arena.

The arrows indicate expected input-output connections between the arenas. On each level there is a loop including the design arena, execution arena, and monitoring and evaluation arena. Between the levels the connections are expected to be between the programme execution arena and the project design arena and monitoring and evaluation arena. In this research data will be gathered to explain the connections between the monitoring and evaluation system and the societal impact of the DUPC2

programme and between the arenas themselves, and to see if there are other connections that influence societal impact.
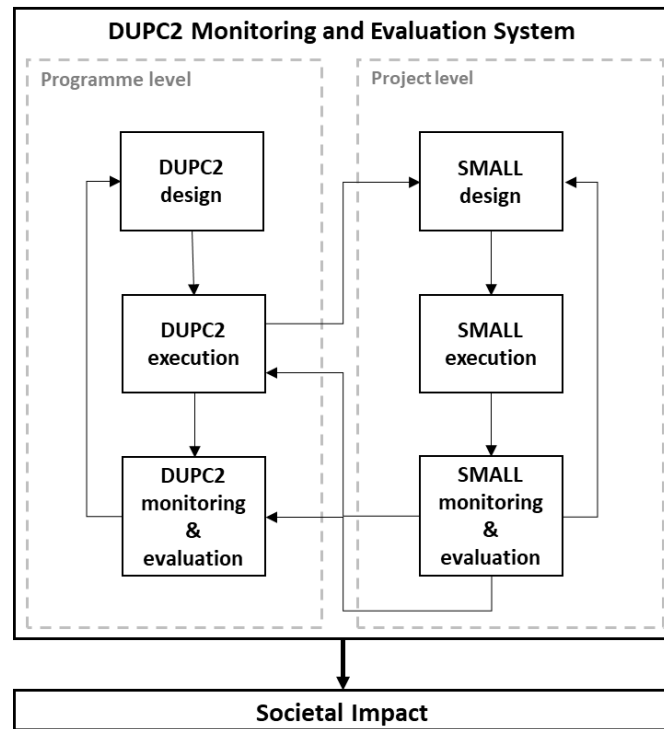
Figure 4. Conceptual framework related to the DUPC2 case study; simplified version of the conceptual framework as seen in figure 2.

3.3.   Data collection and analysis

The main data collection method that is used are semi-structured interviews. The interviews are aimed at gathering data to complete the conceptual framework. To do this data is needed regarding the connections between actors, between arenas, and between the monitoring and evaluation system and societal impact. Using semi-structured interviews can capture the perceptions of respondents about the existing DUPC2 evaluation system, its functions and its operation. A semi-structured interview set-up was chosen to give direction to the interviewer while also having the flexibility to divert from the question sheet. Semi-structured interviews give guidance to the subjects discussed in the interviews, while also giving the opportunity to ask further for more in-depth answers.

Data on the actors' values and objectives, and on some arena connection could have been gathered by a survey, however to complete the conceptual framework of this research a more in-depth understanding of the actors perceptions and the connections are required, which are better gathered in a qualitative semi-structured interview.

In this section the interview design is specified. First the interview set-up, then the identification of the interviewees and lastly the data processing.

3.3.1. Interviewed actors

A total of twelve interviews were done for this research. Six interviews focussed on the programme level and six on the project level, an overview can be seen in Table 1. The four of the six programme level actors interviewed were identified based on the governance overview as seen in Figure 3. The

individuals to be interviewed were suggested by the DUPC2 programme manager, and supervisor of this thesis.

On the project level the focus lies more on the Southern project partners and their relation with IHE Delft. The Southern project partners are more directly related to the project outcomes and impacts, when compared to the Northern associated partners involved in the project. The project partners are in this case Ugandan and Mozambique universities and water operators and they execute and implement the research. It was important to include all four Southern partners, because there were two countries involved in the project, Mozambique and Uganda, and two different types of actor per country, a research actor and implementing actor. The four Southern project partners, the IHE project staff and the project leader were the six actors involved in the interviews. The individuals to be interviewed were provided by the project leader. The associated northern partners (VEI, EAWAG and RIVM) were not interviewed as their role was more limited and the scope on project level was more focused on the Southern project partners. However, they are included as a group in the SMALL project design arena.

Table 1. The twelve actors included in the interviews, with their corresponding interview code as used in the interview transcripts and the data table, see appendices III. Codes: M1-M6 for the DUPC2 programme level, S1-S6 for the SMALL project level.

Code	Actor	Function Interviewee	Interviewee's role in DUPC2
		DUPC2 programme level	
M1	IHE Delft	Business Director IHE, member of IHE Rectorate, member of DUPC Steering Group	Joins in strategic meetings/consultation with Ministry of Foreign Affairs and other groups they engage (regional committee). Oversees if the budget and activities are being executed as agreed.
M2	DUPC2 Management	Full time Programme Officer DUPC2, member of Liaison Office IHE Delft	Day to day programme management. Works on the annual reports for the Ministry of Foreign Affairs. Make calls for sub activities (or project proposals). Keeps an eye on the progress in projects, helping projects.
M3	IHE DUPC2 Committee	IHE staff member; Member of the DUPC2 Committee	Involved in critical thinking with the DUPC Management about strategic directions and giving feedback if they ask for it or out of own initiative
M4	Technopolis	Principal consultant, works on evaluation of public policies and programmes in the area of higher education, research and innovation.	External evaluators, involved in mid-term and effect evaluation of DUPC2. Leading the evaluation work
M5	Directorate-General for International Cooperation of the Dutch Ministry of Foreign Affairs (DGIS)	Senior Policy Advisor on Water at DGIS	Responsible within DGIS for the DUPC programme for the past 7-8 years, consults with IHE Delft and is the DGIS contact person for DUPC.
M6	Regional DUPC2 Committee	Committee member, employee of DUPC2 partner university in Colombia, representative Latin American Countries, for 2-3 years now	Represents the partner organizations of the Spanish speaking countries
		SMALL project level	
S1	Project Leader	IHE employee, researcher	Project coordination: coordinating various reports, financial narrative, liaising with the partners, making sure that they were delivering what they promised to do, organized activities. Content: implemented research via supervision of MSC and PhD students, implemented capacity

			development activities by delivering training workshops
S2	National Water and Sewerage Corporation, Uganda	Employee, representing NWSC, used the opportunity to carry out his PhD with the site data collection	Had no role during proposal and design, the director was responsible for the proposal. During execution worked on: development water safety plans, implementation water quality monitoring
S3	IHE SMALL project staff	PhD researcher at IHE at start of project SMALL, left IHE after a few years, to work at VEI, but was still involved in project	One of the proposal initiators, was involved in a work package and finished the work package after they had already left IHE
S4	Collins Ltd, Mozambique	Employee Collins since 2017, works with water quality management and analysis, and controls the technical part of the water systems.	Was involved in awork package and for that work package the interviewee planned the fieldwork, did the fieldwork, put results in databases and shared them, did the reports, workshops
S5	Makerere University, Uganda	Teacher at Makerere University.	Leading a work package
S6	Universidad Eduardo Mondlane, Mozambique	Worked at centre of biotechnology at the Universidad Eduardo Mondlane. Managed the project of the Italian corporation with Makerere for three years Supervised research programmes.	Got involved in project SMALL as a replacement partner by hearing of project SMALL through a mutual friend of the project leader. Was involved in a work package.

3.3.2. Interview setup

All interviews were done through videocall using MS Teams. Each interview was scheduled for one hour and the language in which the interview was done depended on the interviewees first language. When the interviewees first language was Dutch the entire interview was done in Dutch. The other interviews were all done in English. First the actors involved in project SMALL were interviewed, after that the actors involved on the DUPC2 programme level were interviewed. Before the interview, latest one day before, the interviewees were provided with a question sheet and an informed consent form. Having a question sheet gave the interviewees a better idea about what would be asked during the interview.

These question sheets were developed with a few things in mind. First of all they should make a distinction between the three arenas: design, execution, monitoring and evaluation. They also provide data to fill in the connections between these arenas, as in Figure 4. Besides the connection between the arenas, the focus also lies on the actors involved, the activities done and the relation to impact. To be able to determine the connection in conceptual framework in Figure 4 and to answer the corresponding research questions the following data should be able to be gathered with the question sheets: Actors' values, resources, perceptions, actor dependencies, and arena input and outputs. The question sheets can be found in appendix I and II, they were slightly different for the SMALL project level and the DUPC2 programme. On one sheet the question were more focused on the programme level and for the other sheet the question were focused on the project level.

After each interview a transcription report was made using software for speech recognition followed by manual correction. The reports were shared with the interviewees for comments and feedback, which were used to correct and complete the reports. The data from the interview report that was needed to fill in the above frameworks were gathered in an Excel file and structured per arena. In appendix III a summary of that data can be found. This included the actors values, resources, and perception and the interviewees perceptions on the other actors.

PART II – CASE STUDY RESULTS & ANALYSIS

4. DUPC2 PROGRAMME RESULTS

This chapter gives the interview results on the DUPC2 programme level, as seen in Figure 5. These results help with answering the sub research question 4a: *How do actor interactions influence the DUPC2 evaluation system and its support for societal impact on programme level?* The interview results are summarized in three diagrams representing the three DUPC2 programme level arenas: programme design arena, programme execution arena, and programme monitoring and evaluation arena. In this order the results are given per arena. After this the three arenas are linked together.

Each arena diagram is a subpart of the conceptual framework shown in section 2.5. Within the arena diagram one can find the actors with a significant role in that arena and a summary of the actors' values, resources and perceptions, that are related to the arena.

The perceptions are sometimes reported with the explanation of actors' values, when they help to clarify how actors consider their values or objectives to be influenced by programme activities. Also, in some cases actor representatives were not explicit, or did not elaborate much, on their perceptions. Therefore, this element of perceptions is not reported for all actors in all action arenas, or is sometimes reported with the values.

Figure 5. Simplified conceptual framework DUPC2 case study in which the scope of this chapter, the programme level, is highlighted.

The arena diagrams also include the relation between actors related to that arena and arena inputs and outputs that could influence other arenas or societal impact.

For each actor section the paragraphs about their values, resources and perceptions is based on the interview with the representative of the focus actor of that section, unless stated otherwise. This is followed by a short section that describes the images and perceptions that other actor representatives may have expressed during their interviews, confirming, complementing or nuancing actor characteristics. For this paragraph with the perceptions of other actors it is indicated which actor mentioned it.

4.1. DUPC2 programme design arena

Within the DUPC2 programme design arena, the decisions made relate to the DUPC2 programme proposal. In this proposal the DUPC2 programme design outlines are fixed. However, during the execution of the programme it is possible that the programme design outline changes, for example when new focus regions or subjects are added.

The programme design arena covers topics such as: the regional and thematic focus; how the financial resources are divided (what activities to fund, in which regions, and under what conditions); what outcomes are expected; and how the programme should be monitored and evaluated. In this section the interview results that are given concern the four main actors involved in this programme design,

which are DGIS, IHE Delft, DUPC2 Management, and DUPC2 Committee. In Figure 6 these interview results are summarized in the programme design arena diagram.

The dotted line in the diagram represents that the DUPC2 Committee was not yet established during the proposal phase of DUPC2 and all IHE and regional committee members were added later. There were committee members involved in the start-up phase, such as with formulating the project calls and what to emphasize. For the reason that the committee was not yet established the data from both parts of the committee are combined in this arena.
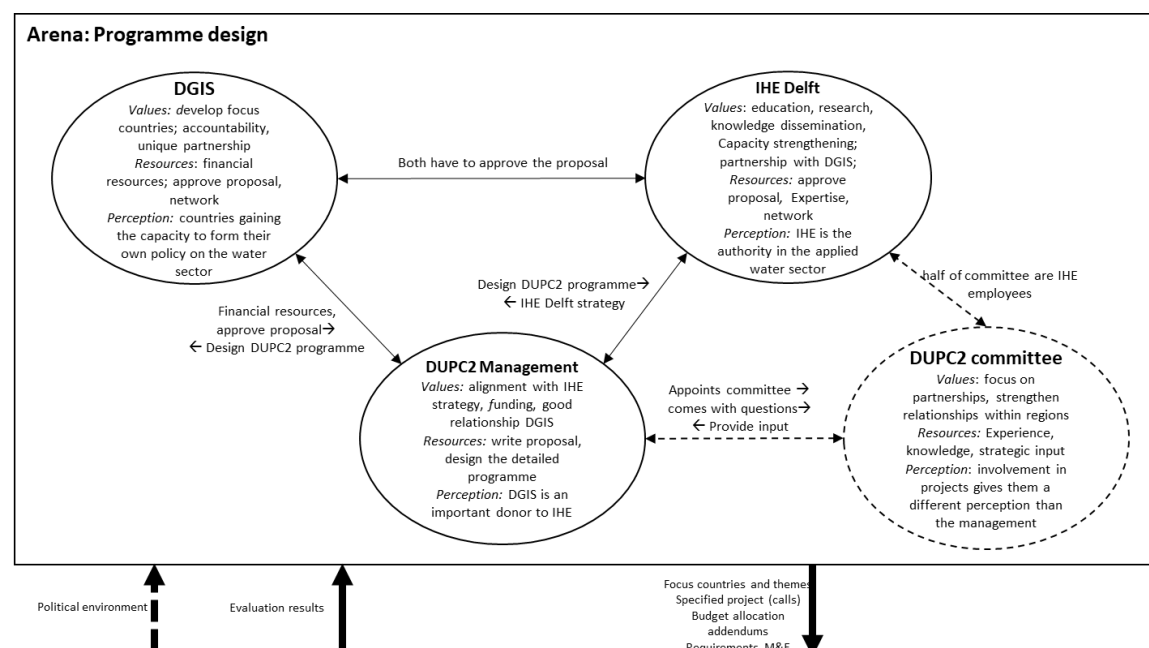
Figure 6. Diagram of the programme design arena with a summary of the results.

4.1.1. DGIS
Values, resources and perceptions by DGIS
The values of DGIS regarding the DUPC2 partnership and programme design are visible in its objectives to develop focus countries, and to ensure accountability in the use of public funds. For DGIS it is important that the DUPC2 programme proposal fits the policy of the Ministry of Foreign Affairs. Part of this policy is the development of the Ministry's focus countries or regions, such as currently the Horn of Africa and the Middle East. The reasoning behind this is that they believe that the development will increase the living standard of the people in those focus countries, and could create future opportunities for Dutch businesses. The DUPC2 programme contributes to this by helping to strengthen the countries' capacity to form their own policy on the water sector. As a part of the Ministry of Foreign Affairs, accountability in the use of public funds is also of importance for DGIS.

The main resources of DGIS are: the authority to approve the proposal, their financial resources, and their network. During the writing of the DUPC2 proposal there was a lot of interaction between DGIS and the DUPC2 Management, the proposal went back and forward a few times before it was approved. The proposal was also reviewed by the Ministry of Foreign Affairs before it was approved. This review was done with some external and internal experts from the Ministry. A meeting was organized in which comments on the proposal were given to and discussed with IHE Delft, after which IHE Delft adapted the proposal. When the proposal was approved, the DUPC2 programme got funding from DGIS. The funds are given yearly as advances in payment. To acquire this payment

for each following year, an annual plan for the DUPC2 programme is required by DGIS. In addition to the annual payment advances, DGIS can also decide to give the programme addendums for specific activities. To give an example, DGIS gave a top-up to the DUPC2 programme to develop more online activities, because that became more important the Ministry of Foreign Affairs and IHE Delft. The financial resources are a subsidy and therefore DGIS prefers to look from a distance while IHE Delft is responsible for the DUPC2 programme. DGIS does provide their network to the DUPC2 and sometimes proposes partners. DGIS occasionally had contact with potential partners who had an issue and who were wondering if IHE Delft could do something with their issue. These contacts would often go through the Dutch Embassies and DGIS would get them into contact with the DUPC2 Management team. These contacts and their issues did not always translate into DUPC2 projects. For the reason that DGIS is also involved in other cooperation forms, that seemed to be a better fit to take up the issue.

DGIS perceives the DUPC2 partnership as unique, because there are not many organizations that can offer what IHE Delft can, such as their expertise, research facilities, and global network. Perceiving the DUPC 2 as unique partnership allows DGIS to not set out a public tender, for the reason that IHE Delft would most likely win that. DGIS perceives the programme management and monitoring as the responsibility of IHE Delft. DUPC2 is required to have an extensive monitoring and evaluation for accountability towards the Dutch government, which includes two yearly reports (Interviews M1 and M5). The annual report discusses and reflects on what was done, and DGIS wants that for accountability. The annual plans are required to get funding from DGIS for the following year. In the proposal it was also included that DGIS planned to let an external party do a mid-term progress review. This external party ended up to be the Technopolis Group.

Perceptions of other actors
IHE Rectorate and the DUPC2 committee perceive that partnering with DGIS gives IHE Delft flexibility to design the DUPC2 programme. While DGIS has broad outlines for the programme (e.g. focus regions, themes), IHE Delft can decide on the specific programme details with the knowledge and expertise they have (Interviews M1 and M3). Technopolis sees that the proposal is a negotiation between DGIS and IHE Delft, to make it fit both the priorities of the Dutch government and the IHE Delft strategy, and it seems that the relationship between DUPC2 Management team, IHE Delft and DGIS is very good and open (Interview M4).

After the proposal is approved IHE Rectorate perceives that DGIS can influence the programme design by proposing extra partners, and putting more emphasises on certain project themes, or countries. To give an example, DGIS wanted to work with an organization in Sweden and then asked DUPC2 to start joint activities with that organization. The IHE Rectorate believes that DGIS prefers to involve such partners in already existing programmes rather than to create new collaborations (Interview M1). The DUPC2 Management mentioned that there was a top-up for some projects that are important to DGIS (Interview M2), as well as to support the IHE strategy. The IHE part of the DUPC2 Committee perceives that DGIS has an interest in regions that are not stable and in fragile states. They believe that is the case, because increasing people's livelihood there might give people more incentive to stay in their country (Interview M3).

4.1.2. IHE Delft
Values, resources and perceptions by IHE Delft
The main values of IHE Delft regarding the DUPC2 partnership and programme design are visible in the importance it assigns to: alignment with the IHE Delft core activities, capacity strengthening, and the partnership with the Ministry of Foreign Affairs. The core activities of IHE Delft are education, research, knowledge dissemination, and capacity strengthening in the water sector. The

DUPC2 programme is seen as a learning machine, in which innovative and interdisciplinary knowledge is developed, can be tested, and students can be educated. IHE Delft wants DUPC2 to be a demand- and problem-driven programme. For IHE Delft the partnership with DGIS is also an important instrument for financial resources. In addition to this, a partnership with the Ministry of Foreign Affairs helps with acquiring other partners and donors, since the Ministry of Foreign Affairs is the authority in the Netherlands when it comes to working in foreign countries.

