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Abbreviations

CFPA	China Foundation for Poverty Alleviation
CIDCA	China International Development Cooperation Agency
CMT	Chinese medical teams
CNPC	China National Petroleum Corporation
DAC	Development Assistance Committee
FOCAC	Forum on China-Africa Cooperation
GPEDC	Global Partnership for Effective Development Partnership for Effective Development
GP	General Practitioner
HIPC	Heavily Indebted Poor Countries
INGO	International non-governmental organization
LMIC	long-term benefits to low- and middle-income countries
MDGs	Millennium Development Goals
ODA	Official Development Assistance
OECD	Organization for Economic Co-operation and Development
SDGs	Sustainable Development Goals
TA	Technical Assistance
WHO	World Health Organisation

1. Introduction

1.1 Background to the Research

Since the late the 20th century, international bilateral and multilateral cooperation in health development has been developing rapidly to meet the growing needs of vulnerable populations and to advance Sustainable Development Goals (SDGs). Its importance has been recognized as an essential method and tool in the global health agenda (Brautigam, 2011a). Today, in the face of challenges such as the intensifying epidemiological transition and ageing, cooperation in health is more important than ever, not only to save lives and improve public health, but also to provide long-term benefits to low- and middle-income countries (LMIC). Like other emerging economies such as Brazil and India, China's aid is playing an increasingly important role in global health development (Fan et al., 2014).

It is now more than half a century since China began providing medical aid to Africa in the 1960s. According to Lin et al. (2016), China's health aid to Africa has increased significantly, reflecting China's efforts to strengthen public health systems and improve the accessibility of health services in African countries. However, there is a dearth of literature on China-Africa health cooperation. There is a distinct lack of research on how China's health aid to Africa has affected its public health situation. Therefore, a more in-depth analysis of China's public health assistance to Africa is needed to study how these aid projects are adapted to the health systems and needs of African countries, and whether these projects are effective.

For decades, policy makers, academics, and practitioners have attempted to identify how aid can be made more effective. Previously, disappointing international aid results were often blamed on the shortcomings of the recipient country's government institutions (Brown, 2020). However, in the mid-1990s, this vision of aid

effectiveness changed under the leadership of the Organization for Economic Co-operation and Development and, in particular, Development Assistance Committee (OECD/DAC) (ibid.). The 2005 Paris Declaration on Aid Effectiveness was the most representative of this process. It realized that 'the disappointments and sometimes failures of past aid were not solely due to problems in recipient countries and that donors also needed to change how they worked' (ibid., p.1231). The principles of the Paris Declaration have been almost universally accepted as the norm for 21st century development cooperation. This thesis will take this perspective, aiming at critically analyzing and reflecting on China's aid practices by asking questions like: as an aid donor, is China providing effective health aid to African countries? How should China change the way it works to improve the effectiveness of its aid to benefit the public health systems of African countries?

The Paris Declaration refers to five key principles of international cooperation: promoting national ownership, alignment with national systems, harmonization between agencies, managing for results and mutual accountability (OECD, 2005). In the post-Paris Declaration conferences, the principles of development cooperation have undergone consolidation and modification. In 2011, the international development sector's dialogue underwent an important framework shift from 'aid effectiveness' to 'development effectiveness', providing a more inclusive framework for the rapidly evolving international development architecture (Russo, Cabral and Ferrinho, 2013). The common principles agreed at Busan reflect the new outcomes on development effectiveness: national ownership, development results, inclusive partnerships, transparency and accountability (HLF4, 2011). The results of these discussions on the principles of international development cooperation provide direction for this thesis to examine the effectiveness of international development assistance. However, these effectiveness principles as criteria for analyzing international development cooperation are not specific and in-depth enough to take full account of the various types of factors related to effectiveness in aid practice.

Because of their lack of perspective on the complexity of relationships in international development cooperation and the emphasis on predictability, they have also been criticized to some extent. This study therefore aims to provide a further understanding of effectiveness using an innovative perspective based on the above principles. By attempting to give a more specific meaning to the above principles, the study hopes to expand on the content of 'effectiveness' and develop a new perspective on the understanding of 'effectiveness' in this thesis. Additionally, using this perspective, this thesis will provide an in-depth analysis of China-Africa health cooperation, based on specific projects to examine to what extent has China been an effective donor in providing health assistance to African countries.

In the next section 1.2, the direction and content of the current relevant research literature will be summarized. Also the purpose and necessity of this study will be further explained. In 1.3, the content and transformation of the international development cooperation architecture will be briefly described. It will also be clarified which parts of it will be adopted as the basis for the 'innovative effectiveness perspective' in this thesis as well as the reasons for it. In addition, this section will also explain why China's discrete relationship with the international development cooperation architecture an important factor is in prompting this study. In section 1.4 the research questions of this study are then specified.

1.2 Literature Review of China-Africa Health Cooperation

There is currently very limited research in China on Chinese medical and health aid to Africa. Following the release of China's Policy Paper on Africa, the number of relevant papers began to increase. Ding and Zhang (2010) explored and analyzed how Chinese medical teams (CMT) developed and established significant influence and status in Africa in the 20th century from three perspectives: medical, political and cultural. Li (2011) collated China-Africa cooperation in the fight against malaria from

2000 to 2009 and the impact China has had on Africa through it. Wang and Sun (2014) assessed China's motivations for providing medical aid to the African health sector, examined China's contributions and achievements in medical aid, and summarized the international controversy over China's medical aid to Africa. Wang et al. (2015) analyzed the different stages of China's foreign health development assistance and its philosophy in the context of practice. Yang et al. (2018) studied the distribution and determinants of China's DAH programs among the major regions (provinces and states) of African countries. As for publications, Li (2012) and the Centre for Global Health Research, Peking University (2012) have published books on the achievements and challenges of China-Africa medical cooperation on the occasion of its 50th anniversary. Other statistics and research analyses on China-Africa health cooperation are mostly scattered in academic papers on China's global health strategy and China's international aid. While details of aid projects are mostly found in official documents, in forums and newspapers.

Chinese health cooperation to Africa has also been studied by scholars in other countries. Lum et al. (2009) provided a summary of China's foreign aid activities to Africa from 2002 to 2007. Brautigam (2011) reflected on the ineffectiveness of some China's health aid in Africa in terms of medical facilities, choice of location and training of health personnel, and made recommendations to promote sustainable development of health systems. Grépin et al. (2014) examined the levels, destinations, trends and composition of China's development aid flows to Africa for health and compared them with those of traditional donors. Tambo et al. (2016) examined China-Africa health cooperation in support of global health agendas such as malaria, Ebola, schistosomiasis, HIV/AIDS, tuberculosis, covering projects and interventions, health system development issues, challenges, opportunities, etc. Daly et al. (2020) analyzed the challenges and opportunities of China's health assistance to Africa through in-depth interviews with local African and Chinese participants in Malawi and Tanzania to gather information on the perceptions and opinions of health-related activities

supported by China in Africa. Furthermore, Brautigam (2011a) has published a scholarly book that examines the opportunities that China's aid brings to Africa, as well as analyzing the challenges and risks that China faces.

It can be seen that the Chinese government clearly lacks interest in evaluating its health cooperation projects. At a time when traditional donor countries pay increased attention to project outcomes and health impacts (Shorten et al., 2012), China appears out of place in this regard. Whether in terms of collating and summarizing previous health cooperation projects, or analyzing and reflecting on specific projects, there is little relevant information, reports or literature available in China. In general, most of the literature in this field in China explores China-Africa health cooperation at the political level. They either tend to emphasize the principles and philosophy of Chinese health aid to Africa at a political level or analyze the political and economic impact that aid to Africa has brought to China. In these Chinese literature, it can be observed that ideological concepts with Chinese characteristics, such as the 'new great power concept' and the 'new righteousness and profit concept'¹ are frequently found in the literature, conveying the idea of China's assistance to recipient countries as 'equal and mutual trust in politics, mutual benefit and win-win in economy, and mutual help and support in development'. This language, which emphasizes its key principles, clearly lacks concrete action content, but it is essential to present and reinforce the public image of a 'caring and responsive partner'. However, the literature rarely reflects in depth on the behavior and modalities of China's health assistance to Africa. Of the limited literature that focuses on China-Africa health cooperation projects, firstly, most of it is a summary of data on the number of people healed in a specific project or the amount of new infrastructure built, which is not coherent and

¹ According to Wang et al. (2015), the 'new great power concept' and the 'new righteousness and profit concept' are guiding philosophies for China's diplomatic work and international aid, and they also apply to health aid. These two concepts mean that China should actively assume the international responsibilities of a great power, combine national interests with international morality, integrate China's development with that of the world, and uphold international justice and equity (Wang, 2020).

holistic enough, and lacks reflection on the implementation process. Secondly, most of the literature tends to describe China's contribution as a donor country, and lacks reflection on its own way of working. Thirdly, although there is literature that raises the challenges of health cooperation, it rarely deals with China-Africa health partnership or specific health projects, but only broadly talks that profound changes in the world landscape that have increased the complexity of health assistance or points to minor problems within China, for example, insufficient financial incentives for foreign medical aid workers. As can be seen from the above, the literature on China-Africa health cooperation in China is limited in perspective as it tends to focus on discussions at the political level, with little analysis or reflection on the practice of projects, the process of implementation, and therefore also lacks opinions on how to improve China-Africa health cooperation. In contrast, foreign scholars are more inclined to study this area from a scientific perspective, and as a result there is a literature that analyzes the reasons for the ineffectiveness of health aid in China and Africa. The perspectives they focus on appear to be more diverse and the more detailed points of entry allow for more in-depth research, leading to recommendations on how China can provide more effective health aid to African countries.

This thesis therefore hopes to fill the gap in the scientific research conducted by Chinese scholars in this area. With the innovative 'effectiveness perspective' that will be explored in the next chapter, this study aims to dissect health cooperation projects from formulation to implementation. Instead of merely listing the results of China's aid, the focus of this thesis will be on the questions of 'whether the projects are providing locally appropriate aid in the right way' and 'whether the recipient is actually benefiting'. Because my language knowledge allows me access to more information on China, this study will take a donor perspective, examining and reflecting on how China performs as a donor in its health assistance to Africa and whether it benefits the local health system.

1.3 The 'Effectiveness' Debate in International Development

Cooperation

In this section the key outcomes and structural shifts in the international development sector's debate on effectiveness are briefly described and discussed. Amongst other things, China's isolation from the international development cooperation architecture has been an important motivation for this study. The final results of the discussion will serve as the basis for the 'innovative perspectives on effectiveness' in Chapter 2.

Before starting the discussion, the term 'development cooperation' needs to be explained and briefly reviewed. Development cooperation, as we know, is essential to the progress of development². Especially nowadays, when people like to look 'beyond aid', the traditional donor/recipient discourse has become obsolete and the term 'development cooperation' is preferred (Alonso and Glennie, 2015). Based on Swedlung (2017), from the 1960s, when development cooperation became professionalized, to the present day, the content and form of development cooperation has undergone considerable change - from project aid, to program aid, to the emergence of global funds as an alternative of traditional bilateral and multilateral aid, to budget support and results-based aid. With the increase in the number and diversity of countries and organizations involved in international development, the ways in which development cooperation is conducted became more diverse than ever

² According to Pieterse (2010), the term 'development' has a variety of meanings based on different eras, theoretical foundations and perspectives. The discourse has evolved from classical political economy and colonial economy in the nineteenth century to modernization theoretical assumptions, alternative development, human development through to postcolonial theory in the twentieth century. Due to space constraints, this term will not be discussed in this thesis. It is important to note that in this study, 'development' is based on Amartya Sen's account. According to Coderre (2003), Sen considers development as 'an integrated process of expansion of substantive freedoms that connect with one another', including access to health care, education, equality, etc., 'each freedom encourages the development of another'. This is in line with the focus of this thesis, as the focus on effectiveness and capacity building of health systems means that the projects and instruments to support health in Africa are not only about the medical problems of the moment, but also about the sustainability of health systems. From this perspective, 'development' in this study relates to two uses of this term defined in the MDG and SDG: firstly, development as action: conscious action to make things better; secondly, development as vision: describing the desirability of a society or a region, possibly in relation to what it can become (MDG Monitor, 2016).

before. It now reaches far beyond financial transfers, placing increasing emphasis on technology and technical cooperation (Alonso and Glennie, 2015).

Development cooperation means supporting national or international development priorities, while being based on a partnership that seeks to strengthen the ownership of LMIC (ibid.). According to Bartenev and Glazunova (2013), in this form of cooperation, where donors and recipients (with whatever differences in their interests, goals, motivations and strategies) are involved as partners, the idea of partnership exists. The cooperation can support and complement the efforts of LMIC to guarantee the provision of universal basic social standards to their citizens and to correct extreme international inequalities.

The health projects selected for this study are also development cooperation projects and can be examined within the framework of development cooperation described above. In this thesis, the term 'development cooperation' is used without reference to traditional financial assistance, but will include various forms of Chinese assistance, such as project aid packages, technical assistance, etc.

1.3.1 From Aid Effectiveness to Development Effectiveness

At the end of the 1990s and into the new millennium, a considerable degree of consensus seemed to have developed around a set of objectives and principles which are known as the 'aid effectiveness paradigm' or the 'Paris Agenda' (Mawdsley, Savage and Kim, 2014, p.1). As a matter of fact, after the end of the Cold War, the changing international environment and the fact that structural adjustment had failed to boost economic growth in developing countries promoted a change in the way donors operated (Brown, 2020). In 2005, over 100 donor and recipient countries, more than 20 international organizations, NGOs and civil society signed the Paris Declaration on Aid Effectiveness to promote national ownership, alignment with

national systems, harmonization between agencies, managing for results and mutual accountability (OECD, 2005). These principles imply that recipient countries formulate their own development strategies and improve their systems; that donors use local systems as much as possible and provide support in line with these strategies; that donors coordinate their actions and promote information sharing to make procedures simple and quick; that the focus is on producing and measuring results; and that both the donor and the recipient are accountable for development results (ibid.). The Paris Declaration formally stated these five principles of aid effectiveness for the first time and the declaration is therefore regarded as the founding document of the aid effectiveness norm (Brown, 2020). In 2008, the Accra Agenda for Action consolidated and, to some extent, adapted the Paris Principles to the changing aid context (Mawdsley, Savage and Kim, 2014, p.3). In 2011, the 4th High Level Forum on Aid Effectiveness was held in Busan, Korea. For the first time, not only traditional donors but also providers of South-South cooperation, such as China, Brazil and India, came together to discuss the principles of effective development cooperation (Russo, Cabral and Ferrinho, 2013). The Busan Forum recognized a wider and more diverse range of development actors and also recognized that emerging actors 'should not have to engage in the same way as traditional donors and that adherence to the agreements' principles was voluntary in cases of South–South cooperation' (Brown, 2020, p.1238). The Busan outcome's emphasis on differentiation and complementarity is more in line with the various approaches to practical development cooperation. Eventually, the term 'aid effectiveness' was replaced by 'development effectiveness'.

The Busan Forum is thus seen as marking a new departure in the broader pursuit of development effectiveness (Mawdsley, Savage and Kim, 2014, p.4). Based on Atwood, the world is no longer of donors and recipients, but rather of partners: that is what Busan is about (as cited ibid.). The new debate on development effectiveness is reflected in a set of common principles agreed at Busan, including national

ownership, development results, inclusive partnerships, transparency and accountability (HLF4, 2011). These principles imply that developing countries should take the lead in setting development priorities as a way of increasing the success of development partnerships; that attention should be paid to the lasting impact in reducing inequalities and increasing capacity for sustainable development, with a focus on capacity building; and that partnership concerns should be centered on openness, respect, trust and learning, with an awareness of the complementarity of the various categories of participants (Russo, Cabral and Ferrinho, 2013). Such a framework for development cooperation seems to be a more realistic perception of the rapidly evolving international development architecture (ibid.). Here, the goals in the Paris Declaration are re-imagined as 'ideals' because they are too ambitious and not realistic enough; the obstacles to their achievement are not frankly discussed (Mawdsley, Savage and Kim, 2014, p.5). In recognizing the contribution of traditional aid, the meeting encouraged a broader perspective on development, creating space for a more inclusive international partnership for development.

1.3.2 China's Relationship with the International Development Cooperation Architecture

In Busan, China demonstrated its willingness to engage with the evolving institutional norms and mechanisms of development effectiveness and signed the Busan Declaration (Mawdsley, Savage and Kim, 2014). One year after Busan, the Global Partnership for Effective Development Co-operation (GPEDC) was launched in 2012, taking over the OECD's agenda. It has a membership of 161 countries and 56 organizations, supported by the OECD and the United Nations Development Program. In keeping with the OECD-led process, the GPEDC holds high-level meetings at intervals of several years (Brown, 2020). However, China did not really participate in the GPEDC afterwards (Li, 2017). Just like other new aid donors, China also sees the GPEDC as just another form of continuation of the Development Assistance

Committee (DAC) and does not consider itself part of it (ibid.). Although China has been given the option to apply the Busan Declaration to its own development cooperation activities abroad, and the diverse forms of development funding and assistance recognized in the Busan Declaration are consistent with China's particular experience, it is opposed to being subjected to the same scrutiny as other countries and fears that other forms of pressure will be exerted on them (Brown, 2020). After the establishment of the GPEDC, China disengaged from this agenda (Li, 2017).

This thesis is not intended to impose any development principles on China, as this could mean 'imposing hegemonic governance on emerging donors' (Mawdsley, Savage and Kim, 2014, p.7). But what cannot be overlooked in the relationship between China and the international development cooperation architecture is the fact that the Busan Forum made concessions to create a more inclusive international development partnership, but China quickly disengaged from that architecture. Therefore, the review and monitoring of donor countries cannot be applied to China. And it is clear from the discussion in 1.2 above that the Chinese government itself shows a lack of interest in evaluating and reflecting on its health cooperation programs. Against this background, this paper argues that the examination of China's foreign aid projects should not be neglected. Rather, it is precisely because of China's disengagement from the international development cooperation agenda as an emerging aid donor and its lack of awareness of studying its projects that the study of China's foreign aid projects is even more important.

1.3.3 As a Basis for the Effectiveness Perspective of this Study

From the above discussion, it can be seen that in the international development cooperation sector, the discussion on the principles of effectiveness has undergone a transformation. Some principles have been retained and others have been changed and added from aid effectiveness to development effectiveness. But whether or not they

are 'too ideal', these principles provide directional guidance for this thesis because they reflect the participants' expectations of international development cooperation. The effectiveness principles of international development cooperation, as reflected in both the Paris and Busan Declarations, all relate to the three stages of the formulation, the implementation process and the final outcome of international development cooperation. Donors need to take into account the ownership of the recipient country when formulating aid plans and develop plans that are in line with the recipient country's own development interests and relevant system; to focus on the several features of inclusive partnership in the implementation process and to promote projects with good partnership; and to focus on capacity building and improving sustainable development capacity for development outcomes. This study understands the principles of effectiveness in the Paris and Busan Declarations from the above three perspectives, corresponding to the different stages of the aid process.

With the guidance of above principles, this thesis will analyze the effectiveness of development cooperation projects by focusing on the ownership of recipient countries, on the partnerships embodied in projects, and on the impact and capacity building outcome of projects. Meanwhile, these principles cannot take into account the complex relationships and factors in practice when used to analyze the effectiveness of cooperation projects (further reasons will be discussed in the next chapter). Therefore, this thesis hopes to provide an innovative perspective on effectiveness to review China-Africa health cooperation projects. This 'effectiveness perspective' will build on the above mentioned effectiveness principles and will expand on some of these elements to provide a holistic perspective on effectiveness. Regarding transparency and accountability, as stated by Brown (2020), they seem to be shunted sideways. Based on OECD (2008), they do matter, but they float above or beside the pyramid and do not constitute the pyramid itself. Firstly, according to the Paris Declaration (ibid., p.8), mutual accountability in itself entails respect for the ownership of the recipient country as well as good partnership, i.e., this principle can

be reached alongside several other principles that would have an impact on aid tangibly. Secondly, in view of China's straying outside the GPEDC system, as already discussed above, the potential for traditional donor monitoring of China to become an imposition of hegemonic governance on emerging donors, and the difficulty of finding information on this within China, this study will not analyze transparency and accountability separately.

1.4 Research Question and Aim of the Thesis

As can be seen from the discussion in 1.2 and 1.3, China has shown a lack of interest in evaluating or researching its health aid projects to Africa. In the limited literature on China-Africa health development cooperation in China, it is also mostly discussed at a political level, conveying China's aid philosophy and examining the impact of aid projects on China's public image as well as political and economic aspects. As for reflections on the working methods of China's foreign aid, few are available, and there is little literature on analytical studies of China-Africa health partnerships or specific China-Africa projects at the scientific level. Furthermore, because China tries to draw a line with the GPEDC and denies that its order applies to itself, the monitoring procedures of the international development cooperation sector for donor countries cannot be applied to China either. This has resulted in a situation where China has neither a sense of reflection and research in the area of health cooperation, nor a system to evaluate its development projects.

