

## The Civil Engineers' Unfinished Business: Japan's Commitment to the Development of the Cambodian Prek Thnot Project

Tokihiko FUJIMOTO

Faculty of Agriculture, Shizuoka University

Shinsuke TOMOTSUGU

The Center for Peace, Hiroshima University

### Abstract

Between the 1950s and 1960s, a comprehensive development plan existed concerning the Lower Mekong River Basin. Questions revolved around who devised what concept for the development of the Lower Mekong River, and how these concepts were implemented. In this article, we first analyzed the processes leading to Japan's participation in the comprehensive development plan. Next, as part of the tributary development plan for this initiative, we analyzed the processes of the formation and subsequent development of the catchment area's development plan for the Kingdom of Cambodia's Prek Thnot River by multilateral development assistance as led by Japan. The development of the Prek Thnot River Power and Irrigation Project stopped as a result of the 1970 Cambodian Civil War and remains incomplete. Therefore, we analyzed the planning potential of the Prek Thnot River's development plan from current viewpoints. What is made clear from the analyses is that both the basic philosophy and design philosophy behind the Mekong River Basin's development initiative is relevant to today, and the development should not be conducted as a domestic matter, but should be conducted in continuation of its conceptual framework of international significance, as it concerns the suburb countries of the Mekong River.

## **1. Introduction**

In the post-WWII era, the Lower Mekong River Development was not only a consequence of the attempts by major Japanese construction companies and engineers to tap into a new market, but also proof of the cooperative spirit that the Japanese engineers tried to show toward their neighboring countries in Asia. Yet how did Japan conceptualize the development of the Lower Mekong River, and how was it carried out? By examining the evolution of foreign (including Japanese) commitment to the creation of the comprehensive development plan for the Mekong River Basin in the first half of this article, we shed light on the Prek Thnot River Power and Irrigation Project in Cambodia (hereinafter the Prek Thnot Project) in the latter half.

The Prek Thnot Project was the hallmark of Japan's involvement in the Mekong River Basin project in the 1950s and 1960s (which involved a development plan using multilateral development assistance), with Japan taking initiative as the largest donor country. As the initiators of the construction work, the Japanese companies' evaluated the feasibility and then began the work. Yet the project was indefinitely suspended because of the Cambodian Civil War in the 1970s. After the conflict ended in the 1990s, a revitalization of the project was proposed several times, but was not completed until today.

While our forthcoming article focuses on the diplomatic interactions and negotiations on the Prek Thnot Project in conjunction with the dynamics of the regional and global politics during the Cold War, this article consists of our examination of how the Japanese engineers designed a development plan in the related region, and how they struggled to implement it. Sections two and three describe the geographical contour of the Mekong River Basin and its use under French colonial rule. Section four discusses the initial international attempts to explore the potential demand and growth in the Lower Mekong River after the Second World War. Section five and six examine the Japanese engineers' role through the evolutionary process of the Lower Mekong River's development concept. Sections seven to nine consider how the Prek Thnot Project, as a tributary development, was incorporated into the entire development concept of the Mekong River Basin. The final section assesses the achievements of the Prek Thnot Project and considers the challenges for Japan in using this historical legacy as an asset to reinvigorate its commitment to the related regions.

## **2. Geographical Features of the Mekong River Basin**

The Mekong River flows from the Tibetan Plateau through to Yunnan Province, passes through the continental part of Southeast Asia, and feeds into the South China Sea. According

to the most recent estimation by the Mekong River Commission, the River is 810,000 square kilometers and has a total length of 4,763 kilometers. The Mekong River is usually divided between its upstream and downstream regions near to Chang Sen, and changes from the Myanmar/Laos border to the Thai/Laos border<sup>1</sup>. Its upstream basin countries border China and Myanmar, and its downstream catchment area borders Laos, Thailand, Cambodia, and Vietnam.