The main resources of IHE Delft are: shared power to approve the proposal, its knowledge, expertise, network, and reputation. Regarding the water sector IHE Delft is seen as one of the authorities in the field, apart from other universities. There is quite some flexibility within partnering with DGIS, since the design of the programme is an interaction between what is possible for financing from the Ministry and what IHE Delft can do and what they find important. DGIS has broad outlines and IHE Delft can fill in the details with the knowledge and expertise they have. Within IHE Delft the DUPC2 Management team prepares the programme design and the IHE Rectorate approves it.

Capacity strengthening in the Global South is the most important activity for IHE Delft, and for this it is believed to be important to work with partners for a longer period of time, which makes the longer duration of the programme important, but due to the political agenda the perception is that there is never a certainty if there will be a next DUPC phase.

Perceptions of other actors
According to the IHE DUPC2 Committee, IHE Delft values the financial resources that are acquired by DUPC2 (Interview M3). According to the DUPC2 Management what makes IHE Delft appealing as a partner to DGIS is the historical partnerships, and the fact that they also have a lot of alumni in de countries they work with in DUPC, which include connections to governments (Interview M2). The IHE DUPC2 Committee perceived that the Rectorate did not have a large influence on the structure and set-up of the DUPC2 programme, because there was a shift in Rectorate during the phase of DUPC2 proposal development (Interview M3).

4.1.3. The DUPC2 Management
Values, resources and perceptions by the DUPC2 Management
The main values of the DUPC2 Management regarding the DUPC2 partnership and programme design are: matches the core activities of IHE Delft, funding for innovation, global partnership, and the relationship with DGIS. DGIS is an important donor to IHE Delft, therefore it is important to keep a good relationship with them. The partnership with DGIS is seen as flexible and it gives IHE Delft the financial resources needed to execute the DUPC2 programme. As for the core activities of IHE Delft, they are mentioned in the previous part about IHE Delft.

The main resources of the DUPC2 Management during programme design are: write the proposal, design the detailed programme. The design of the DUPC2 programme was more of a standalone process, in which the proposal was written by the DUPC2 Management and some selected resource persons within IHE Delft. Some specific projects in the programme were already specified in the programme proposal while with other projects the DUPC2 Management could specify them later. In the proposal it was agreed that the DUPC2 programme could collaborate with low- and middle-income countries that were not on the focus list of the Ministry of Foreign Affairs, but only if there was also a partner involved from one of the focus countries.

Perceptions of other actors
According to the IHE DUPC2 Committee, DUPC1 was perceived as more hierarchical compared to DUPC2. There was only one person that coordinated the DUPC1 programme and it was perceived there was a more top-down approach within the programme and the partners. To give an example,

in the DUPC1 programme the agreements with partner universities were often made with their Dean of the Faculty, and not with the people working in the field, the researchers. In DUPC2 they went for a more bottom-up approach, with projects calls where everybody could respond to (Interview M3).

4.1.4. The DUPC2 Committee

Values, resources and perceptions by the DUPC2 Committee

The values of the IHE DUPC2 Committee regarding the DUPC2 programme design are visible in the importance it gives to: the focus on partnerships and working together with different types of partners. As for the regional DUPC2 Committee the main value is to strengthen the relationships within and between countries in a region. The main resources of the DUPC2 Committee are: knowledge and experience, and strategic advice. Their role is to join in critical thinking with the DUPC2 Management about strategic directions and giving feedback if the Management asks for it or out of their own initiative. The individuals that are part of the DUPC2 Committee are often also involved in other parts of the programme, for example as a project member. This provides them with specific project related experiences and knowledge.

Perceptions of other actors

Technopolis perceives that the regional committee wants to align the programme objectives with the needs in the southern countries. They perceive that the role of the regional committee member is more focussed on their own region, whereas the focus of the IHE committee lies more programme wide. The regional committee is involved at both the strategic level and regional level and the DUPC2 Management asks the regional committee for input on calls for projects within the programme. Whereas the IHE committee gives strategic input and feedback to the programme (Interview M4).

4.1.5. Arena outputs and inputs

The main outputs of the programme design arena are: focus countries and themes, monitoring and evaluation requirements, including the need for external evaluation. In the programme proposal and design arena the actors decided on the DUPC2 focus countries, regions and themes. Within the proposal some specific project or project calls are already specified while for other projects the details are filled in during the implementation of the programme. According to the DUPC2 Management there are some principles in the programme design that come back in the projects, such as: "40% of the budget has to go to partners in low- and middle-income countries", or: "this many large projects must be done for this much money, this many projects should be led by southern partner, this many outreach activities must be done". Part of the programme design is the requirement that two reports about the DUPC2 programme are provided to DGIS yearly.

An input in the programme design arena is the results of the external evaluation of DUPC1. These results had influence on the design of DUPC2, an example of this is the increased importance of the monitoring and evaluation of the programme. The political environment in the Netherlands is an external input that influences the programme design arena. The focus of DGIS depends on the political environment, which is likely to change when there are elections, or a new minister is appointed. Although the agreements in the proposal cannot change, it is possible for DGIS to provide addendums to specific activities or themes to expand to design of the programme, which then influences the programme execution. To give an example, during DUPC2 there was a change in the political environment, at the end of 2017, after elections, a new minister of Foreign Trade and Development Cooperation was appointed in the Dutch government. This led to addendums for activities in regions that were the new focus point of the ministerial policies, such as the Middle-East.

4.2. DUPC2 programme execution arena

Within the DUPC2 programme execution arena, the execution of the programme is managed. This involves aspects such as the relation with different stakeholders, like partners, identifying activities to be funded, and solving challenges that occur. In addition to managing the execution, the programme design is converted into specific and detailed actions used to execute the programme, such as how projects are chosen, and which meetings, workshops and events are organized for whom.

In this section the interview results that are given concern the three main actors involved in this programme execution, which are DUPC2 Management, DUPC2 Committee and the project leaders. In Figure 7 these interview results are summarized in the conceptual framework as discussed in section 3 Methodology.
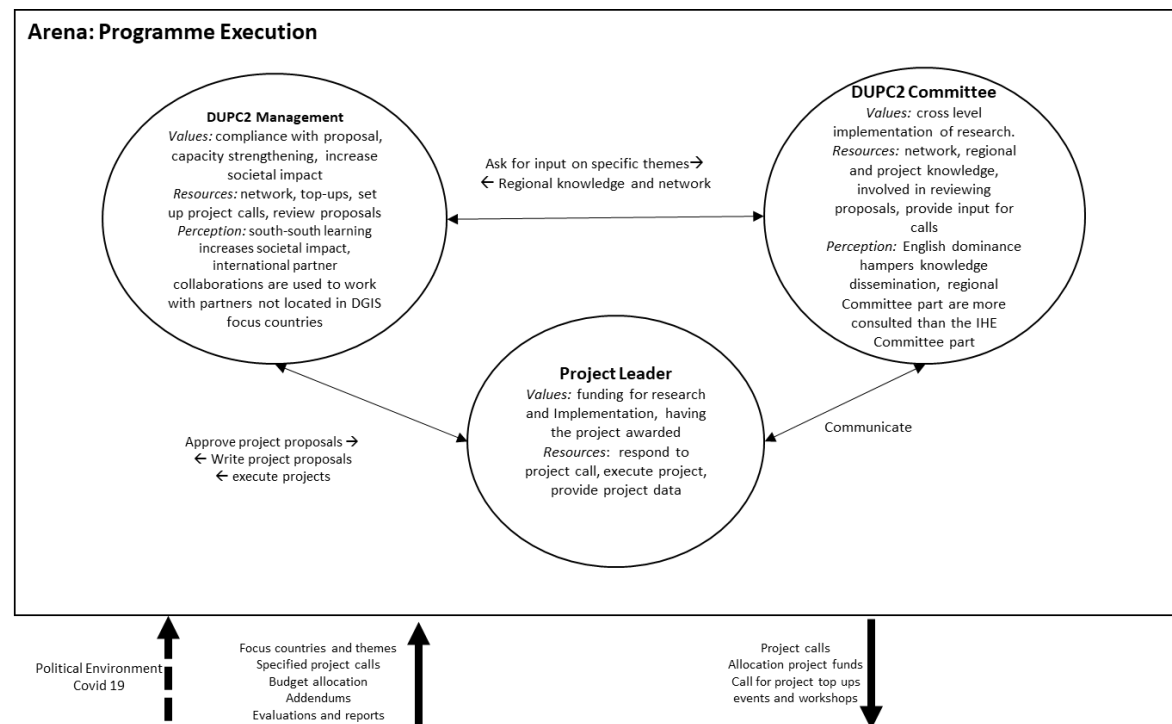
Figure 7. Diagram of the programme execution arena with a summary of the results summarized.

4.2.1. The DUPC2 Management
Values, resources and perceptions by the DUPC2 Management

The main values of the DUPC2 Management regarding the DUPC2 programme execution are: compliance with the proposal, capacity strengthening and increasing the societal impact. They want to support capacity strengthening by contributing to solving challenges of the countries of their partners. The DUPC2 Management perceives that south-south learning could increase the societal impact of the DUPC2 programme.

The main resources of the DUPC2 Management regarding the DUPC2 programme execution are: their network; setting up and approving project proposals, providing projects with top-ups, and organizing events and workshops. The DUPC2 Managements sets up the project calls. In these project calls usually a regional DUPC2 Committee member is also involved if possible, and sometimes external experts are involved for the review of the larger projects. The project calls are disseminated within the DUPC and IHE networks and interested parties can react to that. The DUPC2 Management reviews the project proposals and choses wo will get the project awarded, based on external reviews. It is also possible to set up calls for specific activities as a way to provide certain

projects with additional support. As an example, a call was set up to stimulate outreach of projects and only the research projects that were already ongoing could apply and get funding for an outreach activity. To stimulate the South-South learning the DUPC2 Management organizes events to connect different project in a region, so that the projects can learn from each other, share their experiences and expand their network.

The DUPC2 Management perceives that within the DUPC2 programme there is some flexibility regarding the countries they can partner with. It is possible to work with other low and middle income countries besides the focus countries agreed upon in the DUPC2 proposal, as long as partners from focus countries collaborate with partners from non-focus countries in projects.

Perceptions of other actors
According to the IHE DUPC2 Committee the DUPC2 Management values south-south learning and the DUPC2 Management tries to stimulate that (Interview M3). Technopolis has recognized that the terminology used is not very common, which they perceive as something positive. To give an example, DUPC2 talks about 'capacity strengthening', while other programmes often use 'capacity building'. The difference between these two terms is that the term 'building' could imply that there is not much there to begin with and something has to be created, while the term 'strengthening' implies that there already is something which could be improved. In addition to this, Technopolis perceived it as rare and progressive that DUPC2 has a call for proposals for locally lead research (Interview M4).

4.2.2. The Project Leaders
Values, resources and perceptions by the project leader
The main values of the project leaders regarding the DUPC2 programme execution are related to their interest to obtain funding for their research and training topics and to support research and project implementation. The main resources of the project leaders regarding the DUPC2 programme execution are: create project proposals, execute and manage the projects, and providing information to DUPC2 Management on progress in project execution and realization of planned project outputs. In section 5, which focuses on the SMALL project level arenas, the values, perceptions and resources of the project leaders are elaborated on more extensively.

Perceptions of other actors
The DUPC2 Management perceives that if IHE staff reacts to a project call, they often develop the proposal themselves. They might ask input of partners, however, it does not always seem like it is a collaboration. To give more incentive for a collaboration between partners the DUPC2 Management organizes workshops during the project design phase. The DUPC2 Management is always in contact with the project leaders of the project and sometimes there is also a sub-project leader they have contact with (Interview M2).

4.2.3. The DUPC2 Committee
Values, resources and perceptions by the regional DUPC2 Committee
The main values of the DUPC2 Committee regarding the DUPC2 programme execution are visible in their interest in the usage and implementation of the knowledge gained cross-level. With cross-level they want to indicate that besides showing how the system is working on local level, there is also a desire to show that to the regional and national decisionmakers (Interviews M3 and M6).

The main resources of the DUPC2 Committee regarding the DUPC2 programme execution are their network, and their regional and project knowledge. The regional committee uses their network to disseminate the project calls over the region. The DUPC2 Committee members are usually also involved in projects of the DUPC2 programme. This network also makes them a connector for the

DUPC2 Management in their region, as a way to see what happens in the region and share information with the regional (potential) partners. In addition to this, the knowledge they have about the local environment, the local culture and society, can contribute to the strength of the collaboration. Understanding the local differences is important for finding consensus about activities and projects (Interviews M3 and M6).

The IHE members in the DUPC2 Committee perceive that the regional part of the committee is more consulted than IHE part of the committee (Interview M3). The regional committee perceives a push from the DUPC2 programme to produce in English. English is the main language of the programme and most research that is done as part of the DUPC2 programme is written in English. Even though English is not the main language in a lot of the countries where the southern partners are located. To give an example, in Colombia a lot of research is performed in Spanish, which is the main language there, but then it has to be translated to English for DUPC2. According to the regional DUPC2 Committee the extra work it takes to translate the research to English could be an incentive for research to be only written in English and not in Spanish, even though this decreases the ability to share the research within the Spanish speaking regions. To achieve the dissemination of the research with non-English speakers the regional DUPC2 Committee believes that all outcomes should also be produced in the local languages (Interview M6).

Perceptions of other actors

The DUPC2 Management perceives that the regional DUPC2 Committee is only involved on the strategic level to understand what is happening in their country and only if the DUPC2 Management has questions for them, if they want the committee to look at something, if they need input. For the south-south projects lead by partners and large research projects the regional committee is involved in reviewing proposals and they have also given input on calls. Besides this, the DUPC2 Management occasionally asks the regional committee if they want to set up or lead something. This is not always successful, mainly because people do not have time since they have another job. The committee is on voluntary basis, they also have functions and goals in their organization (Interview M2).

4.2.4.   Arena outputs and inputs

The main outputs of the programme execution are the allocation of funds to approved projects, the development of project calls that were not yet specified at the programme design stage, and calls for top ups for projects. These outputs primarily feed to the project level arenas that are discussed in Chapter 5. The programme execution arena is influenced by some of the outputs of the project level arenas and the programme design arena: focus countries and themes, specified project calls, budget allocation, addendums from DGIS. Adjustments to the execution of the DUPC2 programme can be made on a yearly bases in the annual plans, based on reports or underspending, or based on the mid-term evaluation.

The DUPC2 activities or projects could be adjusted as a consequence of external inputs, such as the political environment in southern regions. It is understood by the actors involved, that the regions the DUPC2 has to work in, the focus countries of the Ministry of Foreign Affairs, are not the easiest ones. Some of those countries are not completely politically stable, which can affect the execution of the programme. In addition to this, another external input has been the covid-19 pandemic. This pandemic resulted in a lot of activities that had to be adjusted or postponed, and the DUPC2 programme had to adapt their execution.

4.3. DUPC2 programme monitoring and evaluation arena

Within the DUPC2 programme monitoring and evaluation arena, the DUPC2 programme as a whole is monitored and evaluated. This includes aspects such as writing the different types of programme reports, setting up initiatives to learn how to improve the programme, and the evaluation of the programme by an external party.

In this section the interview results that are given concern the four main actors involved in this programme monitoring and evaluation, which are DUPC2 Management, IHE DUPC2 Committee members, regional DUPC2 Committee members and Technopolis. In Figure 8 these interview results are summarized in the conceptual framework as discussed in Chapter 3.
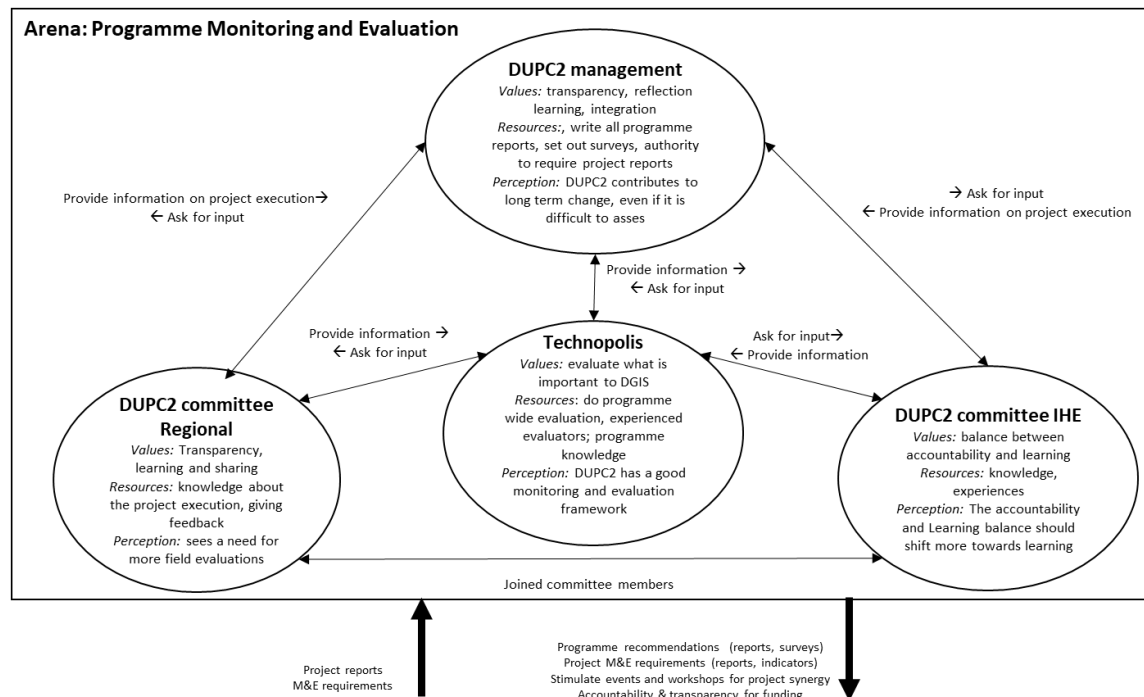
Figure 8. Diagram of the programme monitoring and evaluation arena with a summary of the results summarized.

4.3.1. DUPC2 Management

Values, resources and perceptions by the DUPC2 Management

The main values of the DUPC2 Management regarding the programme monitoring and evaluation are: transparency, reflection, learning and integration. The DUPC2 Management is interested in the descriptions, progress and challenges of the projects. They want to know what is achieved with the programme and they want to support projects, and inform people to improve the collaboration. The DUPC2 Management finds it important to look more critical at the role of a 'Western' organisation that takes money to a different country to solve a problem there.

The main resources of the DUPC2 Management regarding the programme monitoring and evaluation are: write programme reports, require project reports, setting out surveys. The DUPC2 Management has developed a monitoring and evaluation protocol, which was agreed upon in the proposal. Every year there are two reports written by the DUPC2 Management: an annual report that reflects on the previous year and an annual plan that plans the following year. The annual reports help to see what needs more attention and what needs adaptation, but it does not really include learning about the impact of the programme. Besides the reports, the DUPC2 Management gets a lot of information by having conversation with the people involved in DUPC2, these are often IHE

colleagues. When the DUPC2 Management wants information from the partners they sometimes setup a survey. For example, the survey could be used to see what the partners want in regards to topics such as communication or collaboration or partnerships.