Therefore, in order to fill a large gap in China's research in this area, this thesis aims to look at China-Africa health cooperation and hopes to provide an innovative 'effectiveness perspective' for the study of China-Africa health cooperation projects. This perspective is based on the principles of effectiveness of international development cooperation sector and analyzes development cooperation projects from three perspectives: formulation, implementation and results. This perspective takes

'ownership of recipient country', 'alignment with national systems', 'harmonization among agencies', 'inclusive partnerships ' and 'development results' as orientations to guide the research. At the same time, however, these principles will be viewed critically in the next chapter, and the shortcomings of its perspective will be pointed out. Combining with the understanding and critique of other scholars' scientific perspectives on effectiveness, this thesis will construct a new perspective that is applicable to this study. How this perspective will be combined with other discussions at the scientific level, and how the perspective specifically understands effectiveness in international development cooperation, will be described in detail in Chapter 2.

Through this perspective, the aim of this thesis is to analyze China-Africa health cooperation projects in terms of three phases of projects and the different aspects related to effectiveness in each phase. By examining specific projects, it explores the characteristics and results of China-Africa development cooperation and aims to point out advantages and problems. Based on the analysis of the current situation of China's health assistance to Africa, the later chapter will point out how it should be improved in the future in order to build a better bilateral health cooperation. Accordingly, this thesis poses the following research questions:

- Main question:

In the perspective of this thesis, which expands on the specific content of effectiveness principles in terms of complexity theory, thus allowing for a comprehensive consideration of the system, complex relations and the various elements of aid practice,

- To what extent is China-Africa health cooperation 'effective'?
- What are the problems and how should they be improved?

- Sub-questions:

- What are the characteristics of different kinds of China-Africa health cooperation projects, what impact have they achieved, and what are the shortcomings in this ‘effectiveness’ perspective?
- What issues should China pay attention to and what changes should it make as a donor country in order to build better bilateral health cooperation?

In the theoretical chapter, this study will construct a perspective that allows for a more comprehensive understanding of the effectiveness of health cooperation, based on the principles of effectiveness and combined with a discussion of the scientific dimensions of international development cooperation. This perspective will help analyze how China's health assistance to Africa is working at different stages of development cooperation projects and whether it is ultimately benefiting the local community.

Next, based on the results obtained from the theoretical part, a specific analysis will be carried out by studying various projects, such as infrastructure (construction of hospitals and clinics), provision of medical equipment, instruments and medicines, skills training, knowledge and health awareness education, CMT dispatched for various disease interventions, and other China-Africa health cooperation projects. The analysis will point out the characteristics of China's health aid practice, its desirability, its impact on recipient countries, and its problems. Finally, an outlook and suggestions for future China-Africa health cooperation will be made.

As a researcher with access to more relevant information on China's health aid practice, I consider it very important to fill the research gap in this area of China-Africa health cooperation, especially at the scientific level. As an emerging donor in international development cooperation, China plays an important role and therefore needs to raise its awareness of research and reflection on its aid programs. This is not

only important for the recipient country, but also for its own image as an aid donor, and provides a basis for exchanging experiences with other aid donors. As a thesis, this study could expand on the research on China-Africa health cooperation projects. Under the perspective of China's foreign health assistance, this study may, at its best, provide new insights and ideas for China as a donor country to improve its strategies or policy formulation in foreign health assistance, leading to better bilateral health cooperation. In any case, this study may open up horizons for future related academic research and practice, and bring some inspiration to other scholars or practitioners.

1.5 Methodology and Positioning

After completing the theoretical research, the focus of this thesis is on the empirical research. This part lends itself to a qualitative approach and is geared towards multiple data sources. Primarily the research will be conducted through qualitative documentary analysis. Various public records will be explored, and themes will be developed and coded to identify features, trends in China's health aid in Africa based on the theoretical framework in Chapters 2 and the practical content collected. In addition to the qualitative document analysis, expert interviews will also be conducted, with the aim of drawing on the experiences of first-hand participants to provide additional information and insights into this study. More information on the methodology will be in Chapter 3.

I am aware that I am a researcher from China. My long experience of living in China has shaped my thinking in terms of the values and ideologies instilled in China. Similarly, the dominant media discourse within China has shaped my perceptions of China's participation and motivations in international society. For instance, in much of the literature on China's engagement in global development cooperation, China's engagement has been displayed by Chinese scholars as being quite different from that of traditional donors, 'partly because China has no colonial experience nor did it

participate in establishing the American-led post-World War 2 world order' (Liu et al., 2014). As a result, my thinking may be more inclined to see China and Africa as being on the same side and to rationalize China's actions and focus on the 'altruistic' nature of them, just as Chinese officials claimed that they provided Africa with medical aid in order to improve the health of African people and that their motives were primarily humanitarian (Wang and Sun, 2014). I realize that in my previous thinking I had lacked critical reflection on China's aid practices. In addition, I realize that I need to keep a critical distance from the field. Because my family members have been involved in Chinese medical aid to Africa, their experiences have given me a positive prognosis for the field. However, I must admit that there are some problems in the practice of China-Africa health cooperation, which also have the potential for negative consequences.

To overcome being influenced by previous values and assumptions, I will keep reflecting on my own position and refer to some insights from post-development criticism. For example, the dominance of donor countries in the planning, implementation of development projects, as Öhlschläger and Sangmeister (2014, p.40) noted and the dichotomy between donor and recipient and the seemingly inherent power asymmetry, as Gomes (2006) pointed out. These insights will help me constantly challenge the perspective of China as a donor country, so as to ensure as much as possible that the interests of the people of the recipient country are taken into account in the process of data collection, collation and rewriting. Moreover, the research questions in this thesis dictate that the research thinking in this study should be innovative and must be critical and reflective about China, requiring the researcher to have an attitude of problem identification, therefore the tone of this thesis will help me to be more sensitive and objective in my analysis.

2. Theoretical Framework

As stated in the previous chapter, the principles of effectiveness of international development cooperation sector have a guiding nature, but are not specific enough as an analytical perspective to cover the complex systems and relationships in aid practice. The epistemology in these principles has also been critically discussed in the international development sector and will be elaborated below. In this chapter, therefore, a complexity perspective will be introduced to compensate for and extend the effectiveness principles. The complex relationships in aid practice that cannot be addressed by the principles will be tackled in the theoretical framework constructed in this chapter. Guided by complexity theory, this chapter will further discuss the factors that influence effectiveness in health cooperation in relation to a variety of theories relevant to development cooperation in order to define the analytical perspective of this study. Building on the discussion in the Chapter 1, this perspective relates 'recipient ownership', 'partnership' and 'development results' one-to-one to the three phases of development cooperation projects: 'formulation', 'implementation process' and 'final result/impact'. And the theoretical discussion in this chapter will give more specificity to each of these three components, explaining concretely from which perspectives and how effectiveness is understood in the innovation perspective in this study.

This chapter can be divided into three main parts. The first is the broad perspective that serves as a framework for understanding – complexity. This part encompasses systems thinking, relationism and complexity theory. In general, 'complexity' is a broad perspective that offers the possibility of better understanding the details and dynamics in development cooperation, thus allowing this study to dig deeper into the important factors involved. The second is technical assistance theory, which includes diffusion of innovation theory and readiness for change theory. Under the complexity perspective, technical assistance theory addresses the practice of assistance more

specifically in the context of the cooperation process, suggesting which aspects may affect the aid in practice. Through the discussion of complexity and technical assistance, it will be determined in what ways the new perspective will understand the process of project formulation and implementation. Finally, there is the theory of capacity building. Unlike the technical assistance theories, the capacity building theory focuses on the impact that the project brings to the recipient country. The discussion of capacity building will also take place within a complexity perspective, and the relationships and structures between the various capacities will therefore receive special attention. Because of this, through these three parts of theories, in this chapter it will be concluded how this study provides an understanding of effectiveness in terms of the three phases of development cooperation projects.

2.1 Complexity Theory

According to Boje and Sanchez (2019, p.109), complexity theory was born out of people's desire to explore dynamic behavior in the world. This desire to know brought about a change in thinking that unveiled the entanglement of the social world while understanding the material world. After losing favor at the beginning of the eighteenth century in the wake of European rationalism, it was revived in the twentieth century, initially in the natural sciences and later in the social sciences (Burns and Worsley, 2015). The scientific community was increasingly aware of the need to address the complex dimensions of social systems. There was a desire for new ways of thinking about the world as experienced by humans and how people react to it, and this desire became achievable through the simple understanding of complexity as a major variable (Manuel-Navarrete, 2001). From this origin, scientific tasks could therefore be seen as describing empirically and mathematically the complexity in systems (ibid.). Next a discussion of complexity and its role in this study is presented through three main sections: systems thinking, relationism and complexity theory.

2.1.1 Systems Thinking

Based on Schon (1995) and Weick (1995), epistemology is the basis for what researchers think knowledge might be and what form it takes in the 'real' world around them. Epistemology is a way of knowing that influences the interpretation of data, the formation of all sensations, and the description of the world. According to Houghton (2009), the concept of a system is an epistemological framework. Based on the 2001 text of Haynes and the 2006 text of Jackson, it can be further argued that systemic epistemology is an epistemology that aims to derive knowledge from a strategic high ground and to understand causality from a variety of potentially contradictory perspectives (ibid.). In contrast to mechanistic thinking³, systems thinking advocates a pluralistic, dialectical framework of thinking, one that reveals multiple perspectives, conflicting realities and various other contexts (ibid.). In general, to look at things from a systems perspective is to recognize the possibilities of an interacting conceptual framework with reference to different accounts, different reference points and competing descriptions of reality (Grint, 2005). Systems thinking offers the possibility of research in a variety of non-linear, conflicting and dialectical 'realities' (Houghton, 2009).

According to Morgan (2005), it is a mode of thinking that focuses first and foremost on the 'whole', making its relationship and coordination with the environment the paramount concern. It serves to help people understand both how systems work and what they can do to process them with greater efficiency. Specifically, systems thinking focuses on changes and dynamics as complexity theory. It prefers to capture movement and flow; in particular, it concentrates on relationships, models and processes. It argues that a large number of system interrelationships result in disorder and uncertainty, which make patterns unpredictable. There is no single factor that can

³ According to Houghton (2009), mechanical thinking is based on the natural or efficient causality of natural systems. It advocates a linear, monolithic logic for understanding the world and lacks plurality and dialectic.

yield the anticipated outcome with any certainty. Therefore, systems thinking is less convinced by planned or well-engineered solutions. It does not value preliminary elaborate design. Systems are regarded as having their own dynamics and are only open to management and guidance to some extent. It places more emphasis on discovery, evolution and emergence.

This thesis hopes to incorporate systems thinking into this study's understanding of the effectiveness of development cooperation. As stated by Eyben (2010), 'managing for development results' in the Paris Declaration is an expression of a historically prevailing pattern of thought in international development – 'substantialism'.

Substantialism usually adopts a modernist view of the world as predictable and measurable, with causal chains as the basis for analysis, intervention and evaluation (Burns and Worsley, 2015). This kind of thinking, in the same way as the mechanical thinking doctrine mentioned above, looks for a linear, non-conflicting and single version of events, as if there were an overarching 'great concept' that could explain world events (Houghton, 2009, p.99). Such a way of thinking does not allow for contradictions or chaos. This perspective may prevent the researcher from analyzing the various complex elements of the event and their interactions, leading to a one-sided understanding of the event. Systems thinking, on the other hand, has a more open-minded approach to research, making it more likely that the whole picture of an event will be understood, and its details will not be overlooked.

2.1.2 Relationism

Based on the 1991 text of Varela, Thompson and Rosch, Tsekeris (2010) states that in systemic epistemology, it is acknowledged that we have always been in this world, and it is not separate from us; our structure allows us to reflect on this world. In this perspective, truth is not anything absolute or relative, but relational, expressing the

connection of the individual to the whole, and the response to the present moment (Briggs and Peat 1999, as cited by Tsekeris 2010).

In modern sociology, relationism no longer defines people in terms of a single identity or characteristic, but sees people, and practices, as constantly changing and reshaping (Bourdieu and Wacquant, 1992). Further, in the social sciences, relational thinking presupposes that social actors - whether individuals or states - are mutable. They not only shape social relations, but are also shaped by them (Eyben, 2010). This addresses the traditional dualism, rejecting the subject and object perspective and instead viewing the relationship between people and the world as 'ontological complicity – or mutual possession' (Bourdieu and Wacquant, 1992). Based on Bourdieu (1989), relationism identifies the real not in terms of substances but in terms of relations. Similarly, as noted by Fuchs (2001), things exist in a network structure, have their place and are constantly moving and changing; networks are made up of nodes and the relationships between them, and the nodes and their relationships are always changing. In this way, it is recognized that sociological relationism, unlike the stereotypical substantialism, does not unreflectively simplify social reality and assign fixed properties to things, but rather sees social behavior as the result of people participating in social relations within social structures (Tsekeris, 2010).

In this study, relationism is introduced with two main intentions. First, relationism has a strong interest in process, at least as strong as, if not stronger than, interest in outcomes (Eyben, 2010). Based on the 1986 text of Butcher and Conlin and the 1992 text of Lipton, Eyben (2010) mentions that anthropology is primarily about process, and some scholars involved in aid projects argue that logical frameworks may limit the flexibility and therefore the effectiveness of the project. Therefore, the introduction of relationism in development cooperation facilitates researchers to realize that a process is variable in space and time. For example, there are elements of communication in aid that are not taken into account by the provider, resulting in aid

practices that do not occur according to a formulaic blueprint, but instead appear otherwise. Meanwhile, an excessive focus on 'entities' is avoided. Relationism does not assume that all processes must be attributable. Even if it is possible to speculate on observable entities that shape process, focusing only on these entities may lead to the neglect of emergent effects (Jackson and Nexon, 1999). In this respect, relationism directs researchers to continually imagine the mutability of the entire practice process, thereby increasing attention to all shaping and change in practice.

The second aspect relates to a larger perspective beyond the specific practice of the project. Relationism understands international development as shaped by historically produced and context-based configurations in the broader field (Eyben, 2010). In the context of the intertwined powers of the parties, attention also needs to be paid to the relationships between the stakeholders. The diversity of stakeholders means that the diversity of identities, funding management, etc.; there is also the influence of the values and preferences of the individual participants in the practice (Fransman et al., 2021). Actors and social relations shape each other. Furthermore, Eyben (2010) notes that relationism is not necessarily of change. It also functions to maintain a balanced model of society in which all relationships are mutually supportive and exist to sustain the greater whole (ibid.). For example, is there a relatively fixed pattern of foreign aid that exists in China as an aid donor that is difficult to change for the purpose of maintaining stability by the government and various agencies? What does this pattern of equilibrium look like? These arising questions will be discussed in Chapter 4.

2.1.3 Complexity Theory

In the last two sections, systems thinking and relationism have brought 'whole', 'dynamics', 'relationships' and 'processes' before us. In this section, another

perspective on complexity theory will be added and a summary of the complexity theory perspective and its role in this study will be presented.

Arkesteijn, van Mierlo and Leeuwis (2015) offer another dimension of thinking about complexity called 'systemic stability'. This dimension denotes the historically established mechanisms that contribute to the stability of the current system and benefit existing social practice which might be discouraging but normalized and help explain why numerous interventions fail to make a difference. This idea of reflecting on and challenging existing stable systems is called 'reflective evaluation' (ibid.) and is based on the assumption that prevailing problematic social practices are formed historically, embedded in the institutions and therefore need to be challenged. This means that the structural problems arising from diverse mechanisms of systemic stability should also receive attention in complexity. This is actually similar to the function of relationism 'maintaining equilibrium models'. Again, 'reflective evaluation' emphasizes the reflection on the various aspects of the historical context, pointing out that more attention should be paid to the challenge of mechanisms that maintain the current problematic system.

It is fair to say that contextual detail is a crucial element in the social sciences (Manuel-Navarrete, 2001). Complexity brings context to the front of the mind and opens new doors to understanding society. In the area of development cooperation, according to Ramalingam et al. (2008), the problems faced by donor countries and aid agencies are probably some of the most complex problems ever faced by humanity. International cooperation that deals with these problems works within a global network of linkages. The interactions among these different elements of different systems are inherently multidimensional, while cooperation relations coexist with some other international relations. In a context where international development assistance is so complex, complexity theory has bolstered the understanding that

unknowable, unpredictable and emergent factors occur in this system, thus making it possible to explain systems and the problems within them (ibid.).

Based on the statements of Eyben (2010) and Fransman et al. (2021), the use of complexity theory in international development cooperation practice implies, first, focus on the foundations of practice and examine the assumptions and starting conditions⁴ in specific contexts. Secondly, a focus not only on the context, including resources, culture, politics, etc., but also on the dynamic nature of the context. Focus on change within the system, drawing on the concept of feedback loops⁵ to observe how the impact of the system changes or is kept in balance. Third, to pay attention to difference. It is the details, the changes, the connections that bring about the possibility of change. Of course, while praising the recognition of differences we also need to recognize that it is also important to emphasize the lack of differences in a collaboration or relationship. Fourthly, accepting uncertainty and the inevitability of change, exploring with an open mind, and adapting to new discoveries and situations. Acknowledging the messiness and complexity of practice, thereby facilitating reflection and learning in practice.

Integrating all of the above theories of complexity, and the guidance that complexity brings to development cooperation practice, the application of a complexity perspective to this study is summarized next. Overall, systems thinking provides a research perspective on the 'implementation process' of a project, while relationalism and complexity theory both provide perspectives on the 'formulation' and 'implementation' aspects of a project. Specifically, the role of the complexity

⁴ Based on Fransman et al. (2021), these starting conditions may arise from previous cooperation projects, or from long-term friendships, or other platforms. These origins and foundations bring to the partnership a set of conditions and assumptions that will fix the boundaries of the partnership itself.

⁵ As noted by Fransman et al. (2021), the feedback loop decides how the outputs of the system are given back as inputs, for instance, when the pattern is influenced by practice and undergoes a change, how this change will reconfigure the pattern. Feedback loops are divided into positive and negative, the former meaning that the influence of the system becomes stronger and this can lead to a tendency for things to get better or worse, and the latter implying that the system maintains a state of equilibrium.

perspective in this study is as follows. Firstly, guiding this research by focusing on how and to what extent China, as a donor, examines local conditions and the characteristics of local contexts in African recipient countries at the time of program formulation, and develops its health assistance programs accordingly. At the same time, focusing on the extent to which attention is paid to 'difference' - an indicator of whether the local requirements and conditions are taken into account by the donor country. Second, guiding the research to focus on China's foreign aid system as well as the China-Africa development cooperation system, including the mechanisms, operations, and dynamics within it, as the basis for research on specific projects. Third, guiding this study to collect details of small events and processes that support the analysis of projects, rather than merely describing the phenomenon/status quo. It also focuses on whether China, as a donor country, is open to addressing emerging issues in aid practice and solving them. Fourthly, guiding this study also to pay attention to the relations and structure of the elements when examining the results. That is, it is necessary to look not only at the direct impact, but also at the impact generated by that impact. For example, whether there is a structural relationship between the different 'outcome/impact' elements, whether some elements are more fundamental than others and have a longer-term impact, etc. In the next two sections, the complexity perspective is combined with technical assistance theory and capacity building theory respectively, to further construct more specific theoretical frameworks.

2.2 Technical Assistance

The complexity perspective was discussed in 2.1. While the perspective has provided some guidance for empirical analysis, complexity is, in general, a relatively broad perspective. Therefore, this section will further apply the complexity perspective in a more specific context - technical assistance (TA) – to derive a more specific analytical

framework for this study on the 'formulation' and 'implementation' phases of health cooperation projects.

In an age of increasingly strained health resources, health aid providers, including international organizations, are switching from direct management of health services to providing TA (West et al., 2012). In 2009, President Obama proclaimed the Global Health Initiative - the US government's grand effort to address global public health concerns. This initiative encourages INGOs to shift from managing service delivery projects to providing more TA and expects to strengthen and sustain local health projects in this way (USAID 2010). Similarly, TA has arisen increasingly as part of China's health cooperation to Africa. Unlike traditional aid modalities, TA may often have greater political significance and visibility (Russo, Cabral and Ferrinho, 2013), for reasons including but not limited to the fact that TA is deemed to strengthen health systems and support national ownership. Therefore, TA enables recipient governments to better manage their health projects and build the sustainability of health systems. TA is hence being valued as an important means of capacity building (West et al., 2012). This section therefore aims to discuss the definition of TA, what TA providers should be aware of when providing assistance, and some relevant theories in relation to this.

2.2.1 Definition of Technical Assistance

According to CDC and Hauck and Land (2007), TA is understood as the transfer, adaptation, utilization and mobilization of skills, technology, knowledge and services, and is the targeted support provided to organizations with development problems or needs, designed to support capacity development efforts. Basically, it includes any kind of non-financial aid, such as training, consultancy, support equipment, workshops, analysis of data, review of literature, and development of tools and guides for specific technical needs, etc. (Hauck and Land, 2007; West et al., 2012). As stated

by CDC and West et al. (2012), TA does not appear to be complex in terms of process. Firstly, the expert should get to know the organizational culture and any specificities concerning the development needs, and then the appropriate expert will provide assistance in response to the problem, after which the recipient, sometimes with the help of the TA provider, implements the practice according to the recommendations. This relates to two concepts in TA: pulling and pushing (Mitchell et al., 2002). The pull TA implies that the project manager identifies a problem and requests assistance, while the push TA implies that the TA provider takes the initiative to integrate new technology or knowledge into the project (Rimer et al. 2001, Lavis et al. 2006, as cited by West et al., 2012). Both are usually included in TA systems, with providers responding to requests from pullers to build partnerships and work together to improve projects.

