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The Political Economy of Land-Water Resource Governance in the Context of Food Security

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Table of Contents

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Acronyms and abbreviations

ADB	Asian Development Bank
AMD	Asian Mega Deltas
CBET	Community-Based Eco-tourism
CBOsCFs	Community-based Organisations Community Forests
CFis	Community Fisheries
CFRs	Community Fish Refuges
CNMC	Cambodia National Mekong Committee
CPAs	Community Protected Areas
CSOs	Civil Society Organisations
D&D	Decentralisation and Deconcentration
FiA	Fisheries Administration
FWUCs	Farmer Water User Communities
GDP	Gross Domestic Product
GWP	Global Water Partnership
IWMI	International Water Management Institute
IWRM	Integrated Water Resource Management
MAFF	Ministry of Agriculture, Forestry and Fisheries
MISTI	Ministry of Industry, Science, Technology and Innovation
MEF	Ministry of Economy and Finance
MoE	Ministry of Environment
MoWRAM	Ministry of Water Resources and Meteorology
MRC	Mekong River Commission
MRD	Ministry of Rural Development
NCDD	National Committee for Sub-National Democratic Development
NGOs	Non-governmental Organisations
NSDP	National Strategic Development Plan
PDoWRAM	Provincial Departments of Water Resources and Meteorology
PWMD	Participatory Water Management and Development
RAqFS	Resilient Aquatic Foods in Food, Land and Water Systems
RGC TWG	Royal Government of Cambodia Technical Working Group
TSA TWGs	Tonle Sap Authority Technical Working Groups

Executive summary

Water is central for a variety of livelihoods, development, economic growth, and food production. It is also very important in the large deltas of South and Southeast Asia. Yet, water is turning into a scare resource and global climate change is making its availability more unpredictable. Commercial interests and infrastructure development are also competing for water resources, sometimes at the expense of local smallholders.

This report, which is a desk study combined with stakeholder interviews, aims to map out the issues and the previously unknown challenges to efficient water and land management for poverty alleviation and food security. It also serves as a basis for an empirical case study on the same topic. The report illuminates the political economy of land-water resources in the floodplains around the Tonle Sap Lake which constitutes the upper part of the Mekong River Delta and shares seasonal fluctuations and livelihood patterns.

The report identifies key challenges for land-water integrity and multi-functionality in food security, nutrition and income impacts for different local producers. The versatile delta landscape and its livelihoods are a complex ecosystem; the driving factors include seasonal water flow variations, the construction of upper Mekong dams, climate change, and the minimal regulations of local resource governance. This evidently makes the governance challenge both immense and urgent. This report maps out opportunities from national to local levels for promoting more systematic, productive and inclusive land-water management. The roles of formal and informal actors within political spaces, their influence on policy and practice, and opportunities to influence these actors are of particular interest.

In pursuing the above, the report applies a political economy approach, where the role of the state, its policies and resource allocation are in focus. This also includes the presence of politically and commercially vested interests and how civil society is involved in the general strife for food security and poverty alleviation. The political economy approach constitutes a holistic analysis of how a society is governed and who possesses and utilises which power in order to pursue their interests. At the core of the political economy approach is therefore the illumination of power (and powerlessness) through analysis of actors – or a group of actors – and their particular interests. The empirical realms in this report focus on contemporary resource management, its institutions and actors.

The conclusions are as follows:

- The policies and legal frameworks are tentatively progressive, but still sectoral and sometimes fragmented. Institutional structures and agency interests in horizontal coordination and vertical implementation are considerably weaker than the laws and policies themselves.
- While concerned ministries have achieved a lot, they have not managed to effectively collaborate and work across sectors and ministries. They continue to treat landscapes in a segmented manner.
- Many policies fall short because there are a lack of adequate resources and local incentives to implement and follow-up on the ground. To systematically monitor the implementation of policies, studying their true weaknesses, feeding back to the concerned ministries and amending the policies according to their existing weaknesses, would further the efficacy of the system.

- The decentralisation reform programme at the sub-national level is one of the most promising governance reforms in post-war Cambodia. However, in its current version, it is not sufficient, because the scale of the problems at stake are typically greater than the commune jurisdiction.
- To complete the halfway reform of a "unified administration" at the district level, integrating agriculture, environment and water mandates may be the most important reform for the long-term future. This is a hypothetical scenario since the commune councils may not be as accountable to their local constituency as they were pre-2017.
- Overall, increased agricultural output, green revolution, mechanisation, and efficient market access are favoured in many policies and plans. Yet, fisheries, especially small-scale ones, are partially neglected in spite of the huge value, poverty alleviation abilities, and nutritional quality.

The policy recommendations include:

1) The national government system would benefit from an establishment of mandatory cross-ministerial meetings on a regular basis, facilitated by existing/new coordination structures leading to monitorable cross-sector and cross-agency actions towards more integrated water and land management.
2) A systematic empirical monitoring of the rollout of policies would be very valuable since our analysis revealed that the weakest links in the policy work are the implementation, the upholding of the quality of interventions, and the safeguarding of the sustainability of already established policies.
3) To further support the IWRM implementation, a planning process based on hydrological units (basins and sub-basins), resource inventories, development priorities for key social indicators (e.g., poverty, nutrition and gender), and arising trade-offs needs to be established.
4) The recent decision to integrate water, agriculture and environment at the district level needs to be given full support, bringing in fisheries to the mandate.
5) The rules for il/legal fisheries need to be clarified and the absence of efficient monitoring of fishing practices needs to be addressed.
6) The government has recently promoted a partnership between public, private and farmer agents to enhance agricultural production and productivity for better food security. To push this further is a worthwhile opportunity.

1. Introduction

Water is central for a variety of livelihoods, development, economic growth, and food production. This is particularly true in the large deltas of South and Southeast Asia. At the same time, water is turning into a scare resource and global climate change is making its availability more unpredictable. Commercial interests and infrastructure development are also competing for the exploitation of water resources, together with smallholders in the local contexts. This study is an attempt at illuminating the political economy of land-water resources in the floodplains of the southern Tonle Sap, which constitutes the upper part of the Mekong Delta, sharing seasonal fluctuations and livelihood patterns.

1.1. Project background

The Asian Mega Deltas (AMD) programme is one of the new OneCGIAR initiatives that commenced in April 2022 and will run until at least 31 December 2024 (Phase 1). The OneCG involves closer working modalities amongst the numerous CG Centres to provide coordinated and integrated support to governments and civil society in pursuing more productive, diversified, sustainable, resilient and socially inclusive food systems.

The Resilient Aquatic Food Systems Initiative (RAqFS), another initiative of the OneCGIAR, focuses specifically on sustaining aquatic food systems, given that these systems provide significant quantities of nutritious food and sources of livelihoods to millions of people in developing countries. The geographical focus of RAqFS is not limited to deltas, and spans national and transnational scales. Whilst RAqFS includes several OneCGIAR Centres, it is led by WorldFish and the International Water Management Institute (IWMI).

The AMD programme focuses on supporting governments, NGOs, the private sector and local communities build diverse, resilient and inclusive food systems in the Mekong, Ganges and Irrawaddy deltas. This involves investments in Cambodia, Vietnam, Myanmar, Bangladesh and India. Five Work Packages (WPs) are under investment of the AMD that cover landscape management, climate adaptation, nutrition, governance and transboundary cooperation in the case of shared deltas such as the Mekong and the Ganges.

AMD's WP4 is focusing on the governance of land-water resources to promote landscape multi-functionality that underpins vibrant and resilient food production. Ensuring that land-water resource access, use and management are socially inclusive and contribute to the economic, food and nutritional wellbeing of marginalised communities is also a core focus of this WP.

To these ends, WP4 activities will work at all administrative scales adopting a 'joint- governance' approach to the following:

1) Firstly, clarify challenges to multi-functionality at the landscape scale, including how political drivers influence decisions and planning, and how WP4 could support the AMD achieve the recommendations of key political actors;
2) Collaboratively identify and promote solutions drawing on the science and knowledge from other AMD WPs and partners; and
3) Build institutional capacities within different levels of government agencies and local communities to use data for informed planning and to put these plans into practice.

1.2. Setting the scene for government interventions

This political economy study aims to provide critical knowledge to WP4 to identify entry points to engage with local actors, especially the governance structures, of water resources in the Tonle Sap floodplains in Cambodia. The report identifies key challenges for land-water integrity and multi-functionality in food security, nutrition and income impacts for different local producers. Furthermore, it maps out opportunities from national to local levels for promoting more systematic, productive and inclusive land-water management. The roles of formal and informal actors within political spaces, their influence on policy and practice, and opportunities to influence these actors are of particular interest. In addition to these, we further focus on the structural strengths and weaknesses in terms of taking informed planning decisions and ability to deliver these plans on the ground, at the centre and at each level of decentralised government.

The study specifically addresses the following research questions:[1]

a) Do Cambodia's development policies, when assessed collectively across sectors, promote water and land integrity?

b) What are the key issues and drivers and why do they persist? What are the implications for food production in the area?

c) How can Cambodia's Decentralisation and Deconcentration (D and D) programme impact local resource management?

d) To what extent do current planning and implementation processes around water and land management account for the relationship between poverty, food and nutritional insecurity and social stratification?

e) Which Cambodian institutions and actors can be approached to advance the current state of resource management for food production/security in the delta area?

The demand for water in Cambodia is increasing, and competition for various utilisations such as fishing, irrigation, hydropower and household consumption is unavoidable (Sithirith 2017; Seng et al. 2013). Given the many needs for water, and the wide variety of stakeholders that it includes, as well as the complex seasonal patterns, governance needs to be technically capable and farsighted, something which is discussed below.

1.3. Geography, hydrology and the water regime in Cambodia

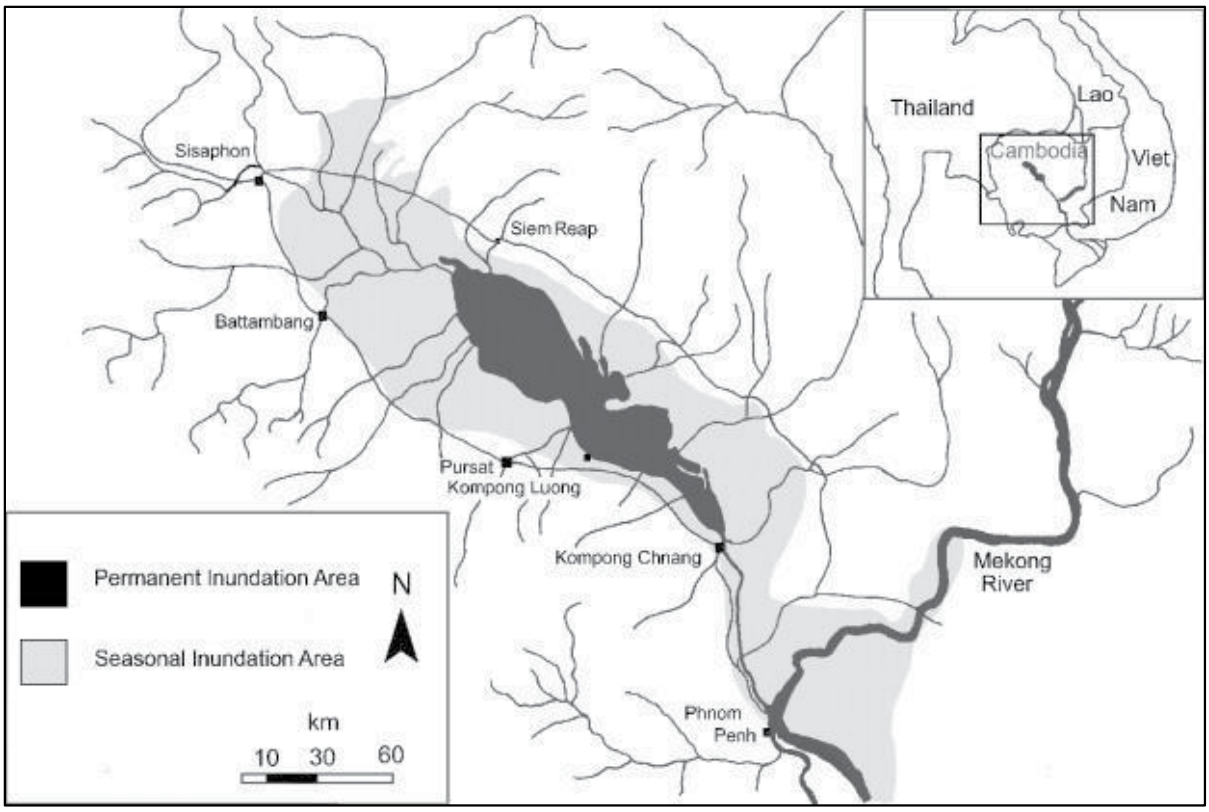
The Mekong River Basin encompasses more than 86 percent of Cambodia's land area (Sagara 2021). The remaining 14 percent is comprised mainly of coastal watersheds, small catchment areas in the ethnically marginalised regions located in the highlands to the northeast of the country, and in the far west rim of the country. The Mekong River rises in China and passes through Myanmar, Laos, Thailand, Cambodia, and Vietnam before reaching the South China Sea. With a catchment area of 810,000 km^2 and a total length of 4,425 km, the Mekong is one of the largest rivers in the world. Annual average discharge entering Cambodia exceeds 300 billion m^3(Sagara 2021).