The DUPC2 Management perceived that impact is difficult to measure and that within the DUPC2 programme there is a discussion on how you monitor impact. They want the impact to be monitored, however they do not want projects to spend too much time on the administrative side. That there are a lot of individual projects, makes keeping an eye on the impact more challenging. Therefore, the DUPC2 Management tries to limit the number of projects, and bring them together for more synergy between what projects do.

To be able to write the DUPC2 programme reports and to monitor the programme the DUPC2 Management is dependent on the yearly reports the projects are required to submit. Within these project reports the DUPC2 Management is mainly interested in the written descriptions of the progress and the challenges of the projects. The indicators in the project reports are not really used for this. The projects also have to report on some programme level indicators, which are used in the DUPC2 programme reports. The DUPC2 Management does assume that the DUPC2 programme contributes to long-term change. This assumption is not checked, because the DUPC2 Management believes that one should be measuring long-term change only if it has added value and you can integrate it. Instead the programme management focusses on stimulating impact strategies through funding criteria in the calls, like working in partnership and diversity of partnerships.

Perceptions of other actors

According to the IHE DUPC2 Committee within the DUPC2 programme the monitoring and evaluation system is used to monitor learning, impact and partnership collaboration. The DUPC2 Management have been improving the programme constantly according to the DUPC2 Committee IHE. Besides this, DGIS sees that over the course of DUPC2 their monitoring and evaluation has improved significantly. According to Technopolis, the yearly surveys the DUPC2 Management sends out to project leaders are more focussed on the programme level then the project level (Interview M4). Still, Technopolis perceives that the DUPC2 programme has a good monitoring and evaluation framework. There are some aspects that Technopolis sees as proof that the programme has learned from past experience and that they are open to innovate and explore new ways of working. An example given was the terminology that is used in DUPC2, while other programmes talk about beneficiaries and capacity building, the DUPC2 talks about partners and capacity strengthening. Besides this, using project calls and locally lead projects in DUPC2, are noted. The Regional Committee recognizes that DUPC2 Management does a lot about evaluations, but maybe they need to do a little more evaluation in the field, on the ground.

4.3.2.   IHE DUPC2 Committee
Values, resources and perceptions by the IHE DUPC2 Committee

The main value of the IHE part of the DUPC2 Committee regarding the programme monitoring and evaluation is to balance between accountability and learning in the evaluation activities and the annual project reports.

The main resources of the IHE part of the DUPC2 Committee regarding the programme monitoring and evaluation are: experience and knowledge. In the planning sections of the annual reports, the knowledge and experiences of the DUPC2 Committee are used to decide what should be emphasized for next year. The IHE committee gets their knowledge through talking with their IHE colleagues, partners and from their own experiences in projects.

The perception of the IHE DUPC2 Committee representative is that monitoring and evaluation is going better on the programme level but on project level there are still improvements that could be made so that the accountability and learning balance will shift more towards the learning side, for example by making the monitoring and evaluation a more joint effort with the partners. In addition to this, the reports are quite traditional and quantitative and there could be a more creative way to share what you have learned besides reports.

4.3.3. Regional DUPC2 Committee
Values, resources and perceptions by the regional DUPC2 Committee
The main values of the regional part of the DUPC2 Committee regarding the programme monitoring and evaluation are: learning and sharing, and transparency. Monitoring and evaluation are seen as an important tool for learning from the experiences of the project leader, such as the problems the projects had, how they have solved those problems, and what was needed to achieve what they have set out to do in the proposal. This knowledge can then be shared as much as possible with other regions. Another important aspect in the monitoring and evaluation is that it provides transparency. Some countries are more transparent than others and being transparent is important for it can show that the money is spend well and it does not disappear in someone's pocket.

The main resources of the regional part of the DUPC2 Committee regarding the programme monitoring and evaluation are: knowledge about how the projects are carried out/going, and giving feedback. The regional committee is not deeply involved in DUPC2 evaluation as committee member, but the regional committee does follow how the projects are executed, and they want to see and learn from the experience of the project leader. The monitoring and evaluation during the execution also helps by making it possible to give feedback and to make changes if something is not going that well, to try to strengthen the initiative. The committee meets once a month, and once a year face-to-face, where they discuss the projects.

4.3.4. Technopolis
Values, resources and perceptions by Technopolis
The main value of Technopolis regarding the programme monitoring and evaluation is to evaluate what is important to DGIS. By giving Technopolis evaluation questions about topics, such as gender, and climate change, DGIS steers the external evaluation of the DUPC2 programme. Besides the evaluation question DGIS has an interest in how DUPC2 contributes to their (future) ambitions.

The main resources of Technopolis regarding the programme monitoring and evaluation are: they do a programme wide evaluation, they are experienced evaluators, and that they already had knowledge about the programme by the second programme wide evaluation of DUPC2. They gained this knowledge during the first evaluation they had done of DUPC2. The DUPC2 Management provides Technopolis with the programme data and documentation needed for the evaluation. Additional data is acquired by Technopolis through case studies and surveys.

Technopolis perceives that DUPC2 has a good monitoring and evaluation framework, which is mainly used to report to the donors for accountability and transparency, but to some extent is also used for learning. Technopolis believes that DUPC2 could go a step further the way topics are monitored, for example gender is monitored in a way that if a project contributes to gender it is ticked. There are gender specific projects, with gender specific objectives, where they address a gender specific issue, such as challenges that women have in relation to access to water. There are also projects were gender is just a small part of the project, and because of the way gender is monitored it ticks the same box as the gender specific projects. Going a step further would mean that a distinction would be made in the monitoring between the level of contributing to gender issues.

During the first evaluation done by Technopolis, DUPC2 Management provided Technopolis with ample information and DUPC2 Management was able to comment on the draft report. During the second evaluation it was clear Technopolis much better understood the programme (Interview M2). According to the regional DUPC2 Committee, Technopolis gets the information needed for their programme evaluation from actors on different levels in the programme. They have asked input from the regional committee members as well as the partners involved in some projects (Interview M6).

4.3.5. Arena outputs and inputs

The main outcomes of the programme monitoring and evaluation arena are the programme recommendations, the synergy of projects, and the accountability and transparency for funding. The programme recommendations come from the reports, surveys, external evaluation, and influence the programme design. To give an example, a recommendation about gender inclusiveness was made in the mid-term report and that was integrated in the programme. As for the synergy of project, since there are a lot of individual projects, it is a challenge to keep an eye on the programme impact. Therefore, the programme wanted to bring projects together for more synergy. This was implemented by stimulating events and workshops between projects or by providing projects with programme indicators.

The programme monitoring and evaluation is influenced by some of the outcomes of the programme design arena and the project monitoring and evaluation arena: monitoring and evaluation requirements from the programme proposal and project progress reports and plans. The DUPC2 Management is dependent on the reports the projects submit to write the programme reports and to provide accountability and transparency.

4.4. Connections between the DUPC2 programme level arenas

In this section the results of the following three programme level arenas have been given: the programme design arena, the programme execution arena and the programme monitoring and evaluation arena. With the arena outcomes and influence on other arenas, the linkage between these arenas can be established and inserted in the project level part of the conceptual framework in section 2.5. Figure 9. Diagram of the programme level of the conceptual framework in which the arena connections are given based on the resultsFigure 9 shows the connections between the arenas on the project level.

The decisions in both the programme design arena and the programme execution arena are influenced by the political environment. To give an example, after a few years into the programme DGIS provided addendums for certain countries and themes. One of the situations where they did this was when the Ministry of Foreign Affairs shifted their focus area to the Middle-East. DGIS asked IHE to develop proposals for an addendum to include more activities in those countries. This changes the design of the DUPC2 programme and how the budget is allocated, which result into more activities being executed in those new focus countries.

The programme design arena and the programme execution arena are linked by the output of the programme design arena that influence the programme execution arena. The focus themes and countries, and a few specific projects are agreed upon in the DUPC2 programme proposal and in the programme execution arena these agreements must be executed. The general budget allocation and programme addendums are also decided upon in the design arena, which influences what can type of project calls are setup.

The programme design arena influences the programme monitoring and evaluation arena by the monitoring and evaluation requirements that er agreed upon in the proposal. The decisions in the programme design arena are influenced by the reports and recommendations given by the programme monitoring and evaluation arena.

The programme monitoring and evaluation arena provides the execution arena with the accountability and transparency needed for funding. This is done with the information about the programme execution.

Here is an example of how the political environment can influence the programme design and how that flows into the programme execution arena: After a few years into the programme DGIS provided addendums for certain countries and themes. One of the situations where they did this was when the Ministry of Foreign Affairs shifted their focus area to the Middle-East. DGIS asked IHE to develop proposals for an addendum to include more activities in those countries. This changes the design of the DUPC2 programme and how the budget is allocated, which result into more activities being executed in those new focus countries.

Figure 9. Diagram of the programme level of the conceptual framework in which the arena connections are given based on the results.

5. SMALL PROJECT RESULTS

This section gives the interview results on the SMALL project level, as seen in Figure 10. These results help with answering the sub research question 4b: *How do actor interactions influence the DUPC2 evaluation system and its support for societal impact on project level?*. The interview results are summarized in three diagrams representing the three SMALL project level arenas : project design arena, project execution arena, and project monitoring and evaluation arena. In this order the results are given per arena. After this the three arenas are linked together.

The concepts and explanations of these project level arenas follow the same logic as the programme level arenas, which is explained at the start of Chapter 4.
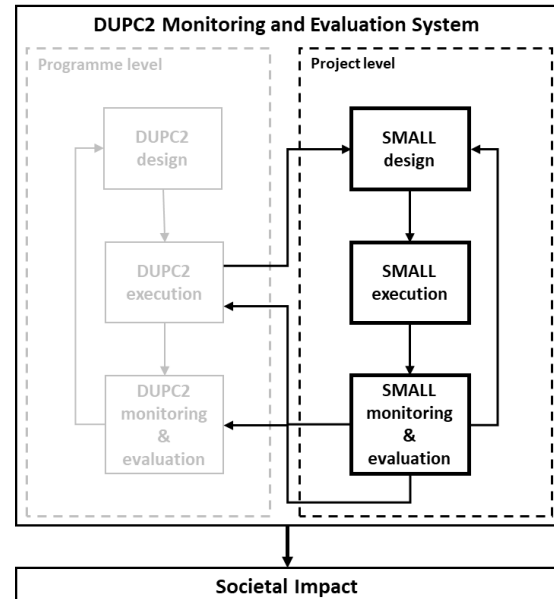
Figure 10. Simplified conceptual framework DUPC2 case study in which the scope of this chapter, the project level, is highlighted.

5.1. SMALL project design arena

Within the SMALL project design arena, the SMALL project proposal was written and approved. The proposal included topics such as: the activities, how the financial resources are divided, what outcomes are expected, and how the project should be monitored and evaluated. In this section the interview results that are given concern the six main actors involved in this project design, which are DUPC2 Management, project leader, IHE SMALL staff, the project partners divided in water operators and universities, and associated partners (VEI, EAWAG and RIVM). In Figure 11 these interview results are summarized in the conceptual framework as discussed in chapter 3.
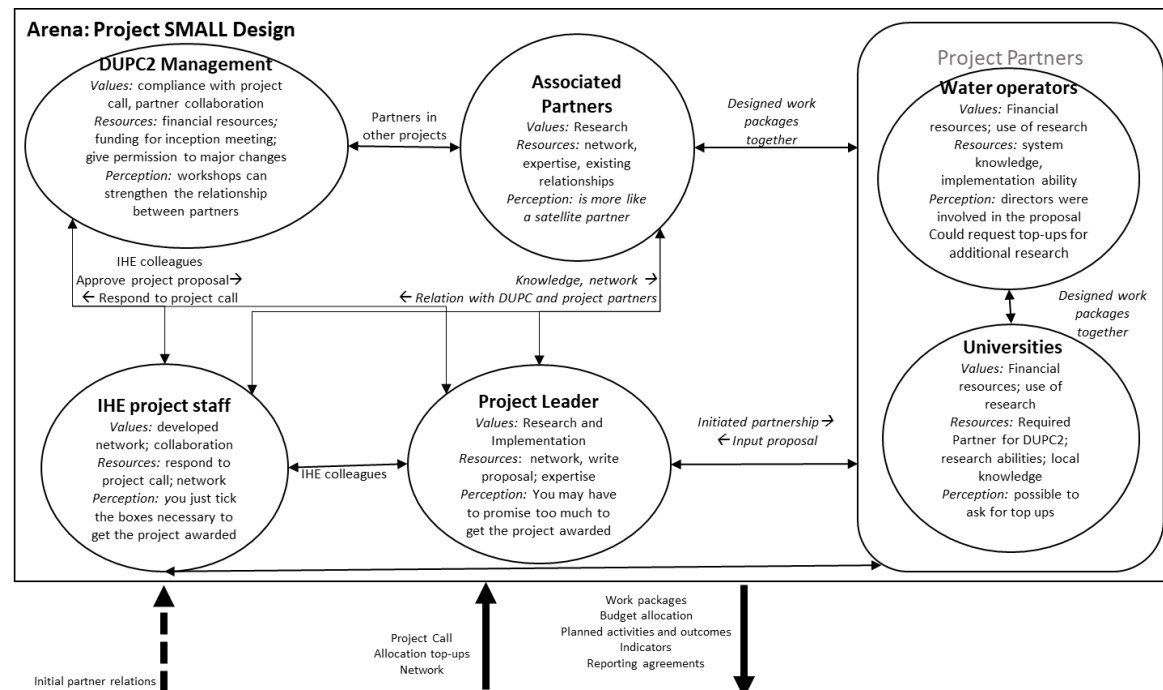
Figure 11. Diagram of the project design arena with a summary of the results summarized.

5.1.1. DUPC2 Management

Values, resources and perceptions by the DUPC2 Management

The main values of the DUPC2 Management regarding the SMALL project design are visible in the importance they give to that the compliance of the proposal complies with the project call conditions and to the collaboration among partners when designing the project. The DUPC2 Management set up the project calls which are the basis for the project designs, they include the conditions the project has to comply with, such as a university has to be included as a partner, and cross-cutting themes need to be included.

The main resources of the DUPC2 Management regarding the SMALL project design are: approve proposal, provide funding for inception meeting, give permission to major design changes. The DUPC2 Management team decides which proposal to fund and the project SMALL proposal had to be approved by the DUPC2 Management to acquire that funding. Therefore, the DUPC2 Management team also had to give permission for any major changes to the project design such as the shift in partners that was done early in the project.

The DUPC2 Management perceives that a good relationship between project partners is important, therefore they stimulate workshops for establishing a stronger relationship.

Perceptions of other actors

According to the IHE SMALL staff, the DUPC2 Management influenced the proposal with the conditions that they had, such as the specific countries, long standing partnership experience, different departments working together, and another requirement was to include a southern university as a project partner (Interview S3). The project leader mentioned that the DUPC2 Management did a pre-screening of the proposals and the ones the DUPC2 Management were interested in were given some funds to organize a workshop with the partners (Interview S1).

The project leader perceives that the DUPC2 Management believes that it would be helpful if project have more contact with each other in the same countries or in neighbouring countries, with the purpose that the projects can learn from each other. The project leader believed that the DUPC2 Management should not make this learning such a large part, however it could be something good in terms of networking, keeping each other informed, or possibly learning in the same country (Interview S1).

5.1.2. Project leader

Values, resources and perceptions by the project leader

The main values of the project leader regarding the SMALL project design are related to research, and implementation. SMALL is a research project that was funded under the research for development project call, but it is also focussed on the uptake of the research, therefore it was important that there was one implementation partner in each country for the uptake of results.

The main resources of the project leader regarding the SMALL project design are: writing the project proposal, liaising with partners and DUPC2 Management, decision power to stop collaboration with partner. Delivering a proposal can happen in a rush and to get a project awarded it might happen that too much is promised. Often people want to promise a lot, which is not always what realistically can be achieved in the project. The project leader was the person that liaised with all the partners and the DUPC2 Management. If there were some minor changes to be made the project leader liaised with the DUPC2 Management who agreed if the saw it as reasonable. The project leader also has the decision power to stop the collaboration with a partner, with the approval from the DUPC2 Management. During the early phases of the project, one of the partners was not delivering satisfactory

and there was a lack in response, also because that partner did not have much time available. For this reason, the decision was made to stop the collaboration with that specific partner and to involve a new partner. The new partner involved was the Department of Biotechnology which was also part of the Eduardo Mondlane university in Mozambique.

In the SMALL project, the project leader feels that there was a disconnection between what was written on outcomes and the activities that were set. For the proposal it is important to really establish a relationship with the partners and to discuss multiple times if everybody is happy with the activities, if everybody can comply with them, and if the budget is enough. To help with this there was an intensive workshop supported by DUPC2, with one representative of each partner, in which the activities they wanted to do were discussed, after this the proposal was finalized.

Perceptions of other actors
The DUPC2 Management perceives the core value of the project leaders as research and capacity building (Interview M2).

5.1.3. IHE SMALL project staff
Values, resources and perceptions by the IHE SMALL project staff
The main values of the IHE staff on the SMALL project team regarding the SMALL project design are concerned with collaboration and research. The research questions were not really clear at the beginning of the project, given the nature of the project. As the IHE SMALL staff believed it as more important to stick to the interest of the partners rather than to the research questions.

The main resources of the IHE SMALL staff regarding the SMALL project design are: initiating project proposal, writing proposal, network. According to the IHE SMALL staff, the project was initiated because two of the IHE staff wanted to work together on a project. It was beneficial that there was a well-established initial network in Uganda, because the IHE staff had worked with the Ugandan partners before. However, the network in Mozambique was not really strong before the project started, so the IHE SMALL staff had to find a network, which was difficult to do from a distance working in the Netherlands.

The IHE SMALL staff believed that the choice of partners was sometimes a mismatch with the research question. The idea is that the project partners are chosen depending on the research question, which would mean that the interests are shared, however that is not always the case. To give an example, there was a water operator struggling with bringing water to the customers, and then there was an IHE colleague that wanted to do an ethnographic study to look at how people treat and maintain the pipelines. The water operator was not able to relate to this proposed IHE staff research, as the operator had engineers, people issuing bills, people collecting money and that is it. In this case the mismatch was that the individual IHE staff member was interested in doing research that was of no interest to the water operator.

When writing the project proposal, it was perceived that in the end you just have to tick the boxes, the requirements, and you sometimes end up with an odd proposal in which you just put everything together, even when there are mismatches.

Perceptions of other actors
The project leader mentions that IHE project staff had the largest role in writing the proposal, because the project leader is also from IHE (Interview S1). The IHE DUPC2 Committee perceived that there is still sometimes a hierarchical relation between the IHE staff members and the partners, this results in the project leaders having more to say than the partners. This hierarchical relation can be frustrating

for the southern partners, because on one side they want the funds and to do research, but on the other side they do not want someone else to tell them what to do (Interview M3).