Structurally, the TA offering is extensive. Based on CDC, TA can be either one-to-one consultation or small group mentoring; it can be delivered in person, by e-mail, phone or web conference. TA can be a one-off activity carried out by an adviser or a long-term assistance offered by an on-site adviser (Mitchell et al. 2002). Nevertheless, in practice, TA most often reacts to requests for short-term assistance - it generally does not consist of a systemic assessment of the problem nor a long-term plan (Mitchell et al., 2002; Potter and Brough, 2004). Besides, it is also possible for TA to be a platform to connect research and practice to meet specific development needs (West et al., 2012). TA systems may be strongly centralized, with one or a group of key providers, or they may have only short-term advisers and therefore be relatively loose (ibid.).

Overall, based on the above definitions, the health aid projects studied in this thesis are all technical assistance. In this study, TA can be understood as an effective approach to building organizational capacity by designing or improving effectiveness

and quality of certain products, services, projects to increase the efficiency and outcomes of the system.

2.2.2 Theories on Technical Assistance

Having discussed the meanings of TA, the complexity perspective will then be further applied in the context of TA to derive a more specific research framework applicable to this study. This part of the discussion will revolve around what are the important aspects to note when providing TA in relation to the theories on TA.

Delivering TA is a complex and challenging process, which can be analyzed using the concepts in complexity. Some important concepts from the complexity perspective, such as 'context', 'learning', 'uncertainty' and 'emergence', are reflected in theories of TA. According to CDC, Mitchell et al. (2002) and West et al. (2012), in order to successfully respond to development needs, TA providers must have a thorough understanding of the unique context of the project they are supporting and the challenges they face. By providing TA, they continually observe the effectiveness of their practice and keep abreast of the changing or emerging needs within it as a means of making timely adjustments to the program. The approach is orderly, but at the same time flexible; they keep the TA recipient involved throughout the process, working together and building a relationship of trust with them. The core principles can be broadly summarized as: customization, collaboration, adaptability and systemic. In the discussion that follows, two specific theories related to TA will be presented. Namely the theory of readiness for change and the theory of diffusion of innovation. Of these, readiness for change theory focuses on the pre-practice phase of aid, while diffusion of innovation theory deals with some elements of the aid process.

A Theory of Readiness for Change

According to Vogel (2012), different facets of complexity have been incorporated into the Theory of Change, applied to the field of international development. Specifically, in this field, this theory focuses on discussing the context of the project, including the social, environmental and political conditions, the current state of the issue the project seeks to influence and other actors that can affect change, and process of change anticipated to lead to the desired long-term outcome, etc. (ibid.). In improving project design, implementation, evaluation and learning, this theory gives some recommendations in line with the complexity perspective, such as: the need to acknowledge the 'non-linear' and 'emergent' nature; the need to fully refer to the background knowledge of stakeholders, partners and beneficiaries; the need to adopt an open attitude in the implementation process and to find ways to support the rational adjustment and refocusing of project strategies, etc. (ibid.). Most importantly, readiness-for-change theory emphasizes the importance of building organizational readiness for change. Organizational readiness for change is regarded as a key prerequisite for successful implementation of complex change in the health field (Hardison, 1998; Amatayakul, 2005). Some even argue that half of the reasons for failed organizational change in the field of development cooperation are attributable to failure to build sufficient readiness (Kotter, 2012). Overall, this theory should be perceived as a continuous process of analysis and learning based on discussion, which generates strong insights to support project strategy, delivery, evaluation and impact assessment (Vogel, 2012).

Organizational change readiness is not only a multi-layered structure, involving individuals, groups, departments and organizations, but also a multi-faceted one (Weiner, 2009). To be more specific, 'organizational readiness refers to organizational members' change commitment and change efficacy to implement organizational change' (ibid., p.2). This implies a state of psychological and behavioral readiness (i.e. willingness and ability) to undertake change action.

Psychologically, the more members of the organization value the impending change, acknowledge its importance and meaning, or resonate with its core values, the more committed they will be to participate in its implementation. In terms of change efficacy, based on the 1992 text of Gist and Mitchell, Weiner (2009, p.4) suggests three determinants:

- Task demands
- Resource availability
- Situational factors

That is, do we know what is needed to effectively carry out the change? Do we have the resources to effectively deliver this change? Can we effectively implement the change considering the situation we currently face? When organizational members collectively give a positive assessment of task needs, resource availability and situational factors, they become confident in implementing this change, which also contributes to the effectiveness of change (ibid.). With respect to situational factors, some organizational characteristics do appear to create a more receptive situation for innovation and change.

By determining what stage of readiness the organization is in, as said by West et al. (2012), it helps the TA provider to determine the most effective TA approach for a given situation. According to implementation theory, these efforts to prepare for change are most likely to ultimately mean effective implementation (Weiner, 2009). Therefore, with this perspective, this study will look at the considerations which China, as a donor country, takes into account when formulating health cooperation projects and in the early stages of project implementation. This is because change commitment and change efficacy will undoubtedly have an impact on the process and be reflected in the results, which are significant for the effectiveness of the project.

Diffusion of Innovation Theory

Diffusion of innovation theory is concerned with the process of project practice. The diffusion of innovation is a process in which new ideas are transmitted through certain channels among the various units of a social system (Rogers, 2002, p.328). Most of the innovations studied by diffusion scholars are technological innovations. One may therefore expect an equivalence or correspondence between technology transfer and innovation diffusion (*ibid.*). Both involve, for example, the process by which the structure and function of a system is transformed (Rogers 1995, as cited by Rogers 2002). The theory of diffusion of innovation is thus particularly relevant for understanding the TA system and delivering effective TA. And the elements involved in this theory will provide the perspective and research framework for the analysis of health projects in this thesis.

Also focusing on processes, patterns and relationships, systems thinking is in fact the epistemological basis of the theory and some of the concepts of the complexity perspective are reflected in it. The reason why technology transfer is particularly difficult, as claimed by Williams and Gibson (1990), may be that the process requires overcoming a large number of communication barriers, including aspects such as different motivations, different languages and vocabularies, different backgrounds and cultures, and different understandings of the product or service. Based on Rogers (2002), technology transfer/innovation diffusion usually involves heterogeneous exchanges, and the ‘heterophily’ of the participants is the fundamental challenge in this process. ‘Heterophily’, as explained by Rogers (1995, as cited in 2002), refers to the different degrees of communication between two or more people. And because, ‘technology transfer is a body-contact sport’ (*ibid.*, p.331) - as the process takes place through interpersonal networks (Valente 1994, as cited by Rogers 2002) - the individual as well as the interpersonal network is particularly crucial. Some people's roles may connect the organization to the environment, controlling the flow of

information and offering possibilities for problem solving and organizational development (Rogers, 2002). Similarly, some organizations or institutions may be seen as boundary- spanning units, as they receive funding and other resources from government agencies and private companies, and then transfer their research findings to recipient organizations (ibid.). It can be seen that the 'focus on differences and details' of complexity theory and the 'integrated perspective/holistic thinking', the 'interplay between elements', the 'non-linearity, chaos' of systems thinking are all reflected in the theory. This theory suggests several sources of difficulty that may be used as elements of analysis in this study. Different languages, cultural backgrounds, expectations, and understandings exist in the TA system and together influence TA practice, and the role of interpersonal networks is crucial in this process.

With the above discussion in mind, 'transplanting personnel to transfer their technology' can be seen as a useful strategy in this process (ibid., p.334), as transferring those with the technology to the recipient organization facilitates more efficient ways of overcoming heterophily. Based on considerations of heterophily, diffusion theory suggests that in order for an innovation to be embraced, the advantages of incorporating it into practice must be obvious and evident and appropriate to the local context (West et al., 2012). If the innovation is not evidence-based, not easily practiced or not aligned with local needs, then the TA provider's program is unlikely to be accepted.

In summary, guided by this theory, this study will examine China-Africa technical cooperation health projects by paying attention to its nature of heterophilic exchanges, digging deeper into the elements where heterophilic phenomena exist and which may influence the practice of the projects. It also takes a more micro perspective, looking at the individual and examining the role and operation of personal and interpersonal networks. This will be followed by an examination of whether and in what ways China has addressed these challenges as a donor country.

2.2.3 Technical Assistance in Health Cooperation

Drawing together the above discussion of definitions of TA and related theories, a summary of their application to this study is presented here. China's health cooperation to Africa has seen an increasing amount of technical cooperation, so the above discussion provides the basis for this thesis's research. This part of the discussion covers both the 'formulation' and 'implementation' phases of the project study. The complexity perspective is more precisely applied to the analytical framework of this study in the context of TA. Concretely, in the 'formulation' and early stage of project 'implementation', the theory of readiness for change suggests both psychological and behavioral aspects of readiness. Both of these aspects involve elements that will be examined as part of the empirical research - to what extent does China consider the level of preparedness of the recipient's personnel, materials and context prior to aid practice? Is the aid 'customized'? Does it help them prepare for all aspects of the situation? Or is the aid divorced from the reality of the local situation? In the course of the project practice, the diffusion of innovation theory again refers to the fact that 'practice should be adapted to the local context' and suggests the role of interpersonal networks and several aspects where there are possible challenges due to heterophilic exchange. Differences in language, cultural background, understanding, aspirations, etc. between aid and recipient parties, and interpersonal networks will therefore be examined as aspects of the research.

Both theories themselves might be used as a guide to a practical approach to 'providing better TA'. To sum up, when carrying out cooperation projects in various forms such as training, mentoring, support equipment, etc., especially when offering new ideas, they should take full account of the local context and the particularities of the situation, adapt to the local environment and be in line with local needs. They should also be aware of the barriers in communication based on different cultures and

understandings, of the heterophily involved and the importance of personal roles and interpersonal networks in communication. A good partnership should be built, firstly, by having a good understanding of the local readiness to implement the project beforehand, including whether the project is indeed accepted by local people, whether it is perceived as a solution to the problem, whether there are enough resources, etc. Moreover, by including local people in the project, and by respecting each other, trusting each other, continuing to learn and being open to new situations in the process. That is, not just push TA, but push TA combined with pull TA, with full consideration of the wishes of the members of the recipient organization and the situation on the ground to provide compatible solutions. But equally, all of these aforementioned understanding of the TA system can also be used as perspectives for analyzing development cooperation projects. In this thesis, they create an analytical framework for assessing, studying, and improving health cooperation projects in China-Africa with powerful insights. All the elements that the framework covers that aid providers should value in practice will be used as options for category building in the following research. The higher the level of completion in these aspects, the more likely the aid is to be effective.

2.3 ‘Capacity Building’ in Public Health System

In 2.1, the complexity perspective provides part of the research direction for the 'formulation' phase of the project and lays the groundwork for the 'implementation' phase. In 2.2, the complexity perspective guides the theory of TA in relation to the 'formulation' and 'implementation' phases of development cooperation projects and draws out important elements of research in these two phases. And in this section, the last aspect - the outcome/impact of the project - will be discussed. This aspect is closely related to capacity building of the public health system. Therefore, in this section, this thesis turns its attention to the field of public health and discusses what

'capacity building' is, what elements it consists of, what structures it has and what it means in the field of health cooperation.

2.3.1 Definition of 'Capacity Building'

According to Potter and Brough (2004), 'development' in international development cooperation itself implies independence, rather than leading to dependency.

Therefore, effective capacity building in the health sector is of vital importance for developing countries. As claimed by Hawe et al. (1997) and Godfrey et al. (2002), development cooperation signifies capacity building, they are almost synonymous, or at least one could say that capacity building is a necessary condition for development cooperation. However, the concept still lacks clarity.

In a broad sense, capacity building means improving the organizational performance of an institution to meet its given objectives, fulfill its mission or improve its efficiency or effectiveness (Goldberg and Bryant, 2012). Capacity building efforts are often linked to the core mission and functions of an institution (Milen, 2001).

However, terms such as institutional strengthening, capacity development and technology transfer are all used to refer to the same processes to a greater or lesser extent (Guy, 2016). It is, of course, understandable that the concept 'capacity building' is not necessarily different from that of institutional strengthening, institution building, development management and other concepts (Pielemeier and Salinas-Goytia, 1999). Both Paul and WHO (1995) and Maconick and Morgan (1999) suggest that capacity building evolves from institutional management, which is itself a subset of good management. Therefore, capacity building can be understood in terms of institutional capacity building. Pielemeier and Salinas-Goytia (1999) note that capacity building emphasizes building or strengthening the capacity for program implementation independent of the permanence of institution. Potter and Brough (2004) further argue that it should make the implementation of the plan independent

of personal, social structures, technological, and resource crises, in other words, it implies 'the development of sustainable and robust systems' (p.337).

Sustainability is very important in health system capacity building. According to Schell et al. (2013), public health projects can only bring benefits 'if they are able to sustain activities over time' (p.1). According to Scheirer and Dearing (2011), funders of public health and community health projects are progressively more concerned about the sustainability of their initiated changes. They wonder: will these investments lead to beneficial results in the long term, or will the effects of the projects disappear when the funds run out, or fail to have any beneficial impact at all (ibid.)? Therefore, it is now important to focus on the sustainability of health projects. Apart from direct treatment to improve the health of individuals, other public health⁶ projects have the question of 'sustainability' - for example, is the infrastructure working well once it has been built? To what extent have courses to raise health awareness in local communities led to a change in attitudes? etc. It is to be noted that 'sustainability' has a completely different meaning in different areas and is often associated with 'reducing negative environmental impacts' (Strange and Bayley, 2008; Triviron, 2020). In this thesis, on the other hand, sustainability of health projects is primarily concerned with the extent to which health projects have 'the potential to sustain beneficial outcomes over an agreed period of time' as opposed to 'impacts ending together with the end of the intervention' (Kieny et al., 2017). Combined with the above analysis, the sustainability of a health cooperation project also leads to sustainability in capacity building for the local health system. A health cooperation project can be judged to be relevant to sustainability if it maintains its activities by producing health benefits in the recipient region of Africa after the health

⁶ Everyone has a different definition of public health. Generally speaking, public health is the science that aims to promote and protect the health of people and the communities where they live in, usually through the promotion of healthy lifestyles, the study of disease and injury prevention, and the detection, prevention and response to infectious diseases (CDC Foundation). In short, public health is concerned with protecting the health of entire populations, which can be as small as a local community or as large as an entire country (ibid.). Therefore, directly improving the health status of individuals can also be seen as contributing to public health.

cooperation practice has ended (Schell et al., 2013). Based on the 1989 text of Goodman and Steckler, Schell et al. (2013) claim that if a health project has the capacity for sustainability, it builds trust between the project and the community and brings lasting benefits for achieving its public health goals and promoting local public health development.

As stated by Potter and Brough (2004, 338ff), in public health, 'capacity building' usually implies three aspects: the first aspect focuses on the physical meaning, i.e. if the number of beds in a hospital cannot accommodate patients, or if the number of staff available cannot meet the needs of patients, then it is clear that a hospital can be described as lacking capacity. In this case, the solution is usually to add additional staff, or to build new infrastructure, etc., requiring a larger budget, or relying on information tools such as digital systems, or implying decentralization; secondly, and the most frequent meaning of the term - staff lack skills, for example doctors, technicians or managers do not have sufficient competence. This suggests that they do not have the required skills for a certain medical or management role. This is a situation that generally needs to be addressed through training; the third usage refers to the lack of institutional capacity. For example, a system does not have management capacity because the officials who are managers do not know how to fulfil their corresponding designations; or the system does not have decision-making capacity because the corresponding managers lack that capacity. Therefore, in this case, it is recommended that more training schools or research institutions be established.

2.3.2 Elements and Structure of 'Capacity Building'

In order to summarize the three aspects of capacity building mentioned above and to refine and clarify this concept, Potter and Brough (2004, p.340) divide the needs of 'capacity building' into a four-tier structure that forms a 'capacity pyramid', shown in

Figure 1. From bottom to top, as follows: (1) structures, systems and roles, (2) staff and facilities, (3) skills, and (4) tools.

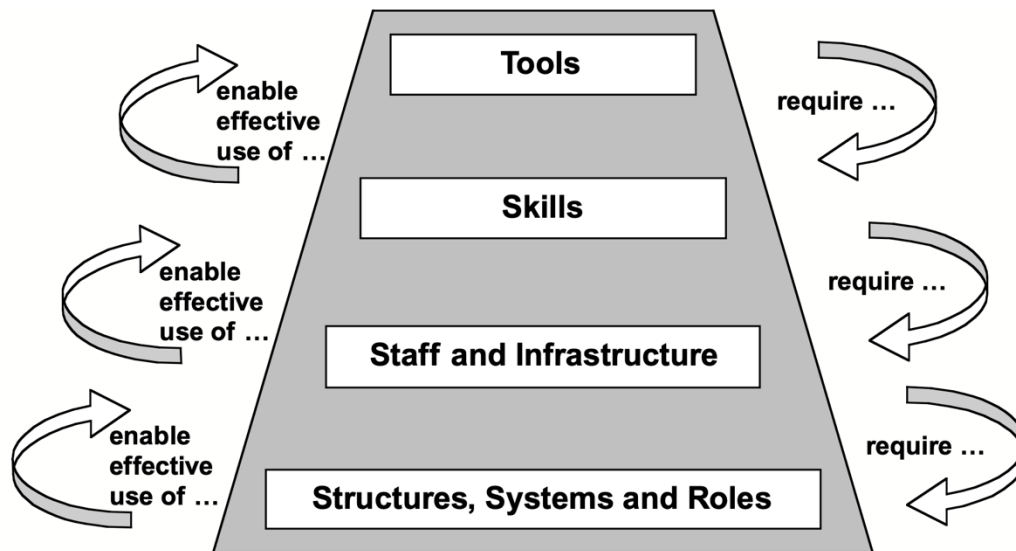


Figure 1. Capacity pyramid.

The upper tier represents the 'easier' and more technical capacity; the lower tier represents the 'more difficult' and socio-culturally relevant capacity, which takes longer to implement change (ibid., p.342). For example, the top tier of 'tools' includes medical equipment, medicines or treatment consumables; the second tier of 'skills' consists of technical skills, expertise and other specific skills; the third tier of 'staff and infrastructure' covers staff able to perform the appropriate workload (e.g. number of staff, skill sets, priorities), facility capacity (e.g. size of hospital, size of staff offices and accommodation) and related support services (e.g. laboratories, training institutions, research facilities); the bottom tier 'structures, systems⁷ and roles' comprises the flow of information and funds, management decisions, resource

⁷ A distinction needs to be made here between systemic capacity building and systems capacity, with the former including the latter. The former emphasizes the development of strong systems in a region, institution or department with the capacity to implement plans on a sustainable basis; the latter, systems capacity, usually refers to system-level functions such as information archiving, staff mobility, management decisions, etc. (Potter and Brough, 2004, p.340).

allocation, communication links at all levels, and decentralized authority, among others.

Figure 1 not only categorizes the many elements of capacity, but also summarizes the ways in which they are interdependent and structured as a whole. In this study, the above classification and structure not only helps to identify and classify the various types of capacity in health cooperation projects, but also facilitates the analysis of the relationships between them. For instance, structural and system capacity can be considered as the basis for other forms of capacity, i.e. the effectiveness of other capacities builds on their effectiveness, so that the main capacity issues seem to be related to the lowest level of capacity (*ibid.*, p.339). While this structure provides the ideas for analysis in this thesis, this study will not adopt the presupposition and ignore capacity building at the upper level, as the empirical study will start with specific projects and examine the relationship between individual projects and each capacity; only later will the impact of cooperation projects on the health system be analyzed.

2.3.3 Capacity Building in Health Cooperation

Taking together the above discussion of the definition, elements and structure of capacity building, a summary of their application to this study is given here. This part of the discussion covers the 'outcome/impact' phase of the project research, which is the last phase. The complexity perspective in the context of capacity building in health systems is applied more precisely to the analytical framework of this thesis. More specifically, first, each health project may have an impact on one or more capacities in the health system - it might simply provide medical equipment, or it might simultaneously improve the skills and workload capacity of health workers through training; secondly, within the health system, an increase in capacity at any structural level will have a beneficial impact on the health system, although not to the same extent. According to Potter and Brough's (2004) structural thinking, the more a

project can enhance the capabilities in the underlying structure, the more likely it is to have a positive impact on the sustainability of the system. In other words, the effects of public health projects can be reflected in the capacity building of the health system, and the 'capacity elements of the system' discussed above have covered the range of impacts of specific health projects.

2.4 Summary

To summarize, in this chapter, building on complexity theory, TA theory and capacity building theory further dig into the elements of development cooperation that are relevant to effectiveness. To be specific, firstly, as an epistemological foundation, systems thinking demonstrates the multifaceted and open-ended nature of its thinking framework. Its focus on process and dynamics also sets the scene for the discussion of relationism and complexity theory. And then, relationism further inspires this study to focus on the network of relationships between parties in a project and the ways in which they influence each other. The connection of the parties may lead to successive changes, or to a certain balance. Finally, complexity theory emphasizes the importance of context, difference, detail, and openness in bringing about change, and reinforces the need to study the background and development cooperation mechanisms. Overall, systems thinking provides a research perspective on the 'formulation' stage of projects, while relationism and complexity theory both provide perspectives on the 'formulation', 'implementation' and 'result' aspects of projects. With a complexity perspective, this study is more likely to take a multifaceted, integrated view of the various elements of aid practice and the ways in which they interact with each other and the impact they have.