A key feature of Cambodia's Mekong system is the Tonle Sap Lake (see Figure 1). When the Mekong River's mainstream water level gradually rises during the rainy season (approximately July to October), the hydrology undertakes a unique reverse flow northwest wards into the Tonle Sap Lake, inundating the surrounding floodplains and tributaries. The lake's water level

1 For the full and more detailed research questions, see the ToR in Appendix 1.

rises by 3–4 m and the flooded area expands to approximately 10,500 km^2 in the peak floods in the months of September/October (Sagara 2021). As the Mekong River's mainstream water level drops, with the start typically in December, the flow reverses again, pouring out of the lake, southeast and leaving the lake at its lowest by March/April. At its lowest the area of the lake decreases to approximately 2,600 km^2. Water depths on average are less than two meters during the dry season, but distinctly deeper during the wet season. Absorption of water from the Mekong River in the rainy season and discharge into the Mekong River in the dry season constitutes a natural hydrological phenomenon which forms large areas of wetlands and flooded forests, providing a habitat for a biodiversity, including one of the richest inland fisheries in the world. The flora and fauna are unique as well as productive for human livelihoods. The rainy season is from May to October and the dry season is from November to April. Yet, it should finally be pointed out that due to climate change exact dates for the rainy and dry seasons as well as volumes of water vary from year to year.

Figure 1: Map of Tonle Sap Lake



Source: Campbell, Say, and Beardall (2009)

Hence, the Tonle Sap Lake and Mekong River water regime forms a vital source of livelihoods and food security. Approximately 75 percent of the rice yield in Cambodia is produced in the floodplains of the Tonle Sap and the Mekong River (Ly 2019). The river system also plays an important role in fisheries production, not only in Cambodia but also in other areas of the Lower Mekong Basin, since fish migrate mass distances within the Mekong's channel. Indeed, over 1.2 million people are estimated to directly depend on fishing from the extended delta and half of the Cambodian population are indirectly having their livelihoods partially or completely fulfilled as a result of the resources (Keskinen et al. 2005).

1.4. Cambodian situation/context

Cambodia is a country that relies heavily on water-land resources to support the economic pillars of agriculture and fisheries. The Mekong River and the Tonle Sap Lake, the largest freshwater lake in Southeast Asia, have been vital sources of the livelihoods for millions of Cambodians for centuries. However, for many years, several factors such as population growth, illegal logging, over-fishing, agricultural land expansion, infrastructure development, and climate change have in various combinations turned into threats for the condition, quality, and availability of the water resources that the ecological system of the basin offers (Shivakoti et al. 2020). This presents a significant problem since the sheer complexity of overlapping uses, needs and interests is vast.

Overall, for resource management in contemporary Cambodia, we see a three-pronged movement currently taking place. The first existing movement is an attempt at instilling a bottom-up approach to local resource management including community-based policies, new legal framework (e.g., in the water law, the law on fisheries, and the law on river basin management), and a call to more deeply involve district-level authorities in the coordination of sector policies and local realities. This is feeding into an established decentralised structure of sub-national governance and is planned to work within the Integrated Water Resource Management (IWRM) structure (Sithirith 2017). The second and contrary movement is the presence of a dysfunctional state, over-whelmed by the complexity and scope of the task, partially overtaken by vested interests and investment decisions on various levels, by rent-seeking, commercial activities. Moreover, government authorities tend to be working in closed sector-rationales with minor cross-sector dialogue, communication and cooperation across ministry and department boundaries. The local authorities lack the knowledge, capacity and finances for managing the task of water management and allocation that they have been mandated, impeding the first movement from being fully implemented. The third movement concerns natural resource management by private companies that often have close ties with those in power (Ngin and Neef 2021). Examples are evident in mining, and land and forest concessions offered by the government to these companies. These are oftentimes exploitative and operating with limited sustainability.

The responsibility for strategic policies on sustainability, resource allocation and the safe-guarding of accessibility, weigh heavily on the government and its institutions. Moreover, a failure to improve the management of water resources would seriously affect the country and its people, especially the poorer segments of the rural population. Hence, there is a need for a multilevel and integrated approach, holistically addressing the multitude of challenges as well as aiming for a sustainable strategy for water in agriculture and fisheries, for energy and biodiversity, as well as for drinking and sanitation. To achieve this, however, it is not trivial. This report addresses the dilemma and seeks to point out how the first movement (mentioned above) can be strengthened at the expense of the second one. The study team conducted a desk review, complemented by key informant interviews with selective stakeholders from various institutions (see the interviewee list in the Annexes). The interviews were conducted in November 2022 (see the interview questions in the Annexes). The political economy approach is employed to unpack powers and interests, resting with various actors and institutions, hence explaining why the current situation prevails and illuminating possibilities for progress.

1.5. Previous research and current state of knowledge

Systematic and published research on land-water integrity is scarce in Cambodia. Below we review some of the most insightful research reports, to our knowledge, currently available.

We also briefly review a selection of significant laws and central policies pertaining to this field. These are accounted for under the three sub-headings of *Water governance in Cambodia, Management of the Mekong Delta and Tonle Sap Lake landscapes,* and *Local resource management*.

1.5.1 Water governance in Cambodia

Many studies identify fragmentation in the water sector as a key restraint for an efficient resource management (Agarwal et al. 2000; Ramin 2004). This is a long-term pattern in Cambodia's resource management and has been pointed out many times (e.g., Öjendal 2000). In line with historical preferences for centralised, large-scale and mechanical interventions (Öjendal and Hellberg 2023; Halcrow 1994), the greatest interests and the bulk of investments in the water sector are for large-scale hydropower dams and irrigation systems. These are characterised by the use of a top-down and sectoral approach, requiring a high technical capacity, high costs and state-driven interventions; this is a highly complex task, challenging the administrative and political capacity of the local authorities (and even central ones) (Sreymom, Sokhem, and Channimol 2015; Sithirith 2017; Seng et al. 2013)

The government has, however, introduced several reforms addressing the shortcomings described above, for instance through legal and policy frameworks adopted at regional and country levels. Early examples of these include the long-standing engagement with the Mekong River Commission (MRC) and the Cambodian National Mekong Committee (CNMC), the National Water Resources Policy (2004), Tonle Sap Authority (TSA) (2007) and the Law on Water Resource Management (2007). Through these reforms, various line ministries have been working on their respective mandates and responsibilities. In addition, the Prime Minister has recently issued an order, tasking the districts with the responsibility of coordinating local resource issues in line with establishing a "unified administration" at the district level.

Moreover, Cambodia has established a Participatory Water Management and Development (PWMD) model to establish and manage water resource planning. Several policies and regulations have been initiated to enforce the decentralisation of water management, for instance, the Sub Decree on Functions and Structure of District Administration in 2020, Prakas on the Guidelines on the Establishment of Community Fisheries in 2007, and Prakas on the Guidelines on the Establishment of Farmer Water User Communities (FWUCs) in 2000. The transferred tasks on decentralised water management at lower levels comprise the regulations on water use and fee collection, controlling and monitoring (Sithirith 2017). Hence, there is a legal and policy space lacking community-based water management as well as fisheries communities.[2]

However, critics maintain that these reforms are shallow, carry little political weight, lack the necessary financial support, are not subject to follow-up evaluations (Mang 2009), or have so far rarely enhanced governance (Sithirith 2017). It was stated in Mang (2009) that the Cambodian water governance was in crisis. The account on the institutional reform in the country's water sector focuses on the Law on Water Resource Management from 2007, which adopts the principles of IWRM but, according to the study, has "*a poor fit with Cambodia's water resource characteristics and institutions*" (Mang 2009, 01). Poor coordination and conflict over roles and responsibilities among technical departments are seen by many as key constraints in water resource management in Cambodia (Seng et al. 2013; Phirun et al. 2011; Chea et al. 2011). Specifically, these constraints include:

2 For a full review of major legal and policy tools pertinent to water governance, see Appendix 3.

- A lack of shared information due to entrenched institutional cultures;
- Complicated formalities hampering a direct and constructive dialogue across institutions;
- Patronage and political interests that compel subordinates to follow high-level officials' decisions; and,
- An absence of bottom-up mechanisms that brings local knowledge into policy discussions.

In this context, it deserves to be mentioned that close to zero research or systematic observation exists in the inner workings of the Cambodian government and its institutions in relation to resource management, neither centrally nor at the provincial or district level.

1.5.2. Management of the Mekong delta and Tonle Sap lake landscapes

Cambodian territory is mostly located within the Mekong River Basin, including the catchments of the Bassac River, the Tonle Sap River, and the Tonle Sap Lake and its tributaries (Sagara 2021). The Tonle Sap Lake and its resources have long been an important source of national revenue and the development of the area has focused mainly on resource exploitation (Cambodia National Mekong Committee 2006). Expansive areas of the lake and the surrounding floodplain—known as fishing lots—have been auctioned off for private exploitation of the fisheries. These generated remarkable incomes for the provincial and national budgets (Sithirith 2015). However, currently, the fisheries do not provide a major state revenue due to the abolishment of private fishing lots in 2012. Nevertheless, the lake remains a key container for fish production and rice cultivation, especially for small-scale farmers. More than 60 percent of Cambodia's freshwater fish come from the Tonle Sap Lake (Brooks and Sieu 2016). In 2020, the total fisheries production was approximately one million tonnes, of which 400,400 tonnes were from aquaculture, 413,200 tonnes from freshwater fisheries and 122,700 tonnes from marine fisheries (MAFF Annual Report 2020). However, official figures for inland fish capture state decreased catch from 527,795 tonnes in 2017 to 383,300 tonnes in 2021, possibly due to the cancellation of fishing lots (MAFF 2022).

Approximately 23 percent of the Tonle Sap floodplains, spanning more than 350,000 ha, are used for agriculture. This ecosystem is particularly suitable for the cultivation of rice, and 75 percent (of the aforementioned 23 percent) is used for rice production (Marcaida III et al. 2021). Within this context, it should also be noted that there is a considerable – but informal and invisible - aquatic catch in the rice fields when submerged (i.e. fish, crabs, snails etc.) (MAFF 2017). These are important, not so much due to their volume, but rather as source of food for local communities.

In order to improve the coordination, conservation, and development of the Tonle Sap floodplains, the Tonle Sap Authority (TSA) was founded in 2007. This is an inter-ministerial body reporting to the Ministry of Water Resources and Meteorology (MoWRAM) regarding programmes and activities for the investigation, study, development and management of the Tonle Sap Basin. The TSA has a major mandate and ambition as stated in its strategic plan, but it has a low engagement from the associated government agencies, lacks capacity and lacks communication with other stakeholders (Tonle Sap Authority 2020). The TSA, which comprises of 31 high-level delegates from ten different ministries, also coordinates policy development and interventions. Stakeholder representation aims to achieve the objectives of inclusive and deliberative decision-making processes. However, because community and civil society representatives are not onboard, the decision-making is only made possible by government entities. The TSA secretariat are the Provincial Departments of Water Resources

and Meteorology, which facilitate and implement TSA actions (Sithirith 2022). Although, being more detailed and hands-on regarding water governance issues, the TSA may overlap with the Cambodian National Mekong Committee (CNMC) (see section 1.5.3). The Tonle Sap Lake and its delta are thus a good example of the complexity of water governance since it is subject to at least three institutions: the central line ministries, the TSA, and the subnational authorities (with their local knowledge and concerns). Even under the best of circumstances, the governance of the land-water landscape under these conditions is intricate to navigate.

The Tonle Sap Lake is also subject, and vulnerable, to a number of alterations, including upstream interventions in the overall water regime[3], growing large-scale irrigation practices in its northern part, and many powerful interests in the lucrative lake fisheries (due to the absence of effective governance) (Keskinen et al. 2007; 2015; Chen et al. 2021).

1.5.3. Local resource management

Although everyday management of local resources in a family-based settings is ancient in Cambodia, in any institutionalised form it is a novel experience. Local authorities (village and commune-level) are rather passive, and instead community-based organisations (CBOs), both formal and informal, are more active. These CBOs include, but are not limited to, Farmer Water User Communities (FWUCs), Community Fisheries (CFis), Community Fish Refuges (CFRs), Community Protected Areas (CPAs), and Community-Based Eco-tourism (CBET).

These institutions reflect the ambition of decentralisation, in which the government designates power to the local level to manage and control some of their resources (Chap, Touch, and Diepart 2016; Phirun et al. 2011). FWUCs were formed in accordance with the Water Law (2007) and a subsequent sub-decree. They aim to empower beneficiary farmers to govern their water resources, with support from the Provincial Departments of Water Resources and Meteorology (PDoWRAM) (Chea et al. 2011). In other words, FWUCs are established to build social capital among farmers to use water in a sustainable manner through self-governance. However, by 2017 only 230 (6.3 percent) of 2,525 irrigation schemes, had a FWUC to manage them; and of those 230, only four (2 percent) could be considered to be functioning well (Sithirith 2017).

Many issues such as water distribution between upstream and downstream communities, maintenance and management of canals, and the payment of irrigation fees among members remain unresolved. These appear as perpetual problems in Cambodian irrigation structures (Öjendal 2000). Locally, water governance has been challenged by the lack of focus on roles and responsibilities, particularly with regards to distributing water equitably, effectively, and efficiently to members of FWUCs. There has been little communication and mediation between farmers and PDoWRAM in administrative processes to comply with IWRM procedure and frameworks, and even less financial support (Chea et al. 2011; Sithirith 2017).

