4.3 Data collection and sampling

In generating empirical data, I relied on semi-structured interviews, which were combined with participant observation and document analysis. Data on policies was collected in form of policy documents, semi-structured interviews among ministerial staff and staff of the project management agencies who were involved in the field of science policy for cooperation with developing countries and emerging economies, such as the responsible employees for the Megacities and IWRM funding initiatives. At occasions such as the FONA Forum 2013 as an instance of agenda setting and stakeholder involvement processes for formulating research funding programmes, and at other events related to funding initiatives, I carried out participant observation documented in field notes. Data on projects was collected within two case study projects, which included daily participant observation (during internships), informal and semi-structured interviews and analysis of project related documents. Semi-structured interviews with researchers of other cooperation projects with developing countries and emerging economies were source of further empirical data on projects. Semi-structured interviews with experts in the field of science for sustainability and science for development provided data on contrary or complementary perspectives on policy, projects etc.

Making use of different methods of data collection was valuable in various ways. Combining fieldwork in two cooperation projects as in-depth case studies with additional interviews of further projects helped to reach depth of data as well as a broader standing through extending data collection to further sources. Participant observation, and interviews in the case-study projects, carried out in the beginning of data collection, provided deep insights into cooperation in practice. This helped me to design the complementary interviews among further projects along those aspects identified as crucial in the case studies.

The corpus of data was built mainly through theoretical sampling, meaning they were chosen based on their expected contribution to answering my research questions rather than through random sampling. First interviewees as well as the case studies were selected based on the initial conceptual frame – it was clear that I needed to interview policy makers and project participants. Further interviewees were selected according to their expertise, institutional affiliation, position, etc. They were successively chosen based on increasing insights into the field. I tried to find interviewees of as different perspectives as possible, but also tried to find interview partners that showed similarities, according to the principle of maximum-minimum contrasting (Corbin and Strauss 2008; Przyborski and Wohlrab-Sahr 2014; Keller 2013). I used snowballing techniques for finding similar interviewees – interviewees directed me to further potential interviewees. Searching the BMBF project database (BMBF 2015b), I identified further potential interviewees within projects.

Previous insights into the research setting enabled me to find interviewees of different positions, but sometimes coincidences also helped. The final list included interviewees ranging from professional working level, such as scientific officers, post-docs, or ministerial employees (on the level of *ReferentInnen*) to higher hierarchical levels, such as heads of ministerial subdepartments (*Unterabteilungsleiter*), or directors of university departments or research institutes and professors. All interview partners were experts in their areas. In order to obtain data on all specific areas relevant for answering my research questions, interviewees chosen mainly worked in a) the BMBF itself; b) project management agencies working on behalf of the BMBF; c) universities and research institutes involved in projects for scientific cooperation with developing countries and emerging economies funded by the BMBF. A fourth group included d) other experts, such as scientific advisors to the ministry or experts from other ministries. Sometimes, access to potentially interesting data was restricted: for example, participant observation in form of an internship in the BMBF wasn't possible, some potential interview partners did not agree to being interviewed, and insights into some internal political documents of the BMBF were not granted. Next to the interviews, the study of policy therefore relied on publicly available documents such as official strategies, research programmes etc. Appendix A-1 gives an overview of the types of data collected in interviews and during fieldwork, about the types of respondents, and about the occasions of participant observation. An anonymized list of interviewees is included as Appendix A-2.

4.3.1 Selection of funding initiatives and project case studies

In order to trace how BMBF policy discourses impact the implementation of research projects, I chose two funding initiatives as exemplary funding lines, and therein two implemented projects as case studies for closer investigation in form of participant observation. Although international cooperation is funded within various programmes, programmes for the collaboration with emerging economies and developing countries have longest tradition and highest amounts of funding within the Framework Programme on Research for Sustainable Development (FONA), now in its second edition (BMBF 2009a; BMBF 2012a).

As funding initiatives on water related research have a comparatively long history within the BMBF (with predecessors such as GloWa, BMBF 2003a), the case study projects were purposefully selected among BMBF-funded projects on water related issues. The restricted access to data narrowed down the options: Originally, I had planned to include a case from Asia in the study, but no project with Asian partner countries was willing to participate. As a consequence, and instead of searching for geographical contrast, I chose two cases from Latin America: Having worked on Latin America before, my knowledge of the social, cultural, scientific

context and as well as speaking Spanish and Portuguese were strong arguments for choosing cases on the same continent.