5.1.4. project partners: universities

Values, resources and perceptions by Makerere University

The main values of Makerere University in Uganda regarding the SMALL project design were expressed as: doing research, producing publications, and training students.

The main resources of Makerere University regarding the SMALL project design are: input on the approach and study sites. According to Makerere the project partners were asked to give input for the proposal and the details of activities were discussed later. Makerere gave input that was focused on the approach for water quality and water sector planning. In addition to this they decided which areas could be studied and they identified some smaller towns. Makerere University has the knowledge about what the problem is in the Ugandan context.

Values, resources and perceptions by Eduardo Mondlane University

The main values of Eduardo Mondlane University (EM) in Mozambique regarding the SMALL project design are visible in the importance they give to increasing the collaboration with international partners. The representative from Eduardo Mondlane is really interested in water quality monitoring and therefore thought that project SMALL could be a great opportunity for Centro de Biotecnologia to open up to partners at an international level.

The main resources of Eduardo Mondlane University regarding the SMALL project design are research abilities. After the partnership with the initial department of Eduardo Mondlane University fell through, the Centro de Biotecnologia joined project SMALL as a replacement. As a result of joining project SMALL after the proposal, Eduardo Mondlane University had to design their specific research and they introduced some analyses that were not in the original project proposal.

Perceptions of other actors

The IHE SMALL staff perceived that changing partners was difficult, because their network in Mozambique was not that well developed. However, once the replacement partner, Centro de Biotecnologia, was identified, it became much easier to execute the project. For the reason that the new partner was very enthusiastic and responsive. The change in partner did not change the original indicators that were set in the project proposal, according to the IHE SMALL staff (Interview S3). The project leader mentioned there was one representative of each university that participated in the workshop that was focussed on the activities. The project leader perceives the two universities as the research partners, who mainly valued the research, data gathering and analysis. According to the project leader, the universities were more focusing on taking the samples, and doing complicated analysis that the water utilities are not able to do (Interview S1).

5.1.5. project partners: water operators

Both water operators, Collins Ltd in Uganda and the National Water and Sewerage Corporation (NWSC) in Mozambique, mention that the only person that was involved in the project proposal was the director of the water operator.

Values, resources and perceptions by Collins Ltd.

The main value for Collins Ltd regarding the SMALL project design are to acquire financial resources that can give Collins Ltd. the opportunity to get a better understanding about the contamination in the water systems that they manage.

The main resources of Collins Ltd regarding the SMALL project design are that they are the manager of the drinking water and sanitation systems in Mozambique that are included in the research. Collins Ltd manages 12 water systems, which are all owned by AIAS, the regulatory body in Mozambique.

Collins Ltd. mentioned that they could request top-ups for additional research. Collins Ltd. wanted to find out the contamination in other systems in order that they could compare results, so they asked for a top-up, which was granted.

Values, resources and perceptions by National Water and Sewerage Corporation

The main values of the National Water and Sewerage Corporation regarding the SMALL project design are: opportunity to learn, and work closer with Makerere University. For the National Water and Sewerage Corporation the SMALL project provided an opportunity to work closer together with the Makerere university and to learn and share information with the partners.

The main resources of the National Water and Sewerage Corporation regarding the SMALL project design are: ability to implement research, and operational knowledge about the water system. The Ugandan Ministry of Water relies on the National Water and Sewerage Corporation for the operational improvement of the water system, as the Ministry is more focused on the policy.

The National Water and Sewerage Corporation perceives that it could have been beneficial to the project if the Ugandan Ministry of Water, or a different regulatory body was involved in the project as one of the partners, in order to have a stronger connection in the project between the operational improvements and government policies.

Perceptions of other actors

According to the IHE SMALL staff, the National Water and Sewerage Corporation wanted to better organize the contractual arrangements they have with other utilities, and were interested that a document would be produced so they could see the best practices (Interview S3). The project leader perceives the water operators as the implementing partners of the project, whom provide the use of their plants for experiments, and were more focused on providing support while running the experiments. According to the project leader there was one representative of each water operator that participated in the workshop that was focussed on the activities (Interview S1).

5.1.6. associated partners

Perceptions of other actors

The associated partners (EAWAG, RIVM and VEI) were interested in the SMALL project design because of its potential value for research. According to the IHE SMALL staff the associated partners are more like a satellite partner, that came with their own budget and their own research questions, as they were interested in the research as such. The main resources of the associated partners regarding the SMALL project design are their knowledge and network. The associated partners attended workshops and meeting, and some of the associated partners helped with designing the activities for certain work packages (Interview S3).

Makerere University mentioned that EAWAG was involved in the project design. According to Eduardo Mondlane University, the RIVM was involved with the design of the work package that was needed when the Centro de Biotecnologia was added as a project partner. According to Collins Ltd. RIVM was involved in the initial meeting in 2017 and in a water safety plan workshop in 2018. Collins Ltd perceived that the person involved from RIVM is an important professor who has a great deal of knowledge about the microbiological analysis. The IHE SMALL staff perceived that having VEI of an associated partner was a strategic decision to form a bridge between IHE and AIAS. For the reason that IHE did not have a strong relationship with AIAS in comparison to VEI, however IHE did have a strong relationship with VEI. In addition to being a bridge between AIAS and IHE, VEI also had a lot of knowledge and information.

5.1.7. Arena outputs and inputs

The main outputs of the project design that was mentioned is the approved project proposal. This project proposal includes the division of the project in work packages, budget allocation, planned activities and workshops, outcome indicators, and reporting agreements. The project objective was: *"Develop and facilitate the adoption of sustainable, efficient and equitable models for water supply and sanitation (WSS) service provision that suits* the particular *needs, capacities and dynamics of small towns"* (SMALL, 2016).

The main inputs in the arena are the network of the project initiators, the initial relationship partners have, the partners intention to participate, and the project call and allocation of top-ups, that are initiated by the DUPC2 Management. It is perceived as important to have an initial relationship with the project partners. The project leader mentioned that when partners have already worked together before they now how they work together and that might make it easier to expand and to reach others. Due to the reason that if partners are collaborating for the first time they would first have to focus on how they can work together. When there is not an already an existing relationship there is more risk that a partner does not participate satisfactory and delivers what they have promised. At the beginning of the project there was a switch in partners and the new partner, Centro de Biotecnologia had a different expertise which changed the project design, a new work package had to be designed. However, the IHE SMALL staff mentioned that this switch in partners did not change the project indicators.

5.2. SMALL Project Execution Arena

Within the SMALL project execution arena, the project proposal is being executed, which involves aspects such as the collaboration actors, doing research, executing the work packages and solving challenges that occur. In this section the interview results that are given concern the four main actors involved in this programme execution, which are the project leader, IHE SMALL staff, Collins Ltd, Eduardo Mondlane University, Makerere University, and the National Water and Sewerage Corporation. In Figure 12 these interview results are summarized in the conceptual framework as discussed in chapter 3.
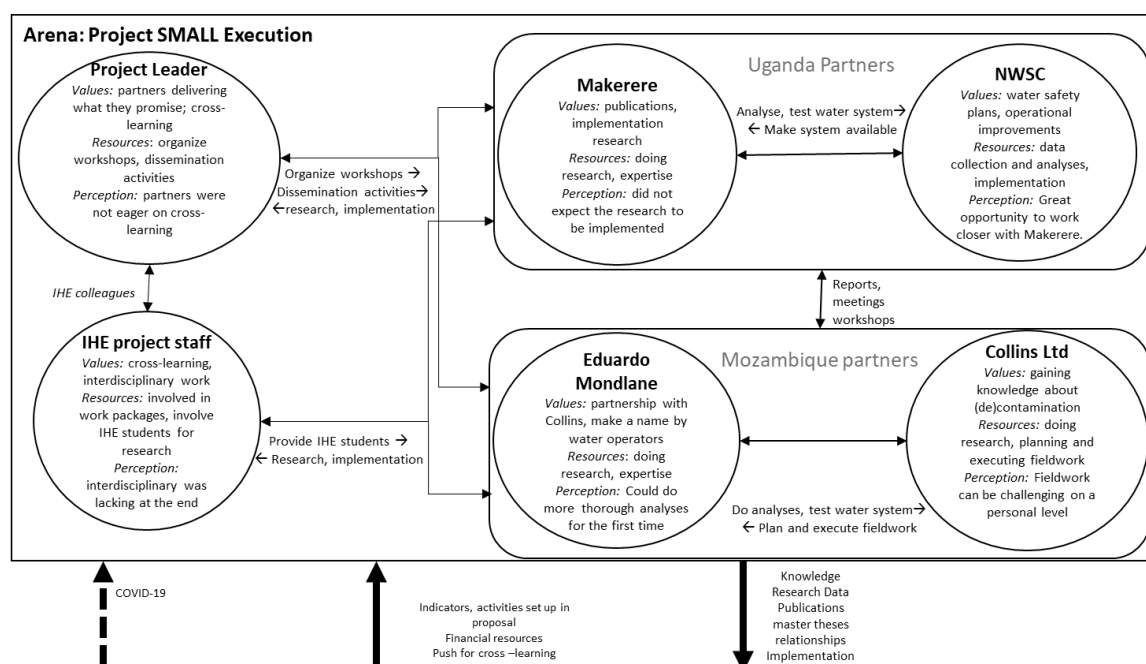

Figure 12. Diagram of the project execution arena with a summary of the results summarized.

5.2.1. Project leader

Values, resources and perceptions by the project leader

The main values of the project leader regarding the SMALL project execution are visible in her concerns that actors deliver what they promised, and to foster cross-learning. While the project leader values cross-learning, the project partners seemed not much interested in cross-learning, their priority was complying with the activities that they had set out to do in the project design. The project leader perceived the difficulty in changing the execution while the project was ongoing; when you start a relationship in a certain way it can be difficult to change it.

The main resources of the project leader regarding the SMALL project execution are: organize workshops, dissemination activities, supervise Master and PhD students. There were training workshops organized in Uganda and Mozambique, for capacity development. Besides this, there were activities in which the project leader tried to trigger learning between countries. However, the partners were not so eager on this. The eagerness for cross-learning between countries seemed to depend on the partners and how they see it as beneficial.

Perceptions of other actors

The IHE SMALL staff perceived that all communication was managed through the IHE SMALL staff, with the project leader as initiator. She perceived that there was hardly any communication among the partners directly (Interview S1).

5.2.2. IHE SMALL project staff

Values, resources and perceptions by the IHE SMALL project staff

The value mentioned by the IHE project staff regarding the SMALL project execution are: working interdisciplinary, and executing their work package. There was the ambition to have an interdisciplinary project, however that did not go as planned and it was slightly lacking at the end of the project. When there is a specific question and there is a need for policy analysis it is viable. It gets more difficult while making it disciplinary. For instance, when someone of the IHE project staff wanted to incorporate an ethnographic study, which is quite distant from what can be used by the water operators on a daily base.

The main resources of the IHE project staff regarding the SMALL project execution are: involvement and expertise to support the work packages, and the involvement of IHE MSc students. For project SMALL there was a general question and there were also some smaller questions that were relevant to the specific work packages. At the beginning of the project they did not look at how each discipline would tackle that one question, which probably affected the interdisciplinary work. In the project there was not really active interdisciplinary work done, however SMALL has been able to produce certain results combined, and there were connections identified between the different disciplines.

Perceptions of other actors

The project leader mentioned that the IHE SMALL staff strongly believed in learning between the countries (Interview S1). According to the IHE Rectorate, usually the academic staff of IHE plays an important role in the execution of the project activities, except in the case off south-south projects, where it can happen that no IHE person is involved (Interview M1). The representative of Makerere University mentioned that IHE provided some students to be involved in the project in Uganda (Interview S5). In Uganda five IHE MSc students were involved of which two were also affiliated with the National Water and Sewerage Corporation (SMALL, 2021).

5.2.3. Eduardo Mondlane University

Values, resources and perceptions by Eduardo Mondlane University

The main values mentioned by the representative of Eduardo Mondlane University regarding the SMALL project execution are: partner with Collins Ltd, and create opportunities to expand. The SMALL project was an opportunity for the Centro de Biotecnologia to partner with Collins and to establish a relationship so that they can also collaborate outside project SMALL. Since SMALL was a research project, Eduardo Mondlane had the opportunity to, for the first time, monitor the water more deeply with protocols that are not usually used. This gave a more thorough understanding of the water quality than they would have with the standard method. With this Eduardo Mondlane could also show that the university, a public organization, was able to do these analyses, which could create opportunities for the private sector and water operators to gain access to those type of tests. These tests used to be only available at private labs. So far Eduardo Mondlane has received some requests for information and prices from smaller water providers, although it is not sure if they actually went through with the tests.

The main resources of the Eduardo Mondlane University regarding the SMALL project execution are: doing research (including research staff and laboratory test facilities), and involving students in the project. There was one bachelor student from Eduardo Mondlane that helped with the lab work. There were no master students from the university involved in project SMALL, probably because Eduardo Mondlane University does not have Master programmes that focus on the topics that were involved in project SMALL, such as water quality, and policy. In addition to this there were probably no master students involved because the Centro de Biotecnologia did not have much communication with the university about project SMALL and it is not certain that project SMALL was advertised within the university. As for the master programme of the Centre of Biotechnology, that master is more focused on biomedical topics and a topic that involved working for SMALL was proposed to the students, but nobody picked this topic.

5.2.4. Collins Ltd

Values, resources and perceptions by Collins Ltd.

The main value of the Collins Ltd regarding the SMALL project execution are: gaining knowledge about (de)contamination. Collins Ltd manages 12 water systems, which are owned by AIAS. These water systems are not all the same. Some systems work with river water, while others depend more on surface water or rainwater. Collins Ltd is interested in gaining knowledge about the contamination and decontamination in their systems and how those are different when the systems are compared. Collins also mentioned that they mainly had contact with the partners in Uganda during workshops and reporting periods.

The main resources of the Collins Ltd regarding the SMALL project execution are: doing research, and planning and executing the fieldwork. The fieldwork included physical, chemical and microbiological analysis and it was planned by Collins Ltd as manager of the water systems. For the first fieldwork, which was also part of the proposal, two IHE students came to Uganda for three months to do the fieldwork together with Collins Ltd. After these three months the IHE students went back to IHE Delft. The fieldwork was done in the rainy season and therefore it was only half complete when the IHE students left after three months. The rainy season and the dry season affect the water systems in different ways and to get a complete, year-round, understanding of the systems Collins ltd. had to go back in the dry season to complete the analysis. The fieldwork can be challenging on a personal level, especially when one has to go to a different province, leave their family, partner or friends behind, and share a house with the research team.

According to Eduardo Mondlane, drafting the water safety plans was the task of Collins Ltd. However, Eduardo Mondlane perceived that the water safety plans could have been done better, due to the involvement of AIAS that was lacking. AIAS is an important partner, as owner of the systems, and Eduardo Mondlane perceived that missing that partner affected the whole process. Eduardo Mondlane perceived that the communication with Collins Ltd. went well, they believe this is because one of the employees at Collins was practically part of the Centro de Biotecnologia at the activities and that person personally followed all the activities that were done by the centre (Interview S6).

5.2.5. Makerere University

Values, resources and perceptions by Makerere University

The main values of Makerere University regarding the SMALL project execution were: having publications, and implementation of research. The number of publications were an important outcome of the project and more were produced than expected.

The main resources of Makerere University regarding the SMALL project execution are: doing research, and involving students. Makerere provided three students for the project, 2 MSc and 1 PhD student, which were all involved in the research. During project SMALL a few IHE Delft students also came to Uganda to work as part of the research team and Makerere made sure that accommodation was arranged for the IHE student.

5.2.6. National Water and Sewerage Corporation (NWSC)

Values, resources and perceptions by the National Water and Sewerage Corporation

The main values identified by the representative of the National Water and Sewerage Corporation regarding the SMALL project execution are: development water safety plans, and operational improvements. For NWSC project SMALL was a great opportunity to work closer with Makerere University, and to get an understanding of what goes on outside Uganda, in Mozambique. The relation NWSC had with the Mozambique partners was through the review of reports, and participating in meetings and conferences together.

The main resources of the National Water and Sewerage Corporation regarding the SMALL project execution are: data collection and analyses, and implementation water quality monitoring. Within project SMALL, they participated in water safety planning and also partly in the monitoring of water quality. The research that was done during the SMALL project gave insights to improve the operation and NWSC were able to use some of the results of the data collection to improve their system operation. Project SMALL was used by an NWSC employee as an opportunity to carry out a PhD.

Perceptions of other actors

Makerere believed that getting a Makerere student that was already employed at NSWC to do research aided the connection between research and implementation, and therefore the impact of the research. For the student to be already involved at NWSC made that they had quite some knowledge about NWSC and their operating system, which would make is easier to implement the research (Interview S5).

5.2.7. Arena outputs and inputs

The main outputs of the project execution that were mentioned are: knowledge, data, publications, master theses, relationships, and uptake of results. Due to the SMALL project students were able to graduate, papers were published and reports were presented in conferences. There was a significant amount of data and information sharing, which were relevant for policy and direct implementation For Collins Ltd. one of the outcomes of the project execution is that they now have a better

understanding of their system and they have more knowledge about the contamination in their water systems. Changing the way to do analyses is quite simple, however it is difficult for Collins to improve the system. This is because of the financial resources they have and because of the availability of water, as the water availability is intermittent.

Through the SMALL project, the Centro de Biotecnologia established a better relationship with Collins Ltd. and now they are also collaborating outside of SMALL. The Centro de Biotecnologia is now also providing services of water quality monitoring for systems that were not included in the SMALL project. The implementation of the research was something Makerere was hoping for at the start of the project, but they did not expect it to actually happen. So it was remarkable that while a NWSC student was doing research, NWSC was already interested in the implementation of that research.

The main inputs on the project execution arena are: financial resources, the activities and indicators set up in the proposal, a push for collaboration and cross-learning. The DUPC2 Management provided the funding for project SMALL. In the proposal the work packages were set up witch already included some activities, the desired outcomes and the indicators. NWSC perceived that the DUPC2 Management had no real influence during the project execution, the DUPC2 Management was more on the receiving end. The IHE project staff also mentioned the DUPC2 Management did not have much influence during the execution of the project. Although the IHE project staff did perceive a push from the DUPC2 Management to connect with other projects with the idea to learn from each other. The IHE SMALL staff perceived that pushing partners in the same countries that are already not working together is ambitious and possibly arrogant from the DUPC2 that they can push organizations these organization that are already not working together. Although there is a lot of opportunity with learning from each other, the IHE SMALL staff perceived that the push to collaborate and learn was too much at some point during the project. They had to work together with other project with whom the only thing they had in common was that they are in the same country and do something with water, they had nothing else to do with each other so.