CFis were established via a Sub-decree on Community Fisheries Management in 2005. To date, there are 516 CFis, of which 435 are registered and officially recognised by the MAFF, while 12 are ready to submit documents for registration (MAFF 2022). CFis are membership-based organizations of small fishermen who patrol and protect community fishing areas (such as community fish refuges) for collective benefits. This is meant to create space for communities dependent on small-scale fisheries to participate in the development and management of natural resources. However, some key gaps have been identified. According

3 Mekong upstream dams have altered the natural flow of the Tonle Sap Lake, which has adversely affected the ecology and fish stock of the Lake (Eyler 2019; Roney 2020). This report does not delve into the depth of this issue.

to Chap, Touch, and Diepart (2016), access to CFis fishing grounds is complicated by the non-exclusive nature of the working areas, the mismatch between community fishing zones and other areas, as well as by the overall unclear CFi boundaries. CFis have a limited ability to earn income from fishing due to difficulties in mobilising resources, which makes it difficult for them to sponsor tasks including patrolling and administrate internal communication. Co-management arrangements are incredibly reliant on outside assistance from NGOs or the Fisheries Administration (FiA) (Chap, Touch, and Diepart 2016). Ly (2018) assessed that only nine percent of CFis are effectively functioning, 52 percent work moderately well, while 39 percent perform poorly. As a result, illegal fishing activities remain a major problem across CFis. Furthermore, the right to operate commercial community-based fisheries activities for income generation at the community level is not granted by the current Cambodian law.[4] This omission limits a community's negotiating power in co-management deliberations and represents a key bottleneck in the CFi system, suppressing fisher income and undermining its longer-term sustainability. Moreover, there are no legal restrictions on the type and number of family-scale fishing gear, other than the regulation of net length and mesh size; the volume of fish catch is not restricted.

FiA's influence and power are omnipresent. The community lacks the authority to impose CFi regulations directly. According to Chap, Touch, and Diepart (2016), given the strong control FiA has over the entire CFi process and the fact that sometimes activities are carried out exclusively by the CFi committee, there is a significant gap between CFi members and committee members. This results in fishermen typically having a weak sense of ownership towards community fisheries. The inability to enforce rules, including insufficient economic capacity to manage stocks and incentivise members, coupled with little support, constrains CFis from making substantial income. The low ability to generate income is related to limited access to good fish stocks, limited member contributions, and limited capacity to enforce rules. It is vital that this cycle is addressed.

1.6. Summing up the introductory review

Summing up this brief introduction, we can already answer the first research question: *Do Cambodia's development policies, when assessed collectively across sectors, promote water and land integrity?* Indeed, there are, as there would be in most developing countries, definitive shortcomings in the water-land management in Cambodia. This is especially the case if we focus on smallholders, local interests, and long-term sustainability of food production. The multi-functional delta landscape and its livelihoods is complex, and when we add seasonal variations, threats from upper Mekong dam-construction, impacts of climate change and the unregulated nature of the Cambodian local context, the governance challenge is both immense and urgent.

Moving forward, the study focuses on what are the key drivers of these shortcomings and why they persist, as well as the implications for food production at the local level. Before we get into these questions in an empirical sense, let us account for the political economy approach and how that will assist with unpacking the root cause of these shortcomings.

4 Law on Fisheries 2007

2. Why a political economy? An application

A critical political-economy approach is useful for the study of resources allocation and for the study of policies and laws on how they can be accessed. In a development context, the sociological sphere – how people are affected and react – is a natural part of this approach. Importantly, and bridging to the policy analysis, Jakob et al. (2020) claims that the underlying political economy needs to be understood in order to identify politically viable entry points for policy change. It is further claimed that "*only then will we know how economic structure, political institutions, and the political environment shape policy outcomes*" (Jakob et al. 2020, 2). A further study corroborates this finding and states that the use of a political economy approach is suitable when we "*need to address pressing policy changes and…seek pathways for change*" (Andreas, Fernie, and Dainty 2022, 869).

In this report we are comfortable with the definition of Andreas, Fernie and Dainty (2022) which state that: "*Political economy is concerned with the structural and institutional features of a country or region, and how these interact with politics and economics…*" (Andreas, Fernie, and Dainty 2022, 868). The paper also goes on to define a political economy more simply: "*At its most obvious, political economy is to do with the positioning of the boundary between the state and the different parts of society…*" (Andreas, Fernie, and Dainty 2022, 868). In applying this approach, we keep in mind that "the state" is not a monolith but is made up of various agencies and actors, spreading out horizontally (as in ministries and departments), as well as vertically (from central to local level). We also keep in mind that concerns for the wellbeing of "…the different parts of society…" is a central part and a core reason why we need good policies and clever regulation of the water sector. In the context of natural resource governance, we examine the relationships between diverse groups of actors at various scales, thus applying a multi-actor and multi-scale approach where policies and plans are determined and implemented.

Hence, the political economy approach constitutes a holistic analysis of how a society is governed and who possesses and utilises which power in order to pursue their interests. At the centre of a political economy approach is therefore the illumination of power (and powerlessness) through actor analysis – or a group of actors – and their particular interests. Consequently, liberal historians (for instance) have employed a political economy to explore the historical ways that persons and groups (pacts) with common economic interests have used politics to effect economic changes which were beneficial to their interests. Marxists, in contrast, turned this approach "upside down" and argued the significance of the basic structures of the material (economic) development for defining the political regime. In "the Tragedy of the Commons", Hardin (1968) points towards collective, regulatory and institutionalised solutions, putting governance in centre stage and the design of the institutions pursuing it at the heart.

For the latter, Nobel-prize winning political economist, Elinor Ostrom, has been a key authority. As national resource management goes, her work has dominated the debate on how to "govern the commons" (e.g. Ostrom 1990). She argues that under the right circumstances and with the right principles, communities are perfectly capable of self-governance (within clear boundaries), hence bottom-up solutions are preferable (Ostrom 2002). This argument corresponds with priorities within the development praxis to work with participatory development in a bottom-up fashion. However, one of the critical arguments against this work is the lack of clarity regarding when and how top-down solutions and more robust regulations are needed (e.g. Pennington 2013). Another source of criticism is the absence of a "map" on how to go from anarchy to functioning self-governance (Saunders 2014). Critics would point out that the process is vulnerable and easily commandeered by other interests. The assumption

being that *self-governance* is set-up by some external authority, like a development agency or the state, which brings us back to the role of the government and its local/contextualised manifestations (Uphoff 1989). Hence, the multi-functionality, the vast number of actors and economic interests involved, and the need for multi-level governance of a mega-delta landscape that goes beyond the "common-pool resource" approach. It is rather pointing to a wider need for institutions such as law, policies and regulations, particularly mechanisms for integrated planning that do not compartmentalise natural systems are needed. Following Ostrom (2002), enabling laws, policies and procedures shall be put in place before self-governance is feasible and sustainable. But also with this addition, the view on the political economy of resource management becomes too static, and we believe, as actors and interests shift and change over time, "enabling laws, policies and procedures" will need to be constantly revised and reproduced for producing a viable resource regime. Hence, we also try to understand how different actors in the 'arena' interact to jointly reach these states by examining the factors that shape their behaviours, decisions, and choices; the dynamics within social categories such as "community", "village", and "user groups".

In more direct terms, a study into political economy is based on the understanding of various actors' and their powers to realise one's interests: who gets what, when and why? Who gets to use the ample natural resources of Cambodia? How is that taking place? How do we explain the outcome? And how can we insert insights to improve the situation for those needing it the most? Below we will set up a framework for how to apply this in Cambodia and for the governance of natural resources.

2.1. The political economy of resource allocation – an analytical framework

Most observers of the political economy would mention three entities as indispensable for a robust analysis aiming to pin-point avenues for impact and improvement. These constitute an analysis of *structures, institutions* and *actors/agents* (Andreas, Fernie, and Dainty 2022). *Structures* represent slow moving entrenched patterns which are hard to impact in the short term, typically they are rooted in deep historical circumstances, cultural traits, and natural phenomena. They may, or are likely to, be restrictive for policy change. *Institutions* are patterns in society described as *"…humanly devised constraints that structure political, economic and social interaction.*" (North 1991, 97). These can be mental – such as shared norms, values, or development ideals - or physical as codified and written rules of the game (e.g. laws and policies). *Actors/agents* are those taking initiatives and pursuing interests acting individually, in groups, or cooperating spontaneously through shared norms and/or strategies to achieve desired future outcomes.

The universal approach of a political economy study is to understand structures, to analyse the restraints and possibilities within the prevailing institutions, and to, finally, define actors, their interests and their powers to realise these interests (Andreas, Fernie, and Dainty 2022). While actors, interests, and powers are open-ended categories with no definitive single content, a simplified inventory – identifying the most significant actors and their respective powers and interests – can still serve as a basic framework for a political economy analysis (see Table 1). This is a principled inventory, with some reservations. For instance, as noted above, "actors" (or categories) are rarely homogenous in their views or actions and are not necessarily permanently locked into their particular interests, which may change over time. They can still be assigned a basic feature/interest as a point of analysis. In the context of this paper, underlying "interests" consist of a set of driving factors such as ideology, biases, money, visions etc., the significance of which is likely to vary between actors.

Table 1: Analytical framework depicting actors and their powers in the political economy of resource allocation in Cambodia

Actors and interests/powers	Political power (Political means)	Economic power (Economic interests)	Patronage and norms (Cultural power)	Popular will (Democratic power)
Central government				
Sub-national Authorities				
Commercial actors				
Diverse civil society actors				
Aid community				

Actor's interests in a particular situation do not always align which, given the finite nature of resources, results in contested relationships around natural resources. It is important to understand that the resources are a finite asset, but the demand for them from different actors is infinite, hence there is competition for realising the interests. To pursue an analysis of the political economy of water resources constitutes an inventory of competing claims and the potential tensions involved.

How, when, and with which outcomes these actors and powers interact are not given, but are dependent upon context, and more specifically depending on the alignment of actors and the means of projecting their potential power. In our case, *structures* would amount to historical legacies and the overall natural resource regime. *Institutions* are laws, policies and development ideals, whereas agency is represented by the broad set of *actors* in Table 1 above, and the implications of their diverse capitals and capacities that shape their choices, and what they can influence. The empirical substance of the report below, ordered in three sections, is dedicated to illuminate and unpack these three categories.

3. Structures of Cambodia's resource management: Status and process

Below we will describe the basic structures of Cambodian resource management. These may restrict alterations in the policy development and are slow-moving (or even stagnant) features. We focus here on historical and natural sources for these basic features.

3.1. Cambodia's historical-cultural governance of local resources

Cambodia's historical mode of governance is one of a top-down authoritarian approach, placing power and initiative at the centre. At the same time, the typical pattern is that the central state and its administration has limited capacity and reach, with inadequate institutions. Therefore, its power is rarely (or indirectly) reaching the level where physical interventions are needed, beyond broad political mandates. Hence there is a degree of local anarchy, where neither direct rule from the centre, nor the rule of law is enforced (Chandler 1983; Kim 2013). This 'anarchy' opens up for (or demands) self-organisation in the forms of democratic decentralisation and/or activities of CSOs/CBOs, as well as for the presence of patrons and/or local "strongmen", enforcing their interests. In the post-1991 history, liberally minded donors have sought to develop and empower the civil society either as a way to enhance the ability for self-governance or as a way to put pressure on the state to deliver better services. The strengthening of the self-governance may represent the upholding of a social structure with a certain accepted order, whereas the strongmen seize resources from those not able to defend them. In lieu of a clear legal framework or the

presence of an omnipotent authority, the local chiefs and their resource allocation is vulnerable to violence, threats and oppression. In sum, neither the limited state engagement nor the self-governance succeeds in producing a viable resource regime, but rather the situation can be depicted as one of a "governance gap" as observed in other contexts (Cerny 2010).

Since the early 1990s, these historical features have been mixed with democratic, bottom-up and participatory practices, which, among many other ways, have enabled substantial growth of local organisations (Malena and Chhim 2013). Examples of these organisations include, CFis and community forests (CFs) (Sithirith 2017), as well as a formal reform of democratic decentralisation from 2001 (Öjendal 2013). Moreover, a wealth of laws and sub-decrees have been established over the last two decades in order to formally regulate and control resource utilisation. This historical pattern fits well with the first and second movement of resource management we identified in Chapter 1. The weaknesses are typically not the stated policies themselves but rather that they are working against a deep political culture and a system of institutions not geared to promote this form of resource management in a context of contested and contradictory resource claims where power and money weighs heavily on the outcome (Mang 2009; Öjendal 2000). Although incomplete, the partial adaptation to modern/liberal governance requirements was promising for two decades, opening up space for localised groups and primary users. Since 2018, however, there has been a backlash against democratic and decentralised ambitions, leaving less space for local initiatives, exacerbating the challenges for sustainable resource management.

In terms of resource allocation, the above-described historical pattern gives preference to those able to exercise power from above or those prepared to exercise power at the local level, leaving primary users vulnerable and left to self-organisation and self-defence, and possibly to local officials with limited power and resources (depending on their political will to engage). Where opportunities exist for large-scale commercial ventures, these often take precedence over local interests as 'money talks' effectively in Cambodia and the current legal practices discriminate against the resource-poor and powerless. Customary rights are not necessarily acknowledged, but land is often grabbed with force by wealthy individuals. Those with political patronage act with impunity, and even community organisations tend to be dominated by a local strongman/family. Without a reliable rule of law, most often, these structures are the only effective way for locals to attempt to protect access to resources and livelihoods. These informal, vertical structures may assure the locals a livelihood, but often with limited surplus to invest and thrive from. Paradoxically, such patronage binds them to the current system, thus re-enforcing elites' power and control over resources and other community members, hampering change towards a more bottom-up and law-based resource management system.[5]

The current situation in Cambodia resembles that depicted by Sidel (1999) previously in the Philippines, where he described how a traditional patronage system of an exploitative but predictable nature is being transformed (and perverted) into what he calls "bossism".