Next, the TA section further discusses the elements that should be of concern in studying the effectiveness of development cooperation through a complexity perspective. This part covers both the 'formulation' and 'implementation' phases of the

project study. The theory of readiness for change focuses on the foundations of aid practice, suggesting both psychological and behavioral readiness. The degree to which organization members identify psychologically with the change and the degree of human, material and environmental readiness for the practice of change can affect the effectiveness of the practice. And diffusion of innovation theory suggests factors that may challenge communication between the two sides in aid practice, keys to overcoming heterogeneity in technical cooperation, and the importance of interpersonal networks. Finally, capacity building theory guides how this study examines the effectiveness of projects from an outcome perspective.

Complexity theory is an important guide for the empirical research and category building that follows. Firstly, the China-Africa development cooperation mechanism must be studied. The dynamics and current status of the mechanism will be an important basis for the ensuing research. Secondly, regarding category building, at the 'formulation' stage of projects, it is necessary not only to examine the extent to which China has designed health aid projects based on the needs and conditions of the recipient country, but also to create a category for collecting data of power relations and stakeholders behind the aid project. In the 'implementation' stage, it is necessary to first examine China's knowledge of the local context of the recipient country prior to the practice, and then, in addition to the aid content, to pay attention to the dynamics in terms of the partnership, emergencies and handling of the situation. Next, readiness for change theory further guides the category development relating to the identification of recipient needs in the 'formulation' phase and guides the category building in the 'implementation' phase with the three elements of 'change efficacy': task needs, resource availability and situational factors. The factors mentioned in diffusion of innovation theory that lead to communication barriers on both sides of the aid, including language, cultural background, understanding, etc., will be combined to some extent with the 'change commitment' in the readiness for change theory, i.e. the level of acceptance of the project by the organizational members, to guide category

development. Besides, the concept of interpersonal networks will also be an important category in the 'implementation' phase. Unlike the content of the aid practice, this category will collect information on the structural level of the practice, i.e. what kind of interpersonal networks are constituted to implement the aid. Finally, in the theory of capacity building, the structure and proposed competencies of Potter and Brough (2004) will be used as a reference for this study and may be modified (subdivided, combined) or new categories developed depending on the specific project practice content and research needs. Based on the complexity theory, the interactions between the elements will also be included in the analysis.

Taken together, this chapter combines the relatively broad complexity perspective with specific TA and capacity building theories, thus providing an in-depth exploration of effectiveness principles in the international development sector. The effectiveness principles have been given more specific meanings in this chapter, thus contributing a concrete perspective to the research that follows. The new perspective is more open and focused on processes and dynamics, allowing for more comprehensive coverage of elements related to effectiveness at different stages of aid practice. The discussion in this chapter guides the category building in the empirical study. In the next chapter, specific China-Africa health development cooperation projects are analyzed under this perspective.

3. Research Design

In this chapter, the methodology and methods will be presented, as well as the final selected research projects. In addition, difficulties in the research process will be illustrated.

3.1 Methodology

This research covers multiple phases and different aspects of China-Africa health cooperation projects, so qualitative content analysis will be used to answer the research questions as this allows for an in-depth exploration of complex issues and processes. Specifically, this research will use triangulation to collect data about projects, integrating qualitative document analysis and expert interviews, with the aim of seeking convergence and corroboration (Bowen, 2009). As stated by Harvey (2012), the method of document content analysis is known as 'qualitative document analysis', which is essentially the same as the analysis of any qualitative data, such as in-depth interview notes, etc. This method attempts to explore documents and provide an interpretation of actors' actions and intentions (ibid.). Document analysis is an effective way of collecting data because documents are practical and manageable resources (Bowen, 2009). Also, documents are stable data sources, suggesting that they can be reviewed multiple times by the researcher and remain unchanged (ibid.). Next, in-depth interviews allow for the collection of empirical data on the behavior, motivation and concepts of the research participants for research analysis (Harvey, 2012). For this study, the interviews will be conducted in a semi-structured format. The goal of such interviews is to remain open-ended and to ask questions that have a narrator-generated effect so that the interview partner can describe as many aspects and processes as possible (Dannecker and Vossemer, 2014, p.154).

As pointed by O'Donoghue and Punch (2003), triangulation is a 'method of cross-checking data from multiple sources to search for regularities in the research data'. To provide a convergence of evidence that yields credibility, researchers use different data sources and methods, usually at least two sources (Bowen, 2009). By examining information collected through different methods, findings confirmed across datasets can reduce the impact of potential bias (ibid.). In this study, most health aid projects in China do not have complete documents of the aid situation and some of the textual data is inaccessible since it might contain politically sensitive information. Thus, in-depth interviews can, to some extent, compensate for the lack of textual information and overcome the weaknesses and problems that a single method brings to the study.

The classic stages of content analysis constitute the process of this study. Following the completion of the sampling design and data collection, the category system will be built, coding guidelines developed, followed by coding and finally analysis and evaluation. During this process, this study will use a combination of deductive and inductive methods. Based on Bingham (2022), researchers can use deductive strategies to organize and focus themselves, and use inductive strategies to understand what is happening in the data without imposing the data on what the researcher thinks they will see. A deductive approach will be used at the outset to formulate categories to create an organizational model (ibid.). The pre-determined categories will be extracted from theories discussed in Chapter 2. And then the data and categories will be compared to see if they fit. According to Mayring (2000), the process of building categories requires constant revision of the list of coded categories to reflect the findings. Similarly, Kuckartz (2012) argues that in research for qualitative content analysis, the evaluation process and survey can run in parallel, with iterative and feedback steps integrated and guided by the most important research questions. That is, the categories are open in the process. Even after the category system has been developed, new important aspects may still stand out or be discovered by accident.

Categories or subcategories that do not correspond to the research data are modified or deleted. The details are explained in 3.4 Category Building.

3.2 Sampling

As stated in the previous section, this study will use a qualitative content analysis approach, including document analysis and expert interviews. In this section, the sampling design, that is, how the project documents and the experts are selected, will be discussed. First, according to the way some scholars classify China's foreign health projects (Wang and Sun, 2014), China-Africa health cooperation projects are divided into four groups in this study: 1 sending medical teams; 2 building health facilities; 3 training African health care workers; 4 providing medical equipment and medicines. It is important to note that these groups are not completely independent, but overlap. It can be interpreted in two ways:

Firstly, many of the 'training African health care workers' and 'providing medical equipment and medicines' projects are also done by CMTs and are therefore CMT projects. Whereas in this study they are distinguished from '1 sending medical teams' because focuses are different. '1 sending medical teams' refers to medical teams in which Chinese specialists of various disciplines go to African countries to provide outpatient services, perform surgery, and provide training with a view to improving local diagnosis and treatment techniques, or to provide technical assistance for a specific disease. While '3 training of African health care workers' and '4 provision of medical equipment and medicines' projects either is training-oriented itself, or contain a 'provision of material assistance' element with sufficient relevant information and are therefore classified in group 3 or 4.

Secondly, '1 sending medical teams' projects sometimes are combined with the training of medical personnel (as distinct from specialized training courses) or the provision of medical equipment and medicines to hospitals, and '2 building health

facilities' projects are also sometimes accompanied by subsequent provision of supplies, related training of personnel, hospital operations and management, etc. But CMT is often seen as one project, and '2 building health facilities' projects are usually separate from subsequent projects. Although having a certain coherence and program assistance character, they are implemented as multiple projects. As a result, the collection of information on the previous or subsequent projects of a given project usually needs to be done separately.

Based on the above, this study will focus more on '1 sending medical teams' and '2 building health facilities' projects when determining the number of projects sampled in each group. These two forms of aid are sometimes combined with other forms of aid and can therefore capture more information about other projects based on one project. If it is not possible to capture a preceding or subsequent project, it is also possible to draw certain conclusions, for example, the project may lack lasting benefits. This study plans to carry out a qualitative analysis of around 20 projects, including 6-7 projects each for '1 sending medical teams' and '2 building health facilities', and 3-4 projects each for '3 training African health care workers' and '4 providing medical equipment and medicines'. Moreover, once a project has been identified for inclusion in the analysis, in line with complexity and capacity building theories, previous, follow-up or related projects are also collected and analyzed together as a complement to the project (but still counted as one project and grouped under the group to which the original project belongs). This gives a more comprehensive picture of Chinese assistance to that particular health sector in that area and makes up for the fact that China always separates projects independently, which does not allow for a full analysis of assistance.

Having classified the projects, the requirements for sampling are then described. Firstly, provided that the content of the projects is sufficiently detailed, this study wishes to select, as far as possible, aid projects which are undertaken by different

provinces in China for analysis. Since the medical aid teams are organized by the Chinese government and undertaken by local health departments, considering the differences in development and health care levels between different Chinese provinces, if too few collaborating provinces are involved it may yield less than objective results. Therefore, aid practices from multiple provinces of China should be covered as much as possible. Secondly, aid projects from different organizations and companies will be included as far as possible. That is, in addition to the government, aid projects from NGOs and enterprises will also be collected. In addition, the focus should be on diversity of content. For example, projects under the same group target different diseases. In short, the projects to be studied will be identified with the aim of diversity of aid content, diversity of provinces and diversity of responsible subjects.

This study has both 'document analysis' and 'expert interviews' to collect data. Regarding document analysis, according to Wach et al. (2013), the first step in sampling is to set the criteria for inclusion of documents, which involves deciding when these documents will be published and released, which organizations will be included, and which types of documents shall be studied. After 2000, Chinese policy makers and society gradually agreed that aid should evolve from loose, project-based organizational coordination to a long-term strategic plan to promote the implementation of the UN Millennium Declaration (Li, 2012). Against this background, the Forum on China-Africa Cooperation (FOCAC) was formally established in 2000, and medical and health assistance has been enriched and deepened. Therefore, it is more relevant for this paper to focus on China-Africa health cooperation projects from 2000 to the present. In order to ensure the comprehensiveness of the study, not only projects organized by the Chinese government will be included, but also by Chinese NGOs and companies. Regarding the types of documents, as China has not officially published summary documents on foreign health aid projects, and data on foreign health cooperation projects is limited, as many types of documents as possible should be collected. In addition to academic

articles, books and official government documents, working documents or reports from NGOs, and web material from official websites of the Department of Aid of the Ministry of Commerce, embassies and consulates abroad, and the African Centre for Disease Control and Prevention will also be collected. The above documents are all 'public records' (O'Leary, 2014). Besides, personal documents make up a significant body of evidence for this study. Personal documents refer to first-person accounts of individual behavior and experiences (ibid.). For example, reflections, incident reports, etc. from relevant project participants or organizers can also provide additional project details for this study.

The next step is collecting documents. As a basis for sampling, a sampling pool, or a list of totals, will be created. This is based on the Chinese aid projects to Africa collated in AidData's Chinese Official Finance to Africa Dataset, 2000-2013, Version 1.2 (AidData, 2013) and China's Distinctive Engagement in Global Health (Liu et al., 2014). When processing information from AidData, only items under the 'Health' category are filtered out and other items are deleted. Then, through other means in the first step, projects information will be collected by browsing academic literature, official government documents, provincial and municipal websites on foreign health cooperation, the official website of the Africa Centres for Disease Control and Prevention, reports on the work of NGOs, newspapers, etc. During this process, the list of totals is gradually defined. Individual projects are also marked differently depending on the richness of the information available to them. Sampling will be carried out among the projects that are sufficiently rich in available information.

In the process of collecting documentary information, the researcher found relatively more project data for '1 sending medical teams' and less for '2 building health facilities'. Therefore, when contacting interviewees, the researcher made a conscious effort to find more participants in health facility construction projects for Africa. For the sampling of respondents, a snowball approach was adopted (Aurini et al., 2016).

On the one hand, the researcher will contact acquaintances working in China's medical system, who will in turn provide respondents who are eligible for this study, including doctors who have personally conducted health development aid in African countries and staff working within the Chinese health system. On the other hand, researcher will contact scholars in the field. Through their academic research on China's foreign health aid, scholars have accumulated contacts that allow them to provide contact information and referrals of participants suitable for this study. Through these two routes, the study will be able to interview and collect data from participants in various Chinese health cooperation projects with Africa. The process of identifying interviewees will also focus on quality and diversity of content, i.e. the researcher will select interviewees through the content of the projects they had participated in. The reasons for selecting specific projects, the selection process and the final sampling results are further elaborated in the next section.

3.3 Data Collection and Sampling Result

3.3.1 Document Data

In the previous section, the first second steps in collecting document information has been described. After the inclusion criteria for the documents have been determined, a sampling pool is created and sampling will be carried out according to the sampling criteria described above. For the '1 sending medical teams' projects, researcher chose eight projects, seven of which were organized by the health department of each province and comprised six different Chinese provinces each to a different African country. Sending various types of doctors to Africa to conduct outpatient clinics and surgeries and to provide some training to local doctors is a very common component of CMT assistance (Li, 2011). Therefore, the researcher chose three such projects. Secondly, when infectious diseases are rampant in some African countries, the Chinese government organizes experts to deal with specific infectious diseases in the form of CMT. Accordingly, researcher selected three infectious disease projects,

namely schistosomiasis, malaria and AIDS, implemented by CMTs from different provinces to different African countries. In addition, there are projects that send Chinese specialists to local hospitals in African countries to help establish or develop relevant departments according to their development needs. Therefore, the researcher chose one project to help develop a cardiology department in a local hospital in Ghana. Such projects, although highly targeted, are not common in CMT projects, so they were not selected excessively in this study. Apart from the seven projects under the responsibility of the government, there is one project in charge of a private ophthalmology organization, but also designated by the government, where a partnership exists between the two parties. In general, since the government-organized CMTs are the main bodies responsible for this type of aid, most of the projects selected are medical teams assigned by the provincial health departments. Although private health institutions may also be responsible, information on this is difficult to obtain. For most of them, there was no way to collect more detailed information on aid practices other than a photo-based newsletter, so only one project under the responsibility of a private health organization was selected. In summary, the researcher followed the principles of 'richness of project content' and 'diversity of responsible actors' and selected eight 'sending medical teams' projects with different aid priorities.

In the '2 building health facilities' projects, much less document data could be collected compared to 'sending medical teams' projects, and thus relied more on interviews to collect data. Therefore, the sampling process will be described in the next section 'Expert Interview'. After the four interviews were identified, the researcher tried to collect as much documents related to these projects as possible to supplement the study. In addition, one project was selected because rich document data could be collected, and the recipient did not duplicate the other four projects.

'3 Training African health care workers' projects are usually carried out by government-appointed CMTs. The content generally includes skills training in specific areas for local health workers and health awareness training for the local population (on specific diseases). The former is more common. In addition, due to the Corona pandemic, training projects are sometimes conducted online. Therefore, three field training projects and one online training projects were selected. Three of them involved training in different areas of professional skills: maternal and child, neurology, and acupuncture. The other project was a training team organised in response to the severe Ebola epidemic in Sierra Leone, which included both health skills training for medical staff and training them on how to deliver knowledge to the local population in the fight against Ebola.

'4 Provision of medical equipment and medicines' projects are usually organized by governments and, to a lesser extent, by NGOs. Therefore, for this study, one project providing medical equipment, one project providing medicines and one project organized by a representative NGO, the Jack Ma Foundation, were selected.

When collecting document data, the researcher found that most documents were in the public domain, although not all appropriate documents were available online. Therefore, the researcher requested relevant documents from contacts within organizations. Through this route, a number of internal documents were obtained for this study, disclosed by the contact persons and with permission to use them. At this point, the sampling of the document data was concluded. The next steps for document analysis are category building, document coding, validation, and analysis of data. These steps will be developed in '3.4 Category Building' and in Chapter 4.

3.3.2 Expert Interview

Based on the 1991 article of Meuser and Nagel, Bogner et al. (2009) state that the interest of the social sciences in experts is directed towards their specific background knowledge of a particular research field, or their internal knowledge of structures, processes and events in a particular organization. Expert knowledge includes not only knowledge that is systematic, reflective and related to a specialist discipline or field, but is also characterized to a considerable extent by practical or action knowledge (ibid.). Ultimately, anyone who is responsible for and has privileged access to the knowledge of a particular population or decision-making process can be regarded as an expert (ibid.). As mentioned above, the respondents in this study include both Chinese doctors sent to African countries to participate in health aid, staff working within the Chinese health system, scholars studying Chinese foreign health assistance, as well as project leaders from CSOs and private companies. As providers of information, some with unique experience of China-Africa health cooperation and some with systematic knowledge in this area, they all possess knowledge that the researcher does not. Therefore, the interviewees in this study can all be defined as experts. At the request of them, the identities of nine of them will be kept anonymous. The 11 numbers A01-A11 will be used to represent their identities.

The researcher was first introduced to Chen Zhengfang (A10), Director of the Cooperation and Exchange Department, Zhejiang Health Care Commission, China, by an acquaintance working in the health system. Director Chen has a long experience of organizing health development cooperation with Africa in Zhejiang Province and has internal knowledge of the structure and procedures of China's health assistance system to Africa. After the interview, Director Chen also introduced another staff member, A11, who is also working in the Cooperation and Exchange Department, Zhejiang Health Care Commission, to the research. A11 is one of the authors of an internal resource of this department, *Ten-year Review of Zhejiang's Health Exchange with*

Foreign Countries (2021). A11 provided the researcher with documents on material assistance between Zhejiang Province - Central Africa and was interviewed for this project. The researcher was then introduced by Director Chen and A11 to more doctors with experience in health assistance in Africa through a snowballing process. This approach proved to be effective as health workers in one province often cross paths with health workers in other provinces for training, meetings and other work or personal reasons and in many cases maintain contact. The researcher filtered through the content of projects they were involved in and the provinces they came from, and eventually conducted interviews with A01, A02, A03, A04 and A05. A01 is from Inner Mongolia and is an orthopaedic surgeon who was sent to Rwanda as part of a medical team to provide outpatient and surgical support there. A02 is from Qinghai and is the head of surgery at the hospital where he works. He was part of the medical team in Burundi, providing outpatient and surgical support. A03 is from the Jiangsu Institute of Schistosomiasis Control and Prevention and is a laboratory staff member who has been to Zanzibar for schistosomiasis control. A04 is an infectious disease specialist from the Chinese CDC who was assigned with 13 other experts to conduct health training in Sierra Leone when Ebola swept through the country in 2014. A05 is an acupuncture specialist from Jiangxi province who went to the Tunisian Acupuncture Centre to train local acupuncturists.

On the other hand, the researcher also contacted Jin Nan (A06), an associate researcher at the Health Development Research Centre of Ministry of Health, China. Dr. Jin has a background in academic research on China-Africa health aid. Based on a health facility building project, the Victoria Hospital in Mauritius, Dr. Jin provided much valuable information and shared her insights on China's aid to health facilities in Africa for this study. After the interview, the researcher expressed the wish to be introduced to other interviewees, especially those from NGOs. Finally, Dr. Jin introduced the researcher to two interviewees, A07 and A09. A07 is from the China Foundation for Poverty Alleviation and was responsible for the Abu Osher Hospital

aid project in Sudan and has experience working with the Sudanese civil society organization BTO. As the project was donated by China National Petroleum Corporation, which is also responsible for other health facility projects in Africa, the researcher asked A07 to introduce another contact in this corporation, A08. A08 was in charge of the corporation's aid project, Al Fula Hospital in Sudan. Finally, A09 is from Beijing Urban Construction Corporation and was the project manager for the Niger General Hospital project. In addition, the researcher could gather adequate documents on the design aspects of this project.

The researcher conducted separate interviews with each of the 11 interviewees mentioned above. Prior to conducting the interviews, an interview guide was defined. As this study includes multiple aspects of the different phases of health projects, researcher used semi-structured interview, which helps to provide a space for respondents to present their personal experiences, reflections or understanding of concepts that provide data for this study from various aspects. Furthermore, this approach potentially allows for the discovery of new and important aspects relevant to this study, leading to the development of new categories. Besides, before the interviews began, the researcher explained the purpose of the interviews to the interviewees and obtained prior consent from all interviewees to record the entire interview. Due to the Coronavirus pandemic, all interviews were conducted online, five via Zoom and six via WeChat. Because the language used is Chinese, most of the audio content was transcribed with the help of the Chinese speech transcription tool 'Xunfei Hear'. One audio was transcribed manually by the researcher because of difficulties with the tool due to accent problems.

3.3.3 Sampling Result

As mentioned above, this study uses triangulation to ultimately collect data from 20 projects, as well as data related to these 20 projects, either in a previous or subsequent order. The following is a list of the projects studied in this thesis.