5.3.   SMALL project Monitoring and Evaluation Arena

Within the SMALL project monitoring and evaluation arena, the SMALL project is monitored and evaluated, this includes aspects such as writing the project reports, and monitoring the activities. In this section the interview results that are given concern the four main actors involved in this project monitoring and evaluation, which are DUPC2 Management, the SMALL project leader, IHE project staff and the project partners. In this arena, the four main project partner organizations are grouped together: the two universities and two water utilities in Uganda and Mozambique. In Figure 13 these interview results are summarized.
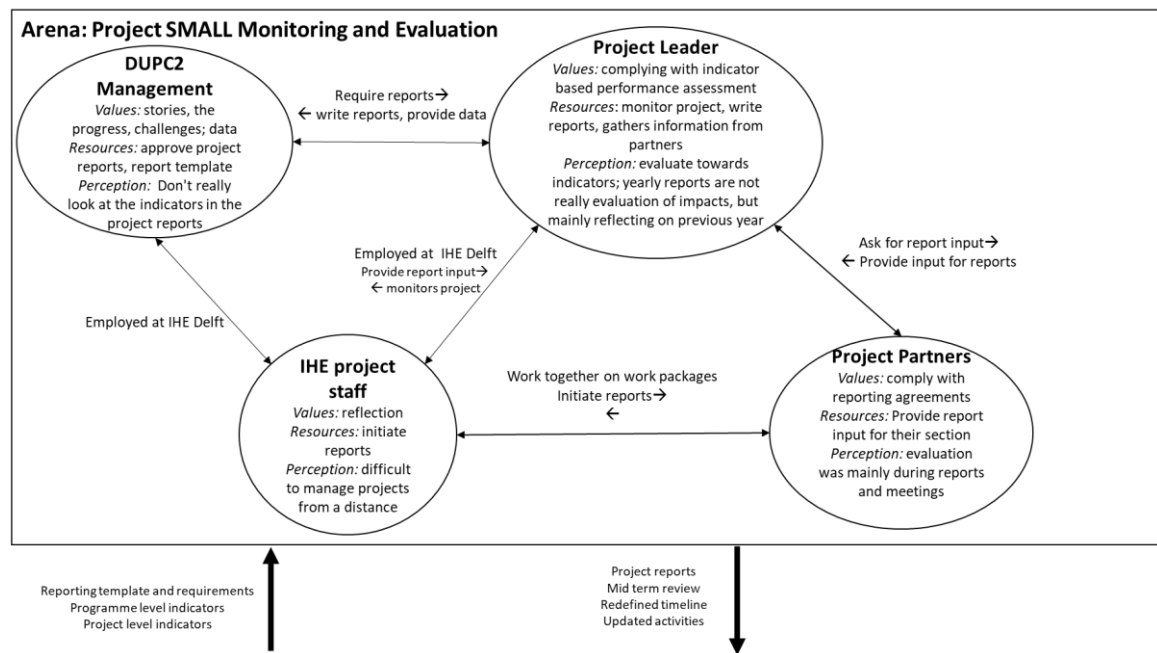
Figure 13. Diagram of the project monitoring and evaluation arena with a summary of the results summarized.

5.3.1. DUPC2 Management

Values, resources and perceptions by the DUPC2 Management

The main aspects valued by the representative of DUPC2 Management regarding the general project monitoring and evaluation are: data for reporting, and stories about challenges. The DUPC2 Management uses the data from the project reports for the programme wide reports. For its review of project-level progress, the DUPC2 Management does not immediately look at the indicators in the project reports, but more at the descriptions of the progress and challenges. Within the programme there is a discussion on how to monitor impact, and the Management does not want projects to spend too much time on the administrative side. But they are interested in the stories of the projects as a way to share knowledge and information.

The main resources of the DUPC2 Management regarding the general project monitoring and evaluation are: provide report templates, and approve reports. Within the programme, the content and detail of project reports, really depend on the project and the DUPC2 Management perceives the project leader as the most influential person regarding the coordination of the monitoring and evaluation at project level. It happens that projects only report on the current status with the indicators and they do not include what was promised, so then it does not say much about what is actually going on. However, the DUPC2 Management does not send the report back for improvement, instead they give the feedback for the next report.

Perceptions of other actors

According to Makerere University the DUPC2 Management provides a reporting template, in which they do allow you to say if there is anything additional you want them to know (Interview S5). The project leader perceived that the DUPC2 Management never really gave much feedback on the project reports, only minor comments for clarification. Which made the project leader think that either their reports were really good or that their reports were not evaluated so strictly by the DUPC2 Management (Interview S1). The IHE project staff perceived that there was at some point too much push from the DUPC2 to talk and do things together with other projects in Mozambique. Although the only thing they had in common was that they were in the same country and the projects involved

water. The IHE project staff believed this is because, for the DUPC2 Management it is an opportunity to learn from each other (Interview S3).

5.3.2. Project leader

Values, resources and perceptions by the project leader

The main concern of the project leader regarding the SMALL project monitoring and evaluation is to comply with indicator-based performance assessment. These indicators are agreed upon in the project proposal and the evaluation focusses on the indicators. It is perceived by the project leader that the indicator system is the best way to evaluate the project.

The main resources of the project leader regarding the SMALL project monitoring and evaluation are: monitor the project, write the annual reports, collect the input from partners. The yearly reports are a reflection on the project execution from the previous year and not really an evaluation of impacts, and contain the planned activities for the following year. Within the reports writing the narrative part was easier than the financial part, because for the financial part the partners had to be asked for input many time. Therefore, the project leader perceived it as quite burdensome to do the financial reporting twice a year. In the final report of project SMALL the project leader mentioned that the outcomes stated in the proposal were too broad.

Perceptions of other actors

The IHE staff involved in project SMALL perceived that the project leader was always the one filling the project reports and was actively trying to keep an eye on the project in between the reporting periods (Interview S3). Eduardo Mondlane also perceived that the project leader monitored the partners really close, in which they pointed out what was going on and how it was supposed to go, which Eduardo Mondlane perceived as very helpful (Interview S6). According to Makerere University, the project leader would look at the reports against what they were planning to do, after the project leader had compiled a draft of the report in which they included the part written by the partners, the draft was shared with the partners to read through (Interview S5). The IHE project staff mentioned that the project leader pushed the outreach communication a lot, with all partners (Interview S3).

5.3.3. IHE SMALL project staff

Values, resources and perceptions by the IHE SMALL project staff

The main values mentioned by the IHE project staff representative regarding the SMALL project monitoring and evaluation are: to reflect, and to produce and disseminate clear outputs. During the initial phase of the SMALL project the monitoring and evaluation was discussed, mainly focused on clear outputs such as the number of publications and workshops, and the outreach of the project. The push for outreach did help with reflecting, as a reminder that if you do not have a story or something you want to share, why would it be relevant to spend money on it.

The main resources of the IHE project staff regarding the SMALL project monitoring and evaluation are: initiating the reports, and asking partners for input. The IHE project staff initiates the report and actively asks the partners to provide them with input and feedback. The monitoring and evaluation of the project revolved around the reporting periods. The yearly reports (mid-year report and annual progress and planning report) were what the project did for feedback and trying to get information from the partners and between the reports they worked towards the next report.

The IHE project staff believed that the ambition of developing an interdisciplinary project was too high and it was lacking a bit at the end of the project. Although the project leader perceived that the IHE project staff, which also includes the project leader, were quite conservative regarding the

indicators that were used for monitoring and evaluation and believes that the reason behind this was to protect themselves.

5.3.4. Project partners

Values, resources and perceptions by the project partners

The main values of the project partners regarding the SMALL project monitoring and evaluation are related to project performance and feedback to improve project. Makerere University was in general satisfied with the monitoring and evaluation of the project, in which the performance was monitored by measuring whether they achieved the outputs. Makerere perceived that evaluations are important to improve the project and to get feedback, it also helps to not take things for granted. And in case you want to design another project, it informs the design of the next project. The representative of Makerere University does not know if there was an actual final evaluation, but assumes that there was one, for the reason that there was also a meeting where the partners presented their findings to each other (Interview S5).

The main resources of the project partners regarding the SMALL project monitoring and evaluation are: contribute to reports. NWSC, Makerere University and Eduardo Mondlane University perceived that the monitoring and evaluations were mainly done through the reports (Interviews S2, S5, S6). Eduardo Mondlane also mentioned that the project partners write the reports with the help of IHE (Interview S6). NWSC mentioned that the partners provide input for their own section of the report, which was done according to the different work packages where the partners only had to look at and make a contribution to the part that was relevant to them (Interview S2).

In addition to the reports, NWSC perceived the meetings that were done during the project were a benchmark opportunity, in terms of what the partners in Mozambique were doing and how they were doing it, and the other way around, to learn from each other. NSWC mentioned that there was a mid-term review, in which the project execution was discussed. For this review there was a meeting, a consultant representing DUPC2 came for this meeting and presentations were given concerning the plans for the remainder part of the project. NWSC perceived that it was mainly an emphasis on the remaining costs and the feedback on the mid-term review was mainly discussing how to progress the project while staying on the objectives (Interview S2). Eduardo Mondlane also mentioned a meeting in Delft in 2019, which they perceived as a large evaluation. According to Eduardo Mondlane, in this meeting the project reported all the activities and planned the future activities (Interview S6).

Perceptions of other actors

The IHE project staff perceived that all the partners provided input and feedback for the reports (Interview S3). According to the project leader the partners did contribute to their part in the report, but did not really give feedback on the final version of the reports. It was also perceived by the project leader that the contribution to the reports of the Mozambique private operator was lower, possibly because it was more difficult for them that the reports were written in English. Besides the reports, the project leader also mentioned a peer learning workshop that was done with the partners, which was constructive, but the partners didn't follow up to do it on their own later on (Interview S1).

5.3.5. Arena outputs and inputs

The main outputs of the project monitoring and evaluation are the project progress and planning reports, mid-term review, redefined timeline and updated activities. According to the project leader the period progress and planning reports and the mid-term review were a way to reassess, to look at the progress and decide what to do next. However, the project leader mentioned that some activities were updated and that the timeline for the final two years was redefined, but nothing new seems to

be introduced, even at the mid-term review there was nothing new added. At the mid-term review the discussion mainly focussed on how to progress the project while staying on the objectives.

The main inputs on the monitoring and evaluation arena are: reporting template and requirements, programme level indicators, and project level indicators. The biannual project reports are a requirement from the DUPC2 Management, as well as the programme level indicators that are specific for research and innovation projects. The project level indicator-based performance assessment is decided upon in the proposal and the indicators are used by project SMALL to monitor and evaluate how the project is going and as a guideline to see if the project is still going as planned.

5.4.   Connecting the project level arenas

In this section the results of the following three project level arenas have been given: the project design arena, the project execution arena and the project monitoring and evaluation arena. With the arenas' outcomes and influences on other arenas, the linkage between these arenas can be established and inserted in the project level part of the conceptual framework in section 2.5. Figure 14 shows the connections between the arenas on the project level.

The decisions made in the project design arena influence the project monitoring and evaluation arena, mainly by providing project level indicators that should be monitored and evaluated. The project design arena is influenced by the recommendations made in the project monitoring and evaluation arena. During the SMALL project, in the monitoring and evaluation arena it was observed that the timeline was not realistic anymore and should be adapted. This recommendation was input for the project design arena, as the timeline of the project was changed.

The main link between the project execution arena and the project monitoring and evaluation arena is the project data and monitoring and evaluation results. The information about the outcomes and activities that are monitored is gathered from the project execution arena. Whit this information recommendations are established in the monitoring and evaluation arena. The monitoring and evaluation resulted in some slight changes to the execution, mainly be updating some activities.

The project execution arena is linked to the project design arena, by the specified activities and desired outcomes that are agreed upon in the project proposal. In the project execution arena the project design is executed. Therefore all decisions made in the project design arena influence how the project is executed.

When a project is started in a certain way it can be difficult to change it while it is being executed. The outcomes specified in the project design are the main focus of the project execution. These outcomes are monitored and measured with the indicators that are agreed upon in the proposal. Periodically reassessing the project outcomes and indicators of the project could actually help improve to the project execution.
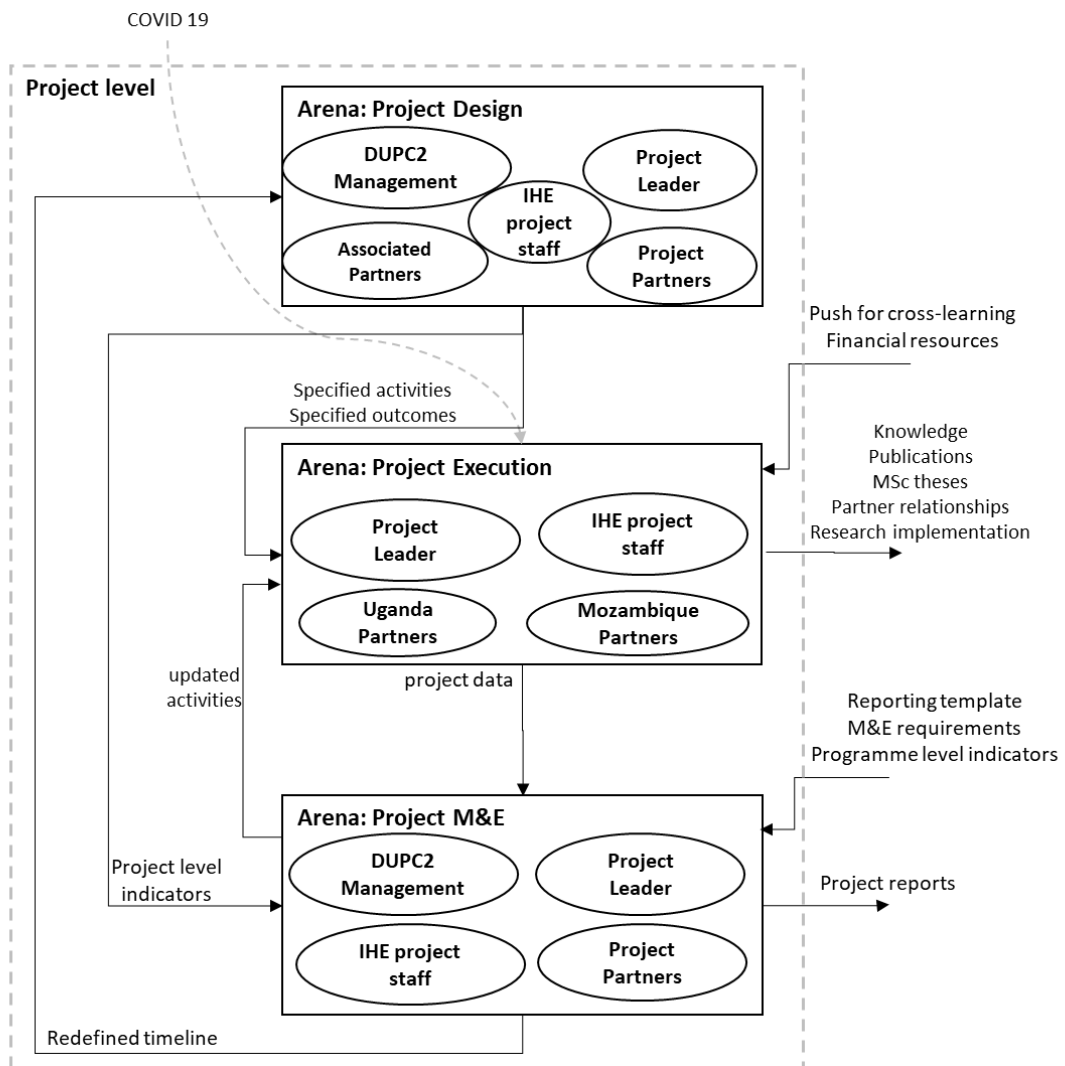
Figure 14.Diagram of the project level of the conceptual framework in which the arena connections are given based on the results.

6. Analysis and Discussion

In this section both the results from Chapters 4 and 5 are analysed and discussed. This section helps to find an answer to research question 4.c. How do actor interactions influence the DUPC2 monitoring and evaluation system and its support for societal impact between the programme and project level? And on answering research question 4. How do actor interactions influence the DUPC2 monitoring and evaluation system and its support for societal impact? This chapter starts with the connection of the DUPC2 programme level arenas and the SMALL project level arenas. This is followed by the discussion of three features that emerged from the analysis as characteristics of the DUPC2 monitoring and evaluation system: static project monitoring and evaluation, limited distinctions within indicators, hierarchy.

6.1.   Connecting the programme level and the project level

In Figure 15 the programme level diagram from section 5.4 and the project level diagram from section 5.5 are incorporated in the conceptual framework as seen in section 3.2. The framework shows how the programme level and project level are linked to each other based on resources, information, and rules.

The programme execution arena is linked to the project design arena, by the project calls, allocation of project funds, and the call for project top ups. The project calls provide an opportunity for project teams to develop a project and their desire to get the project awarded gives them an incentive to comply with all the project conditions that are established in the project calls. These project conditions are based on the values of IHE Delft and DGIS, and the agreements made in the DUPC2 programme proposal during programme design. In addition to this, the decisions in the programme execution arena influence project designs by providing top-ups for certain activities which the DUPC2 Management team finds important. The top-ups for projects could also be influenced by what DGIS finds important, based the on addendums for certain activities or themes given to the DUPC2 programme by DGIS.

The programme execution arena and the project execution arena are linked by the financial resources the DUPC2 programme provides to the project, a push for cross-learning, and by stimulating activities beside the project research and implementation, such as a conference with other projects in the country to share knowledge.

The programme monitoring and evaluation arena and the project monitoring and evaluation arena are linked to each other by the information shared and requirements given. The project monitoring and evaluation arena provides project data that is a necessity for the programme monitoring and evaluation arena. This project data is needed for the programme transparency and accountability. The accountability and transparency are needed by the programme to meet funding conditions agreed in the DUPC2 programme design, which in turn is needed to acquire funding from DGIS for the following year. To provide the data the projects are required to submit two reports yearly. For these reports the DUPC2 programme level provides templates. These templates include some programme indicators based on the agreements on monitoring and evaluation that were made in the DUPC2 programme proposal.