The upstream area consists of 189,000 square kilometers, which is 23.8% of the total catchment area. It conveys 80 billion cubic meters of water, which is equivalent to 18.2% of the annual runoff of the entire basin (450 billion cubic meters), with roughly 16% from China and 2% from Myanmar. Considering the size of the catchment area, the downstream area is larger and thus more widely affects the adjacent land areas. Approximately 370 billion cubic meters flow out from the downstream area, accounting for 82% (roughly 35% from Laos, 18% from Thailand, 18% from Cambodia, and 11% from Vietnam). Locally-measured data suggests that 93% of the average annual runoff in the Mekong River Basin is concentrated in Kratie Province in Cambodian territory (with a basin area of 646,000 square kilometers and a distance of 545 kilometers from the estuary)<sup>2</sup>. Kratie Province is in the Mekong Delta, and starts from Kampong Cham whose summit is near to Phnom Penh. It is a huge delta with an area of 49,520 square kilometers (of which 26% is in Cambodia and 74% is in Vietnam). There is little inclination, and the River channel branches to form several lines. The River rises from September to November, and in the rainy season water overflows from the riverbanks resulting in the flooding of vast areas (about 10,000 square kilometers). Once the river floods, inundated areas sometimes reach to 30,000 square kilometers<sup>3</sup>.

Since ancient times, the Mekong River Basin has consisted of a mainstream and innumerable tributaries and connected the north and south regions. The basin constituted vast and intricate networks for migration, with various ethnic groups or tribes such as Khmer, Champa(Chăim), Lao, Kinh, and Tai moving freely and both flowing in from all directions including India and China, and out to other directions. Traditionally in the Mekong Delta (including the Cambodian region), an indigenous irrigation system known as *Tum Nub* was developed. In the ninth century, the ancient Cambodian dynasty's Khmer Emperors started to construct a broad irrigation system. However, Thai and Champa leaders obstructed the completion of the works. Despite sporadic local skirmishes, the Khmer and Champa leaders made an effort to develop the Mekong Delta by constructing a maze of canals.

---

<sup>1</sup> Takashi Kawai, "Mekong Gawa Sogo Kaihatsu no Doko, Zantei Mekong Iinkai no Doko" (Direction of Mekong Basin Development-Aspect of Interim Mekong Committee during 15 Years 1978-92). *Nettai Nogyo* 37(3), 1993, pp.241-242.

<sup>2</sup> JICA, *Mekongawa No Kaihatsu: Mekong Iinkai ga Sasaerumono* (Tokyo: JICA Kenshusho [Training Center], 1990), p.5

<sup>3</sup> Takaya Yoshikazu, "A Physiographic Classification of Rice Land in the Mekong Delta", *Tounan Asia Kenkyu* [Southeast Asian Studies] 12(2), 1974, pp.135-142.

### 3. French Colonial Rule and the River's Resource Development

The nineteenth century saw modern water resource engineering introduced into the Mekong River Basin for the first time. Following the establishment of its colonial rule in the so-called “Indochina” region, France dispatched an expedition team of six men under Naval Commander Doudart de Lagree to explore the Mekong River in 1866. France intended to assess the potential of the Mekong River as a commercial waterway which would connect their colonies with China's hinterland. After leaving Saigon, the team began journeying upstream in the Mekong River. However, they found their way blocked by the raging streams in Sumbour, the Khone Waterfall, and Kemarath in Cambodia, and were forced to quit. This is the first recorded organizational attempt to investigate the Mekong River<sup>4</sup>.

The famous French naturalist, Henry Mouhot, traveled around the Indochina peninsula between 1858 and 1860 and depicted Cambodia as less developed compared to its neighboring areas such as Siam (Thailand) and Vietnam. With arrogance and impudence, Mouhot candidly stated that he was “disappointed,” and that “Almost every vice seemed prevalent at Kompt [Cambodian city]; pride, insolence, cheating, cowardice, servility, and excessive idleness are the attributes of this miserable people<sup>5</sup>.” He shared sentiments of mercantilism and imperialism as observable in nineteenth century Europe, and he found a great opportunity in this untapped land. Pointing out the unfavorable possibility of economic turbulence and the resultant rise in unemployment in France that could be caused by the suspension of the import of American products due to the outbreak of the Civil War, Mouhot found an alternative economic value in Cambodia. He exclaimed, “What a vast field might be opened on the banks of the Mekong and of Tonle Sap for European activity, industry, and capital!”<sup>6</sup>

After being concerned with economic rivalry with England, he warned that if England made Cambodia “a vast cotton plantation,” then the French should “be compelled to buy from her<sup>7</sup>.” Mouhot noticed that the mountains in Cambodia contained “gold, argentiferous lead, zinc, copper, and iron,” and openly stated that “I wish her [France] to possess this land<sup>8</sup>.”