Sending medical teams:

- CMT-1 A01 Inner Mongolia - Rwanda (General Practitioner Medical Team + Training)
- CMT-2 A02 Qinghai - Burundi (GP Medical Team + Training + Supplies)
- CMT-3 A03 Jiangsu – Zanzibar (Prevention and treatment of schistosomiasis)
- CMT-4 Guangdong – Ghana (Heart Specialist Medical Team)
- CMT-5 He Eye Specialist Hospital - Uganda (Private ophthalmology company, in partnership with the government)
- CMT-6 Zhejiang – Mali (GP Medical Team + Training + Supplies)
- CMT-7 Yunnan- Uganda (Medical team against AIDS)
- CMT-8 Guangzhou - Comoros (Anti-Malaria Medical Team)

Building health facilities:

- I1 Comoros Anjouan - China Friendship Hospital (Chinese Government)
- I2 A06 Mauritius Victoria Hospital (Chinese Government)
- I3 A07 Sudan Abu Osher Friendship Hospital (Company + NGO)
- I4 A08 Sudan Al Fula Hospital (Company)
- I5 A09 Niger General Hospital (Chinese Government)

Training African health care workers:

- T1 Fudan - Ethiopia Women and Children (CMT)
- T2 (Online) Beijing – Guinea Neurology Training (CMT)
- T3 A04 Sierra Leone Ebola Health Training (CMT)
- T4 A05 Jiangxi – Tunisia Acupuncture Centre (CMT)

Providing medical equipment and medicines:

- M1 A11 Zhejiang – Central Africa Medical Equipment (CMT)
- M2 Henan – Ethiopia Medical Equipment and Medicines (CMT)
- M3 Jack Ma Foundation – AU Materials for the fight against Coronavirus (NGO)

3.4 Category Building

Having completed the sampling, this section will identify the key areas of analysis, which are the categories. As described in 3.1, this section will use deduction combined with induction to conduct category building. Theories in Chapter 2 broadly provides the framework for the construction of categories for this study. Accordingly, pre-defined categories and some sub-categories are created. During the data collection process, the data and categories are continuously compared. In a feedback loop, the categories and subcategories are revised, refined, and differentiated (Mayring, 2000), unsuitable categories are adjusted, removed, and new important aspects are developed into new categories.

First of all, according to the framework of the theoretical part, the categories are divided into three parts according to project phases: 1. Project Formulation, 2. Project Implementation and 3. Project Outcome. The category 1.1 'Needs Pull' under the '1. Project Formulation' corresponds to the ownership of the recipient country and collects information on whether the recipient country has expressed relevant needs and the willingness of the recipient country. 1.2 'Needs Assessment' is a category developed based on the data collected from the interviews and combined with readiness for change theory. In the interviews, respondents mentioned some shortcomings in China's role as a donor in terms of 'identifying the needs of the recipient' and 'reflecting on its own capacity and practices'. After compiling the data, researcher used 'Identifying Needs' and 'Self-assessment' as two subcategories. Of these, 1.2.1 Identifying Needs was suggested by the interviewees and is related to 'task needs' in the 'change efficacy' of readiness for change theory. Information on

'whether China identifies the needs of the recipient country when designing the project' will be collected under this category. And 1.2.2 Self-assessment will focus on data that can be used to analyze 'whether China has assessed or reflected on its own capacity in various aspects of implementing the project'. 1.3 'Decision-making' is based on a complexity perspective, in particular the relationism developed in advance. 1.3.1 Decision-makers & Power Relations concentrates on who decides to organize a project and what power relationships exist. In 1.3.2 Stakeholders, data about stakeholders behind an aid project will be collected. The theme 1.3 'Decision-making' is most evident in the case of 'Building Health Facilities'.

Based on the complexity perspective and the theory of readiness for change, the category 2.1 Preparation for Implementation was developed. 2.1.1 Personnel Training focuses on the training of Chinese aid workers before the start of aid, including various aspects such as the foundation of disease problems, language, and cultural customs. While 2.1.2 Examination of Local Context focuses on the examination of the local context, including the environment, material situation, and personnel situation. 2.2 Organization of Aid Delivery involves both the content and structural dimensions of aid practice. 2.2.1 Aid Practice, the content level, focuses on the important practices and the small things that make a lasting impression on the respondents in the project collaboration. 2.2.2 Interpersonal Network, the structural level, is developed based on a complexity perspective and diffusion of innovation theory. This theme focuses on the relationships and networks formed by the participants in the project and the roles they play. 2.3 Communication Barriers, drawn from the complexity perspective, diffusion of innovation theory and readiness for change theory, has several subcategories that address different aspects of variability between aid providers and recipients. After organizing the data, several aspects of communication were identified that had an impact on the research projects '2.3.1 Language', '2.3.2 Identity & Motivation', '2.3.3 Culture'. The theme 'Language' focuses on the practical problems due to language barriers. The theme 'Identity & Motivation' focuses on

situations where aid delivery is hampered by questionable identity or motivation of Chinese aid workers. This was developed from a combination of the 'motivation' referred to in diffusion of innovation theory and the identification of local members with the project as referred to in the 'change commitment' of readiness for change theory, adapted after collecting interview data. The theme 'Culture' focuses on practical problems caused by Chinese aid workers' lack of understanding of local customs, religion or other cultural backgrounds. 2.4 Emergence is developed from a complexity perspective. In this perspective, the development cooperation system is unpredictable, and situations can arise that are not predetermined by the blueprint of the provider. So, this category will focus on such incidents and how they are handled, the impact on the cooperation project. Sub-categories under this theme are developed by the inductive method and are organized in four main areas: Management, Supplies, Technology and System. 2.4.1 Management includes the management of workflow, the Chinese foreign aid team, the operation of specific sections, or the management after project completion. 2.4.2 Supplies includes how to deal with the lack of supplies or the lack of quality of supplies. 2.4.3 Technology includes technical problems encountered or how to use technology to solve problems. 2.4.4 System includes problems encountered or problems solved at the system level due to a lack of understanding of the local system operation mechanisms.

The categories under 'Project Outcomes' are taken directly from the capacity building theory: 3.1 Tools, 3.2 Skills & Knowledge, 3.3 Staff and Infrastructure, 3.4 Structures, Systems and Roles. As stated in theoretical part, 3.1 represents the easiest assistance to put into practice, while 3.4 represents the most 'difficult' and socio-culturally relevant aid, which will take longer time to implement change. It is possible for a project to involve capacity building in one or multiple categories. The details will be analyzed in the next chapter.

3.5 Difficulties in the Study Process

During the pre-sampling preparation process, I encountered difficulties in grouping projects. There is no official classification of health assistance programs in China, and there is often overlap in the various categories of programs. In addition, some of the projects that had continuity are actually considered stand-alone project assistance rather than program assistance, making it challenging for me to determine how to classify and sample the projects. Fortunately, I finished the interview with Director Chen shortly after. Drawing on his understanding of China's health cooperation programs with Africa, I was inspired to classify these projects. After re-examining the need for project selection in this study, the classification and sampling principles of projects were determined. Collecting projects with continuity will help this study to explore the planning of health projects and their solutions to specific local health problems. However, the main object of the study remains the 20 projects themselves, and the preceding and following projects are not counted in the study sample size, so as to avoid creating confusion regarding the structure of this study.

During the data collection process, contacts within the organization occasionally indicated that relevant information was not available. Whether the documents were few or could not be made public because they contained politically sensitive information, this was an expected issue. This issue itself was a major motivation for the researcher to complete this study. Therefore, the data collection in this study relied heavily on the researcher gathering scattered information through the Internet and consolidating it, as well as conducting in-depth interviews. However, several internal materials were still obtained eventually, and permission was obtained from the contacts to use them. These materials provided valuable information for this study.

During the interviews, some of the interviewees were initially sensitive. Although I made my purpose clear before the interviews began, some respondents still had

concerns. This could be a major impediment to data collection, so I immediately offered them the suggestion of anonymous interviews and repeated my intentions. In the follow-up interview, I adjusted what I said during the self-introduction and research presentation phases to emphasize that my family had been involved in medical assistance to Africa and that I therefore had a strong research interest in the field. This served to diminish my 'outsider' status (Dannecker and Englert, 2014). By doing so, I found that my identity as an 'insider' and 'outsider' was constantly negotiated (ibid., p.246) and helped to build a trusting relationship between me and the interviewees from the beginning. Furthermore, it should be noted that some answers may have been given due to social desirability (Dannecker and Vossemer, 2014). Respondents may give answers that are consistent with popular views and politically correct responses rather truthful answers. For example, experts, because of their special status and position, usually give answers that are consistent with political correctness in their country. These answers can, to some extent, lead to biased results of the study. The occurrence of this phenomenon can be noted after compiling the interview data but is more limited.

Finally, there were technical issues. Since the interviews were conducted online, network instability had some impact on the smoothness of the interviews and the recording, but it was not a big problem. Most of the transcriptions were done with the help of the transcription tool 'Xunfei Hear'. I only did one transcription manually because the interviewee's accent made it impossible to transcribe with the tool.

4. Analysis

Having completed the category building, the data will then be analyzed. This chapter is divided into four main sections. Firstly, as discussed in Chapter 2, complexity theory points to the importance of studying the 'systemic stability' (Arkesteijn, van Mierlo and Leeuwis, 2015). That is, how the relevant mechanisms established historically have maintained the stability of the system and the extent to which interventions and reforms have had an effect. Therefore, in 4.1, the mechanisms and reforms that have occurred in China's foreign aid system will be analyzed and it will be examined whether these mechanisms have maintained a stable pattern and whether the reforms have disrupted that pattern. In the next three sections, the effectiveness of China-Africa health development projects will be analyzed in terms of their formulation, implementation and results phases respectively, based on a theoretical framework.

4.1 China's Foreign Health Aid System

According to Huang and Hu (2009), China's foreign aid management system consists of three nominally equivalent government agencies: the Ministry of Commerce, the Ministry of Foreign Affairs and the Ministry of Finance. The Ministry of Commerce, and in particular its Department of Foreign Aid, is responsible for managing China's foreign aid efforts. The Ministry of Foreign Affairs coordinates with the Ministry of Commerce in the formulation of foreign aid policies and annual plans, seeking to ensure that the foreign aid agenda is consistent with broader foreign policy objectives. The Ministry of Finance, on its part, coordinates with the Ministry of Commerce in the formulation of foreign aid budgets and was responsible for China's financial contributions (*ibid.*). China's foreign health assistance, as a part of foreign aid, also falls within this system. Based on Wang et al. (2015), the Ministry of Commerce is responsible for the construction of project packages such as hospitals, health centers,

malaria control centers and laboratories, as well as the donation of medical equipment, medicines and the organization of health training. The Ministry of Foreign Affairs embassies (consulates) abroad are responsible for the management of foreign medical aid teams while they are abroad and for providing emergency humanitarian assistance. The Ministry of Finance is responsible for allocating funds for non-reimbursable aid for health assistance abroad. It should also be noted that the Chinese Ministry of Health, as the operational authority in the field of health, is responsible for organizing the dispatch of foreign medical aid teams, short-term expert groups, and organizing the training of health officials and technicians (ibid.).

The CMT projects are organized by the Ministry of Health. African countries are paired with specific Chinese provinces, and public hospitals and local medical schools in each province are responsible for staffing the medical teams (Liu and Wang, 2015). This model has been in practice since the 1960s, and each province has its own counterpart in Africa, which is mature in operation (Li, 2011). Whereas projects such as health facility construction and material donations involve several agencies within the Ministry of Commerce and the Ministry of Foreign Affairs, the situation is more complex and thus more prone to difficult issues. Firstly, there is a fierce competition between the Ministry of Commerce and the Ministry of Foreign Affairs to control foreign aid projects and prioritize their own interests (Rudyak, 2019). Moreover, the Ministry of Commerce had the upper hand in this competition for a long time. This changed under Xi Jinping's administration, as former Foreign Minister Yang Jiechi was promoted to State Councilor and member of the State Council Party Group (ibid.). Next, because of the long absence of any substantial institutional reform, China's previously Ministry of Commerce-led foreign aid system has become increasingly fragmented and complex (Wang et al., 2017; Rudyak, 2019). More seriously, like much of China's political system, the foreign aid system suffered from information silo (Rudyak, 2019). This means that information was only passed on within departments and little or no information was exchanged between them.

Sometimes, even communication channels within the same department could be blocked. This is a common problem in China's foreign health assistance system (Wang et al., 2017). The Paris Declaration's principle of effectiveness points out the importance of harmonization between agencies, and that only by promoting information sharing is it possible to increase the effectiveness of aid (OECD, 2005). Information silo within donor countries will inevitably hinder coordination with recipient agencies. Thirdly, China's foreign aid system lacks supervision, which creates obstacles to accountability and sometimes leads to waste or corruption (ibid.). This is a long-standing problem. In early 2014, the CPC Central Discipline Inspection Commission found through its investigation of the Ministry of Commerce's foreign aid management that there was a significant risk of corruption in foreign aid projects (Rudyak, 2019). There was little effective oversight of foreign aid projects, major problems with budget management and bidding procedures, and widespread illegal spending. Many projects were rushed into action without feasibility studies and completed without impact assessments (ibid.).

To address these issues, in 2018, the China International Development Cooperation Agency (CIDCA) was established. It replaced the Ministry of Commerce as the main coordinating agency for China's foreign aid. This newly formed vice-ministerial agency took over the staff and foreign aid coordination functions of the Department of Foreign Aid of the Ministry of Commerce (CIDCA, 2018). CIDCA negotiates aid with recipient countries on behalf of the Chinese government and sign international agreements on its behalf. It will draft national strategies for recipient countries, allocate foreign aid funds, identify aid projects, monitor and evaluate project implementation, and conduct aid policy reviews (ibid.). However, the role of CIDCA will not go beyond management and coordination. In the area of health cooperation, the situation is the same. After the establishment of CIDCA, joint decision-making between the Ministry of Commerce and CIDCA on some CMT as well as non-CMT projects can be observed in the research samples of this study. However,

responsibility for execution remains with the Ministry of Health, the Ministry of Commerce, and the committees and agencies under their leaderships, and assistance projects are still implemented specifically by hospitals, private medical institutions, companies or CSOs.

Although the CIDCA was established to resolve the bureaucratic fragmentation of the management system, it may also create new friction with the Ministry of Commerce, which remains the main department in charge of aid execution (Rudyak, 2019). While the CIDCA is expected to coordinate the execution of the Ministry of Commerce's foreign aid projects, it is at a lower level than the Ministry of Commerce⁸. Until now, the International Economic and Trade Relations Department of the Ministry of Commerce, previously responsible for coordinating foreign aid, has remained the liaison intermediary for international aid agencies (*ibid.*). Though on the surface, the CIDCA has become the official aid agency for international exchange and cooperation, the above situation has not changed. Without a national-level legislative framework to define the institutional relationship between the two organizations, they would disagree on their authority (Cao, 2018). For now, China does not have any binding overall national regulations governing foreign aid. Moreover, with multiple responsibilities, the CIDCA did not take over any more human resources than before. At present, it has only around 100 staff members (CIDCA, 2018), which is very few compared to other countries' international development cooperation agencies. For example, the German Federal Ministry for Economic Cooperation and Development employs around 1,100 people to carry out duties of a similar size (Federal Ministry for Economic Cooperation and Development, 2022). Inadequate human resources, the lack of relevant legislation and the fact that it is at a lower level than the Ministry of Commerce and the Ministry of Health would seem to prevent the new agency from bringing about substantial changes to the previous system.

⁸ China's Ministry of Health and Ministry of Commerce are both full ministerial-level agencies, while CIDCA is a vice-ministerial-level agency.

In conclusion, the Chinese government has become aware of the discouraging practices in foreign aid practice. Instead of 'normalizing' (Arkesteijn, van Mierlo and Leeuwis, 2015) them, the government is trying to solve this problem. As a result, the Chinese government has created a new agency, CIDCA, which is a challenge to China's traditional foreign aid system. But so far, this appears to have made limited difference to the mechanism of China's foreign aid. The same applies to China's foreign health cooperation, which is part of it. The competition for authorities between the Ministry of Foreign Affairs and the Ministry of Commerce still exists in China's foreign health cooperation projects. The details will be unfolded in the next section 4.2 based on specific projects. Moreover, the entry of CIDCA will give rise to new issues concerning its authority with other ministries. Besides, whether the problems of information blockage and lack of monitoring and accountability between sectors can be resolved through CIDCA will remain unknown until further legislation and evaluation systems are in place. In other words, the establishment of CIDCA as a high-profile intervention brings the promise of improved mechanisms, but disruption of the established, traditional system has still not taken place until subsequent steps are perfected.

4.2 Project Formulation

According to discussions on effectiveness in the international development sector, development cooperation projects should guarantee the ownership of the recipient country and be aligned with the relevant systems of the recipient country. The “White Paper on China's International Development Cooperation in a New Era” states that China, as an aid donor, will carry out development cooperation based on the principle of 'proposed by the recipient country, agreed by the recipient country and led by the recipient country' (Information Office of the State Council of the People's Republic of China, 2021). However, the researcher found, based on documentary data and

interviews in this study, that while some projects do reflect features such as developing projects based on recipient country needs and consulting with recipient countries at the formulation stage, there are some projects that do only partially, or to a very limited extent. This section will analyze the 'formulation' phase of China-Africa health cooperation projects in relation to the theoretical framework. The analysis focuses on the three areas of Needs Pull, Needs Assessment and Decision-making.

4.2.1 Needs Pull

Reviewing the data, the researcher found that much of the information under this category could only suggest that the health cooperation projects designed by China could meet the recipient country's medical deficiencies. In other words, these health projects have a 'needs base'. From this perspective, all of the projects in this study have a 'needs base'. However, there is a difference between this and 'needs pull'. There are many needs for health development in African countries with generally poor health conditions, but the priorities are the most important. The dominance of the recipient country in setting development priorities can increase the success of development partnerships (Russo, Cabral and Ferrinho, 2013). Therefore, true 'needs pull' should be based on the criteria that 'the recipient country presents that demand' and that 'the recipient country takes the lead in setting development priorities'. The researcher found that only some of the projects met this criterion.

Almost all of the 'sending medical team' projects meet this criterion. However, GP Medical Team⁹ projects need to be discussed separately from others. According to Director Chen,

⁹ GP refers to General Practitioner. The contents of this type of CMT project are typical of 'sending various types of doctors to conduct outpatient clinics and surgeries and to provide guidance to local doctors'.

'Since the 1960s, various Chinese provinces have been responsible for sending medical teams to different African countries [...] Protocols for health cooperation are regularly renewed between the two sides. At the time of renewal, the two sides would negotiate and the recipient country's requirements for medical teams would be reflected in the protocol.' (Interview 10)

In other words, procedurally, China is sending the appropriate medical personnel to assist the recipient country at its request, and the content of the assistance will be negotiated with the African country at each renewal of the contract. However, it is worth noting that the GP Medical Team projects, a form of assistance that has been practiced for decades, has a fairly fixed pattern. As A01, who went to Rwanda to provide orthopaedical care, said, 'It is a habit to send medical teams, we always send 15 people in one batch, usually with physicians, surgeons, obstetricians and gynecologists, because there are very few specialists there [...]' (Interview 1). Both sides have gradually acquiesced and become accustomed to this type of assistance, and this can lead to negligence in the consultation and discussion of such projects. The recipient's 'needs pull' motivation is thus reduced.

A stronger 'needs pull' association with health projects can be observed in the data from the other five 'sending medical team' projects, particularly in the projects that provide technical assistance for a specific disease. For example, in the prevention and treatment of schistosomiasis project, the project against AIDS project and the anti-malaria project, there are clear data on 'demand from recipient countries'. This means that African countries themselves raise the issues and formulate their own development strategies, reflecting country ownership and increasing the success of development partnerships (OECD, 2005) and are therefore more 'effective' in the perspective of this study. In addition, the Heart Specialist Medical Team project in Ghana is a CMT project that helps local hospitals to establish or develop relevant departments. The project is not directly proposed by the recipient country but has a clear 'needs pull' character. The number of cardiovascular cases in Ghana is increasing every year and the level of treatment for congenital heart disease in children is

particularly poor, but there is a general lack of attention to chronic diseases such as cardiovascular disease. Lin, the doctor sent to assist the local hospital, realized the urgency of developing a local cardiovascular unit, carried out research in the area, returned to China and submitted applications up the chain, which eventually led to the birth of the project (China Wenming, 2021). As can be seen, in the field of health cooperation, given the extremely poor medical conditions in African countries, it can happen that urgent needs do not receive local attention in the health sector. Donor countries can therefore also make an important contribution in 'needs pull'.

In health facility construction projects, there often seems to be cases where the project is not demand driven. The interviewee in this study, Dr. Jin, has experience of researching Chinese foreign aid of health facility building. According to her,

'In general, when there is a lack of understanding of the local health system and a desire to help developing countries improve their health infrastructure to some extent, China will offer to assist with small-scale and infrastructure projects [...] It is sometimes difficult to ascertain the extent to which local governments are promoting relevant projects [...]' (Interview 6)

She also argues that 'the establishment of 30 anti-malaria centers for Africa', one of the measures to promote the development of the new strategic partnership between China and Africa, as proposed by President Hu Jintao at the Forum on China-Africa Cooperation (FOCAC), is relatively negligible in terms of examining specific needs while being highly political. (Interview 6) In this study, three projects organized by the Chinese government to build health facilities are based on the contents of the FOCAC meetings, where cooperation agreements were signed between China and Africa. The data show that these recipient countries are very short of health infrastructure and have an extremely low average number of hospital beds per 10,000 people (People's Hospital of Baise, 2021). However, data from only one of these projects shows that the project was actively promoted by the local African government. Moreover, the Sudan Al Fula Hospital project, undertaken by China

National Petroleum Corporation (CNPC), is an aid outside the agreement between the two governments. According to A08, who is in charge of the project,

'CNPC funded the construction of the Fula Hospital in the area after the Fula oil field was put into production in 2004 [...] We hope to achieve mutual benefits and win-win results in Africa, and to achieve both corporate and social values through the aid to the hospital.'
(Interview 8)

The project is of a highly commercial nature and is being driven by the CNPC. Finally, the Sudan Abu Osher Friendship Hospital project, run by the NGO China Foundation for Poverty Alleviation (CFPA), works closely with the local Sudanese civil society charity BTO and has a distinctly 'recipient-initiated, recipient-supported' character.