There are many individual projects part of the DUPC2 programme and the DUPC2 programme wants to stimulate events and workshops for project synergy. This incentive for project synergy influences decisions made in the project design arena, such as decisions on the type of events and workshops to be included in the project.
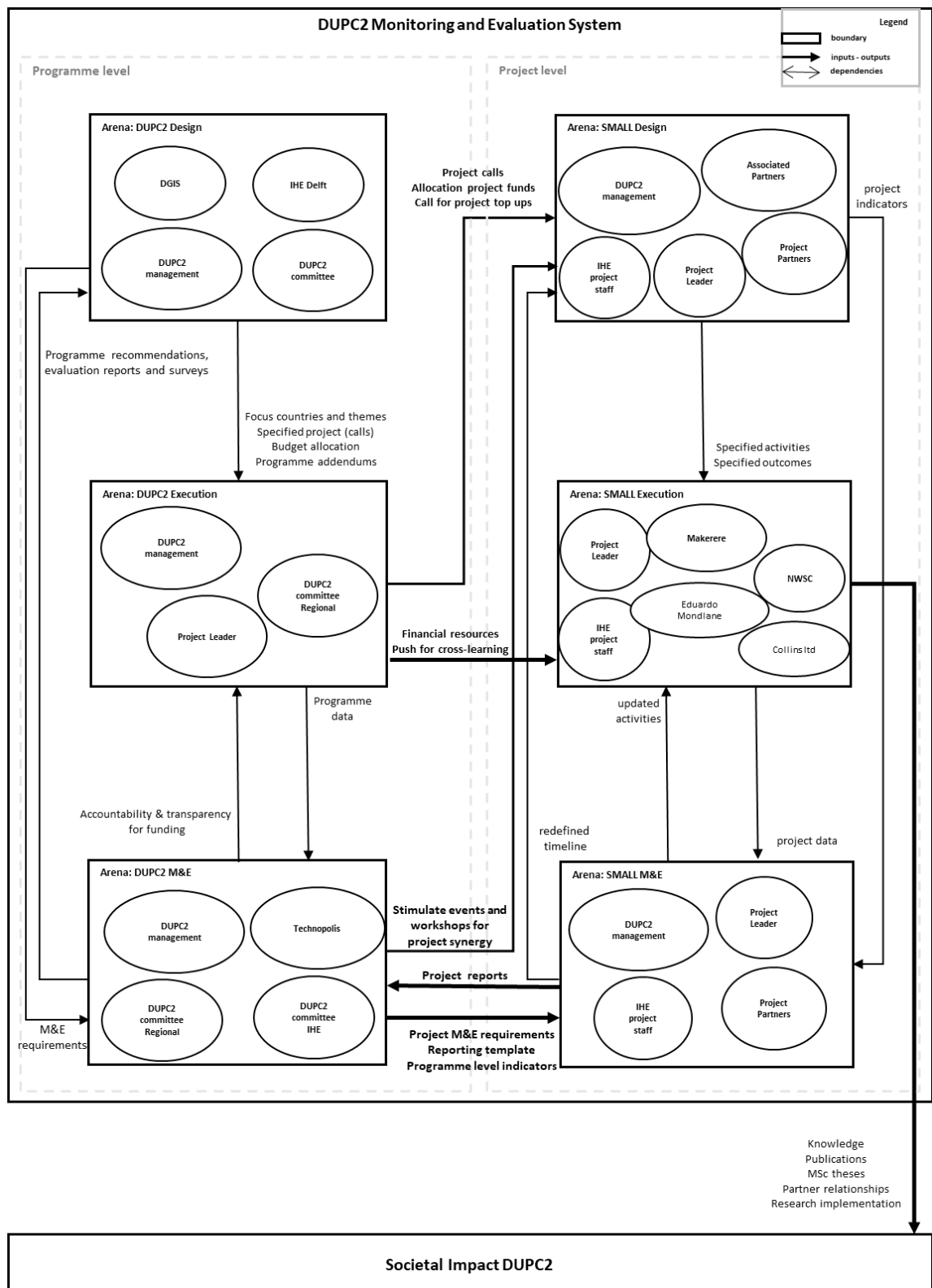
Figure 15. Full conceptual framework of the DUPC2 monitoring and evaluation system in which the main actors involved in the arenas and the connections between arenas are given based on the results in chapter 4 and chapter 5.

The project execution arena has a direct link to the societal impacts. The activities in the project execution arena, that are aimed to comply with the indicators set up in the project design, lead to arena outcomes, such as research implemented, partner relationships which influence the societal impact of the DUPC2 programme.

From the actor interaction in the arena and the connections between the arenas, three important insights follow, regarding he monitoring and evaluation systems of the DUPC2 programme and its support for societal impact: a static project monitoring and evaluation; limited distinctions within indicators, that could influence the support for societal impact; hierarchical relations, that influence the support the monitoring and evaluation system could have on societal impact. These insight are discussed in the sections 6.1, 6.2, and 6.3.

6.2.   Static project monitoring and evaluation

As a result of the interviews it was observed that the official monitoring and evaluation within the project does not result in considerable changes to the project. As seen in Figure 15 the updated activities and a redefined timeline are the main changes resulting from the monitoring and evaluation arena on the project level. It does seem that the project monitoring and evaluation is to some extent static, considering that the project outcomes and indicators are fixed early on, and the monitoring and evaluation within the project focusses on achieving these outcomes and complying with the indicators.

According to the IHE project staff, small changes that were made during the project execution came more organic, in a way that when you were communicating with a partner and a challenge might be mentioned regarding an activity. Then they would discuss what else could be tried and adjust the activity accordingly. New questions and additions to the research came in place during those calls with partners. The mid-term review also gave the opportunity to make additions to the project, this review was perceived to mainly focus on the outreach, budget, and keeping the project on track. It seems that the project design was adjusted based on the resources, money and time available, for instance the project timeline was redefined for the final two years.

The project level indicators, that are set up in the proposal, play an important role in the project outcomes, as the project partners work toward achieving those indicators. During the execution of SMALL there were some adjustment made to the indicator targets. To give an example, for the project indicator *Number of towns for which assessment reports on access and distribution of WSS services are produced* the target was adjusted from four towns to two towns[1] (SMALL, 2021). However the project indicators itself do not seem to be re-evaluated during the project. Even when a new partner was included in the project, the indicators stayed the same. Therefore it seems that the initial design phase determines the project outputs to a large extent.

In the case of project SMALL it was the first time that the project happened and the first time that most of the partners involved worked together. The partners still had to get to know each other, which means that it is more of a challenge to find out how the partners can work together and what would be helpful or beneficial for all, compared to partners who already had worked together before. Therefore one would expect the possibility that the first design of the project is not the best design and it would be beneficial to the impact of the project that the design and the way they monitor and measure the project is revisited after some time.

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[1] The final SMALL report (SMALL, 2021) mentions that the target was adjusted, however it does not explain the reasoning behind it.

6.3. Limited distinctions within indicators

As a result of the interviews it is observed that it is a challenge to say something about the impact on the programme level based on the programme indicators that project use. For the DUPC2 programme to be able to say something about the programme impact they need to know the impacts of all the projects. This data is mainly gathered by the reports all projects have to deliver twice a year. There are so many projects that some coherence between the way outcomes are shared is desired to make it easier for the DUPC2 programme to combine the project data.

As seen in Figure 15, the DUPC2 programme provides the projects with reporting templates and programme level indicators. The DUPC2 programme uses the data from those project reports for their own reporting. On programme level the indicators are mainly used for accountability and transparency. For the actual impact the DUPC2 programme is more interested in the stories that are written in the reports, however those stories are sometimes limited. The project seems to put more value to the indicators, as they are used to keep track of how the project is going, if the project is going well or not. The project is free to choose the project level indicators, these are set-up in the project proposal. The project also has to monitor the programme level indicators, those show certain outputs focused on themes such as gender equality, and the number of students involved. These are important themes for IHE Delft and DGIS, however they do not necessarily give a specific understanding of the situation.

There were two actor perceptions that induced a further look into the indicator set-up in the final SMALL report (SMALL, 2021). One was that within project SMALL it was observed that there were a lot more IHE Delft students involved in the project than students from the two partner universities in Uganda and Mozambique. The other one was that Technopolis perceived how there is no distinction in general between gender specific projects and projects where gender is not the main focus. In the report (SMALL, 2021) was found that it were programme level indicators that monitored the students involved and gender, not the project level indicators.

In the case of the SMALL project it seemed that some programme level indicators might give a limited understanding of the situation. Making a different distinction within those indicators could give a different perspective or a more specific understanding of the project. In the final SMALL report two examples were found, Table 2 shows how the indicator numbers change when one separates the southern project partners from IHE Delft and the associated partners.

The first indicator is the *number of team members involved in project.* The distinction made within this indicator relates to gender equality, which is an important topic in the DUPC2 programme. Table 2 shows that according to the indicator as it is used now 12/25 people are female which is a desirable 50-50 balance[2]. However, when looking at the southern partners only 3/15 are female which is only 20 percent. From IHE Delft 5/6 team members involved were female (SMALL, 2021). Therefore it seems that how the indicator is defined balances out the underrepresented female team members from the project partners with the overrepresented female team members from IHE Delft.

The second indicator is the *number of BSc and MSc students involved in project.* This indicator relates to the opportunities of the organizations involved in the project, as involving students is

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[2] It should be mentioned that according to the programme level indicator table in the final report of the SMALL project (SMALL, 2021) there were 12 female team members. However according to the list of team members, in the general information section of the same report, there were only 9 female team members. Which means that somewhere a mistake was made and it could be that there was never a 50-50 female-male balance, but only 33-66.

beneficial for the affiliated organization or academic institution. In general, academic institutions want to have opportunities for their students to conduct MSc or BSc thesis research. In the SMALL project there were three academic institutions involved: IHE Delft in the Netherlands, the Makerere University in Uganda, and the Eduardo Mondlane University in Mozambique. When IHE Delft is separated from the Southern Project Partners the indicator gives a more specific understanding of the students involved. Table 2. Two examples of programme level indicators used in the SMALL project, where the first column shows the numbers as stated in the SMALL final report (SMALL, 2021) and the second column show the numbers specifically of the Southern partners shows that 10/11 students involved were Southern. However there were only 4 students involved that were affiliated with a Southern project partner involved in SMALL. This can be explained due to the fact that most or almost all students of IHE Delft are from Southern regions, and besides being a student, they might also be employed by a company in the South. To give an example, in the SMALL project there were two persons that did their MSc research who were both students at IHE Delft and employed at the National Water and Sewerage Cooperation in Uganda. There was only one MSc student of the Makerere University and one BSc student of the Eduardo Mondlane University involved.

Table 2. Two examples of programme level indicators used in the SMALL project, where the first column shows the numbers as stated in the SMALL final report (SMALL, 2021) and the second column show the numbers specifically of the Southern partners.

	All partners	Only southern partners
Number of team members involved in project		
total	25	15
southern	16	14
female	12	3
southern female	5	2
Number of BSc and MSc students involved in project		
total	11 (10 MSc, 1 BSc)	4[3]
southern	10	4

How the indicators are defined is important, because it could give different perceptions of what is going on and more specific indicators might provide more transparency for the DUPC2 programme. To give an example, when looking at the number of students involved in the project a more specific indicator would give the opportunity to compare the number of students affiliated with the southern project partners to the number of students affiliated with IHE Delft. More specific indicators could provide a better understanding of what the balance is between IHE Delft, Southern partners, and associated partners.

In addition to this, having more specific indicators could give more incentives for the projects to also focus on these specifics themselves, which could improve the impact. What is measured influences what is actually done, especially when projects focus on indicators to keep the project on track. If it was a requirement to separate IHE students from other students, it could have been an incentive for project SMALL to more actively try to include the students from the partner universities as well.

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[3] This number is based on the interview with Eduardo Mondlane University and the information in the Final SMALL report. In the interview with the Eduardo Mondlane university in which was mentioned that there was one BSc student from the Eduardo Mondlane University involved in SMALL. In addition to this, the information about MSc thesis students in the outputs table in the final Report of SMALL (SMALL, 2021) gave that there were 3 MSc thesis students affiliated with a southern project partner. However this table only includes the information of 9 MSc thesis students that were involved, so it is not clear if the tenth MSc student was affiliated with a southern project partner.

6.4. Hierarchical relations

As a result of the interviews it is observed that a strong (in)formal hierarchy might be a challenge for increasing the societal impact. Such a hierarchy and its effects can be found on the programme level and on the project level. In this section a few examples are given of hierarchical relations which are related to: getting a project awarded, a perceived push from the DUPC2 programme to produce English language materials, and the relation between the project leader and the project partners.

6.4.1. Donor push

Figure 15 shows that the within the programme level arena requirements are made for the projects, such as the project calls, and the funding allocation. The academic staff wants to perform their research and getting a DUPC2 project call awarded gives them the financial resources to do this. To get a project awarded they must comply with the conditions set in the project call, such as specific countries, existing partnership experiences, and interdisciplinary research. The project leader perceived that too much might be promised to get a project awarded and the ambition during the proposal phase might not be completely realistic. In the case of the SMALL project the project leader saw a disconnect between what they wrote as desired outcomes and the set of activities that were established. The IHE SMALL staff perceives that sometimes one has to scramble together a proposal to try to comply with all the conditions in the project call, which might result in a scramble of aspects such as topics or partners that do not naturally fit together. The partners involved in the project set out to accomplish what was agreed upon in the proposal and therefore the project proposal is the baseline for what is being monitored and evaluated in the project. However, basing the monitoring and evaluation on a proposal in which aspects are scrambled together, might lead to the project hanging on to that scramble. Even though it might be better for the societal impact if the focus would shift towards aspects that fit together more naturally.

For the DUPC2 programme disseminating knowledge and project outreach is important, which is felt by other actors. The IHE SMALL staff felt a push from DUPC2 for collaboration and for outreach, which was perceived as unnecessary, for example when the DUPC2 programme, as an outsider, wanted organizations in a southern country to do an event or activity together, even though these organizations did not have much in common except that they do something with water.

In addition to this the regional DUPC2 Committee felt a push to produce research in English. The DUPC2 programme is in English, which means that a lot of the knowledge and information is in English. Even though most of the southern countries that are involved in the programme do not have English as an official language, and in those regions there is often a shared international language such as Spanish, French, or Arabic. This does not make it easy to disseminate the knowledge to the people in those countries who do not have English as a first language, or to who did not have the opportunity to learn the English language.

6.4.2. Monitoring, evaluation and impact

Besides the hierarchy between DUPC2 programme and the partners there could also be a hierarchy within projects, where the project leader is the 'boss' who keeps everything in check. However the hierarchy within a project really depends on the project leader and the other individuals that are involved. In project SMALL the project leader was seen as the one who monitored the entire project and kept everything on track. Hierarchy is also found within the project partners. The representative of both the water operators that were actually involved in the project proposal where the directors. Which makes sense in the way that they have the authority within their company to make the

decisions. Even though the people who actually do the execution of the projects are other employees and not the director.

Within the project it is important to find a balance between what the academic or research organizations want to research and what is actually useful for the implementing partners. The IHE staff felt like this did not always go well and sometimes the focus would be too much on the research part in comparison with the implementation part. There was an IHE project staff member who really wanted to do an ethnographic study in project SMALL, while that would not have been useful for the water operator. In the end this did not happen, which can be seen as a beneficial for the societal impact, as otherwise the water operator might have been pushed to do something that was not necessarily useful for them.

Hierarchies between partners can affect the monitoring and evaluation system and its influence on the societal impact. It was also perceived by the project leader that there usually was no feedback on the reports, except for minor comments. Therefore, it seems that the programme level did not really join in the monitoring and evaluation of the projects. The projects had to deliver reports to the programme management for accountability, however no substantial feedback seemed to flow back from the programme to the projects. This structure is quite hierarchical and could obstruct the learning cycle of the projects and consequently the improvement of societal impact.

An hierarchical structure might affect the openness of which the partners placed lower on the hierarchy chain express themselves to higher placed people on the chain. This can affect the value of the monitoring and evaluation information shared and the ability to learn from the monitoring and evaluation. An hierarchical structure could also influence the focus of the monitoring and evaluation system. In development cooperation the accountability provided by monitoring and evaluation system is often needed to report to 'authorities' that provide funding (Crawford & Bryce, 2003). For the DUPC2 programme the main funders are: DGIS on the programme level, and DUPC2 on the project level. When accountability is important for the funders, an hierarchical structure could result in a monitoring and evaluation system that is more focused on accountability than learning. This might lead to missed opportunities to improve the societal impact by learning from the monitoring and evaluation.

PART [III] – CONCLUSION, RECOMMENDATION & REFLECTION

7. Conclusion

This chapter concludes this thesis research. The structure of this conclusions follows the research questions stated in section 1.4. It starts with the monitoring and evaluation systems and their relation to societal impact in development cooperation. That is followed by the actor interactions in monitoring and evaluation systems. After which it goes more specific to the actor interactions in the DUPC2 monitoring and evaluation system. Finally, some general insights for monitoring and evaluation systems in development cooperation are given.

7.1. Monitoring and evaluation systems and societal impact in development cooperation

This section provides the answer to the following research question based on the literature review: *What is the role of monitoring and evaluation systems in improving societal impact for development cooperation?*

Within development cooperation challenges occur that can influence the quality and effectiveness of the cooperation. Working on these challenges could improve the societal impact of the cooperation. In the literature review in chapter 0 some of these challenges are identified, related to aspects such as cultural differences, the institutional environment, and the multi-actor environment.

The first challenge is the conflict that could arise between partners. In development cooperation there is often a Northern partner that provides (financial) resources to a Southern partner. Conflicts could arise as a result of culture differences or differences between the values of the partners. These conflicts could have a negative effect on the relationships in the cooperation and possibly reduce the societal impact.

The second challenge is a mismatch between what a Northern partner is willing to provide and what a Southern partner desires or needs. The focus of this resource support is problematic if it is on what the Northern partners belief that the Southern partners need, while neglecting to focus on the actual needs of the Southern partners. It is not uncommon that Northern partners have provided resources that were not essentially needed, or have pushed their ideas and technologies onto Southern partners, while there could have been alternative options better suiting the Southern partners.

The third challenge is usages of the resources by the Southern Partners. The institutional environment in the countries of the Southern partners might not always be stable. This could give rise to challenges such as corruption, maintaining and sustaining the cooperation results and long term impact, and the challenge if the resources actually ended up where they were needed.

In development cooperation there is usually a monitoring and evaluation system in place that could help deal with the effects of these challenges. This system is often a requirement that is set by donor agencies and seeks to trace the linkages between project or programme inputs, outputs, outcomes and impacts. The functions of monitoring and evaluation systems are often focused on increasing the effectiveness of the projects, to analyse the impacts, organizational learning and to improve accountability of development aid (Liverani & Lundgren, 2007). Using a monitoring and evaluation system to provide accountability and learning, could increase the possibilities of a positive societal impact of development cooperation.

In the DUPC2 case study some of the above challenges were also observed. In the SMALL project,

there was a partner conflict, where one of the initial partners (a department of the Eduardo Mondlane University) turned out not to be a match for the project, as the deliverables were not satisfactory and there was a lack in response. This conflict was solved by ending the partnership with that department and including a different department of the same university as a partner in the SMALL project. It was perceived that this change in partners had a positive effect on the project, as the deliverables and communication improved. As a result of joining the SMALL project after the proposal, the new partner (Centro de Biotecnologia, Eduardo Mondlane University) had to design their specific research and they introduced some analyses that were not in the original project proposal. However, this did not result in adaptations to the project level indicators used to monitor and evaluate the project.