The two projects identified in Brazil and in Peru seemed to offer comparable yet differing insights ideal for case study design (Flyvbjerg 2006). In both countries, social and ecological development lag far behind economic development (OECD 2010a; Albornoz et al. 2010), and income gaps between rich and poor are among the widest in the world (UNDP 2011). Both projects, IWAS-Agua DF in Brazil and LiWa in Peru were BMBF-funded projects on water management in city contexts. As collaborative projects, both involved German researchers as well as partners in the partner country. They had been running for a few years and faced their final phases during my research stays (IWAS-Agua DF 2012; LiWa 2012).

Beyond their structural comparability, the projects showed a number of differences which led me to expect interesting contrasts. While LiWa was funded within the Megacities funding initiative, IWAS-Agua DF was funded within IWAS, a programme drawing on the IWRM funding initiative. Both thus exemplified the implementation of different funding initiatives. A further distinction between the projects was the diverging policy frame for ST&I cooperation with Germany. For a long time, Brazil has been Germany's most important partner country for ST&I cooperation in Latin America, based on a long tradition and a ST&I cooperation agreement of 1969 (International Bureau of the BMBF 2011). Peru on the contrary, as most other developing countries and emerging economies, had not signed an ST&I agreement with Germany yet (Kiwitt-López 2011: 2). As I learned during empirical research, the existence or non-existence of an ST&I agreement was not a relevant difference in cooperation, however.

4.3.2 Data quality and generalizing findings

In order to check for data quality – qualitative validity and reliability – I relied on triangulation. Additionally, intra- and intermethod triangulation also generated some additional data which gave additional depth to the study (Jick 1979). Intramethod triangulation showed that perceptions vary across the projects, as well as among and between the policy levels. Intermethod triangulation also showed that in some cases, practice and statements diverge. Based on my constructivist perspective, the juxtaposition of things said and things done through interviews and participant observation was interesting data in view of the expectations and norms that interviewees tried to fulfil in interviews, while practice on the ground showed different realities (DeWalt and DeWalt 2011).

Basis of theory-building in qualitative approaches such as Grounded Theory is the inference from single cases to the general. This is done through systematic construction and comparison of ideal types or categories. In contrast to quantitative theory testing, which relies on numerical representativeness, qualitative re-

search thus relies on conceptual representation as theoretical basis (Przyborski and Wohlrab-Sahr 2014). I therefore collected empirical data until a saturation point was reached, and no new details or concepts came up which could have added further aspects to theory (Corbin and Strauss 2008).

Having carried out a total of 103 interviews (Appendix A-2), which showed a number of repeating statements, I thus postulate that my findings are generalizable beyond the individual interviewees for the discursive perspective within/on policy processes and project implementation in the setting studied. While some additional interviews carried out with project participants and BMBF staff in other funding initiatives within and outside of FONA suggest that findings such as concepts and types developed might possibly be transferable to further policy and implementation contexts, this assumption would not hold scientifically, and further generalisations would require further research.

4.4 Fieldwork

4.4.1 Entry into the field

In order to carry out this research, the cooperation of both the BMBF and the projects to be examined was essential – ethically as well as pragmatically. Therefore, the ministry was asked for approval and non-monetary support at an early stage, and luckily was supportive of the proposed research and open towards a scientific reflection of its policies. Heads of both relevant sub-departments of the ministry at the time of starting into data collection (2012), Maximilian Metzger of the Subdepartment for International Cooperation (Dep. 2.1) as well as Wilfried Kraus of the Subdepartment for Sustainability, Climate, Energy (Dep. 7.2) gave official permission to conduct interviews among their ministerial staff. Due to existing power hierarchies and dependencies, consent by these high-level gatekeepers was essential for the process of data collection, not only to conduct interviews among lower level ministerial staff, but also among potential interview partners in funded projects or project management agencies. In view of the projects visited as case studies, the German coordinators were additionally addressed in their role as gatekeepers.

Having worked in the International Bureau of the BMBF at the project management agency before – even continuing so during the early stages of the PhD – was a double-edged sword. Mentioning my background sometimes functioned as a door-opener, as the job seemed to prove insights into the context of BMBF work. On other occasions, however, it caused suspicion among interviewees, who suspected that my research was mingled with BMBF objectives, or even that I was researching undercover for BMBF purposes. The International Bureau, on the other hand, as agency directly working for and depending on the BMBF, seemed to fear