In all of the 'training African health workers' projects in this study, there is evidence of 'demand and support from the recipient country'. Various aspects of the recipient country's poor health situation, such as high maternal and neonatal mortality rates, rampant infectious diseases, and a lack of knowledge and talent in specific health sectors, prompted the local health sector to raise relevant needs. Based on these needs, China sends teams of experts with the appropriate skills to African countries to provide skills and knowledge training.

Finally, it is often the case that the 'needs pull' criteria are not met in equipment and medicines supply projects. According to interviewee A11, who has relatively good knowledge of health material assistance to Africa,

'We always donate whatever we think they lack [...] Even if the device is not available locally, it doesn't mean that we should donate it [...] There are so many things that they lack that donating advanced equipment may not address their critical needs.' (Interview 11)

It is not uncommon for China to donate certain supplies they consider to be lacking in the region, as exemplified in this study by the donation of supplies in the Zhejiang - Central Africa Medical Equipment project and in several CMT projects.

4.2.2 Needs Assessment

In this section, the identification of the needs of the recipient country will be further analyzed. According to readiness for change theory, an assessment of 'task demands' is ultimately more likely to mean effective implementation of aid (Weiner, 2009). The responses provided by the interviewees further illustrate the importance of identifying needs. The researcher noted from the project data that the projects that reflect the distinct 'needs pull' characteristics discussed in the previous section also did equally well in 'identifying needs'. These are: the CMT projects, which provide technical assistance for a specific disease; the training African health care workers projects, and the NGO-led health facilities building project. In contrast, the GP Medical Team projects, part of the health facilities building project, and part of the providing medical equipment and medicines projects did not do a good job of 'identifying needs'.

In the 'send medical team' projects, the GP Medical Team projects underperformed in identifying local needs in three ways. Firstly, the Chinese doctors surgeries in African countries are based on local medical equipment and supplies. However, several projects did not identify the equipment or medical supply needs of the local hospitals in advance, and the doctors only discovered a significant shortage of supplies when they arrived. 'If the local doctors had been asked in advance what their needs were, they would have mentioned basic supplies such as common bandages, stents and so on [...] Now these things are not available.' (Interview 1) Many respondents also reported similar problems. A further example follows. 'This is a general hospital, but there is also an extreme lack of resources. Especially when we do surgery for

interdisciplinary compound injuries, it is dangerous not to have imaging support [...]' (Interview 2). It can be argued that there is a serious lack of communication in at least some of the GP Medical Team projects. The continued dispatch of GP Medical Teams without the necessary equipment and supplies shows a lack of holistic thinking on the part of China regarding this type of assistance, which also means that local patients continue to endure reduced treatment and continue to bear higher risks of surgery. Secondly, according to the laboratory staff of the schistosomiasis prevention and treatment project,

'Our project is completed very well also because it is taken very seriously by the province and schistosomiasis control is an important issue [...] Not so with GP medical team projects [...] For example, there are a lot of dental problems over in Zanzibar, but very few dentists are sent to volunteer. One of my colleagues has been there and the local doctor kept asking him questions and when he would come next [...]' (Interview 3)

The same question has been mentioned by A02, who has been to Burundi for surgical assistance:

'The hospital will try to arrange doctors from various departments as assistance staff, but it doesn't necessarily [...] it depends on the specific people who are willing to be sent out and the staffing arrangements within our hospital. ' (Interview 2)

That is, in the GP Medical Team projects, the deployment of doctors does not sufficiently take into account the local need for the type of doctor. Burundi has a very high fertility rate, but the recipient hospital has almost no pediatric surgery, 'Our team should have brought in specialists in pediatric surgery.' (Interview 2) It is also an example of this. The third problem, which is also reflected in the CMT-5 eye care project, is that the duration is too short and lacks continuity. For example, the CMT-5 project actually lasted for only two days (Dalian He Eye Specialist Hospital, 2011). A01 and A03 also mentioned, respectively,

'If there is only such a short period of time each time and then a different batch, it will definitely affect the results [...]' (Interview 1)

'This short term CMT dispatch, six months for each batch [...] is not good for continuity of work.' (Interview 3)

Additionally, under the 'sending medical team' projects, several projects providing technical assistance for a specific disease, including the cardiovascular unit development project promoted by Chinese doctor Lin, have fully identified the needs of the mission before aid. Needs have been confirmed either by sending a team of experts to the area to conduct research, or by conducting a questionnaire survey of African trainees trained in China, or by continuous communication with the staff of the local Ministry of Health.

In addition to the three 'providing medical equipment and medicines' projects, several CMT projects in this study also contained a material donation component. The data from the study shows that donations of specific supplies that are requested by Africa are usually more easily matched to needs. For example, a request for an ambulance was made in Ethiopia and this was met relatively quickly by the Henan Provincial Health Department (Zhejiang Provincial Health Commission, 2021). However, it is also common to see donations that are not initiated by the recipient and where there is a complete lack of communication and coordination. In particular, the Chinese side often decides on its own that the other side may be short of certain equipment and makes a donation without any communication with the other side.

'There is some advanced equipment that we thought hospitals in Central Africa must lack and we donated to them [...] In reality they may not need it, or they are not able to use it, or they can't use it because of a shortage of supporting consumables, or there are already other countries that have donated this equipment [...] What matters most is not how much we give, but that what we give matches their needs [...] to meet the needs of medical staff, to have the right context for use [...]' (Interview 11)

African countries have a poor health basis and a severe shortage of supplies, especially advanced equipment, but a shortage does not mean an immediate need for donations. If a hospital lacks basic medical supplies, then even if advanced medical

equipment is donated, the utilization rate will be low because the medical staff may not have the skills to use it, or the hospital may lack the necessary conditions to use it. The same issue was mentioned by A02:

'The hospital receiving the equipment donations is smaller than the hospital we are assisting, and there are no medical teams [...] If it had been donated to the hospital we are in [...] at least we would have taught them [how] to use [it] [...] that hospital would most likely be in greater need of more basic medical supplies.' (Interview 2)

In response to these problems, interviewees suggested reflections that China should make when developing material assistance projects. 'Medical equipment and supplies should not be seen as stand-alone items' (Interview 11), but rather should focus on the conditions needed for the equipment to be fully effective. For example, the actual need for the equipment in the hospital, the local conditions for using the equipment, and the ability of local doctors to use the equipment. On the other hand, these problems were not reflected in any of the material donation projects undertaken by the NGOs in this study. The reason for this can be attributed to the fact that the need for supplies was raised by the local charity organization and that there was ongoing liaison between the two parties, 'The need was fed back to us by the local charity organization BTO, whether it was a need for baby warmers or [...] We were in constant contact.' (Interview 7)

The training projects for health workers in Africa are almost always characterized by a close integration with local development needs. The Ethiopian Women and Children project is based on continuous communication with the local health minister and the head of the maternal and child section of the health office. The training of the neurology cadre has been developed around the needs of the local hospital in building a neurology center in all aspects. The Ebola Health Training project is based on the outbreak situation in Sierra Leone and is designed to cover everything from basic knowledge, community prevention and control strategies, to individual prevention and control. Tunisia Acupuncture Centre's acupuncture training project is also based on

the center's development needs. However, this type of project is also sometimes characterized by the short duration of the assistance, which results in limited training content, failure to consolidate training content, etc.

Little effort has also been made to 'identifying needs' for health facility projects that do not have 'needs pull' characteristics. According to Dr. Jin,

'At present, China's foreign aid of health facilities is still based on the standard infrastructure construction such as roads and bridges [...] Building a standard hospital or a health center is a convenient option for China.' (Interview 6)

Identifying needs for this type of project means not only confirming whether a particular health facility is needed in the recipient country, but also understanding the local health system, and the Chinese government seems to tend to offer standard infrastructure projects. The interviewees also suggested how China should reflect on this phenomenon and improve the project formulation.

'Aid in kind is easy [...] the hard part is functional aid [...] how to make the health systems of African countries develop themselves [...] For healthcare institutions to be functional, they also need human and financial input [...] and they need to be integrated into the local health system.' (Interview 6)

This means that health facility construction projects should not be considered independently of the local health system. Rather, the elements needed for the continued operation of the health facility, should be taken into account, not just the completion of the hospital. China should have a holistic design consideration. On the other hand, the Sudan Abu Osher Friendship Hospital project, which is clearly 'demand-driven', was prepared by the CFPA in terms of needs for facility construction, human resource, material and equipment, and human resource development. (Interview 7)

In general, some groups of projects do better in terms of needs identification because they are more highly valued due to the nature of the project, or because their content is highly targeted and therefore prompts donors to identify needs. Some projects, such as health facilities construction and materials provision, can be carried out without the identification of needs. Although such assistance may not ultimately improve the local health situation, the political advocacy for it can serve as evidence of the development of the China-Africa partnership. In terms of needs assessment, projects run by private organizations or companies did not perform better than those run by the Chinese government, but those run by NGOs all did better. In a complexity perspective, this reflects the different levels of attention paid to 'difference' by different actors.

Whether aid is delivered using uniform criteria for convenience or presupposed as a matter of fact without communicating with African staff, it reflects a disregard on the part of aid providers for the specific needs of each recipient. The attention to these 'differences' are exactly what often opens up the possibility of change (Eyben, 2010; Fransman et al., 2021), and means that identification of needs is 'effectively' done in this study's perspective. Conversely, ignoring these differences would also mean that this stage was not done effectively enough.

4.2.3 Decision-making

Relationism sees international development as shaped by particular configurations in the realm of power and meaning, behind which there is an interweaving of power between parties (Eyben, 2010). It guides this thesis to focus on the decision-making process behind health cooperation projects, the relationships between stakeholders and the impact they have on decision-making. In this section, therefore, data on the decision-makers, power relations and stakeholders will be analyzed. This theme is most evident in health facility construction projects and material provision projects. Hence these two types of projects will be the focus of analysis.

As discussed in 4.1, there is an intertwining of powers between China's Ministry of Health, Ministry of Commerce, Ministry of Foreign Affairs and Ministry of Finance. The sending of medical team projects is funded (except for basic salaries) and organized by China's Ministry of Health and is a more mature and independent process. The data shows that the process of developing such projects is almost free from complex power relations and is more efficient. As some projects for specific infectious diseases will require equipment or supplies, there are sometimes clear stakeholders. For example, in the Zanzibar prevention and treatment of schistosomiasis project, the CMT used Chinese-made praziquantel to carry out schistosomiasis killing in a pilot area to collect data and provide technical support for the medicine's application for WHO prequalification for production (Luo et al., 2021). The Comoros Anti-Malaria project is also the first to promote artemisinin piperazine tablets for malaria control (Xinhua, 2021).

Material provision and health facility projects more frequently involve power relations and stakeholders. These projects are usually the responsibility of the Ministry of Commerce. China's health facility assistance to Africa is usually in the form of project packages¹⁰, and the Ministry of Commerce is the administrative authority for project packages, with its Bureau of International Economic Cooperation responsible for the implementation of the packages. After collating the data, it can be concluded that after the government of the recipient country has submitted its request for assistance to the Economic and Commercial Counsellor's Office of the embassy abroad, the Ministry of Commerce will consult the Ministry of Health and the Ministry of Foreign Affairs to confirm the assistance project. After the project has been set up, a tender will be organized by the Bureau of International Economic Cooperation Affairs. The successful bidder will be responsible for the final project

¹⁰ Project packages aid, i.e. project in which the Chinese side provides complete sets of equipment and engineering facilities and provides long-term quality assurance and supporting technical services to the recipient side through organizing or directing the whole process of construction, installation and trial production, or some of the stages thereof (Wang et al., 2017).

design and construction. The Ministry of Commerce has the lead in the whole process. In this study, it was not possible to obtain more specific data on tenders and bids other than the winning bidder, as the data was not transparent. Dr. Jin adds,

'Infrastructure aid projects are more prone to corruption in the bidding and budget management part of the project [...] There are some sectors where the technical threshold is relatively low and there are no uniform criteria for what companies are selected.' (Interview 6)

It is evident that this part involves interests and is more complex and unregulated. In addition, data show that Chinese health facilities aid in Africa is usually under concessional loan agreements. Despite the very low or zero interest rates under the HIPC debt reduction program, this has created debt pressure. Besides, the hospital project established by CNPC is also based on its interest in the area. 'We have the right to develop oil in Block 6 with a 95% interest.' (Interview 8) The hospital was built after the oil field production had begun. CNPC hopes to enhance its corporate as well as social value through the construction of the hospital (ibid.).

Regarding the materials provision projects, data exist on the eye care project run by a private company. This company is a base for the prevention and treatment of blindness designated by the Ministry of Health. Following the 2018 China-Africa Eye Health Development Forum, this company signed several cooperation agreements with the African Eye Association and several African ophthalmology societies (He Eye Specialist Hospital, 2018). However, according to the information, this company has diverted assets from non-profit organizations (NetEase, 2021). In the area of R&D expenditure, which represents enterprise's investment in science and technology, the percentage of R&D investment has not exceeded 0.5% in any year since 2017 and has been decreasing year on year. This company has supported a large number of intelligent eye screening devices for African countries, but these high-tech devices were not developed by it, but purchased (ibid.). In other words, the private company, despite the controversies, irregularities in its operations and lack of transparency in its

accounts, has still signed cooperation agreements with several African countries through its cooperation with the Ministry of Health. It actually acts as an intermediary in the provision of smart ophthalmic equipment to Africa, with a clear commercial profit-driven character.

In general, the projects under NGO responsibility are the most transparent and clearly dominated by NGOs in the whole process, not involving complex power relations and interest-driven features. The health facility construction projects under the responsibility of the Chinese government have complex power relations across sectors and complex interest relationships with minimal transparency, while other projects run by Chinese government do not appear to have similar characteristics. Projects that are undertaken by companies or private organizations have a clear profit-driven character. According to relationism, the diverse identities, interests and needs of those involved in the practice imply an intertwining of power that will collectively shape the practice (Fransman et al., 2021). There are both opportunities and risks to enhance development assistance. The lack of regulation and transparency illustrates the importance of improving the legislative system and developing the coordinating and regulatory role of CIDCA. The participation of private enterprises, on the other hand, implies both a wider source of funding and a corporate purpose, which, if regulated and correctly guided, would enhance China's foreign development aid.

4.2.4 Summary

Within the effectiveness perspective of this study it can be found that during the project formulation phase, CMT projects that provide technical aid for specific diseases, training African health care workers projects, and NGO-led projects all reflect 'needs pull' features and are well done in identifying needs. According to the international development community's principle of effectiveness, these projects are developed with full respect for the ownership of the recipient countries, as they have

expressed their needs through various channels and these needs have been fully considered by the Chinese side. Therefore, recipient countries have ownership in the project formulation. From this perspective, the formulation of these projects can be considered 'effective' and this is ultimately more likely to mean that the aid is implemented effectively. The researcher also notes that projects with clear 'needs pull' characteristics tend to be those that receive more attention from aid providers, or where the content of the aid is more targeted and therefore tends to facilitate the 'needs identification' work. In addition, some needs may also need to be identified and raised with the help of aid donors, as poor local health conditions in Africa may prevent the health sector from becoming aware of certain needs in time. On the other hand, the GP medical team project, some of the building health facilities projects, and part of the providing medical equipment and medicines project had problems or issues that should be improved in formulating health aid projects. Recipient countries do not have ownership in the project formulation, and even the design of project is not based on local needs. Health facility aid without identifying local needs is very likely to lead to unwarranted increases in debt for the recipient country in the case of underutilized facilities. In general, the performance of NGOs is better, of the Chinese government is mixed, and of private enterprises needs to be improved. Other issues mentioned by some interviewees, such as the short duration, lack of continuity and the lack of overall design in project formulation, will be further analyzed in the following sections of project practice and results.

4.3 Project Implementation

This section will analyze the 'implementation' phase of China-Africa health cooperation projects. The analysis will be divided into the following parts: preparation for implementation, organization of aid delivery, communication barriers, emergence encountered and response. The analysis will incorporate complexity theory, readiness for change theory and diffusion of innovation theory.

4.3.1 Preparation for Implementation

This section analyzes the pre-practice preparation part aid after the project has been developed, which mainly consists of Personnel Training and Examination of Local Context. According to the complexity perspective and the theory of readiness for change, it is important to examine the local context of the recipient country before the aid starts and to prepare the participants psychologically as well as technically for the aid to be effective (Weiner, 2009).

Projects of sending medical teams and training African health care workers require training for Chinese aid workers in advance. The data shows that almost all of these two types of projects provide training before the aid is delivered, with the exception of the two-day ophthalmology project run by a private company and the neurology training project which took place online. It can be noticed that most CMT projects paid a lot of attention to training in foreign affairs discipline, foreign languages and the risks of local infectious diseases. Also all of them provided aid workers with a certain understanding of the future work and local environment during the training. In addition, many provinces made English language skills a mandatory criterion when selecting expatriate staff, which is followed by intensive English or French language training, thus showing that the requirements are very strict. However, as Director Chen said, 'the length of training varies, from half a month in some provinces to six months in others.' (Interview 10) The data indicates that while some CMT projects are not short-term, the training is also short. Some interviewees mentioned that there was less training on local customs and culture (Interview 2 and 3). It is also suggested that some sharing by doctors with experience of assisting in Africa about local environment, problems they met and things to be noted would have been more effective (Interview 2). In 'training African health workers' projects, the CMTs are not only trained in foreign etiquette, safety and discipline, foreign languages and the risk

of local infectious diseases, but also get prepared for their training courses to African health workers. The participant A04 in the Ebola health training project, said: ' We spent a lot of time discussing the training content for Sierra Leonean medical staff [...] the medical captain from previous deployments has provided us with a lot of valuable input in developing the training design.' (Interview 4) It can be seen that those who have been involved in local health assistance can provide useful practical experience for new helpers. Furthermore, Director Chen also mentioned one point:

'Future training should pay more attention to psychological aspects [...] Local infrastructure in Africa is usually backward, the risk factor is high, and the life of the team members is monotonous and dangerous [...] the poor reception in the field and the inability to keep in touch with their families [...] It is important to build up the psychological strength to prevent any possible psychological problems.' (Interview 10)

In other words, the heterogeneity of the environment may lead to difficulties in adaptation for Chinese doctors. Overall, improvements should be made in some provinces regarding the short duration and limited content of the training and, as far as possible, doctors with experience in assistance should be assigned to conduct the training or at least be available to answer questions.

In terms of the Examination of Local Context, it can be seen that all the projects that have completed the 'identification of needs' phase well have also done well in that phase. In all projects of training African health care workers, the Chinese aid workers inspected the health situation, service situation and even administrative system locally through various means prior to practice. In technical assistance projects for specific infectious diseases, aid providers have conducted field surveys of local epidemiological patterns of infectious diseases and even epidemiological surveys of disease risk factors in non-patient populations in different communities, collecting data on disease and diet, lifestyle habits and genetics in different regions as a basis for research and analysis. Some of the health facility projects have also been well prepared in terms of visits, site selection and procurement of materials. In the case of

the Niger General Hospital project, the hospital was even designed in full accordance with the local climatic conditions, the surrounding environment, the technical conditions, and taking local region and culture into account (Liu, 2017). Besides, there is a gap between the local supply of materials in Africa and the Chinese building materials market. Because of that, the supply of construction materials often failed to keep up with the construction schedule. Therefore it is often necessary to import from neighboring countries and to sign supply contracts in advance, sometimes even including payment for the contracts upfront to ensure the supply of materials. In some medicine donation projects, an inventory and sorting of medicines was carried out and missing or expired medicines were replenished. The above projects fully examined the availability of relevant resources and situational factors prior to the start of the practice, which are decisive factors in 'change efficacy' in readiness-for-change theory (Weiner, 2009). Thus, a solid foundation was laid for subsequent practice to conduct effective training, address infectious diseases and complete health facilities on time and in line with local needs.

On the other hand, it is evident from the data that some health facility projects were not adequately visited and sited, and that there are instances of construction only being carried out to architectural standards (Interview 6; Interview 8). Some GP medical team projects did not identify the needs of the recipient in advance, so even a full examination of the local context can only compensate to a certain extent. ' [In the hospital] there was a severe shortage of medical supplies [...] we had to create a lot of inventions [some substitutive tools] ourselves using what was available locally.' (Interview 1) In some material donation projects, 'Local doctors did not know how to use them or lacked supporting consumables [...] or couldn't repair them.' (Interview 11) Equipment was abandoned because local capacity to use, supporting consumables or repair capacity was not confirmed to be available upfront. The importance of 'needs identification' is again highlighted - failure to complete this step may lead to irreparable consequences in subsequent practice. A relationalist analysis shows that

'needs identification' and 'examination of local context' belong to different nodes in the 'development cooperation' network. Although they have their own positions and are both significant, they are sequential. The outcome of the former node affects the later part. While practice is constantly changing, the whole process is variable and can be shaped (Fuchs, 2001), and the practice effects can be remedied through the examination of local context, the links between the nodes are destined to be unavoidable, so that subsequent remedies remain limited.