A challenge with the institutional environment was also observed. AIAS is the regulatory body in Mozambique that owns the water sector systems. Part of these systems are managed by Collins Ltd. In the SMALL project water safety plans were developed for these system. However, it was perceived that the involvement of AIAS was lacking, and that the water safety plans could have been done better if they were more involved. AIAS could have been an important partner, as owner of the systems, and Eduardo Mondlane University perceived that missing that partner affected the whole process.

7.2. Actor interaction in monitoring and evaluation systems

This section provides the answer to the following research question based on the literature review: *What is the influence of actor interactions in these monitoring and evaluation systems?*

Monitoring and evaluation systems work in relation to their social and organizational environment, and there are multiple actors that are in some way involved in a programmes' monitoring and evaluation system. For instance the actors that setup a monitoring and evaluation protocol, or the actors that are responsible for the project that is being evaluated. One could look at a monitoring and evaluation system as a multi-actor environment in which different actors interact, following certain patterns of social interactions and rules that influence these patterns.

Donors often want data on accountability, transparency and performance and this reflects in the monitoring and evaluation systems. However the monitoring and evaluation system also depend on the other actors that are involved in setting up the system. If one of their focus points is organizational learning or adapting and improving the programme, then the monitoring and evaluation system could also be developed as a tool for learning.

The actor interactions influences these monitoring and evaluation systems by the relations between the actors, and each actors' values, resources and perceptions. Especially the relation between the organization that funds the activities and the organization that receives that funding to execute the activities, plays an important role, due to the dependency it creates. To give an example, if there is a hierarchical relationship between two actors in which actor A is dependent on actor B for financial resources, then actor A might feel the incentive to comply with what actor B finds important to monitor and evaluate, even if it does not completely match with their own ideas.

In multi-actor systems, actors interact and make decisions in different arenas. Each arena has a specific focus such as the design of a programme, the execution of a programme, or the monitoring and evaluation of a programme. These arenas are linked to each other by aspects such as requirements or agreements made, or a need for and provision of information or financial resources. These aspects are seen as the inputs or outputs of arenas, through which actor activities in one arena can possibly influence other arenas. For instance, when a project is designed, often agreements are made on what the goals and desired outcomes are and how they should be evaluated and monitored.

These agreements are also the guiding principles of the project implementation; In the project design arena an agreement is made, which guides the project implementation arena, and which influences the focus and decisions regarding the activities conducted in the monitoring and evaluation arena. Including these different arenas in a multi-actor analyses helps with not only understanding the actor interactions but also in what arena the interactions occur, where decisions are being made and how they might influence other arenas.

In the DUPC2 case study it was observed that the monitoring and evaluation system is influenced by the actor interactions. To give an example, the donors (DGIS and IHE Delft/DUPC2) valued data on accountability, more so than the Southern partners that were involved in the SMALL project. This reflects in the monitoring and evaluation system, which seemed to be more focused on accountability than learning, especially on project level.

Another example from the case study is that the SMALL project felt a push from the DUPC2 to talk with and do things together with other projects in Mozambique. Although the only thing they had in common was that they were in the same country and that the projects involved water. Even though this was not seen as useful for the project, they did comply with the wishes of DUPC2, for example by joining an event in Mozambique that was organized for the projects to connect with and learn from eachother.

7.3.   Actors interactions in the DUPC2 monitoring and evaluation system

This section provides the answer to the following research question: *What does the current DUPC2 monitoring and evaluation system look like and how does its design intend to improve societal impact?*

The DUPC2 programme provided the main case study for this research. The DUPC2 programme (2016-2023) is the second phase of a partnership programme between IHE Delft, an international academic institute for global water education based in Delft, and DGIS, as the main Directorate responsible for development cooperation within the Dutch Ministry of Foreign Affairs. By encouraging collaboration in partnerships, the DUPC2 programme aims to strengthen the capacity of the water and development sector in low and middle income countries.

Figure 16. Simplified version of the conceptual framework related to the DUPC2 case study, copy of figure in 3.1.

Within the DUPC2 programme the monitoring and evaluations system encompasses multiple arenas in which decisions are made that relate to the monitoring and evaluation of the DUPC2 programme. This implies that the actor interactions in the different arenas identified, affect the monitoring and evaluation system of the DUPC2 programme. Figure 5 gives an overview of these arenas, which exist on both the programme level and the project level.
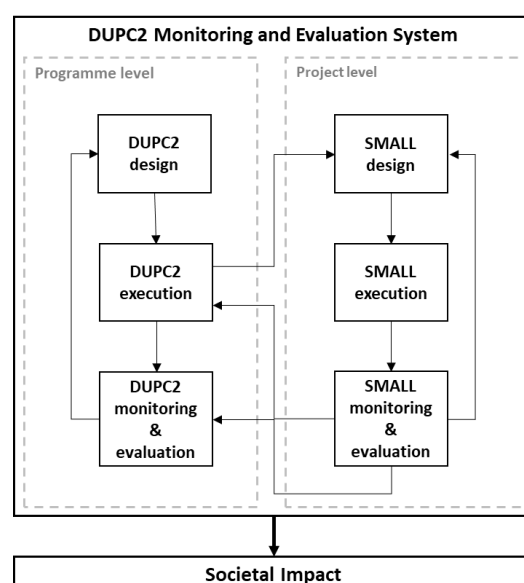
7.3.1. Actor interactions on programme level

This section provides the answer to the following research question: *How do actor interactions influence the DUPC2 monitoring and evaluation system and its support for societal impact on programme level?*

On the DUPC2 programme level the actor interactions that are observed in the DUPC2 monitoring and evaluation systems are mostly determined by the values and resources of DGIS and IHE Delft. DGIS is the main funder and IHE Delft executes the DUPC2 programme.

The programme design is a combination of the focus of IHE Delft, such as education, research, knowledge dissemination, capacity strengthening, and the focus of DGIS, such as the development of low and middle income countries, and accountability. The focus of DGIS depends on the political environment in the Netherlands, which is likely to change when there are elections, or a new minister is appointed. Although the agreements in the proposal cannot change, it is possible for DGIS to ask for ideas for addenda to focus on specific activities or themes contributing to their policies (like stronger focus on the Middle East).

During the DUPC2 programme execution, adjustments can be made on a yearly basis, based on the yearly reports, on the mid-term evaluation, or on underspending due to unforeseen circumstances. The DUPC2 programme has to provide accountability towards the Ministry of Foreign Affairs, which affects the way the monitoring and evaluation system is set-up. The monitoring and evaluation of the DUPC2 programme is seen as more focused on accountability, compared to learning. This is also seen in the external evaluation. The new focus topics of DGIS, such as gender equality, seem to be important focus points to be evaluated by the external evaluator, Technopolis.

7.3.2. Actor interactions on project level

This section provides the answer to the following research question: *How do actor interactions influence the DUPC2 monitoring and evaluation system and its support for societal impact on project level?*

Within the DUPC2 programme, several projects are implemented, with their own project-level action arenas. The case-study at project level has been the SMALL project, which was a project focused on water supply and sanitation service provision in Uganda and Mozambique. On the SMALL project level the actor interactions that are observed in the monitoring and evaluation system are mostly determined by the relation between the IHE project leader and other IHE staff members and the southern partners. In the design arena the project initiators used their network to find project partners that would fit with their focus on research and implementation. All partners involved in the SMALL project were part of setting up the proposal and defining the goals and indicators used for monitor and evaluating.

Within the execution arena most actor interactions were focused on carrying out the agreed upon research and activities. There were little direct interactions between the Ugandan and Mozambique partners and most interaction went through the IHE project leader. For the research there were some students included. Most of these students came from IHE Delft and some were also employed by one of the water operators. The number of students involved was one of the programme level indicators. The execution was monitored and evaluated by indicators that were defined in the proposal and the partners would work towards achieving the project level indicators. The relation between the project leader and the partners defined the level of involvement in the monitoring and evaluation of project SMALL. The project leader took full responsibility to keep monitoring the project and initiated the project reports for which the southern partners were asked to provide input.

7.3.3.   Actor interactions between the programme level and project level

This section provides the answer to the following research question: *How do actor interactions influence the DUPC2 monitoring and evaluation system and its support for societal impact between the programme and project level?*

The main actor interactions between the project and programme level that are observed are the interactions between the DUPC2 Management and the SMALL project leader. The project leader was the contact person between the project and the programme, who did the communication with the DUPC2 Management, kept them informed, and submitted the project reports. The DUPC2 Management could approve project proposals and allocate funding allocation funding. To get the project approved the project initiators made sure that they complied with all requirements in the project call, also if they did not necessarily deemed it to fit the specific project needs and ambitions.

For the monitoring and evaluation of the project the DUPC2 programme provided programme level indicators and reporting templates. These programme indicators were more focussed on accountability. For learning purposes, the DUPC2 programme deemed the descriptions in the reports as more useful. The SMALL project focused more on the indicators as a way to monitor and evaluate how the project was going and as a guideline to see if everything was still going as planned. This means that the focus of the monitoring and evaluation system can influence its support for societal impact, depending on how the tools are used. If the focus lies more on accountability instead of learning, then opportunities to learn and improve are missed.

7.3.4.   Influence of actor interactions on DUPC2 monitoring and evaluation

This section provides the answer to the following research question: *How do actor interactions influence the DUPC2 monitoring and evaluation system and its support for societal impact?*

To be able to truly understand the influence of actor interactions on the monitoring and evaluation system and its support for societal impact, it is important to understand how a specific decision flows through the arenas of the monitoring and evaluation system towards the societal impact. However the scope of this research lied on mapping the connections in the system and not on how specific decisions flow through that system. Therefore assumptions were made about the possible effects on the societal impact.

Regarding the actor interactions in the DUPC2 monitoring and evaluation system, three challenges were identified that are assumed to affect the societal impact of the DUPC2 programme. These challenges relate to a static project monitoring, the indicator setup, and (in)formal hierarchies.

Static project monitoring and evaluation

The first challenge is that the actor interactions in the DUPC2 action arenas lead to a static project monitoring and evaluation arrangement. This is due to the importance of the indicators and outcomes that are set-up in the proposal design phase and the limited feedback given to the projects based on their periodic monitoring reports. It seems that the project monitoring and evaluation is to some extent static, because the project outcomes and indicators are fixed early on and not really assed during the project execution. For this reason opportunities might be missed to improve the effect the project has on achieving societal impact. The indicators and outcomes are the guiding line through the project execution and the monitoring and evaluation within the project focusses on achieving these outcomes and complying with the indicators. During the execution of SMALL there were some adjustments made to the indicator targets. However the project indicators themselves were not re-evaluated during the project.

The project reports are the main monitoring and evaluation tool for the project. However by the DUPC2 programme the project reports are a way to provide accountability. There is limited feedback given by the programme on the reports, which limits the reflection to only the project partners.

Limited distinction within indicators

The second challenge is that actor interactions influence the DUPC2 programme monitoring and evaluation system by the way indicators are set up. It is a challenge to say something about the impact on the programme level based on the programme indicators that projects use. Part of the reason is how the programme indicators are defined. These indicators are used by the programme to provide accountability towards the DUPC2 programme funder. They include topics important for the funder, such as gender equality, number of students involved, and the balance between southern, northern individuals involved.

What is measured often influences what is actually done, especially when projects focus on indicators to keep the project on track. If it was an requirement to separate team members from Northern partners and southern partners, one would have seen that there are only a few female team members involved at the southern partners (3 out of 15).

How the indicators are defined is important, because it can give different perceptions of what is going on. More specific indicators could provide more transparency for the DUPC2 programme and could give more incentive for the projects to also focus on these specifics themselves, which might be beneficial to the societal impact of the project.

Hierarchical relations

The third challenge is that the actor interactions influence the DUPC2 programme by an (in)formal hierarchy, which might affect the societal impact. Such a hierarchy could lead to situations such as a mismatch between desired outcomes and activities, and an unnecessary or undesired push (see further below).

It is the DUPC2 programme, that is managed by IHE Delft, that provides funding to the projects and the IHE project staff and southern partners execute those projects. This results in a somewhat hierarchical relationship between the DUPC2 programme and the SMALL project. The DUPC2 programme can provide financial resources for research. Doing research is important for academic staff and getting a DUPC2 project awarded gives them the resources to do this. At the programme level the project call is setup, including the conditions the project must comply with, such as specific countries, existing partnership experiences, and interdisciplinary research. It is possible that too much is promised to get a project awarded.

Hierarchical actor interaction might also result in a unnecessary or undesired push. To give an example, a push from the programme level for collaboration or outreach was felt by the project level. This push related to collaboration between organizations in a southern country to do an event or activity together, even though these organizations did not have much in common except that they do something with water. Another push by the programme level that was felt was to produce research in English. This makes sense for the DUPC2 programme, because the programme language is English, which is an well used international language also spoken by IHE Delft and DGIS. However a lot of the southern countries that are involved in the programme do not have English as an official language, and in those regions there is often a different shared international language such as Spanish, French, or Arabic. This makes it more challenging to disseminate the knowledge to the people in those countries which use other languages.

7.4.   General insights

This section provides the answer to the following research questions: *How do actor interactions in the monitoring and evaluation systems of development cooperation programmes like DUPC2 help to increase the societal impact of these programmes?*

This research shows that the actor interactions in different action arenas in a programme can play a significant role in a monitoring and evaluation system. They can affect the purpose and usage of the systems, which can influence the programme's execution and its corresponding outcomes and impact. Decisions relating to the purpose of the monitoring and evaluations system and how the monitoring and evaluation system and the indicators used are set-up, could be the most influential when wanting to improve the societal impact of the programme.

Within development cooperation, when actors depend on other actors for financial resources it will always be accompanied with some form of hierarchy. This hierarchy could exist between a programme and a project or between a Northern donor partner and Southern partner. In which a donor, not necessarily intentionally, could push its values or ideas onto the other partners. Usually accountability is something a donor is interested in, which could result in a monitoring and evaluation system more focused on accountability than learning. Even though it might be more beneficial for the partners to focus more on learning to improve.

The actor interactions drive the decisions made regarding the monitoring and evaluation system. It is important that the actors become more aware about the influence of the monitoring and evaluation protocols and the indicators that are established; These protocols and indicators are of significance and have consequences all the way to the project level and corresponding societal impact. The purpose of the monitoring and evaluation system, such as accountability or learning, is a driving factor for the usage.

When the monitoring and evaluation system is established to be focused more on accountability it is likely that the specific evaluations will also be done in this light, and less effort might be made to use the evaluation to learn to improve. Although accountability and learning can be combined in theory, in practice a strong focus on accountability will mean that actors focus more on reporting progress regarding pre-specified targets, and less on deeper learning and reflection. When there is limited reflection on the monitoring and evaluation systems it is more difficult to become aware of the consequences the protocols and indicators might have.

This study contributes to the scientific field by showing the value of assessing a monitoring and evaluation system as a multi-actor system. With this multi-actor system approach, the challenges found in literature review can be identified in development cooperation, such as conflicts between the partners as a result of differences in goals and values, and Northern partners pushing their ideas on the Southern partners.

Moreover, by dividing the monitoring and evaluation system in multiple arenas across two levels, this study shows how the actor interactions in different parts of the monitoring and evaluation system influence the effectiveness of the monitoring and evaluation of a programme or project and its support for societal impact. It also helps to identify how actors could use the monitoring and evaluation tools, if that matches with the purpose they were set up, and if changes to these tool could influence its support for societal impact.

8. Recommendations and Reflection

This final chapter provides the recommendations for practice and the research reflection. First the recommendation for development cooperation in general are given, these follow from the general insights given in section 7.1.4. After which the recommendations specific for DUPC3 are given. This is followed by the research reflection and the recommendations for future research.

8.1. Recommendations for Development Cooperation

The hierarchy that exist within development cooperation, is often a result of the Northern partners having more financial resources than Southern partners. As a result of the financial resources, the Northern partners are in some sort of power position. In this power position it takes effort and a degree of awareness to be able understand how their decisions affect a project's execution, outcomes and the corresponding impact. When trying to work with the effects of such hierarchies, the focus should not just be on acknowledging that one is in a power position but also on understanding how one's decisions and actions affect the monitoring and evaluation system.

When monitoring and evaluations system are more focused on what is important for the donor organization, such as accountability, it could be beneficial for the effect the system has on societal impact to put more weight to what Southern partners find important. Including the Southern partners more in the set-up of the monitoring and evaluation systems could help to create more balance between accountability and learning to improve functioning of the monitoring and evaluation system.

The purpose of the monitoring and evaluation systems also directs the usage of that system. The monitoring and evaluation protocols and indicators used, seem to have an effect on the projects execution and outcomes. In development cooperation programmes and projects, the indicators could be used as guidance to finish the project, as they are a clear and measurable goal to work towards. When an organization desires to have a monitoring and evaluation systems that could help increase the societal impact, it could be beneficial to evaluate parts of that system to find how the monitoring and evaluation tools, such as indicators, can influence the outcomes and societal impact.

8.2. Recommendations for DUPC3

In this section two recommendations specific for the DUPC3 programme are given that might help to improve their current monitoring and evaluation system and its effect on societal impact. These recommendations relate to the indicator-based assessment and the learning possibilities in the DUPC2 monitoring and evaluation system.

8.2.1. Indicator assessment

The first recommendation for the DUPC3 programme is to pay more attention to the influence the monitoring and evaluation tools, such as the indicator assessment, might have on the projects. The indicators are used by the DUPC2 programme to provide accountability, while projects use the indicators as a type of guideline. When indicators are used as a guideline by projects, these indicators influence the projects' design and execution, by giving the projects an incentive to focus on those indicators as a way to measure the success of their project. This means that changes in the indicators could have both a desired and undesired effect on the projects' outcomes and influence on societal impact.

If we assume that some topics in the programme level indicators, such as *gender equality,* could have a positive effect on the societal impact, then a slight change in the definition of that indicator might improve the societal impact. For example, by creating an incentive to strive for a more balanced gender participation with all partners. When a balanced gender participation is the ambition, would it not be more desirable if this balance can be found within all partners involved? Redefining

indicators to make distinctions between certain partners involved, such as partners in specific regions, might actually create more incentive to improve this balance. Being aware of what indicators actually measure and how that could influence the projects, might be beneficial when trying to improve the effect the monitoring and evaluation system has on the societal impact.

8.2.2. Learning cycle

The second recommendation for the DUPC3 programme is to give more attention to the learning cycle of the projects. When a monitoring and evaluation system is used to learn and improve on programme level, it does not automatically mean that it has the same effect on project level. On programme level there was an external evaluator providing feedback to the DUPC2 programme. However, there was little or no feedback from the DUPC2 programme on the reports the SMALL project had to submit yearly. Even though getting external feedback could be a useful way to learn. When a project receives feedback, they could reflect on what was done with that feedback in the next report. This could create more incentive to make improvements to the project, which might have an positive effect on the achievement of societal impact.

8.3. Research reflection

This section contains a reflection on the research. It starts with a reflection on the research problem, that is followed by a section about the data collection and use, after which the generalization of results is discussed.