> "*…the roots of bossism in the Philippines lie in the inauguration of formal democratic institutions at a relatively early stage of capitalist development. Poverty and insecurity leave many voters vulnerable to clientelist, coercive, and financial pressure…*"
>
> (Sidel 1999, Back cover)

5 This is very important for the outcome of the long-term food security in the delta (and elsewhere). It is, however, not the focus of this study, but will be followed up by a subsequent case study of an empirical and local nature.

Commercial interests in collusion with local (and not so local) elites are oppressing the localised attempts at community-based resource management. While this is not necessarily creating immediate poverty, since local people instead are employed as fishermen or agricultural workers, it creates a "*lumpenproletariat"* – the Marxist term describing a part of the work force ending up outside of the regular conditions of the labour market - and a certain pauperisation, when inserting a form of food-insecurity and, most likely, a non-sustainable resource exploitation (Sidel 1999). It also closes the opportunity for smallholders to scale up and improve, hence freezing poverty.

According to an interview with a Deputy Director of the Department of Aquaculture Development and Fishery Administration[6], most of the Community Fish Refuges (CFRs) have been dissolved for commercial purposes due to the high interest of private investments. Conflicts also occur between the CFRs, the irrigation system for farming, and a clean water system initiated by another government agency. For example, the establishment of a clean water system is usually proposed at the place where the CFR already exists. Although the communities prefer to keep the CFR along with the clean water project, the government body in charge of the clean water systems wants to have full capacity to control the clean water infrastructure for a water purity reason. As a result, the CFR finds it hard to continue and operate. An NGO representative[7] also stressed one of the major challenges related to the management of water allocation is that some private entities view the public reservoir as a source for their personal uses.

A Community Fish Refuge (CFR) is located at the centre of rice fields in flooded areas that are usually far from an irrigation system where the MoWRAM is in charge of restoring an irrigation dam. One of the issues is that the MoWRAM builds the dam without constructing a doorway for fish to travel. As a consequence, it is difficult for the FiA to establish the CFR due to the fact that there is fish movement from the lake to the rice fields. Thus, when constructing a dam, the MoWRAM should consider building a doorway for fish to travel from the dam to the rice fields and vice versa. This is a much-needed collaboration between the MoWRAM and the FiA.

Another problem is that some of the existing CFRs are being claimed for the construction of clean water systems (and these two utilisations are incompatible). When a clean water system is introduced, fish are not permitted to be raised in the lakes and the doorway is closed, blocking access from the irrigation dam to the rice fields. When this happens, it is likely that the CFR will be dissolved since the government body in charge of the clean water system is using the area for producing water for the commune instead. An often-raised reason for this happening is that fish pollute water in the dam. Yet, in reality some fish species may not affect the quality of the water. This is why both parties need to work together to balance the clean water system and the fish farm. Usually, the CFR is introduced to a community before the clean water system is proposed. Most CFRs have already been set up and acknowledged by local authorities; but unfortunately, some have been dissolved due to the introduction of the clean water systems.

Source: Interview with a Deputy Director of the Department of Aquaculture Development, Fisheries Administration, MAFF, on 03 November 2022

3.2. Natural resource regime in flux: Socio-economic dynamics

The natural resources of contemporary rural Cambodia in general, and in the delta in particular, have become increasingly under pressure, and there are threats to the water-land resource balance

6 Interviewed on 03 November 2022
7 Interviewed on 10 November 2022

for a number of inter-related reasons. *Firstly*, there has been intense population growth during the last three decades, enhancing the pressure on the resource base (land, water and fish primarily) and increasing competition for these resources. *Secondly*, the country is in the process of agrarian modernisation, mechanisation and intensification. In particular large-scale irrigation schemes have been developed in the last decades, but very few have enough water for rice farming in the dry season. Meanwhile, the fisheries sector has been shrinking since the abolishment of private fishing lots. For the former, the irrigation system may be beneficial for the national output of rice, but tensions and conflict over land and water use often arise between local user groups and large-scale commercial actors in the irrigated and intensively cultivated land. Also, the segmentation of traditional rice-field fisheries, which are unaccounted for trade-offs with inland capture fisheries, remains a critical issue. In the fisheries sector, unregulated fisheries tend to exclude household fisheries, impacting food security and household income. *Thirdly*, there has been a variety of infrastructural interventions affecting the natural environmental regime (e.g. Ratner et al. 2017). Chief amongst these are hydropower dams which have a high disruptive potential, altering flow, quantity, temperature and flooding patterns, sometimes in combination with large-scale irrigation schemes. *Finally*, the effects of global climate change are increasingly being felt. Southeast Asia in general, and particularly Cambodia and its water regime, are hypothesised to be one of the most vulnerable areas in the world (IPCC 2007; Meynell et al. 2019). The exact impact of this is so far unknown, but it risks altering the old water regime, introducing erratic rainfall pattern, lengthier droughts, and atypical floodings.

More specifically for the Tonle Sap Lake and its delta landscape, even more concrete challenges are emerging and at least three water-related conflicts have been identified (Keskinen et al. 2007). *First,* the problem is related to threatened flooded ecosystems and livelihoods from upstream development. Planned development of the upper reaches of the Mekong River and its tributaries, particularly the construction of large hydropower dams in China and Laos, is believed to lead to higher dry season water levels in the Lower Mekong Basin, resulting in higher water levels in Tonle Sap. Rising water levels in the dry season mean expansion of permanent lake areas, which means changes in floodplains. However, in 2019 and 2020, water levels of the Tonle Sap Lake in the dry season were lower than the natural average. This may be a temporary effect due to the filling of constructed Chinese dams upstreams in the Mekong/Lancang mainstream (Eyler 2019; Roney 2020). The increased number of constructed dams will also increase evaporation, hence reducing the overall flow of water. The most noticeable change resulting from increased water in the dry season would be a permanent submergence of certain areas, essentially destroying substantial areas of remaining inundated forest around the lake. The consequential negative impacts on aquatic production means the loss of livelihoods for a significant number of people. Moreover, Golden et al. (2019) claimed the hydropower development on the main Mekong channel restricted the access to subsistence fish for Cambodia. Yoshida et al. (2020) echoed that Cambodia and Vietnam face great adverse impacts on fisheries and agriculture by mainstream hydropower dams. An extensive review by Soukhaphon et al. (2021) revealed that the hydropower dams affect fish migration, change the water flow regime and reduce sediment in the Mekong River Basin.

Second, there is an issue regarding the allocation of agricultural land in the flood plains. This is a complex process of government "zoning"[8] of areas appropriate for seasonal cultivation, in which way it can and should be used, and for whom it will be reserved. The upper part

8 The Tonle Sap basin is classified into three zones. Zone 1 is mostly residential areas with traditional paddy fields that are used for rain-fed agriculture and that may become inundated for one to two months every year. Zone 2 is a rice-growing region that is flooded for 4-6 months during the wet season. Zone 3 is a protected area that covers flooded forests, natural lakes, and muddy places (Focus on the Global South 2018).

of the Tonle Sap Basin is undergoing rapid agricultural development, including large-scale irrigation projects (Keskinen et al. 2007; Ratner et al. 2017). These phenomena impact resource availability for different user groups, with so far unknown consequences. Many of the recently exploited areas are "common", previously used by smallholders based on the principle of customary usage. The protection of these areas requires state-control, but when private investors (often the country's elite) or local strongmen push for concessions or land ownership seeing the floodplain as a profitable investment, it is difficult for local authorities to prevent this exploitation – especially when the economic elite inter-mingles with the political elite. There may also be consequences for fisheries communities from this dynamic.

Third, there are exclusive tendencies in the Tonle Sap fisheries. Institutional arrangements of CFis – when they successfully manage to establish their presence - often seem to ignore the heterogeneity of local communities and the complexity of local power structures. The difficulty in CFis – including decreased funding - may occasionally tear the communities down and turn into unregulated local elite fishing. There are many different interests within a fishing community, which are then combined with external interests. Only traditional or small-scale fishing equipment are permitted on the lake, and this applies to everyone who fishes there, including outsiders. These regulations, however, have not been followed, and several accusations concerning corruption among those who are meant to defend the fishery have been made. For instance, larger operators with unlawful nets longer than 100 m reportedly have made unofficial payments to authorities to use the equipment (Milne 2013). As a result, people and groupings with resources and high socio-political capital often control CFis programmes and their activities. The idea of community fisheries rests on the vision that locals will be able to exercise control over their resources that they are dependent upon. Was this possible under the current level of engagement with the set-up of the fishery communities? We will answer this question below.

4. Institutions for Water-land management: Status and process

Above we have noted some structural issues pertinent for local resource management, as in *historical/cultural* foundations, and the problematic in the overall water regime around the Tonle Sap Lake and delta area. Below we will bring to the surface the role of *institutions*. More specifically, we will trace what we called the *first movement* in the Chapter 1 – the government's attempts at reforming the water sector – and then give attention to the *second movement* – the empirical fact that imperfect and dysfunctional resource management persists in sectors and places, as well as contradictions and tensions in laws and policies and their implementation.

In line with the first movement, the Cambodian government has promoted the principle of IWRM as one of the government's top priorities to improve agriculture and boost the national economy (Sithirith 2017). According to the Global Water Partnership (GWP 2000), IWRM is defined as "*a process that promotes the coordinated development and management of water, land and related resources in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems*". Hence, IWRM is a holistic approach to the development and management of water, addressing water governance in a broad societal context and providing an approach to build trade-offs between competing demands for water among societal sectors and stakeholders at various levels and sectors. As such, IWRM seeks to change water management practices from the traditional top-down and sector-specific approach to holistic, integrated and cross-sectoral management, with a bottom-up dimension. Yet, in practice, IWRM is highly technical and does little to coordinate concerned stakeholders (Sithirith 2017). For instance, large irrigation canals have been built

with limited participation from local people, resulting in the canals having no water in the dry season and lacking proper maintenance.

At the national level, the Cambodian government has developed tools and policies that can help support IWRM, as it is incorporated into the Law on Water Resources Management 2007. For instance, Article 4 states that "*water and water resources shall be managed and developed based on an integrated water resources management (IWRM) approach. The IWRM shall take into account (1) all aspects of water resources, (2) linkages between water resources and other components of the natural environment, and (3) requirements for an effective and sustainable water use for human beings, environment and other sectors. The implementation of the IWRM shall be carried out jointly and within a cooperation framework of all relevant agencies*"[9]. But as stated above, the IWRM has minimal involvement from the local communities on the ground.

Moreover, a number of laws, sub-decrees, and other policy-based arrangements have been established to conserve and manage water resources. The MoWRAM is the leading body in the water sector, with an overall responsibility for water conservation and management. The Ministry of Agriculture, Forestry and Fisheries (MAFF) is a central actor in water supply for agriculture. The Ministry of Industry, Science, Technology and Innovation (MISTI) focuses on drinking water supply in urban areas while the Ministry of Rural Development (MRD) focuses specifically on drinking water supply in rural areas. In addition, there is a large number of authorities having minor responsibilities for the handling of water resources.

The law on Fisheries from 2007 seeks to protect fisheries and the fishery resources, advance aquaculture development, manage production and processing, and support local communities' livelihoods for socio-economic and environmental benefits, including the long-term sustainability of Cambodia's biodiversity conservation and natural cultural heritage. In spite of both a revised law on fisheries and the removal of the fishing auctions and the private fish lot system in 2012, fisheries have received little attention. This neglect is in contrast to the massive contributions to nutrition, food security, and poverty alleviation made by the sector. Instead, government development programmes, especially the NSDP 2019-2023 and the National Agricultural Development Policy (2022-2030) aggressively promote Green Revolution agriculture for rice with irrigation and improved varieties intended for export. In this context, irrigation development and management have frequently been linked with water management (which in itself is a pattern in Cambodia, whether in the ancient Angor empire, the *Sangkum* era, or the Khmer Rouge phase). It is also evident that when interviewing representatives from MAFF and MoWRAM[10], water is geared towards agriculture (often without mentioning the necessity of investments and a sound water regime for sustainable fisheries), and when water is discussed in relation to fish, it is very much aquaculture that is in focus; another form of "cultivation".[11]

In addition, to facilitate the management of the delta landscape based on the IWRM approach, more recently a sub-decree on river basin management in Cambodia has been created. This sub-decree aims to manage, conserve and develop river basins to be more effective and sustainable in accordance with the Law on Water Resource Management in Cambodia. According to

9 See Table 1 in Appendix 2.

10 Deputy Director, Department of Water Management and Conservation, MoWRAM, interviewed on 02 November 2022; Office Chief 2, Department of Water Management and Conservation, MoWRAM, interviewed on 02 November 2022.

11 Office Chiefs, Department of Water Management and Conservation, MoWRAM, interviewed on 02 November 2022.

Article 5 in the Sub-decree on river basin management, IWRM is thoroughly integrated in the law and the principles of river basin management (2015). It states, among other things, that it shall "*Manage, conserve, and develop water resources based on concepts and tools in IWRM in accordance with the law on water resource management in Cambodia and climate change adaptation*", that it will "*Manage water resources in the basin without counting administrative boundaries, and balance between the upstream and downstream based on the principles of equity and compatibility*", and that it shall "*develop and use water resources in harmony with other resources available in the basin*". Hence, in the legal framework, IWRM and its principles seem to be well integrated. But, what is lacking is the direction for structural changes to enable the implementation of these principles. There is no reference to institutional and structural developments in keeping with the central elements of trade-offs inherent in applying IWRM in practice.