4.3.2 Organization of Aid Delivery

The analysis in this section covers both the content and structural dimensions of aid practice. At the content level, i.e. Aid Practice, the data indicates that both the CMT projects of specific infectious diseases and the projects for training local medical staff in Africa have made full use of local medical resources and effectively organized local medical staff. In addition, both of these types of assistance, with the exception of the neurology training project, which is conducted online, show a strong interactive nature and the process includes discussion, feedback and evaluation, with ample opportunity for local participants to ask questions and make suggestions in a timely manner. Projects for specific infectious diseases included training local health workers in epidemic prevention techniques, health awareness lectures for women, children and students, establishing standardized work procedures at the local level (information collection, sample handover, laboratory records, instrument maintenance, etc.) and training local technicians to work independently in the field, laboratory, data analysis, and more. In addition, expert groups improved hospital management, established a ward management model and adapted other processes. It is evident that these projects have been tailored to the local infectious disease situation and hospital operations and that they have effectively improved local health capacity. Similarly, training projects for local medical staff in Africa is based on the common and intractable conditions in the region and provides skills and knowledge to local

medical staff in the form of scenario simulations, skills training sessions and community outreach.

The material donation project consists of donating various equipment, medicines and other supplies. GP medical team projects usually bring some medical supplies as well, but their aid is based on outpatient clinics, performing surgeries and providing some guidance to local doctors. According to interviewee A01, the orthopaedical surgeon, 'I can correct their fracture repositioning techniques and teach them bone traction techniques [...] provide limited guidance when working [...] It would be better to run classes and training, combined with equipment for intensive instruction.' (Interview 1)

Based on the data, training workshops and surgical demonstrations, such as those offered by the Zhejiang - Mali CMT project, are also part of the GP medical team's aid, but are very uncommon and of very short duration.

In the case of health facility construction projects, according to Dr. Jin, theoretically, once delivered it means the end of the aid project (Interview 6). In fact, China's support for the subsequent operation of health facilities is indeed very limited. Data shows that in construction projects organized by the Chinese government or by private companies, China is usually responsible only until the project is completed (Interview 6 and 8). Only the hospital projects run by the CFPA provided aid in terms of materials, water and electricity conditions and the training of health technicians to ensure the subsequent operation of the hospital. Though some projects have provided regular medical teams to support surgeries and outpatient service and some have provided medical equipment later, they have not provided comprehensive assistance from an overall perspective of hospital operations, and some have even never provided any follow-up support.

The next step is to analyze aid delivery at the structural level, i.e. the Interpersonal Network, because the networks constructed between the participants are the key point

of aid practices. According to the diffusion of innovation theory, technology transfer takes place through interpersonal networks, where certain people or institutions may connect the organization to the environment, thus offering the possibility of problem solving and organizational development (Rogers, 2002). First, before the aid practice, both the projects of specific infectious diseases and the projects for training local medical staff in Africa prepare the local participants psychologically for the practice, i.e. the 'change commitment' of the readiness for change theory. In both cases, close communication with local Ministry of Health leaders and medical staff clarified the purpose of the project and their respective responsibilities, so that local personnel were fully aware of the significance of the assistance project and were thus motivated and committed to participate actively in the practice. Although according to Director Chen, 'We ask the medical team to contact local medical workers before they leave [...] to get to know the local situation and staff in advance.' (Interview 10), from the data, none of the GP medical team projects in this study communicated with local hospital personnel in advance and were therefore unaware of the lack of vital supplies at the local hospital. Secondly, in the process of assistance, all the projects for specific infectious diseases and training of medical personnel in this study have built a good interpersonal network. On the one hand, the network of providing aid spreads outwards with the Chinese experts as the core. The experts carry out visits and provide skills training in a one-to-many manner with local workers; train medical staff and arrange them to conduct health training for the local population according to administrative districts. To maintain good cooperation, in some projects key personnel are also based in Africa and continue to guide local operational staff in the field. These examples illustrate the effectiveness of 'transplanting people to transfer their technology' (Rogers, 2002, p.334): transferring experts to local Africa, thus overcoming possible barriers to assistance due to differences in environmental or other contextual factors. On the other hand, these projects have dedicated coordinators who communicate and coordinate with the Chinese government, local Ministry of Health officials and health workers. They not only obtain information about the local

environment and incorporate it into their practice, but also regularly report to the Chinese Ministry of Commerce on the latest developments and needs of the practice and request assistance with the next steps. Effective interpersonal networks of aid also exist in the GP medical team projects. For example, some medical team set up a surgical 'multidisciplinary team', which enable doctors from various disciplines to work together to solve complex surgical problems (Interview 2). However, in general, the medical teams mainly conduct outpatient clinics and perform surgeries on their own, with insufficient communication with local doctors and a lack of timely feedback to the Chinese government. In government-led or company-led health facility construction projects, there is a lack of people-to-people contact. Whereas NGO-led projects seem to be more likely to establish extensive contacts with local government departments, business and industry, think tanks, media, NGOs and grassroots communities in the recipient countries, so as to build relationships with communities and people, further understand the actual needs of the local community and target their aid work (Public Diplomacy Net, 2016). As pointed by Director Chen:

'We [Aid workers] should play the role of a connector and a transmitter [...] to connect our knowledge, skills with them, and pass on supplies and care to them [...] It is important for them to feel our care in order to build up trust.' (Interview 10)

In summary, it is clear that in order to ensure the effectiveness of health cooperation, paying attention to the foundations of practice and providing targeted, long-lasting assistance is crucial, but many projects do not appear to promote the sustainable development of local health capacity, as will be further analyzed in 4.4 Project Results. Furthermore, while transferring technical staff can overcome heterogeneity in cooperation to some extent, the efficiency of technology transfer will be reduced if effective human networks are not established. Because this means that the needs and feedback of local health personnel and people cannot be obtained, and available resources cannot be organized effectively, thus preventing the Chinese side from providing aid that is appropriate to the local need.

4.3.3 Communication Barriers

Research has shown that a large part of the barriers to technology transfer, or the failure to establish a good interpersonal network in many projects is due to the presence of communication barriers. According to diffusion of innovation theory, the heterogeneity of participants creates fundamental difficulties in communication (Rogers 1995, as cited in 2002). The data suggests that communication barriers include several aspects. Firstly, the mother language of the aid donors is Chinese, while the participants in the recipient sites use French, English, Rwandan or Kiswahili. Although the Chinese side either had strict English language proficiency requirements for medical team members or rigorous French language training for them, communication in languages other than English was often hindered, 'especially by older doctors, who had more difficulty learning French.' (Interview 5) Some medical teams have accompanying interpreters, but they are not able to meet the communication needs of all doctors. In addition to asking local staff to help with translation, Chinese aid workers often compensate for the language barrier by mixing French and English, drawing pictures to communicate and using body language. According to CMT doctors, interviewees A01 and A03, they have both learnt some of the local language on their own. 'I hope to communicate with the patients in a simple way [...] to integrate them.' (Interview 1) 'It's a sign of sincerity [...] Only then will the locals trust you more.' (Interview 3) In addition, inaccurate wording or inappropriate expressions can create communication barriers. As said by CMT doctor A02,

'The local medical staff had little awareness of sterility [...] [This is] very important and basic [...] I kept reminding them [...] Probably because I was not using the right words, or I was speaking in a tone they were not used to [...] had some conflict [...] Maybe that person felt that my condescending attitude made him uncomfortable [...] So later I paid a lot of attention to the words I used and the attitude I spoke in.' (Interview 2)

During the training projects, in addition to writing lesson plans and recording dubbing in the local language as much as possible, members of the training team simplified the

vocabulary as much as possible and had the participants repeat the content 'to avoid omissions and misunderstandings' (Interview 4). In projects of providing supplies, some assistance ignores heterogeneity and disregards the skills needed to use the equipment, resulting in inefficient or ineffective assistance. Just as interviewees A11 and A02 respectively mentioned,

'The medical equipment we donate often lacks instructions in the local language [of the recipient country], only in Chinese [...] The locals cannot understand it and there is no Chinese medical team available to teach them how to use it [...] the equipment is naturally abandoned.' (Interview 11)

'Especially with such high-end equipment, it must be accompanied by instructions in the local language, otherwise it is a waste of money.' (Interview 2)

The second aspect of communication barriers is Identity and Motivation. The data shows that African participants may be suspicious of the motives of China. Some local participants see the construction of Chinese health facilities in Africa as a 'public relations show' (Interview 2), or as 'coming here to make money' (Interview 9), and particularly reject the entry of large Chinese companies. 'Because we [CNPC] do oil field development first and then assist in building infrastructure.' (Interview 8) Interviewee A02, a CMT doctor, indicated that some material donations have left the locals with a poor impression of Chinese donations:

'After layers of scalping by middlemen, some medicines and disposable syringes coming from China are not of good quality, which naturally makes the locals distrustful [...] The Burundian side is somewhat discriminatory against China [...] As I know, they rely more on donations from Pakistan and India.' (Interview 2)

Moreover, the local population is wary of assistance that they do not understand. For example, when the Anti-Malaria project in Comoros first started, many residents were resistant to the medicine. So, the Chinese medical team members took the medicine in front of the locals and mobilized local people of authority to take the lead (CPPCC Net, 2021). The same is true of Chinese medicine and acupuncture, which remains difficult to promote in areas that lack a foundation in Chinese medicine. (Interview 1;

Interview 5) These elements are closely related to the organizational members' change commitment in the readiness for change theory. When local members are not psychologically ready to take action and do not resonate with the core values of the aid provider, it indicates that they are not yet sufficiently willing to engage with the practice, which therefore can significantly affect the effectiveness of the aid. Trust is an essential element in aid, but it is up to China to build it up. When providing aid, it is important not only to ensure that it will actually bring benefits to the local people, but also that they need to be briefed on what to expect before offering assistance that is unfamiliar to them, so that they can truly embrace it.

Finally, there is the cultural aspect. The data shows that differences in habits, such as time perceptions, common gestures and attitudes towards work, can create barriers to cooperation. According to interviewee A05, a doctor who went to Tunisia for acupuncture training, the biggest challenge for many African trainees studying Chinese medicine is to perceive the structure of the human body and the causes of disease in a completely different way of thinking, since Chinese medical theory and modern medicine are two theoretical systems (Interview 5). Besides, people in Sierra Leone need to show their respect and disrespect by washing the remains of the deceased, touching and kissing them for religious and cultural reasons, which are precisely the key aspects of the spread of Ebola from the deceased (People's Network, 2014). Responding to cultural differences, CFPA worker A07 concluded: 'We cannot directly judge each other's behavior by our own cultural background, but rather respect and understand each other's culture [...] respond flexibly.' (Interview 7) For example, organizing teams responsible for safe funerals to go into communities and communicate with them about the spread of Ebola, rather than intervening directly with local people (People's Network, 2014). And lastly, the historical element in the context is also particularly important with a great impact on social practices (Manuel-Navarrete, 2001). As Director Chen suggested:

'China needs to take into account Africa's colonial history when implementing aid [...] Economic and educational disparities are objective, but aid workers need to minimize the feelings these inequalities bring to them [...] Aid must be in place and not a formality [...] otherwise it is just a replication of the previous colonial relationship.' (Interview 10)

4.3.4 Emergence

Guided by a complexity perspective, development cooperation should accept uncertainty and the inevitability of change and take unplanned problems as a breakthrough to promote reflection on practice (Fransman et al., 2021). In this section, therefore, the researcher aims to analyze new issues and contingencies in practice and how China has responded to them. After collating the information, the data was analyzed into four categories: management, supports, technology and system.

In terms of management, there are problems with equipment, hospital operations, finances, staff organization, and health conditions. It is found that problems in the areas of finance, staff organization and health were caused by audit patterns, culture of life and local epidemics respectively. These problems were adequately addressed by the aid workers through redesigning forms/simplifying financial processes, adjusting the working patterns of local staff and improving health control. However, problems with equipment and hospital operations cannot be dealt with flexibly by individual donors, as they involve persistent problems in the Chinese aid system and require institutional adjustments. According to interviewee A11's experience regarding equipment assistance in Zhejiang province - Central Africa, a large number of Chinese-aided medical instruments are left idle due to a lack of supporting consumables and the inability to repair them. 'After-sales service for assisted medical equipment should be provided by the supplier, either through the establishment of a service point in Central Africa or through regular visits to hospitals.' (Interview 11) However, the adoption of this recommendation would require the Chinese government to take the issue seriously and to invest in human and material resources.

In addition, the lack of a fixed asset inventory mechanism and a comprehensive

material purchase list system has resulted in the inability to process the write-off of some materials that are no longer available for further use, affecting the normal use of storage space and subsequent purchases of fixed assets (Interview 10). Furthermore, when the Zhejiang CMT arrived at the hospital in Mali in 2013, it took several months to complete a lot of non-medical related preparations as the hospital was left idle for three years after its completion and never opened (Department of International Cooperation, 2013). China's lack of sustained attention to follow-up operations after the completion of health facility projects usually results in health facilities being left idle, 'especially malaria centers' (Interview 6), or in a discontinuity in subsequent assistance. These situations again illustrate that many of China's health cooperation projects lack a holistic aid strategy, focusing on stand-alone projects and not on the overall development of local health capacity.

As it was found that the local hospital lacked many basic medical supplies, the CMT doctors had to make some substitutes with their hands using available supplies. For example,

'Without traction scales, we had to substitute with bricks, sandbags and water bottles of appropriate weight [...] [There were] only elastic bandages [...] caused the patient's skin to break [...] So we made bandages from large rolls of gauze so that they would not harm the patient's skin.' (Interview 1)

There are many other similar inventions. In addition, CMT has resolved some of the shortage of supplies by contacting various medical consumables distributors or seeking help from local Chinese companies. On the other hand, due to the limited local resources of all kinds, many tests are not listed as routine. Therefore changes in patients' conditions may be detected with a delay. Such problems cannot be solved in the short term and will only improve when local health staff, equipment and funding are more available.

In the technical aspects, emergencies are found in terms of technical environment of the laboratory, water and electricity outages, drug resistance, and low electrical resistance due to sandy soil environment. The Chinese side solved these problems by increasing and modifying the installations in the laboratory, by providing their own generators and building a reservoir, by using a combination of two drugs for treatment, and by experimenting with increasing the resistance so that the equipment could function properly. It can be said that the technical aspects were basically dealt with properly by the technical and engineering teams. They are skilled and adaptable enough to deal with technical emergencies.

With regard to system, Chinese aid workers encounter many difficulties because they are not familiar with the local administration, policies and regulations and the operation of the system. It can be found that because of the differences in social backgrounds, the Chinese side often makes wrong predictions. Moreover, it often takes a period of time for Chinese aid workers to understand the local system before they can adapt their practices. In addition to fully mobilizing staff and increasing the workload to compensate for mistakes, Chinese aid workers also learnt lessons and adapted to local administrative styles in a timely manner to avoid repeating inefficient practice. However, there are still some projects that have inevitably been delayed in completion. Interviewee A07 from the CFPA believes that aid workers can be prepared to a certain extent in the face of systemic emergencies: 'Be sensitive to risks in aid practice [...] Be familiar with the whole set of processes [...] to know the local working system. This way if there is a hint of risk at each stage, we can take timely action to control it.' (Interview 7) It is noticeable that many contingencies can be resolved by the flexibility of individual aid donors, or at least by being prepared to avoid them. However, there are also situations that stem from Chinese aid strategy issues that must be addressed and reformed by the Chinese government.

4.3.5 Summary

In conclusion, the training of aid workers prior to practice was somewhat lacking in local customs, culture and mental health training, and some of the training was too short. Many of the health facility projects were only built according to uniform standards. In other projects, the lack of needs identification was not fully compensated for by a visit to the local environment after arrival in Africa.

Research has shown that problems in health cooperation practice arise from two main sources: the heterogeneity of communication and the lack of awareness on an overall improvement in the capacity of the local health system. Heterogeneity arising from language, system and cultural environment can be addressed to some extent by preparing aid workers in advance, building effective interpersonal networks, maintaining a friendly and equal attitude and being flexible. The strong interactivity, feedback, reflection and evaluation in the practice of cooperation all reflect the 'inclusive partnership' of the effectiveness principle. Chinese aid workers respect the customs of the recipient country, learn the local language, understand the local system and culture, learning and integrating as they adapt. Such partnerships promote development cooperation and are therefore in line with the principles of development effectiveness. But the skepticism of some local Africans about the motives of Chinese aid and their dissatisfaction with aid reflect a deeper rooted problem. According to the principles of development effectiveness, 'trust' is an essential part of the partnership, but trust can only be constructed through good development cooperation. Any of the following situations may lead to distrust of Chinese health aid by recipient countries: donated medical equipment is left unused or unrepairable; health facilities are abandoned or cannot operate properly due to a lack of water, electricity and human resources; the GP medical team project does not link up with other forms of aid and is generally a short-term alternative that leaves little behind once it has left. As stated by Director Chen, 'China's foreign health assistance lacks holistic strategic thinking and

design [...] China [s foreign health cooperation] should shift from project assistance to program assistance.' (Interview 10) The project undertaken by CFPA demonstrated the qualities of programmatic assistance by taking into account the functional positioning of the hospital, the location, the structural layout and the subsequent support facilities, equipment and personnel required for the proper functioning of the hospital in order to enable the Sudan Abu Osher Hospital to operate smoothly (Interview 7). Without a big picture view of aid, it may only result in a waste of resources rather than contributing to improving the capacity of the local health system. In the discussion section, reflections and recommendations on China's approach to health aid will be made in relation to the analysis in the next section, Project Results.

4.4 Project Results

This section presents an analysis of the 'final results and impacts' of the China-Africa health cooperation projects. According to the pyramid of public health capacity building in the theoretical framework, capacity building can be divided into four levels: (1) structures, systems and roles, (2) staff and facilities, (3) skills, and (4) tools, ranked from highest to lowest in terms of the difficulty of change (Potter and Brough, 2004). The different levels of this pyramid not only summarise the different aspects of the various types of assistance that build the capacity of health institutions, but also demonstrate the relationships between them. The bottom level of the pyramid, 'structures and systems', can be seen as the basis for other forms of capacity and takes the longest to reform; when the capacity at the basic level of the health institution is perfected, aid at the other upper levels will also be more effective.

In projects of sending medical teams, research has shown that the GP medical team has built 'Skills & Knowledge', the third level health capacity, to some extent, but very limited. In this type of assistance, Chinese doctors only provide accompanying

training in outpatient clinics and surgery. Although the local doctors can acquire some new skills, there is a lack of systematic training in knowledge and skills, and very often they learn only by observing Chinese doctors in operation, so there is very little improvement in their abilities. Chinese doctors themselves, on the other hand, offer help in an essentially 'alternative' approach. When they are in the local hospital, local patients benefit; but when they leave, little of their knowledge and skills got transferred successfully to local personal. So, the 'alternative' approach itself does nothing to build local health capacity. In contrast, both the specific infectious disease CMT projects and the department-specific CMT development projects have had a more profound impact. Firstly, these projects focus on basic system capacity. The Ghana heart specialist medical team designed a new ward management model for local hospitals, improving system efficiency and reducing patient mortality from 11% to 5% (China Wenming, 2021). Medical team against AIDS implemented the Chinese 'Case Management Model for AIDS Patients in Ugandan hospitals and improved collaboration between hospital doctors, nurses, technicians and volunteers. Also they adapted the hospital's structured medical records and consultation lists to facilitate quality checks and improve efficiency (Sohu News, 2020). The project 'prevention and treatment of schistosomiasis' in Zanzibar has developed a locally adapted information platform for the control of schistosomiasis in Africa, enabling rapid information sharing (Luo et al., 2021). The Anti-Malaria medical team has joined forces with the Health Department and regional hospitals to improve the malaria control system in the Comoros (Xinhua News, 2021). As can be seen, these efforts have improved the capacity at the health system level in terms of management decisions, information archiving, staff mobilization and communication links. In addition, these projects have improved the ability of local health workers to work independently through the provision of training courses, fieldwork, group coaching, discussion and exchange, and operational assessment. Based on the above, the medicine treatment practices have also been effective, as the environmental clean-up

and patients treatment are both well organized by local health workers in an orderly manner.

Data shows that all the training African health workers projects are geared towards 'local health workers being able to do their work independently of Chinese doctors'. After the training and assessment, the local trainees are able to carry out treatment, experiments, research and training independently and continuously contribute to the local health institutions. What's more, the Chinese side has also trained the managers of the local hospitals. Managers belong to the most basic level of the pyramid and is of 'role' competency. Managers' ability to make decisions, allocate resources and link all levels is crucial for system capacity. However, no detailed data could be collected on this, and training for managers does not appear to be a priority in China's health training for Africa. It is evident that China has done an excellent job in implementing targeted skills training projects and should continue to strengthen the management skills of managers in health institutions.

Regarding health facility aid projects, data suggests that health package projects are managed in a way where the delivery of the hospital or health center signifies completion of the project and often without follow-up. In some construction and expansion projects, the lack of comprehensive consideration of the supporting facilities, equipment and human resources needed for the proper functioning of the institution has led to situations where hospitals or health centers are not running properly, or are left idle, or 'even used by NGOs of developed countries' (Interview 7). Building health facilities without follow-up management exacerbates the shortage of local medical staff on the one hand. But on the other hand, problems with the operation of the institution's systems do not allow it to function properly, which may ultimately lead to a waste of money and manpower without improving local health capacity. In contrast, the Niger General Hospital and the Sudan Abu Osher Friendship Hospital have not only been better designed in terms of functional orientation, site

selection and structural design, but have also been able to build health facilities that meet local needs and the natural environment. Besides, these hospitals are equipped with trained medical staff and provided with medical supplies, so they continuously function well. The CFPA has been able to monitor and intervene in a timely manner in the follow-up of the hospital's operations through intensive cooperation with the local CSO and the Jegira State Health Department.