8.3.1. Research objective

The research objective was to understand how the actor interactions in the monitoring and evaluation systems of development cooperation programmes like DUPC2 could influence the societal impact of these programmes. To find an answer to this, the actors in the monitoring and evaluation system were mapped and the links between arenas in the monitoring and evaluation system were established. However, the final link between the specific actor interactions and the resulting societal impact was not assessed in this research.

The main focus in the conceptual framework was on the actor interactions and the arenas in the monitoring and evaluation system of DUPC2. Societal impact was included as a system of interest, following Hermans & Cunningham (2018), but it was not researched by itself. Which means that the results on actor interaction that influence societal impact are mostly based on assumptions about aspects that might help to improve societal impact. These results do not cover a direct assessment of these impacts. This is outside the scope of this research and is also complicated further by the timelines involved.

The assumptions about the effects of the results on societal impact seem reasonable, but it cannot be said with certainty that they are indeed correct, and that suggested improvements will indeed also improve the societal impact of development cooperation.

8.3.2. Data collection and use

Actor selection

On the SMALL project level the associated partners from the North (EAWAG, VEI and RIVM) were not included in the interviews, only the Southern partners and the IHE project staff were involved. In hindsight this was a good decision for the purpose of this research, because all the actors that were interviewed are still seen as the main actors involved on the programme level and on the project level. This was important to be able to map the actor interactions in the conceptual framework. Therefore, it would not have been beneficial to switch one of those actors with an associated partner, and for this research scope and time constraint doing more interviews would not have been realistic.

However, not including the associated partners is a limitations for the results, because it could have been that they were more involved in the decision making than was mentioned by the interviewees.

Interviews

For this research a total of 12 people were interviewed. Each interviewee represented one actor involved in the DUPC2 programme or SMALL project. Since interviews were done to gather data, there are a few things that should be mentioned. The first one is that the language spoken by the interviewees and interviewer may have affected the interpretation of what someone said. Some interviews were done in Dutch and the others in were done in English. For the interviews in English, half of the people were not native English speakers, including the interviewer. To try to mitigate this effect, the transcript reports were sent back to the interviewees for verification, and to give them the opportunity to suggest revisions. However, only one interviewee took this opportunity to make revisions. The second one is that the individual who was interviewed, was used as the full representation of an actor. This means that it is possible that the interviewee was missing some information, or that a more personal opinion of the individual was shared that might not be the same opinion as the other individuals also involved in that actor.

All data used in this research was collected through IHE Delft, and the DUPC2 Management. The documentation was provided by DUPC2 Management and by the project leader from SMALL who was employed by IHE Delft during the project. The project leader provided the contact with the individuals that were interviewed for the project level. The DUPC2 Management provided the contact with individuals that were interviewed for the programme level. Getting introduced to the interviewees by the DUPC2 Management and the SMALL project leader might have influenced the data. For the reason that the connection of this research with DUPC2 might have influenced how open the interviewees felt they could be. It is possible that they did not mention certain things, because of this connection.

Interview data use

The values, resources, and perceptions of the actors were all based on the semi-structured interviews. Interviews are a sort of snapshot of the knowledge and memory of the interviewees, and in some cases actor representatives were not explicit, or did not elaborate much, on their values, resources, and perceptions. The interview questions were sent a few days prior to the interview, to give the interviewees the opportunity to prepare. In the hope that the information could be more easily gathered during the interview. For a clear list of values and resources, it might have been more useful to send out a questionnaire. Even though the semi-structured interview did provide opportunities to ask for more clarification or examples, a combination of a short questionnaire followed by an semi-structured interview could give a more elaborated view of the actors' values, resources, and perception.

8.3.3. Generalizing the results

For this research the DUPC2 programme was used as a case study and divided in a programme level and a project level. The DUPC2 programme consist of numerous projects and one of these projects was used to map the actor interactions on project level. The results in this research could be generalized by saying that one or more of the challenges identified for this project, are also likely to occur in other projects within the DUPC2 programme, as they are part of the same monitoring and evaluation system within the same programme. However, there are a variety of project types in the DUPC2 programme with different research objectives, partners, relationships, and individuals involved in different countries and cultural environments. All these aspects influence the actor interactions. Therefore, only including one project in the research does not provide a complete understanding of the actor interactions on programme level. The results on programme level were

64

for the DUPC2 programme as a whole and not project specific. Which means that the more formal linkages between the programme level and the project level, such as the project proposal, reporting requirements, top-ups and workshops, should be somewhat similar for all projects.

As for development cooperation in general, the DUPC2 programme is led by IHE Delft. This is an academic institute with students that are mostly form the Global South. IHE Delft has a lot of expertise on water management and a large network around the world. There might be similarities to other development corporations were academic institutions are involved and there is a focus on academic research and capacity development. It is very well possible that some of the situations and generic challenges that occur in DUPC2, such as hierarchical relations, could also occur in other organizations working with development cooperation. However, there can be many differences in the actor interactions and the monitoring and evaluation system of other organizations, which means that specifics of the challenges and the relation with the monitoring and evaluation system could be different.

8.4.   Further research recommendations

In this section, three recommendations for further research are done that relate to the influence of the individual, formal versus informal interactions, and the monitoring and evaluation system flow to societal impact.

8.4.1.   The influence of the individual

The first recommendation for further research relates to the role of the individual. In this research, most actors included are organizations or groups of individuals, and the number of individuals covered in this research for each actor involved were often quite small, 2-6 persons. This is in the frameworks of Hermans & Cunningham (2018) and Ostrom (2010), where the focus also seems to be more on actors as groups of individuals, such as teams and organizations, and not so much on individuals.

During the interviews it seemed that the individual's values, resources, and perceptions might have some influence on the practices in the programme and projects. However, in this research the role of the individual does not fully come into its own, using one individual as a representation of an actor that was a 'group of individuals' - with the expectation of the actor 'project leader' which was a role of an individual. Doing more research into the role of individuals in the monitoring and evaluation system might give a better understanding of how the actor interactions actually influence the monitoring and evaluation system. This could, for instance, take behavioural theories and frameworks more as starting points.

8.4.2.   Formal versus informal interactions

The second recommendation for further research relates to the formal and informal interactions that exist in the monitoring and evaluation system. It was definitely easier to find information about formal interactions, such as events and workshop that were organised, the set-up of the design, the reporting requirements, etc. However, some monitoring and evaluation interaction are more informal.

Looking more into the informal relations, there were some individuals of different actors that had personal relationships. And a lot of conversations and meetings are not necessarily formal. Also, the influence of hierarchy, described in Chapter 6, has important informal dimensions. Therefore, it would be interesting to do further research into the more informal interactions and how they influence the monitoring and evaluation systems.

8.4.3. The monitoring and evaluation system flow to societal impact

The final recommendation for further research relates to the flow of specific decisions and actions through the linked arenas towards societal impact. Hermans & Cunningham (2018) was used to develop the conceptual framework of this research. In their work the focus lies on the actor arena. There is a link between this arena and the system of interest, but the focus does not really entail the system of interest. This was adopted in this research, in which the focus also was more on the actor arenas that made up the monitoring and evaluation system. Also in this research, there were links to societal impact, but not so much on the actual effects on societal impact.

However, to truly understand the effect on societal impact of a monitoring and evaluation system in development cooperation, research should be done on how specific actions and decisions flow through the monitoring and evaluation system towards societal impact. This would be needed to be able to find in what way they influence the societal impact and what the long-term effects are.

APPENDICES

I.   Interview Question Sheet Project Level

Interview Question Sheet - Analysing Evaluation System of DUPC2

Role in programme

0. What is your role in (relation to) the DUPC2 Programme?

1. Are you familiar with the SMALL project? If so, in what way are you connected to the SMALL project?
(if not familiar with the SMALL project, is there another project that you are well aware of and that could be used as illustration during the interview?)

DUPC2 programme design

2. Were you involved in the project design? If not, were you informed about it? What can you tell me about it? In particular: How was the DUPC2 programme established and who were involved?

DUPC2 programme execution

Project Management from Programme Perspective

3. In what way do the programme design, themes, ambitions influence the project designs?

4. How did/do you keep an eye on the project impact during the execution of projects?

Programme Management

5. Who are the main partners/actors and how are they involved in the management of DUPC2 programme activities?
      i.   Programme design activities (incl. updating earlier design choices DUPC2)
      ii.   Project activities (implementation, support for projects, linkages across projects, etc)

6. How do you keep an eye on the programme and its impact, on DUPC-2 programme level? What is your role in this? Are you satisfied with these arrangements and with your role in this?

7. In what way do you promote learning within the programme, and how is that going?

Programme monitoring and evaluation (M&E)

8. How were the monitoring and evaluation (M&E) arrangements of the programme established?
      i.   What was the goal/aim and who were involved?

9. What kind of monitoring and evaluation activities are done during the programme and why? What tools were used for this?
      i.   Who are involved in these monitoring and evaluation activities and why?
      ii.   How did it go in your opinion? Did/does the M&E set-up help to realize and increase the societal impact of DUPC2? And can you explain why it happened like this?

10. Did the monitoring and evaluation activities change during the DUPC2 programme? If so, how and why?

11. Did the M&E activities provide new or unexpected insights? If so, how were these implemented?

12. How did M&E help with the programme management in terms of transparency, accountability, performance, and/or results based management?

13. In what way did M&E help with learning about, and increasing of impacts within the programme?
      i.   Do you see areas of improvement? If so, where / how?

II. Interview Question Sheet Project Level

Interview Question Sheet – Project SMALL

Role in programme

    0.   What is your role in the DUPC Programme and/or in the SMALL Project?

Project design

    1.   How did this project come about and who were involved in the design of this project?

    2.   At the time of project design: What type of activities were foreseen as part of this project and who were expected to be involved in these activities? Were these activities linked to expected (societal) impacts?

Project execution

    3.   Project SMALL finished at the end of March. Did the project execution follow the proposal? If there were differences: Which were those, and how this these changes come about?

    4.   Who are the partners and in what way were they involved in the project activities? Was this as designed?

    5.   How did the communication go with the main project partners? And with project stakeholders and beneficiaries?

    6.   How did you keep an eye on the project impact during the execution of the project?

Project evaluation

    7.   What kind of monitoring and evaluation activities were done during the project and what tools were used for this?

    8.   Who were involved in these monitoring and evaluation activities?

    9.   Was it already clear if and how the project would be evaluated during the project design/proposal phase?

    10. Has there been a final project evaluation? If so, did this provide new or unexpected insights in the project?

Project connection to DUPC

    11. How does the project fit in the DUPC programme and what influence does the DUPC2 programme and/or the DUPC2 Management team have on the project?

    12. In what way does the DUPC programme influence the societal impact?

General views

    13. In hindsight, how content are you with the project? How content do you think project partners are?

    14. How do you think the project, impacts and partnerships could have been improved?

III.   Interview Data

The interview transcripts and a summarized data excel file can be requested from the first supervisor of this MSc thesis researcher: Dr. Ir. L.M. Hermans, TU Delft; l.m.hermans@tudelft.nl

(Dani et al., 2018)(Dani et al., 2021)

BIBLIOGRAPHY

Andrews, M., Pritchett, L., & Woolcock, M. (2013). Escaping Capability Traps Through Problem Driven Iterative Adaptation (PDIA). *World Development, 51*, 234–244. https://doi.org/10.1016/j.worlddev.2013.05.011

Bots, P. W. G. (2008). Analyzing Actor Networks while Assuming " Frame Rationality ." *Networks in Political Science (NIPS)*, 1–18.

Cambridge Dictionary. (n.d.). *Global South*. Cambridge Dictionary. https://dictionary.cambridge.org/us/dictionary/english/global-south?q=Global+South

Crawford, P., & Bryce, P. (2003). Project monitoring and evaluation: A method for enhancing the efficiency and effectiveness of aid project implementation. *International Journal of Project Management, 21*(5), 363–373. https://doi.org/10.1016/S0263-7863(02)00060-1

Dani, S., Guznajeva, T., van der Veen, G., & van der Zalm, J. (2018). *Mid Term Evaluation of DGIS – IHE Delft Programmatic Cooperation 2016- 2020 (DUPC2) in the field of international cooperation on water*. technopolis group, Paris, France.

Dani, S., van der Zalm, J., Alexaki, N., Koopmans, M., GuzNajeva, T., & van der Veen, T. (2021). *Effect evaluation of the DUPC2 programme*. technopolis group, Paris, France.

de Bruijn, H., & ten Heuvelhof, E. (2018). Our interconnected world and what it means for decision and policy making. In *Management in Networks* (second edi). Routledge, Oxon, UK

Directorates-General | Ministry of Foreign Affairs | Government.nl. (n.d.). Retrieved February 2, 2022, from https://www.government.nl/ministries/ministry-of-foreign-affairs/organisational-structure/directorates-general

Enserink, B., Hermans, L., Kwakkel, J., Thissen, W., Koppenjan, J., & Bots, P. (2010). *Policy Analysis of Multi-Actor Systems*. Uitgeverij LEMMA. The Hague, NL.

Gertler, P. J., Martinez, S., Premand, P., Rawlings, L. B., & Vermeersch, C. M. J. (2016). *Impact Evaluation in Practice, second edition*. Inter-American Development Bank and World Bank. Washington, DC

Gore, C. (2013). The new development cooperation landscape: Actors, approaches, architecture. *Journal of International Development, 25*(6), 769–786. https://doi.org/10.1002/jid.2940

Hanberger, A. (2011). The real functions of evaluation and response systems. *Evaluation, 17*(4), 327–349. https://doi.org/10.1177/1356389011421697

Hermans, L. M., & Cunningham, S. W. (2018). *Actor and Strategy Models: Practical Applications and Step-wise Approaches*. John Wiley & Sons, Hoboken, NJ

Hermans, L., Sander, N., Oudes, A., Vonk, J., & Melo, V. (2021). *Improving Project Impact for Water and Development*. IHE Delft & OxfamNovib, Delft.

IHE Delft. (n.d.-a). *About IHE Delft*. Retrieved May 10, 2022, from https://www.un-ihe.org/about-ihe-delft

IHE Delft. (n.d.-b). *DUPC2, IHE Delft partnership programme water and development*. Retrieved May 10, 2022, from https://www.un-ihe.org/dupc2-ihe-delft-partnership-programme-water-and-development

IHE Delft. (n.d.-c). *DUPC2: IHE Delft Partnership Programme for Water and Development*. Retrieved March 11, 2021, from https://www.un-ihe.org/dupc2-ihe-delft-partnership-programme-water-and-development

IHE Delft. (2020). *DUPC2 Annual Report 2019*. IHE Delft, Delft

Jackson, E. T. (2013). Interrogating the theory of change: evaluating impact investing where it matters most. *Journal of Sustainable Finance and Investment, 3*(2), 95–110. https://doi.org/10.1080/20430795.2013.776257

Jenkins-Smith, H. C., Nohrstedt, D., Weible, C. M., & Sabatier, P. A. (2014). The Advocacy Coalition Framework: Foundations, Evolution, and Ongoing Research. *Theories of the Policy Process*, 183–223Westview Press, Boulder, Colorado.

Kimmich, C. (2013). Linking action situations: Coordination, conflicts, and evolution in electricity provision for irrigation in andhra pradesh, india. *Ecological Economics, 90*, 150–158. https://doi.org/10.1016/j.ecolecon.2013.03.017

Krijnen, J. F. A., & Stanneveld, A. (2013). *External Evaluation DGIS / UNESCO-IHE Programmatic Cooperation (DUPC)*. BGP engineers

Leeuw, F. L., & Furubo, J. E. (2008). Evaluation systems: What are they and why study them? *Evaluation, 14*(2). https://doi.org/10.1177/1356389007087537

Liverani, A., & Lundgren, H. E. (2007). Evaluation Systems in Development Aid Agencies: An Analysis of DAC Peer Reviews 1996–2004. *Evaluation, 13*(2), 241–256. https://doi.org/10.1177/1356389007075226

McGinnis, M. D. (2011). Networks of Adjacent Action Situations in Polycentric Governance. *Policy Studies Journal, 39*(1), 51–78. https://doi.org/10.1111/j.1541-0072.2010.00396.x

Mori, A. (2011). Overcoming barriers to effective environmental Aid: A comparison between Japan, Germany, Denmark, and the world bank. *Journal of Environment and Development, 20*(1), 3–26. https://doi.org/10.1177/1070496510394316

Moynihan, D. P., & Ingraham, P. W. (2003). Look for the Silver Lining: When Performance-Based Accountability Systems Work. *Journal of Public Administration Research and Theory, 13*(4), 469–490. https://doi.org/10.1093/jopart/mug032

Ostrom, E. (2005). *Understanding Institutional Diversity*. Princeton University Press. Princeton, NJ https://doi.org/10.2307/j.ctt7s7wm

Ostrom, E. (2010). Beyond Markets and States: Polycentric Governance of Complex Economic Systems. *American Economic Review, 100*(3), 641–672. https://doi.org/10.1257/aer.100.3.641

Ostrom, E., Gibson, C., Shivakumar, S., & Andersson, K. (2002). Aid, Incentives, and Sustainability. Sida Studies in Evaluation, Stockholm.

Porter, S., & Goldman, I. (2012). A Growing Demand for Monitoring and Evaluation in Africa. *African Evaluation Journal, 1*(1). https://doi.org/10.4102/aej.v5i1.186

Porter, S., & Hawkins, P. (2019). Achieving Sustainability Through Sustainable Organizational Evaluation Systems. *New Directions for Evaluation, 2019*(162), 87–101. https://doi.org/10.1002/ev.20360

Sendzimir, J., Flachner, Z., Pahl-Wostl, C., & Knieper, C. (2010). Stalled regime transition in the upper Tisza River Basin: The dynamics of linked action situations. *Environmental Science and Policy, 13*(7), 604–619. https://doi.org/10.1016/j.envsci.2010.09.005

SMALL. (2016). *SMALL project proposal, Integrated Research for Development*. SMALL

SMALL. (2021). *SMALL final project report*. SMALL

Thabrew, L., Wiek, A., & Ries, R. (2009). Environmental decision making in multi-stakeholder contexts: applicability of life cycle thinking in development planning and implementation. *Journal of Cleaner Production, 17*(1), 67–76. https://doi.org/10.1016/j.jclepro.2008.03.008

Thomas, V. (2010). Evaluation systems, ethics, and development evaluation. *American Journal of Evaluation, 31*(4), 540–548. https://doi.org/10.1177/1098214010373648

Van Thiel, S., & Leeuw, F. L. (2002). The Performance Paradox in the Public Sector. *Public Performance & Management Review, 25*(3), 267–281. https://doi.org/10.5465/ame.1998.1109048

VEI. (n.d.). *VEI.* Retrieved March 20, 2022, from https://www.vei.nl/

Watkins, S. C., & Swidler, A. (2013). Working Misunderstandings: Donors, Brokers, and Villagers in Africa's AIDS Industry. *Population and Development Review, 38*, 197–218. https://doi.org/10.1111/j.1728-4457.2013.00560.x