Moreover, as noted above, the Prime Minister has ordered new regulations in regard to the mandate at the district and province levels. This order requests the sub-national levels to coordinate policies between sector departments and involve the view of the communes in order to better adapt policies to the lived reality locally. This is a move that observers of the D and D process have extensively asked for and have been expecting to emerge under the term "unified administration" (Öjendal and Kim 2013). Sectoral service delivery functions have made headway in 2019 thanks to a strong top-down push from the highest levels of government. According to the World Bank (2021), the purpose of creating unified administrations at the district level is to transition from a vertically deconcentrated structure to a horizontally (territorial) deconcentrated structure. The planning and delivery of sector services are heavily influenced by line ministries under the current vertical deconcentration arrangements. Line ministries cannot – under a unified administration - continue to operate under a "silo-structure". In the unified administration model, focusing on the district level, the authority will have more influence over how services are delivered locally and may have more budgetary freedom to learn from below and accommodate local people's needs. Yet, this reform may need to eventually be extended to at least the provincial level since districts may not match with hydrological scales of agriculture.

Beginning in 2020, the government has reorganised the district administration and incorporated all 13 line ministry offices and their 55 functions to the district level.[12] Although the process of shifting responsibilities has already begun, significant legal and practical obstacles still exist. These deal with the costing of transferred functions, budget transfer procedures, modifications to the public financial management systems, and the creation of new lines of responsibility and reporting. Simplified functions and personnel have been transferred, but economic resources have not yet followed suit. The key actor now is the Ministry of Economy and Finance (MEF), who remains reluctant to release funds for completing this reform. This is a very promising development, but it needs to be concluded and refined. The key challenges moving forward will be how to work with the national and provincial authorities that remain sectionalised. Another challenge will be the capacities as officers move from linear sectoral thinking to integrated and more systemic views of the landscapes. This would include incorporating information systems that would enable an integrated/multiple use understanding of landscapes and how best to make trade-offs.

On an institutional level, improvement of the existing watershed management situation can be achieved through a combination of legal and/or policy development that clearly states the regulations for sustainable watershed management. To make this feasible, two scopes need to be

12 The details of transferred functions can be found in Sub-Decrees No 182, 183, and 184.

addressed. Firstly, there is a substantial coordination challenge between the different involved agencies (both vertically and horizontally) and "their" sectors. The second is the enforcement of policies and regulations that ensure successful implementation, making a positive difference in the local setting. Drawing on the analysis above, we have learnt that both these tasks are difficult to achieve (e.g., Jakob et al. 2020). Hence, on the national level, several institutions (as in laws, sub-decrees, and policies) are in place to support a successful IWRM-approach, and while neither are complete nor perfect, the incompatibilities appear to be minor. However, laws and policies do not stand alone, and agents/actors may be interpreting these conditions differently, or hoping for differing interests in the outcome. Below we assess to what extent this is the case; we consider the activities of the actors/agents set to implement and monitor laws and policies in this sector.

5. Actors, interests and powers

In Cambodia, development policies are established under the Rectangular Strategy and the National Development Strategic Plan.[13] As a result of these, various laws, sub-decrees and policies have been developed over the last two decades. Line ministries have overall been given a clear mandate and a clear division of labour. While this is a positive outcome, with tighter division of labour, the demand on cooperation and dialogue increases and concerned line ministries have to work more closely together in their practical tasks to develop cross-sectoral policies. Indeed, landscapes are fundamentally integrated systems and the use of finite resources for one purpose tends to be subtractive in nature. Yet, laws and policies remain conflicting with interests, habits, practices and capabilities, and there are still major tensions arising from various interests in the water resource sector. This section will apply the political economy framework to analyse and identify actors, interests and powers. Through this analysis, the role and ability of formal and informal institutions will be identified and key contradictions from developed and implemented policies will be pulled out accordingly.

National policy makers

Government agencies at a national level are assumed to be engaged from the foundations of development to the implementation of policies and this sub-chapter is committed to understanding *how* they do that. In the water sector, MoWRAM is mandated to manage, lead, and supervise the implementation of current laws related to water resources. In the agriculture sector, MAFF works on updating the agriculture sector strategy and overseeing support to implement the strategy through sector-wide programmes. These two ministries are expected to work together under the 2007 Strategy on Agriculture and Water (SAW) to enhance water and agricultural development (RGC 2007). The Technical Working Group on Agriculture and Water co-chaired by each secretary of state representing MAFF and MoWRAM was established in 2006 by the government to facilitate sector coordination, yet mainly concerning irrigation for rice. SAW defines the pathway and steps to be taken in order to achieve the objectives of each main programme.[14] However, fisheries are not explicitly covered. In the fisheries sector, the Fishery Administration (FiA), established under MAFF, is responsible for the management

13 These would comprise the Rectangular Strategies (Rectangular Strategy for Growth, Employment, Equity, and Efficiency Phase I, 2004; Phase II, 2008; Phase III, 2013; Phase IV, 2018) and the National Development Strategic Plans (National Strategic Development Plans 2006-2010; 2009-2013; 2014-2018; 2019-2023).

14 There are five main programmes under SAW, including (i) institutional capacity building and management support programme for agriculture and water resources; (ii) food security support programme; (iii) agricultural and agri-business (value chain) support programme; (iv) water resources, irrigation management and land programme; and (v) agricultural and water resources research, education, and extension programme (RGC 2007).

of fisheries and fisheries resources. There is competition for money from the state budget and for power among MAFF, MoWRAM and others (at the expense of each other).

The power dynamics between ministries, according to Seng et al. (2013), can frequently result in the powerful ministries superseding the mandates of the less powerful ones. For instance, there has historically been tension between the FiA and the Ministry of Environment (MoE) regarding management authority and, consequently, control over land and water resources in aquatic vs. terrestrial conservation zones. Who controls and is accountable for different species and ecosystem in protected areas is unclear and evokes conflict. In our interviews we came across various instances where inter-ministerial communication and cooperation were perceived to be in short supply, whether inside the ministries or from the local level. The chief of Baboang commune in Prey Veng province stated that *"...the minsters are not aligned with one another. When one minister came and talked about one priority, another minister had another idea in mind*".[15] One ministry official stated that better inter-sectoral cooperation was the number one priority for improving the conditions for food security.[16] The same problem was previously identified at the district and province level, resulting in the establishment of the "Inter-disciplinary office" at these levels. It is our impression that the national government is active in developing laws and policies, however, far less active in establishing mechanisms for implementation and monitoring their possible success.

In line with the structures described above, much governance is pursued in a top-down fashion

In Cambodia, there is a technocratic reliance on scientific knowledge, and in the case of the Tonle Sap fisheries, resource management data and expertise are sparse. Hence, the state governance is suffering from an excessive "siloisation" (Bréthaut et al. 2019).[17] According to ADB (2012), the institutional arrangements are frequently reported as being vertically steered by patron-client interactions influenced by political ties, unavoidably creating "silos". Therefore, informal arrangements frequently take precedence over formal ones, even when formal and legalised accountability structures are in place. This puts cross-sector integration into the most deep-seated challenge to overcome for an improved governance. In the water and agriculture sector, a centralised decision-making structure that remains in place for MAFF and MoWRAM might occasionally limit their ability to respond to services and support requirements in the sectors. The vertical silos threaten to aggravate this downward fragmentation (Bréthaut et al. 2019). Consequently, there is minimal horizontal integration in service delivery planning, implementation, or execution, in part because line ministries lack the authority to supervise or direct the provincial departments of other line ministries.

Shifting to the task of finding the right balance of developing policies - especially between water for agriculture and water for fisheries - there appears to be a perpetual bias towards agriculture/ irrigation over fisheries. The fisheries policies and interventions are far less extensive than those in agriculture. Although the primary sub-sectors of crop and fisheries production make up 58 percent and 24 percent, respectively, of the agricultural sector's contribution to the GDP (NSDP 2019–2023), recent developments appear to have prioritised crop production over fishery production for two reasons. *First*, the assigned importance of agriculture is reflected in policy frameworks, development strategies, and government policies that place an emphasis

15 Director, Department of Farmer Water User Community, MoWRAM, interviewed on 02 November 2022

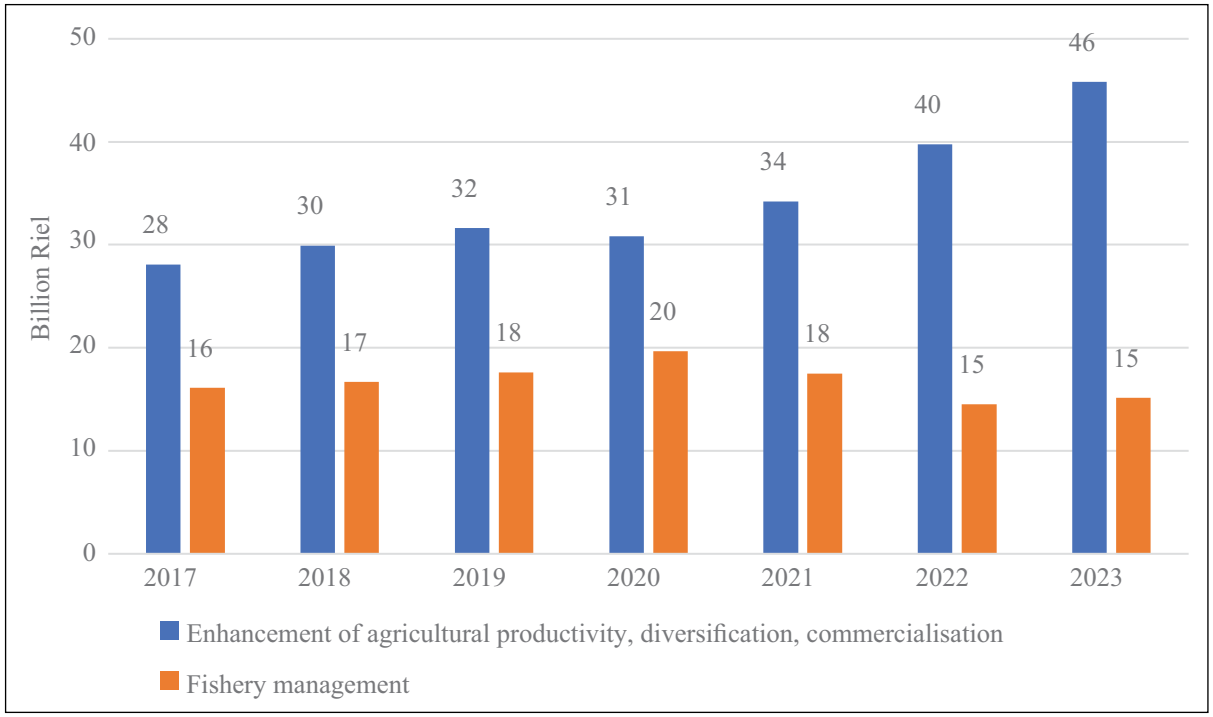
16 Deputy Director, Department of Agricultural Land Resources Management, MAFF, interviewed on 30 November 2022

17 "Siloisation" is a metaphor for vertical thinking, with few horizontal contact points.

on fostering and enhancing agricultural production, diversification, and commercialisation in an effort to spur economic growth and reduce poverty. These include the introduction of the Agricultural Extension Policy to ensure that farmers and their communities can acquire better agricultural knowledge, skills, and technology, and the Policy Paper on the Promotion of Paddy Production and Rice Export, which shows that the volume of milled rice exports has steadily increased to about 67 percent over the course of five years, from 2014 to 2018. Moreover, the Royal Government of Cambodia (RGC) introduced the Industrial Development Policy 2015–2025, in which one of its primary objectives with regard to agriculture is to increase the exports of agro-related processed goods by 12 percent (of overall exports) before 2025. Through the Strategic Planning Framework for Fisheries 2015–2024 and declarations on national fisheries policy, the government identified two goals in the fisheries sector: i) combating all fisheries-related crimes, and ii) boosting aquaculture. There is an assumption that aquaculture is seen as a replacement for inland capture fisheries, even though the equity implications of the latter in terms of access to fish for livelihood and nutrition may be significant.

Second, agriculture's importance is also reflected in government spending, with the budget for agricultural investment steadily increasing from 28 billion riel in 2017 to 46 billion riel in 2023, while the budget for fishery management decreased from 28 billion riel to only 15 billion riel in 2023 (see Figure 2). The concentration on rice production and export for foreign revenue, partly due to competition with Vietnam and Thailand, has rendered the commandeering of water for this purpose at the expense of other stakeholders reliant on water as a resource. A notable example is that irrigation infrastructure for rice cultivation has fragmented waterscapes and marginalised fisheries.

Figure 2: Government expenditures on agriculture sub-sectors



Source: Budget Laws 2017-2023, Ministry of Economy and Finance

In addition, water sustaining fisheries may be more politicised than water for agriculture. Since the Prime Minister cancelled all of the fishing lots in the Tonle Sap Lake in 2012, the fishing industry has been undergoing extensive restructuring. Fishing areas were changed into

a combination of CFis, open access areas, and some conservation areas after the abolishment in 2012. However, the precise size and boundary of each category are unknown, and their management is poorly understood (Johnstone 2013). The unclarity of the current laws and policies on fisheries has led to villagers being fearful of going out to fish in case authorities fine or arrest them as per their interpretations of the zones (Delgado 2023). According to Jones and Sok (2015), the ruling party wanted to strengthen their rural support base, and since there was a rise in local conflicts and complaints of the lot leases, as well as little actual revenue from the lots entering the government funds, it was politically strategic to finally abolish them. CFis are the only functioning system regarding fishery management in the Tonle Sap Lake after the fishing lot cancellation (Ishikawa, Hori, and Kurokura 2017). In this sense, small-scale families and fishing communities have played a major role in contributing to the management of the fisheries sector. According to the Amendment of Law on Fisheries in 2017, stricter regulations have been imposed on "commercial" and "industrial" fishers. For example, they have to apply for permits from FiA and are not allowed to fish in the closed season during June-October when the spawning season is about to start.