In terms of material donations, China has given various types of materials such as commonly used medical supplies, medicines for specific diseases, instruments and equipment, hospital beds and ambulances to Africa. This belongs to the upper level of 'tools' capacity and is easy practice for aid donors. The data shows that common medical supplies, medicines and hospital amenities, such as hospital beds, are the most used. Of course, with low usage and poor management of the hospital, any items donated to that hospital are likely to be wasted. Besides, there is no data to show that the Chinese side donates supplies to a particular hospital on a regular basis.

Conversely, there is no way for GP medical team members to provide timely feedback to the Chinese government when supplies are found to be in short supply. In addition, according to the Zhejiang Provincial Health Commission (2021), the Chinese Ministry of Commerce donated 52 pieces of medical equipment to Central Africa in 2018, but only nine were actually used by the hospital. It is evident that donating equipment is not the same as improving 'tools' capacity. As mentioned in 4.3, medical supplies can only truly enhance the health capacity of local hospitals at the 'tools' level if they are actually needed and the medical staff have the capacity to use them, and the hospital is in a condition to use them and repair them if they are damaged. This again proves that health capacity building at the upper level needs to be based on structural, systemic capacity at the lower level.

According to the principle of development effectiveness, 'development results' implies a lasting impact on enhancing sustainable development capacity, with a focus on

capacity building (HLF4, 2011). In summary, the CMT projects for specific infectious diseases, the development of specific departments and the training of African health workers, as well as some of the health facility building projects, are sustainable and can sustain activities over time and therefore bring benefits to the local health system. On the other hand, GP medical team projects, some health facility building projects and material projects are not sustainable and therefore do not really enhance the capacity of the health system. GP medical team projects are typically 'impact ends together with the intervention' (Kieny et al 2017), and some material and facility projects never even have a beneficial impact at the local level. China as a donor must realize that an increase in the number of aid projects is not the goal of health cooperation. Only when a health project has the capacity to be sustainable can it build trust between the project and the community and bring lasting benefits to promote local public health development (Schell et al, 2013).

5. Conclusion

In the final chapter, the findings of the empirical study are discussed and summarized. In the first section, the characteristics, impacts and problems of China-Africa health cooperation will be summarized in relation to the three aspects 'project formulation', 'project implementation' and 'project results', and suggestions will be made for improving China's health assistance to Africa. The second section will summarize whether the innovative perspective of this thesis is useful in understanding and analyzing the effectiveness of international health development cooperation and why. In addition, the limitations of this study will be pointed out and advice will be provided for further research in this area.

5.1 Discussion and Summary

This study found that there are differences in the 'effectiveness' of different types of China-Africa health cooperation projects, or similar projects run by different actors. Disease-specific TA projects and projects of training African health workers generally performed well because they were driven by local needs, their design followed local contexts, their practice gave systematic training to local personnel, and they focused on collecting questions and feedback. Good networks of aid workers play a key role in these projects. These projects have really trained staff to work independently or/and enhanced the systemic capacity of local health institutions and therefore effectively address specific health issues. Some of the health facilities projects were promoted and supported by the local health department, and the design of the hospitals took full account of the local environment, usage needs and even religious culture. After completion, they continue to receive support from the Chinese side in terms of personnel training, equipment and medical supplies, so that are able to operate smoothly. However, there are also many projects that belong to package aid promoted by the Chinese side, lacking comprehensive consideration of the functional

positioning, structural layout, site selection and the supporting equipment, facilities and human resources needed for continued operation of the health institutions, resulting in the package aid projects, especially malaria control centers, being largely idle. GP medical team projects, as a traditional form of aid between China and Africa, often lack identification of the needs of the recipient country, and there is often a shortage of medical supplies in the recipient country that can affect treatment and surgery. In addition, such projects can provide services to local patients for a period of time, but their impact remains limited. They do not really enhance the capacity of local health institutions as they only provide very limited training to local doctors. Some of the material donation projects are driven by local needs, while others are donations delivered without communication between two sides. The latter may result in situations where supplies duplicate from other donor countries, local hospitals do not need such supplies, or local hospitals are unable to use and repair medical equipment.

The excellent performance of the projects undertaken by the NGOs, from project formulation to project outcomes, can be attributed to their well-constructed aid networks: They have established close ties with local NGOs in the recipient countries, and through them they have built up wider ties with local government departments, think tanks, the business community, the media and the general public, improving the success of their projects through continuous communication, feedback and monitoring. This is an advantage that is lacking in health aid from the Chinese government and private companies. The absence of people-to-people contact will lead to more communication barriers or mistrust, which will prevent effective projects from being carried out; the lack of monitoring and support at the later stages of a project may make the impact of the project weaker or even lead to an early end of the impact.

In general, the problems with China's health cooperation with Africa can be summarized as follows:

1. The training received by Chinese aid workers is not comprehensive enough and they have only limited knowledge of the local situation.

Prior to departure, the training received by Chinese aid workers is focused on language, discipline, risk of local infectious diseases and aid content, and lacks content on local habits, religion, and the functioning of the local health system. In many cases, Chinese aid workers lacked contact with local health personnel in Africa prior to the aid implementation, and therefore had little knowledge of local institutions, systems and other background elements. This can easily lead to 'management' and 'system' emergencies in aid practice, which can only be dealt with by individual workers without advance preparation.

2. Aid is not targeted at improving the capacity of local health systems and lacks sustainability.

Many of the projects themselves are not tailored to the development needs of the recipient country, or the specific needs of the recipient country are not well examined. This can lead to aid supplies or medical buildings being left unused and a lack of various materials or necessities during the aid process. Moreover, the impact of some projects stops or diminishes as the aid workers leave, or the Chinese side stops taking responsibility for the projects before they have produced any positive results. Local participants and people in Africa therefore have a low opinion or low trust in Chinese aid projects. Because the awareness of building the capacity of local health institutions is low, many projects are not sustainable and have a very limited local impact.

3. Aid design lacks an overall strategy and there is no connection between projects.

From the health cooperation projects in this study, it shows that there is no unified strategy and planning for medical team dispatching, package aid of health institutions, material assistance, health human resource development and public health assistance. These projects are usually independent and scattered, without articulation, making it difficult to form a synergy. They are not mutually supportive and do not provide the best results. Some hardware facilities projects also have a lack of software and management basis, causing inefficient aid or waste.

4. The management system is fragmented, and information is not well communicated.

There is ambiguity in authority and responsibility between ministries, government authorities and operational operators, and poor communication of information. It also affects the efficiency of handling the feedback and suggestions from aid workers. Additionally, the financial and administrative powers of the central and local governments in the management of health assistance are not clear, making it more difficult to coordinate management. CIDCA has the function of coordination, but its low rank and small size limit its ability to intervene in management.

5. Lack of institutionalization, legislation and regulation, and lack of transparency

In China's foreign aid sector, there is a lack of a national-level legislative framework to define institutional relationships between organizations. Also there is an absence of feedback and accountability mechanisms. Meanwhile, there are no criteria for the selection of companies or transparency in the bidding process, leading to corruption in the project bidding and budget management process. This affects the effectiveness of the projects and therefore the trust of the recipient countries in our aid.

In response to the above problems, the researcher, after taking into account the suggestions of the interviewees, proposes the following directions for the future adjustment of China-Africa health cooperation.

1. To normalize aid for health in Africa and to train health experts to be based in recipient countries

This requires China to 'learn from the US CDC and Europe [...] to cultivate a professional team of public health aid to Africa [...] to cultivate aspiring health diplomats' (Interview 1). China should send health experts to Africa on a long-term basis to understand local policies and systems, participate in local decision-making, and truly integrate into local health management. 'We [China] have to have a good understanding of the local system, the whole health system, in addition to knowing the local culture [...] It's hard to do all this preparation work at home.' (Interview 3) In this way, Chinese experts in Africa, with a full understanding of heterogeneity, will be able to clarify how to develop projects which are compatible with local needs, circumstances and policies, and, at the same time, provide ongoing supervision and support for the projects. These experts will be at the heart of interpersonal network in aid, connecting the local environment, organizations and Chinese aid workers.

2. To shift from 'project aid' to 'program aid'

The purpose of conducting health assistance is to enhance the sustainable development of the local health system. Therefore, China should, on the basis of consensus with African countries, formulate systematic and suitable health capacity building programs for recipient countries according to their development needs. The program should plan health personnel training, medical and technical assistance, health facilities construction, material assistance and other projects in an integrated manner. Through the effective articulation of various projects and based on comprehensive assistance, the capacity for independent and sustainable development of health systems in African countries should be enhanced.

3. To define the authority and responsibilities of each department and strengthen information and communication exchange

Clarify the division of power between the Ministry of Health, the Ministry of Commerce, the Ministry of Foreign Affairs and CIDCA, and strengthen communication and coordination between the various departments. Increase the voice of the Ministry of Health in the formulation and management of foreign health cooperation projects and change the status quo where the Ministry of Commerce holds the dominant power. Continue to develop CIDCA, expand its size, increase its influence and give full play to its role of coordination and management. In addition, establish an accountability system, an evaluation system and an information database for health development cooperation to standardize the whole process.

4. To utilize the role of NGOs and enterprises

Properly guided CSOs and enterprises can be an important force in China's foreign health assistance. Some NGOs have outstanding expertise in the health sector and are able to reach out to communities and people. Some companies have both the expertise and the financial strength. The Chinese government should introduce relevant policies to regulate their participation in China-Africa health cooperation. Their participation could be a useful complement to areas not covered by the Chinese government.

Overall, effective health development aid implies identification of local development needs, identification of the local context as suitable for the implementation of that assistance, continuous communication and feedback, sustainable development programs that actually enhance the capacity of health institutions, adequate psychological and material preparation on both sides, a friendly and trusting partnership, an open mind that accepts uncertainty and the ability to respond flexibly. The Chinese government should address the problems in its own aid system through reform and guide more actors, who can play a flexible and complementary role, to

participate in foreign health development cooperation, given improved legislation and norms.

5.2 Reflections and Recommendations

The innovative perspective in analyzing development cooperation effectiveness of this thesis is based on the principles of effectiveness in the international development sector and a theoretical framework grounded in complexity theory. The researcher argues that the principles of effectiveness have provided a useful direction for this study. From the Paris Declaration to the Busan Forum, the principles of effectiveness draw attention to recipient country ownership in development cooperation, harmonization among agencies, alignment of development cooperation with recipient country systems, inclusive partnerships, local capacity building, etc. These principles, as expectations of participants in international development cooperation, themselves imply different aspects of effectiveness. In this thesis, they are grouped in stages into three phases: project formulation, implementation and results, which serve as a foundational framework for research and are given a more specific meaning in the discussion of the theoretical framework. For example, 'ownership of the recipient country' and 'alignment of development cooperation with the recipient country's system' guided the category building at the stage of project formulation as a basis for the subsequent identification of analytical perspectives. Some of the principles directly indicate to the researcher what to analyze, for example, 'harmonization among agencies' makes the researcher aware of the need to study China's foreign health aid system in addition to the coordination between Chinese and African institutions. From this perspective, these principles of effectiveness built an important analytical framework in this study.

Subsequently, the theoretical framework guided by complexity theory fleshes out and extends the content of the effectiveness principles, thus providing a practical

perspective for this study. Complexity theory points out the drawbacks of substantialism and suggests studying development cooperation dynamically in terms of systems, relational networks, and contexts. It not only points out the importance of focusing on context and systems, but also highlights the changes in context and systems, and the deeper problems that changes reflect. Among these, relationism draws attention to the mutual influences in relational networks, and this analytical perspective is well used in this study, particularly when looking at the connection between the project formulation and implementation phases. The complexity perspective has directly developed the categories of 'Decision-making', 'Emergence', etc. due to its focus on relationships and background. On this basis, the Readiness-for-change Theory and Innovation Diffusion Theory give more precise meanings to the various concepts of complexity theory in the field of development cooperation. 'Relational Network' and 'Context' are specifically developed by TA theory as 'Needs Assessment', 'Personnel Training ', 'Examination of Local Context', 'Interpersonal Network', 'Communication Barriers' and so on, allowing the researcher to find the right direction for in-depth analysis. Overall, TA theory has helped the researcher to organize the aspects of the 'project implementation' phase that may affect aid effectiveness. The Capacity Building Theory, on the other hand, extends 'development results' of the effectiveness principles. It not only provides elements of health system capacity building based on a discussion of how health cooperation projects can bring benefits to the local area, but in a complexity perspective, it also summarizes the relationships between the various elements and the overall structure of health capacity building. As a result, the researcher is able to analyze not only what elements of health capacity have been built in each project, but also to draw a clear picture of how Chinese health aid has enhanced local public health sustainability in Africa.

Therefore, the researcher considers that this thesis is a useful attempt to understand and study the effectiveness of China-Africa health development cooperation by starting from effectiveness principles in the international development sector and

extending it with a theoretical framework guided by complexity theory, which provides an open and concrete perspective. At the same time, however, it is undeniable that the effectiveness principles and theoretical framework have received more limited research results in some aspects of this study. It is clear from this study that Chinese health assistance to Africa usually lacks an overall strategy to enhance the capacity of local health systems and is mostly independent and intermittent. In these short-term development projects, the aid content is usually simple and deterministic, and consequently there is a lack of collision of perspectives between participants. So, on the one hand, the element 'recipient ownership' of the effectiveness principles does not address 'the dominance of African countries in formulating their own long-term health development strategies'. While there is evidence of African countries raising their own needs and discussing them with China, because of the shortcomings of the Chinese health aid model, these data from short-term, small-scale health projects only partially reflect 'recipient ownership'. On the other hand, applying 'dynamics' of complexity theory to China-Africa health cooperation projects seems to be too far ahead of its time. In the category of 'Emergency', no developmental strategic problems in strengthening local public health capacity were collected, but only specific practical problems encountered by Chinese aid donors. Therefore, the researcher argues that as China does not yet have a cooperation concept that 'enhances local health capacity for sustainable development', the focus on 'dynamics' and 'emergence' in development cooperation can only have some micro-effects because it does not match China's current dominant foreign health assistance model of 'individual project assistance'. The more important question now, therefore, is how to improve the sustainability of China's foreign health cooperation. It is only after the shift in its aid model to 'program aid' that a focus on the 'dynamics' of cooperation becomes more necessary. The researcher suggests that the above-mentioned perspectives are suitable as a basis or guide for the study of international development cooperation in their own right, but that they will only be of greater value

in the study of long-term international development cooperation with a holistic strategy.

Then comes the reflection on the content of the study. This study is based on 20 China-Africa health cooperation projects, which is a limited number. In particular, there is a lack of projects undertaken by Chinese NGO and private companies, as NGO involvement is inherently scarce in this area, and information on non-government projects is more difficult to obtain. Because of the small sample data for these two categories, the findings for these two categories may be biased to some extent. Secondly, the interviewees in this study are all experts from China. Although information on the views of participants from Africa have also been obtained from them, it is not sufficient and may not be accurate due to paraphrasing. Therefore, in this study, the information on 'African participants' perspectives is very limited and also leads to incomplete findings.

In the course of the empirical study, the researcher obtained a large amount of documentary and interview material. Because of the overwhelming amount of material, some elements could not be included in the analysis, although they are also relevant or could be a useful addition to the research questions of this thesis. For example, the relationship between Chinese NGOs and the Chinese government. This study treats NGOs and the Chinese government as different aid actors, but there is actually evidence that the Chinese government also takes advantage of the generosity of the Jack Ma Foundation, and that this Foundation's donations do not go to countries that retain diplomatic relations with Taiwan. The relationship between NGOs and the government in the field of foreign aid may therefore also be an interesting subject. Secondly, the researcher gathered information on the power and interests in the NGO system in the health sector in some African recipient countries, and the process of selecting partners by Chinese NGOs. Because this study focuses more on the mechanisms and decision-making within the Chinese government, this part is not

discussed. However, this is also an area of concern, especially when looking at projects under the responsibility of NGOs, as choosing the right and suitable partners will be key to the outcome of the project. Finally, although the empirical study collected many examples of communication barriers due to different cultural backgrounds and emergencies during aid process, they have not all been mentioned in this thesis. However, the researcher believes that it would be useful if the Chinese government could summarize these information with various specific examples for doctors in Africa to read before departing. This is because many communication barriers and emergencies occur frequently in aid and share common causes.

Here are three suggestions for further research on China-Africa health development cooperation in the future. First, as mentioned above, China's current health assistance strategy to Africa is flawed and can only enhance local health capacity to a limited extent. Therefore, it is well worth examining what obstacles may exist in the model transformation of China's health aid towards program aid in Africa and how they can be overcome. Second, as some interviewees mentioned, China should note the differences between itself and European and American countries, from foreign aid agencies and systems to aid models, and see them as directions for improvement. Therefore, it would be interesting to compare China's foreign aid with that of Europe and the US, especially to the same country, in future research. Third, in the course of this study, it was found that religious backgrounds are strongly associated with both the spread of infectious diseases and fertility issues. It would be useful if research in the future could look at religious culture in Africa and consider how aid donor can intervene in the context of religion in order to improve local public health.

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7. Appendix

7.1 Abstract – English

China has been providing public health aid to Africa for over half a century, but there has been a lack of review and research into these health development cooperation projects. In searching for perspectives to analyze China-Africa health cooperation projects, the researcher found that the principles of effectiveness that dominate the international development cooperation architecture are unable to take into account the complex relationships that exist in development cooperation practice. Therefore, this thesis develops an innovative perspective that enables the analysis of 'effectiveness' at various stages and factors in health cooperation projects. This study adopts a triangulation approach to analyze 20 China-Africa health cooperation projects. The results show that some of the China-Africa health aid projects are not driven by the recipient countries, barely take the specific needs of the recipient countries and local conditions into account and lack an overall development strategy. In addition, the Chinese foreign aid system suffers from a lack of clarity in the powers and responsibilities of various departments, poor information exchange and the absence of relevant legislation and transparency. As a result, many China-Africa health projects had a very limited impact on enhancing the capacity of the local health system. The above issues also point to the direction of improvement for future China-Africa health development cooperation.

7.2 Abstract – German

China leistet seit mehr als einem halben Jahrhundert Entwicklungszusammenarbeit im Bereich der öffentlichen Gesundheit in Afrika, aber es mangelte bisher an etablierten Überprüfungs und Untersuchungsmethoden zu diesen Projekten. Auf der Suche nach einer Perspektive für die Analyse von Projekten der chinesisch-afrikanischen Zusammenarbeit im Gesundheitsbereich kam die Forscherin zu dem Schluss, dass die in der internationalen Entwicklungszusammenarbeit vorherrschenden Effektivitätsprinzipien derzeit nicht in der Lage sind, die komplexen Beziehungen zu berücksichtigen, welche in der Praxis der Entwicklungszusammenarbeit bestehen. In dieser Masterarbeit wird daher eine innovative Perspektive entwickelt, die es ermöglicht, die „Effektivität“ der verschiedenen Phasen und Faktoren von Kooperationsprojekten im Gesundheitsbereich zu analysieren. In der Studie wurden 20 chinesisch-afrikanische Kooperationsprojekte im Gesundheitsbereich mit Hilfe eines Triangulationsansatzes analysiert. Die Ergebnisse zeigten, dass viele Gesundheitshilfeprojekte zwischen China und Afrika nicht von den Empfängerländern gesteuert werden, den spezifischen Bedürfnissen und lokalen Bedingungen der Empfängerländer wenig Rechnung tragen und keine umfassende Entwicklungsstrategie aufweisen. Darüber hinaus leidet das chinesische System der Auslandshilfe unter unklaren Zuständigkeiten und Verantwortlichkeiten der verschiedenen Abteilungen, einem unzureichenden Informationsaustausch sowie einem Mangel an einschlägigen Rechtsvorschriften und Transparenz. Infolgedessen hatten viele Gesundheitsprojekte zwischen China und Afrika nur sehr begrenzte Auswirkungen auf die Verbesserung der Kapazitäten des lokalen Gesundheitssystems. Die oben genannten Probleme zeigen auch die Richtung auf, in der die künftige Zusammenarbeit zwischen China und Afrika im Bereich der Gesundheitsentwicklung verbessert werden kann.

7.3 Overview Interviews

	Name	Role	Date	Setting	Duration	Transcription
A01	anon.	Orthopaedic Surgeon	10/06/22	Wechat	1:32h	Xunfei Hear
A02	anon.	Director of Surgery	14/06/22	Wechat	1:08h	Xunfei Hear
A03	anon.	Schistosomiasis Control Lab Worker	24/06/22	Zoom	1:25h	Xunfei Hear
A04	anon.	Training Specialist in Infectious Disease Control	02/07/22	Zoom	0:58h	Xunfei Hear
A05	anon.	Acupuncture Specialist	16/07/22	Wechat	0:34h	manual
A06	Jin Nan	Associate Researcher, China Centre for Health Development Research	22/05/22	Zoom	1:20h	Xunfei Hear
A07	anon.	Project Manager, CFPA	17/06/22	Zoom	2:18h	Xunfei Hear
A08	anon.	Project Manager, CNPC	02/07/22	Wechat	0:41h	Xunfei Hear
A09	anon.	Project Manager, Beijing City Construction Group	26/06/22	Wechat	0:45h	Xunfei Hear
A10	Chen Zhengfang	Director of Cooperation and Exchange Department,	14/05/22	Wechat	1:26h	Xunfei Hear

		Zhejiang Health Care Commission, China				
A11	anon.	Worker from the Cooperation and Exchange Department of the Zhejiang Health Care Commission	21/05/22	Zoom	0:44h	Xunfei Hear