Finally, officials in the central ministries, in our interviews, often expressed frustrations that their policies are not fully respected. Within the local levels, they say, unfortunately there is a lack of discipline, low capacity and a general lawlessness. Local dams for irrigation are encroached upon by actors with other interests; pure water sites are polluted by fish cultivation; traditional rice field fishing is suffering from extensive use of pesticides in commercial agriculture; and in areas protected for spawning the forest is taken down (in the dry season), destroying the enabling conditions for the fish. Listening to their voices, the key problem lies in the anarchic nature of the rural areas and the wide array of competing economic interests in the water sector. This is ultimately a result of the sectionalisation of the waterscape which does not account for multiple water demands. The establishment of a stronger local authority, deeper inter-sectoral integration at the local level, stricter enforcement of laws and policies, and stronger bottom-up links may be at the heart of this dilemma. This brings us the sub-national actors.

Sub-national authorities

The most ambitious attempt at decentralising powers rests with the Decentralisation Law, dating back to 2001. This is a reform establishing the commune councils as a locally elected, downwardly accountable body, constituting a formal branch of the government. It has a generalised development mandate, conflict resolution tasks and a number of administrative functions. It receives an annual budget and is allowed to handle state resources and pursue development interventions. However, it does not have a particular mandate for water and land management. For resource management its role has primarily turned to be one of local conflict resolution and as a mechanism to communicate with higher authorities (district or province). Occasionally, the commune councils are engaging in supporting minor water/irrigation structures, but rarely engage with fisheries (except as a mediator/advisor). Although the district level may be approachable, and has regular meetings with the commune chiefs, the district has no mandate to instruct the technical line departments, which receive their instructions (and their budget) from above. Many issues regarding water management are beyond the reach of commune councils to solve since the communication channels upwards are blocked: commune councils report to the district governors, but have no direct contact with, or influence over, technical departments at district and/or province level. Hence the councils are disempowered in these issues. This is why the "unified administration" at the district level, as mentioned above, is a core reform necessary for improved local resource management.

Provincial and district authorities, on their hand, are mainly trying to implement policies and strategies at the national level. The Provincial Department of Water Resources and Meteorology (PDoWRAM) provides direct technical support to FWUCs and is involved in the implementation and management of FWUCs within communities, while the provincial Fishery Administration is involved in setting up local community fisheries. Despite the participatory process of establishment[18], these are often set up with little local knowledge and limited ability to adapt to the local circumstances, hence the "bottom-up" qualities of these processes being limited. Provincial and district levels are often said to be handed a policy from the national level, but receive little guidance and even less resources to implement it. Moreover, the scope of land and water management and its multi-dimensional complexities all the way down to the villages are overwhelming for the limited capacity at these levels. Finally, the problem of top-down governance as well as the deficit of inter-department communication mentioned for the central level is repeated on these levels as well.

Some key contradictions can be seen through the overlapping mandates over irrigation water in relation to various community-based institutions and government agencies. MoWRAM's national water policy delegates the management responsibilities of a specific irrigation system to FWUCs and the FiA works on establishment of CFis. These bodies are represented by locally elected committees. However, in the decentralisation reform, the commune council is given a general mandate to manage natural resources, including water, within the commune's territory (de Silva, Johnston and Senaratna Sellamuttu 2014). The National Committee for Decentralisation and Deconcentration (NCDD) tries to promote empowerment of local authorities and communities (encouraging more bottom-up decision-making), while MoWRAM creates FWUCs in a top-down manner at the local level, following the PIMD policy, since they must be initiated and registered by MoWRAM (Phirun et al. 2011). Hence there are parallel bodies acting on different rationales, which again points to the unified administration as the key reform.

Local actors

At the surface, current legal frameworks and policies make local people central in the development process. Local participation is a requirement in formulating and implementing rules and activities within their respective areas. IWRM has been adopted as a key approach in the national-level water sector policies, with a certain emphasis on participation. Farmer-based FWUCs (and to some extent fishery communities) have responsibilities in managing water in irrigation schemes and local reservoirs. The commune councils are popularly elected and gain their momentum from below.

However, in reality the system does not work that smoothly. FWUCs were created to deal with the rise in water competition brought on by the construction of irrigation systems. According to Kimkong et al. (2023), FWUCs' budget is frequently insufficient for carrying out that task, and since members contribute voluntarily, their effort and dedication are constrained. Five members structure each community's FWUC management committee, although only one of them - the FWUC's head – typically works actively. In areas like conflict resolution – which frequently happens amid water shortages in the dry season – FWUCs rely on the assistance of commune councillors. This is largely a result of the power commune chiefs have gained locally, by virtue of their popular election and their participation in numerous interventions, including the

18 The process of establishing CFis involves commune councils in the set-up, the elections of committee members, and the development of CFi Plan. Also, the CFi committees participate in the commune councils' monthly meetings.

provision of micro-loans and support for various social initiatives. Due to commune chiefs also acting as local politicians connected to political parties, the interference from the communal council has, however, somewhat harmed the way FWUCs operate, as they are now seen as representing a particular political interest.

Moreover, and more importantly, a large portion of FWUCs suffer from a lack of legitimacy, limited accountability, submission to the government, political meddling from local elected authorities, and a lack of operation and maintenance capacity (Sithirith 2017). They are also often described to be operating in a top-down fashion, led by a strongman or a small local elite. The local management of the fisheries sector is hampered by national/provincial government/ political leaders with economic interests in the land – depending on the water regime and the season, there are fishery or land interests involved, especially when connected with external investors. This commonly leads to concerns of losing community lands and fishing grounds. The study of Wessling (2020, 44) quoted an expression of the community chief of Trapaeng Sangkae CFi saying: "*During the process of establishing this community we had a lot of problems with government officials. They did not want to have this community, because they knew that if this community exists, they cannot do anything with this land.*"

The FWUC committees are placed to play important roles in ensuring schemes are well-managed and maintained. However, their power is weakened by the existing relations that local political leaders hold with strong influence on decisions over irrigation management (Phirun et al. 2011). Patronage, political/judicial connections, or simple land-grabbing, often replace the ideals of democracy and participation. This is similar to the CFi case where local political leaders as well as community residents who are wealthy influence and dominate fisheries activities, and sometimes also the FWUCs themselves (Keskinen et al. 2007). The underlying development vision of self-governance for farmers, and transforming the FWUC into a powerful body through its members' intense participation, has failed repeatedly in the face of the prevailing Cambodian political culture and the anarchic nature of local society. Further empirical studies need to be pursued in order to shed light on this issue.

Commercial actors

Besides public irrigation schemes, the private sector also provides irrigation water supply to agricultural activities throughout Cambodia. Commercial actors range from individuals to companies, and ex-generals who have set up modern profit-seeking companies of considerable size. These actors often have economic power, a strong connection with local political leaders, and the ability to influence outcomes in a wealth of different ways. In the local society, official land registration and tenure is lacking, receding rice growing is largely customary, and fishery grounds are not owned. This make the entire landscape subject to commercial penetration either by force, where there are no credible authorities to prevent powerful land grabbers, or entirely "legally" since proper laws and/or ownership of the resources are missing (see discussion on "bossism" in Section 3.1). This may take place in crude ways, such as cutting a forest in the dry season, removing the spawning grounds for the fish in the wet season, or in rent-seeking manoeuvres by local elites.

In the case of the Trapaing Trabek scheme in Kampong Chhnang Province, the water supply owner is an affluent villager who has a close relationship with the commune chief (Phallika 2012). He has come to operate the water supply as a business since the early 2000s, which enables farmers to grow more rice in the dry season. As the system is aiming for a profit, the water fee is far higher than the fee of the public irrigation scheme. In this case – which is commonplace throughout Cambodia (Öjendal 2000) - farmers do not have an alternative

option and need to choose the service that works for their cultivation. Phallika (2012) reported that accessibility is the main factor that farmers seek out when choosing between using the public or private services, and even though the private water fee is 10 times higher than the public one, it is commonly the preferred choice. This is the case largely due to reliability and lack of other viable options.

In compiling this study, we have come across numerous reports of il/semi-legal mis/appropriation of the land-water resource base as described earlier, exploiting the environment in a neither socially nor physically sustainable manner. To what extent (or how) this has systemic effects on the entire delta landscape and its ability to operate as a multifunctional system for sustainable food security is a complex issue, currently with no detailed research.

Donors and NGOs/CSOs

Non-state actors such as donors and NGOs have been working with government and line ministries through Technical Working Groups (TWGs) at a national level and operating development projects at a local level. At a national level, TWGs define sector-wide priorities, aim to harmonise activities, seek to improve the utilisation and mobilisation of resources, and strengthen the sector's capacity to contribute to economic growth. There are TWGs for both of the main sectors in this report: (1) Agriculture and water; and (2) Fisheries.

The Technical Working Group on Agriculture and Water (TWGAW) was established by the government in 2006 to facilitate sector coordination with the long-term vision to ensure enough, safe and accessible food and water for all people, reduce poverty, and contribute to economic growth (GDP per capita), while attempting to ensure the sustainability of natural resources. The Technical Working Group on Fisheries has been established to achieve a balance between sustainable rice field fisheries and rice production intensification. It also should be noted that donors have provided significant financial assistance to the water sector. In fact, MoWRAM's budget from the government is largely insufficient for operating water resources projects (Seng et al. 2013) and is thus heavily dependent on donors.

At the sub-national level, NGOs/CSOs mainly implement their development projects with local communities. According to Seng et al. (2013), many NGOs have been engaged in improving irrigation by providing material, equipment and/or technical assistance. Their work has focused on the rehabilitation of the existing irrigation systems, including the repair of reservoir bunds and outlet works; provision and repair of pumps; rehabilitation of canal networks; and minor control structures. However, projects were not selected according to national plans and were treated as isolated entities, often ignoring their complex hydrological features. As a result, the performance of the facilities has often been unsatisfactory, and the engagement (and external funding of NGOs/CSOs) may be declining.

Also, the regional Mekong River Commission (MRC), and its Cambodian counterpart, the Cambodian National Mekong Committee (CNMC), has influence over the delta landscape through massive research being done on the Mekong Basin under international cooperation. The resulting strategic plans for Cambodia[2] should have long-term impact and be the basis for future planning. As such, it provides a very important tool. The CNMC is led by MoWRAM and works, reportedly, in close connection to the line ministries of the government and provides input for the National Strategic Development Plan. In the coming years, the result of the "Strategic Plan of Cambodia National Mekong Committee 2021-2025," Outcome No 4 sets out to study the fisheries, biosphere and management of the Tonle Sap sub-basin. This

is especially important in reflection to the little knowledge in the current overall health of the Tonle Sap Basin and its management.

Although international donors and the projects they finance have power in influencing the government and in shaping development policies and strategies, this ability has been declining gradually over the last two decades where the commercial sector has grown, the government has become more capable, and donors have become fewer with less investment funds.

6. Policy implementation processes and development outcomes

In line with the Cambodian Sustainable Development Goals, the National Strategic Development Plan (NSDP[19]) 2019-2023 and other sectoral policies[20] aim to benefit broadly, across various sectors and develop society at large. The key attempts of these policies are to alleviate poverty, ensure food security, and enhance socio-economic development effectively and sustainably. This study outlines policy outcomes in three interconnected sectors related to the management of water: agriculture, fisheries, and land.

Water and agriculture

Agriculture plays an important role in the national economy, in particular, its contribution to poverty reduction, improvement in people's livelihoods and job creation. Moreover, agriculture also helps prevent people from falling back into poverty and contributes to ensuring food security in the long term. In this regard, irrigation systems are increasingly central to the agricultural development of Cambodia, as is also stated in the National Strategic Development Plan 2019-2023. Through previous development plans, the growth of irrigation schemes has intensified agricultural production and thus improved people's livelihoods in the concerned areas.

The advances in agricultural development are unquestionable, but the benefits are not equally distributed. Physical infrastructure is not functioning evenly across agricultural areas, contributing to the formation of uneven water bodies (de Silva, Johnston, and Senaratna Sellamuttu 2014; Chea et al. 2011; Diepart and Thuon 2022). Also, the public irrigation systems rarely serve the areas they are designed for equally. A more expensive private water supply is oftentimes needed for farmers to predictably grow rice in the dry season, raising production costs (Phallika 2012). This triggers a concern that farmers have to put high investments in cultivation while the product price is low and fluctuates. This leads us to question the benefits of irrigated agriculture in difficult areas. Small farmers bear the costs, the burden of debt and the obligation to repay loans and face the risks of failure anywhere along the agricultural cycle. It is of utmost importance that when smallholders invest in irrigation due to the reliance on water for livelihoods, these services are reliably delivered. Anything else would turn into a poverty trap.

Water and fisheries

Fisheries play an important role in national food security and provide employment and income for many rural people. The law and policy implemented in this sector aims to enhance the management of the fisheries sector sustainably and to ensure equitable access to the resources for Cambodians. The fisheries reform in Cambodia, which took place in the early 2000s, has

19 NSDP is organized across sectors rather than across ministries and requires ministries to plan in a coordinated manner across sectors.

20 See Appendix 3

created a space for communities dependent on small-scale fisheries to engage in natural resource development and management[21]. Two main issues have been identified in the reforming process.

First, fisheries are not treated with the same urgency as agriculture and irrigation are. Budgets are significantly smaller, interventions fewer and attention is far from that which goes to irrigation. This is unfortunate, but not really surprising given the historical/cultural centrality of rice (and indeed irrigation) in Cambodia. Moreover, water and irrigation are a state concern, whereas water and fisheries are the individual's concern, or so it has been depicted through history (in Cambodia and elsewhere). Moreover, water for irrigation needs a dam and a canal network; these are interventions which are easily fathomed and pursued. Water for fisheries needs a deeper understanding of the biosphere, aquatic life and small-scale fishermen's abilities. The latter is far more complex to invest in and predict measurable revenues in the short-term. *Second*, various power relationships and interests outside as well as inside the fishing communities still exist. In the recent past, people with strong economic positions and high social and political capital, commonly dominate community fishing agendas, while those who have less resources have limited benefits from fishing activities (Keskinen et al. 2007). Although the fishing lot system has long been abolished, occasionally, there are reports on collusions between individuals with fisheries interests who pay and pressure their way into lucrative local fishing grounds through influential local politicians on various levels. In contemporary Cambodia, fishing regulation is blurred, and fishing practice is unknown. This would need to be clarified by some empirical research.

Moreover, the fisheries from the canals and the rice fields contribute substantially to the overall national fish production. The Deputy Director[22] of the Aquaculture Development Department mentioned that the existing policy supporting the establishment of the CFRs greatly benefits the community in many ways, for example, livelihoods and incomes and making water available for vegetable growing and rice farming. However, in some instances, conflicts have occurred leading to many CFRs being dissolved due to commercial purposes and the high price of the land.

There are also conflicting interests between CFRs and the clean water system, especially when the establishment of the clean water system comes after the CFR. MoWRAM tends to develop clean water infrastructure for the purpose of water purification, resulting in a challenge for the CFRs to operate. The FiA needs to revise the necessary mandate or policy to ensure that CFRs are fully recognised with a mapped land boundary, and proper land titles, as well as being registered at the national level with the approval from the Minister of MAFF. The official added that the FiA still seeks collaborative actions between MoWRAM and the FiA.

Water and land

The consecutive National Strategic Development Plans (2006-2009; 2010-2013; 2014-2018; 2019-2023) were developed with a focus mainly on promoting and improving agricultural productivity, diversification and agriculture commercialisation in a new turn to accelerate the economic growth and to alleviate poverty. Although the development plans aim to promote agricultural productivity and diversification, the main focus is still on rice cultivation. Rice cultivation areas have increased from 2.1 million hectares in 1999 to 3 million hectares in 2018 which cover most of the total cultivated paddy land (FAO 2020). Growth, efficiency (in the narrow definition), and increased output seem to take precedence over food security, poverty alleviation and nutritional ambitions.

21 See Appendix 4

22 Interviewed on 03 November 2022

With this huge expansion, World Bank (2015) reported that large farmers in Cambodia are gathering more land with better soil quality. Small farmers sell their property and often become landless or owning only fragmented land which may be difficult for efficient agricultural management or having poor soil fertility, which will render low profitability. A further consequence is the increase in the extremes: at one end of the spectrum, there are more very small farms struggling to make an agricultural livelihood economically viable, while at the other end, there are more large farms with better quality assets, able to benefit from new technologies for their production. Landless or nearly landless rural households' coping strategies include different options. People who sell their land often become farm labourers, move to off-farm activities in rural and urban Cambodia, or migrate to neighbouring countries. According to the World Bank, more than 10 percent of the population is landless, and a significant portion cultivates less than 0.5 hectares, which meets less than half of the basic dietary requirements for an average rural family.[23]

7. Analysis of the political economy of water usage in the Mekong delta of Cambodia

As we have seen, there are ample laws and policy regulations that guide a balanced, participatory and bottom-up water management. Yet, criticism, conflicts and sub-optimal outcomes are evident (Sithirith 2017; Kheng 2010; Öjendal and Hellberg 2023; de Silva, Johnston, and Sellamuttu 2014; Mang 2009). Six aspects are at the forefront of the complex reality. *Firstly*, it is commonly reported that the line ministries and their technical departments are predominantly working inside their own structures and that no mandatory framework for integration, cooperation and dialogue is in place/or is fully functional. Where there are inter-ministerial committees, they appear slow, inefficient and conflicts between ministries have been apparent for years or even decades. It appears that attempts at cross-ministerial communication is only pursued unwillingly and under pressure. At the national level, policymakers, in particular MoWRAM and MAFF, are crucial actors who are responsible for developing and implementing relevant policies in the water sector. Weak cooperation between line departments and ministries prevails and there is a need for further improvement.

Secondly, out of tradition, Cambodian state authorities have a top-down approach (as described in Chapter 3). The RGC, in contemporary Cambodia, may be over-emphasising policy development and under-emphasising policy-implementation rigour. This is historically driven (Chandler 1983) but is also part of the contemporary patronage system nurtured by certain policies, which to some extent are changeable. Typically, centrally placed politicians exercise their power on local level actors and sometimes cultivate economic interests together with commercial local actors, hence vertical control appears more important than horizontal coordination with other ministries/departments. This is repeating itself within the system, irrespective of which level we observe. Neither of these two traits are compatible with a proper IWRM approach (giving strength to the argument in Mang (2009) above, emphasising the poor fit between IWRM and the prevailing Cambodian water management institutions).

Thirdly, as is commonly the case in developing and modernising countries, water is primarily seen as a vehicle for enhanced agricultural output through a focus on irrigation, mechanisation and industrialisation of cultivation (Öjendal 2023; Öjendal and Hellberg 2023). The less visible and less "countable" small-scale fisheries are given less attention and little investment. In the water, fisheries and agricultural sectors, investments affect the natural resource regime and

23 www.worldbank.org/en/results/2019/10/22/cambodia---providing-land-and-opportunity-for-landless-and-land-poor-families.

thus contradict other sectoral policies. Therefore, it is important to investigate the trade-offs between all sectors and ensure that people can access benefits effectively and sustainably.

Fourthly, sub-national authorities have little capacity and understanding of an IWRM-approach, and possess limited financial resources and a weak mandate to operate on their own accord. The provinces and districts have primarily been organised along vertical line ministries and their formal mandates, and there is little incentive for them to operate along an IWRM-rationale. The exception is through the D and D process at the commune level. The commune councils have a generalised mandate for development interventions, but they have no explicit obligation for resource management. Without technical support, sanction abilities, and a substantial budget, issues appearing in the water sector are normally far beyond their horizon. At the local level, there are common tensions between local resource management bodies initiated by ministries such as FWUCs and CFis, on the one hand, and locally elected commune councils on the other. This represents a common 'bottom-up meets the top-down' rationale, but with no means to make these meet. As has been argued for almost 20 years, the "unified administration" at the district level is the obvious solution to this problem (Öjendal and Kim 2008). This approach has been initiated but is far from completed, or even functional.

Fifthly, the D and D process is now 20 years old and has delivered some positive outcomes at the village and commune levels (Öjendal and Kim 2013). It has, however, neither been fully funded nor allowed to take major responsibility for local resource management. It has, moreover, not been systematically supported (or even welcomed) at higher administrative levels. Commune councils are in frequent contact with the district office, but without the unified administration (see above), their requests never reach the technical expertise, nor the available resources, within the line departments. Likewise, the technical competence with the line-ministries rarely reaches the commune level. To reap the benefits of the decentralisation and the local legitimacy of the commune councils, there should be receptive district authorities.

Sixth, and finally, commercial and private interests have forcefully inserted themselves into local resource management. Often this is enabled through political protection or whilst acting in a legal void, exploitation of political networks, and with the power that money can buy in order to grab, acquire or exploit local resources. Individuals with resources and political connections intervening semi-legally in the oftentimes profitable water sector, gives them the upper hand in all kinds of resource conflicts. Both the old pattern of patronage and the neoliberal capitalistic system play to their advantage, often at the expense of local farmers and fishermen who have none of these resources.

In combination, these six features have undermined a successful move towards an IWRM-inspired management of local resources. These represent evidence of the second movement where local resources are misappropriated and subject to sub-optimal outcomes for the local population, sustainability, and food security.

8. Conclusion and recommendations

The land-water-food nexus in Cambodia is characterised by policy silos (both across and within sectors), conflicting institutional interests, weak decentralised authority, poorly functioning community entities, and the pressure from politically-connected commercial interests. This characterisation is exacerbated by the entrenched patronage system in both the economic and political institutions.

While the national food security policy stresses the strength of agriculture (particularly rice and fish production) that depends on the synergy between land and water resources, sector-specific policies are not well-linked. For instance, despite the IWRM emphasis, MAFF and MoWRAM do not coordinate water governance policies for agriculture (especially concerning irrigation schemes). Regarding water, national bodies focus on their respective mandates and sectors. While CNMC coordinates water issues at the national level and works on water conflict resolution at the regional level, this is not reflected in policy or in professional cooperation between CNMC, the National Committee for Disaster Management (NCDM) and TSA. This shortcoming is concerning since the Mekong River, the Tonle Sap Lake, disaster risks and climate change are deeply linked to agricultural production and food security. The adverse impacts of the Mekong River on the flows of the Tonle Sap Lake (particularly by upstream dams) and subsequently on food production of communities around the lake are evident. Yet, a landscape approach to address the integral issues surrounding land-water resources and climatic risks by CNMC, NCDM and TSA does not exist. Specifically, there is no policy to coordinate the integration of disaster risk reduction and climate change adaptation in agriculture at both national and subnational levels.

At the subnational level, provincial departments work closely with CBOs (particularly FWUCs and CFis) on technical issues (such as irrigation canal maintenance and fishing conflict resolution). However, these departments do not work collectively to tackle cross-cutting issues in agriculture. Rather than working on specific issues (such as water, fish and rice), the associated entities should work with other subnational bodies (such as commune and district authorities) to holistically address intertwined issues in agriculture, including how to optimise linkages of land-water resources in food production in the commune and district development plans.

Regarding local resource governance, CBOs do not often function well and suffer from elite capture, and commercial and political pressure. FWUCs and CFis rely on provincial departments for technical management and conflict resolution, while participation by members is weak and ownership is low. Vulnerable members are marginalised from benefits by those with strong economic and political capital. Further, conflicts with politically-connected commercial actors exacerbate this vulnerability and exclusion. Hence, to strengthen social capital and collective action of CBOs, there should be a sector-wide approach to build their capacity. Currently, FWUCs and CFis (and other farmer-related organisations) do not work as a collective, making them prone to both cross-sector threats and opportunities.

Condensing the above information to address the research questions, we state the following:

- *Do Cambodia's development policies promote water and land integrity and the maintenance of functional delta landscapes?* The policies and legal development are tentatively progressive, but still sectoral and sometimes fragmented. These policy and legal tools are not complete and as stated above, there are mismatches, imperfections and overlaps. Institutional structures and agency interests in horizontal coordination and – *especially* - vertical implementation are considerably weaker than the content of the laws and policies themselves. Above all, accepted policies are often not leading to accepted practices.
- *What are the key issues and drivers and why do these [imperfections] persist?* While concerned ministries have achieved a lot, they have not managed to break the political culture of verticality, deeply entrenched in the political culture and lines of patronage. Nor have they been required to work across ingrained sectoral roles and interests that continue to treat landscapes in a segmented manner, missing the vital links and trade-offs with respect to resources, such as water, that are subject to competing demands.

A thorough coordination and cooperation between various levels of government in the implementation phase would considerably enhance the quality of the policy development. Many policies "fail" because there are no resources or incentives locally to follow-up on them. To systematically monitor the implementation of policies, studying their real-life weaknesses, feeding back to concerned ministries and amending the policy according to its weaknesses would allow the system to excel.

- *How do Cambodia's D and D programmes contribute to the integrated water and land management?* The D and D programme is, we believe, one of the most promising governance reforms in post-war Cambodia. However, as it currently stands, it is not able to solve the recurring problems that are typically operating on a greater scale than what the commune councils can manage. Drawing on the unusual degree of legitimacy, the D and D programme should be given a greater mandate, higher budgets, and a more enabling political system to work in. The most obvious solution, in this regard, is to complete the halfway reform of a unified administration at district level. This is where government policies and top-down technical competence should meet accountable local knowledge through a bottom-up process. This is an idealised rationale, although currently the commune councils may not be as accountable to their local constituency as they used to be pre-2017, hence not as effective for channelling bottom-up sentiments as they used to be. Thus, attention should be paid to potential elite capture by way of commune council membership creating a significant power base to misappropriate resources. These factors may be contributing to communes' limited impact.
- *To what extent do current planning and implementation processes around water and land account for poverty, food and nutritional insecurity and social stratification?* These values do not seem to be priority. Increased agricultural output, green revolution, mechanisation, and efficient market mechanisms are favoured in many policies and plans, although promoting green growth is occasionally also triggering processes causing poverty. Moreover, fisheries, especially the small-scale variation, is partially neglected in spite of fisheries huge value, poverty alleviation abilities, and nutritional quality. In other words, the crucial benefits for managing multi-functional resources, such as water and land, are rarely acknowledged and addressed, which is one key result of a system-wide failure to coordinate policy development and implementation. As such, IWRM, though adopted in policy, is unlikely to be realised on the ground. The social stratification in these processes is not a central priority.

Recommendations

To improve the multifunctionality of land-water resources to enhance rural food security, we suggest the following:

(1) The central government system would benefit from the establishment of mandatory cross-ministerial meetings on a regular basis. Such meetings should be facilitated by existing/new coordination structures leading to traceable cross-sector and cross-agency actions towards more integrated water and land management. This could amend existing TWGs to reduce compartmentalisation. For example, by removing water from the current Agriculture and Water TWG and creating a Water Resources TWG where the various demands from water could be balanced, and thereby to help to operationalise the notion of IWRM. To this end, representatives from other TWGs such as agriculture and fisheries should be part of a water-specific TWG, along with other water-related sectors such as energy, industry and domestic water supply.

(2) A systematic empirical monitoring scheme should be developed for the rolling-out of policies. This would prove very valuable since the weakest link in the policy work, in the sectors we have studied above, is implementation, upholding of quality interventions, and safeguarding of the sustainability of already established policies. Since there is already a solid process in place to develop policies and major effort being made to do so, it would be worthwhile to follow up and monitor the implementation.

(3) To further support the IWRM implementation, adopt a planning process incorporating hydrological units (basins and sub-basins) and based on resource inventories, and develop priorities, especially key social indicators (e.g. poverty, nutrition and gender) and arising trade-offs. This should occur with the participation of the line agencies, relevant provincial and district authorities and TWGs, taking into account the District Development Plans created through the bottom-up annual village-commune-district planning processes.

(4) Give full support to the recent decision to integrate water, agriculture and environmental sustainability at the district level, bringing in fisheries as well. This will facilitate recommendation (3) in working towards effective governance of the water-related resources. It is also important to assess the efficiency of early initiatives which support the evolving unified administration. This will require examining the outcomes of the ongoing progress and mapping out the challenges in order to understand the capacity, structural issues and opportunities at both district and provincial levels. This would be beneficial for designing a capacity building programme for relevant sub-national stakeholders to improve the integration.

(5) One of the weaknesses in the otherwise promising legal and policy development within the Tonle Sap fisheries during the last decade is the lack of clarity over the rules and the absence of efficient monitoring of il/legal fisheries. A creation of an authority to oversee the mapping and monitoring determining where smallholders can fish legally - pursued for instance by TSA – would make the situation clearer and help regulate illegal fisheries.

(6) At the local level, study the feasibility of working with agricultural cooperatives (ACs) to address the management deficiencies of CBOs. While FWUCs, CFis, CFs and CFRs are crucial in their respective areas, the lack of an integrated approach on food production-related resources (including land, water, fish and forests) will further the fragmentation. The government has recently promoted a partnership between public, private and farmer agents to enhance agricultural production and productivity for better food security (Diepart et al. 2022). This partnership emphasises an integrated approach to assist small farmers through strengthening ACs working on main crops. Thus, this is a timely opportunity to explore ways to introduce a sector-wide approach to ACs that cover a wide spectrum of crops and resources. A comprehensive farmer entity would work well on water-land-environment issues that concern their food production and sustainability. These activities should be linked to those of the integrated district office.

However, all of the above recommendations are strongly subject to a willingness amongst the political leadership to reduce opportunities to make money, further accountability from government agencies at all levels for clearly-defined development objectives, and direct investments for capacity building, particularly for provincial and district authorities to enable their active and effective engagement in policy formulation and delivery.

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Appendix 1: List of government institutions working on water

Table 1: Key roles of main government agencies involved in water resource management in Cambodia

Agency	Roles
Cambodia National Mekong Committee (CNMC)	• Advise the Cambodian representative to the MRC Council on all matters relating to activities within the Mekong River basin that could affect Cambodian interests. • Review proposals prepared by RGC agencies in the light of the Mekong Agreement. • Provide coordination between MRC and concerned ministries of RGC.
Ministry of Water Resources and Meteorology (MOWRAM)	• Define policies and develop strategies for water resources • Research and investigations of water resources • Prepare plans for water resources development and conservation • Manage direct and indirect water resource use, and mitigate water-related disasters • Draft water legislation and regulations and monitor their implementation and enforcement • Gather and manage data and information about surface water, groundwater, and meteorology • Provide technical advice • Administer international collaboration, including that within the Mekong River basin
Ministry of Industry, Science, Technology and Innovation (MISTI) (General Department of Potable Water Supply)	• Provide water supply to provincial towns • Draft policies and strategies on urban water supply and sanitation
Ministry of Rural Development (MRD)	• Conduct hydrogeological research, data collection and archiving • Provide water supply, sanitation, land drainage in rural areas • Draft policies and strategies on rural water supply and sanitation
Ministry of Environment (MoE)	• Protect natural resources and environmental quality from degradation. • Disseminate water-related information • Water quality monitoring and pollution control, including monitoring wastewater discharges and issuing permits
Ministry of Agriculture, Forestry and Fisheries (MAFF)	• Develop policies and strategies for agriculture, forestry and fisheries related to the management of water resources • Manage forests (which have relevance to watershed condition, hydrological regime and water quality).

Ministry of Mines and Energy - MME (Department of Geology – Mines):	• Advise on sustainable mining • Develop policies for resource exploitation
National Committee for Disaster Management – NCDM	• Ensure disaster preparedness • Maintain knowledge database • Develop policies for improving disaster awareness, mitigation and preparedness

Table 2: Roles of different institutions in land, water and fishery sectors

Sector	Key roles
Agriculture and water	- Water and agriculture sectors are linked to many agencies dealing with social, economic and environmental issues. Together with MOWRAM, MAFF is tasked to implement key programmes under the 2007 Strategy on Agriculture and Water (SAW) which involves the coordination of different stakeholders and agencies whose interests and responsibilities relate to agriculture and water. - The Department of Irrigation Agriculture in Directorate General of Technical Affairs, MOWRAM, is in charge of the irrigation sector in Cambodia. - The Department of FWUCs of MOWRAM is tasked with a leading role in establishing the institutional environment for local FWUCs. Establishment of FWUCs is to manage, repair, and improve the existing irrigation systems and to promote and guide the development of new ones.
Fishery sector	- The Fishery Administration (FiA), established under MAFF, is responsible for the management of fisheries and fishery resources based on the National Fishery Policies and Laws. It plays the main role in facilitating the establishment of Fishery Communities. - The Community Fisheries Development Office (CFDO) complements the role of the FiA by implementing the policy reforms, building the capacity of communities around the country to manage their new Community Fisheries, and by working closely with civil society. - The Inland Fisheries Research and Development Institute (IFReDI) is in charge of conducting fisheries' research and databases. - The respective Provincial and District Fisheries Administrations operate under the FiA. - Commune Development Council and the Village Development Committee (VDC) are also involved in fishery activities at the community level.
Water supply and sanitation sector	- The overall water sector is divided into different areas with a lead agency generally responsible for each. MIME is accountable for urban water supply, while MRD focuses on rural water supply. - The Sector Coordinating Committee for the Development of Water Supply and Sanitation is chaired by the MIME. The Committee includes 11 other institutions, such as the MRD, the Ministry of Public Works and Transport, the MOWRAM, the Ministry of Health (MOH), the MOE, the Council of Ministers, CDC, MEF, MAFF and Phnom Penh Municipality.

Appendix 2: Recent laws and policies dealing with water

Table: Key highlights of legal frameworks and policies concerning water

No	Laws and Regulations	Key highlights
1	National water resources policy 2004	- To improve the monitoring of the water resources. - To promote river basin management and development. - To provide enough water for agricultural production. - To improve the legal and institutional framework. - To increase public information and participation. - To mitigate flood hazards. - To protect aquatic system. - To increase financial means through private management, fees collection and requests to the donors. - To collaborate with neighboring countries in order to achieve the aims of the Mekong agreement.
2	Law on water resource management 2007	- Water and water resources shall be managed and developed based on an integrated water resources management (IWRM) - The MOWRAM is mandated to manage, lead and supervise the implementation of the present law. - Water use license - The creation of Farmers' Water User Communities
3	Law on Fisheries 2006	- To expand the fish production from all sources with better fisheries management - Fishery management is under the jurisdiction of Fisheries Administration, the Ministry of Agriculture, Forestry and Fisheries. - Forming Community Fishery
4	National Strategy on Agriculture and Water 2006-2010	- MAFF and MOWRAM Strategic Development Plans for Agriculture and Water Resources - For more efficient use and management of water and land; - Increased agricultural productivity; - Enhanced agri-business processes.
5	Cambodia Climate Change Strategic Plan 2014-2023	- To adapt and mitigate in the face of climate change; - To recognize the need for inter-disciplinary approaches and cross-sectoral approaches; - To combine community, scientific and eco-system-based approaches; - To ensure that responses are gender sensitive; and - To engage at the local, national and global levels
6	Strategic Framework on Decentralization and Deconcentration Reform	- Responsibilities for providing government services are being shifted to Sub-National Administrations, including the commune/ Sangkat, district, municipal, or Khan, and capital and provincial levels of government. - NCDD is the main committee implementing the Strategic Framework on Decentralization Reform. - At national level, there are some working-groups dealing with issues under three components including civil society component, forestry, fishery and land component, and natural resources and environmental management component. - At the provincial level, the Provincial Rural Development Committee - Executive Committee (PRDC-Excom) plays a coordination and facilitation role. This body considers financial allocations and other issues before the provincial governor makes a decision.

Appendix 3: Key highlights in fishery sector in Cambodia

Year	Event
1993	National election was taking place and new Cambodian government was established
1998	Second fishing law was adopted (Three fishing gear categories figured out)
1999	Many conflicts between Fishing-Lot owners and local fishermen were reported
2000	Reform of the fishing management system. 56% of Fishing-Lot areas were released from lot owners to local fishing communities
2001	Community Fisheries Development Office (CFDO) was established (365 Fishery communities were formed)
2011 May	Prime Minister ordered removal of Stationary fishing gears in Tonle Sap Lake
2011 July	Directors of five provincial fisheries offices around Tonle Sap Lake were resigned by Prime Minister
2011 August	The Prime Minister decided to tentatively close 35 Fishing-Lots in Tonle Sap Lake for two years. 647,406 ha of conservation area was established in flooding forest around Tonle Sap Lake
2011 Dec	The Prime Minister decided to extend the Fishing-Lot closure until 2014.
2012 Feb	Prime Minister decided permanent closure of Fishing-Lot
2012 Mar	Fishing gear category was reformed, and large and middle scale fishing gears were outlawed (many small-scale fishing gears became middle scale fishing gears in the new category)

Interview Questions

[RQ1: Do Cambodia's development policies, when assessed collectively across sectors, promote water and land integrity and the maintenance of functional delta landscapes, considering climatic and other risks?]

RQ1 – Interview questions designed for central policy makers/ministries

(Follow each question up, before returning to the main flow)

1. What is your mandate and responsibility as regards water, land and fisheries?
2. Is there a match between law, policy and local needs?
3. Do you find those clear to understand and pursue?
4. Which difficulties do you experience in balancing water for different purposes?
5. Are there any particularly tricky issues given the fluidity of water in the delta landscapes?
6. Are there synergies/complementarities and where are the contradictions in relation to other stakeholders in the area/sector?
7. How do you cooperate with other ministries?
8. How do you cooperate with sub-national authorities?
9. How do you work with communities (including policies for community fishery/forestry etc)?

[RQ2: What are the key issues and drivers that undermine integrated land and water management and the maintenance of landscape, and why do they persist? What are the implications for food production in terms of ability to diversify and adapt to risks, and what are the livelihoods and food security implications for different groups of men and women in the delta?]

RQ2 Interview Questions

1. What makes it difficult to integrate water policies with other sectoral policies?
2. Which interests are you challenging when trying to implement your/the RGC policies?
3. What could you do to enhance food production in the delta area?
4. Which groups need most support to secure their food production?
5. What/who hinders you in your work to improve livelihoods in the delta area?

[RQ3. What does the experience to date of Cambodia's D&D program tell us about the scope, agency, and capacities of nested sub-national administrative structures to plan for and deliver on integrated water and land management and agricultural diversification and resilience?]

RQ3 Interview Questions

1. How do you see the role of the sub-national authorities in implementing the center's policies?
2. How do you see the role of the commune councils in implementing the center's policies?
3. Is there a difficulty to integrate the center's policy with the work/mandate of local authorities? Which?
4. In terms of land/water management, what are the most important things local authorities do?
5. In terms of land/water management, what would you like local authorities to do more of?
6. Are there different experiences from different provinces in the floodplain? If so, what can we learn?
7. What can be done better in terms of center-local cooperation?
8. Are there other interests (commercial/political/practical) that is impeding you in your work?

[RQ4: To what extent do current planning and implementation processes around water and land management account for the relationship between poverty, food and nutritional insecurity and social stratification? Who, if any, are left out and how?]

RQ4 Interview Questions

1. Is your work aiming at reducing poverty?
2. How are your policies and actions improving poverty and food security?
3. What would you like to do "more" of?
4. Who (which social category) is benefitting most from your work?
5. Who (which social category) is benefitting least from your work?
6. Are there other interests (commercial/political/practical) that is impeding you in your work?

[RQ5. For the AMD to support integrated water and land management in Cambodia, which individuals for formal and informal influence should be engaged, and what direction to this end do their affiliations, interests and views provide?]

RQ5 Interview Questions

1. In your view, who is the most influential "driver" of policies for land and water management in the delta/Ton le Sap area?
2. Which processes and actors should be prioritise the next five years?
3. Who/where could external support manage food security and make it more sustainable?.

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