Consistent with the imperialist motives upon incorporating Cambodia into the French Indochina protectorate in 1863 and becoming the de-facto rule around 1866, the French governors struggled to extend the ancient canal system. France more explicitly showed an interest in the application of modern water engineering to the affected areas as it became more involved in the

---

<sup>4</sup> Milton Osborne, *River Road to China: The Search for the Source of the Mekong*, Atlantic Monthly Press; 1st American Ed edition, 1999. Page unknown.

<sup>5</sup> Henri Mouhot, *Travels in the Central Parts of Indo-China(Siam), Cambodia, and Laos: During the Years 1858, 1859, and 1860*, (London: William Clowes and Sons, 1864) p.180.

<sup>6</sup> Mouhot, p.276.

<sup>7</sup> Ibid., p.276.

<sup>8</sup> Mouhot, p.275.

development of the Mekong River Basin, and established the first water level observation station in Vientiane, Laos in 1895 and later added rainfall observatories at 140 locations across the Mekong River Basin. The French colonial regime also designed the Dong Cam Dam in Vietnam in 1917, beginning construction in 1924 and finishing in 1932.

As a result of such endeavors, France deployed a broad meteorological and hydrological observation network along the Mekong River. Throughout the network, France created a huge volume of meteorological and hydrological documents which are still considered to be the bases for the planning of the development of the watershed today. Meanwhile, France formed the foundations for colonial management by the late nineteenth century by dredging a canal in the Mekong Delta, developing water channel networks to cultivate local farmland, constructing railroads and detours to circumvent waterfalls, developing Phnom Penh port, and developing rubber and coffee plantations.

#### **4. Attempts to Elaborate Upon the Water Resource Development Plan by ECAFE, the USA, and the Mekong Committee**

The French defeat at Dien Bien Phu (March 13–May 7, 1954) shocked the US. When questioned about the strategic importance of Indochina for “the free world” at a press conference on April 7, 1954, President Dwight D. Eisenhower replied as follows:

First of all, you have the specific value of a locality in its production of materials that the world needs. Then, you have the possibility that many human beings pass under a dictatorship that is inimical to the free world. Finally, you have broader considerations that might follow what you would call the “falling domino” principle. You have a row of dominoes set up, you knock over the first one, and what will happen to the last one is the certainty that it will go over very quickly. Thus, you could have a beginning of a disintegration that would have the most profound influences. Now, with respect to the first one, two of the items from this particular area that the world uses are tin and tungsten. These are very important. There are others, of course; the rubber plantations and so on. Then, with respect to more people passing under this domination, Asia, after all, has already lost some 450 million of its peoples to the Communist dictatorship, and we simply can't afford greater losses.<sup>9</sup>

Against the backdrop of Washington's growing concern over communist threats and regional

---

<sup>9</sup> Public Paper of the Presidents, Dwight D. Eisenhower, 1960, pp.381-390.

instability in the Mekong River Basin, the US began wielding its influence over the development policy of international organs such as Asian Development Bank, United Nations Economic Commission for Asia and the Far East (ECAFE), and Mekong Committee as referred later). Under the US's leadership, two important reports were published concerning water resource development. The first was the *Preliminary Report on Technical Problems Relating to Flood Control and Water Resource Development of the Mekong: An International River*, published by the Bureau of Flood Control at the ECAFE in 1952<sup>10</sup>. This report was the result of a preliminary study conducted by this Bureau, and turned out to be the very first report on the Mekong River's development in the post-WWII era. The other was the International Cooperation Administration's (ICA) *Reconnaissance Report on Lower Mekong River Basin* (1956), which reflected the results of a one-year survey conducted by the Bureau of Reclamation at the US Department of the Interior<sup>11</sup>. The report took the form of a full-scale Mekong River Basin Development Plan. Pursuant to this plan, the ICA, formulated as an independent organ under the US State Department, called for Cambodia, Laos, Thailand, and south Vietnam to cooperate with the US. In the early years post-WWII, the US was interested in the development of the Mekong River for the strategic reason of countering the threat of communist aggressiveness by exporting the Tennessee Valley Development Corporation (TVA) model signed by President Franklin D. Roosevelt.

Hiroshi Hori, a river engineer and former technical officer in the Japanese government, was deeply involved in the international aid program for the development of the Mekong River Basin, and commented on the above-mentioned reports as follows:

The ECAFE [1952] and US [1956] reports progressed beyond the standard of the previous French River improvement plan, as the latter was narrowly designed for single purposes such as ship transportation and flood control. In brief, [the more recent of the two reports suggest that] by collecting reliable and extensive fundamental data in the beginning, the related countries through which the Mekong River flow should draw a plan for the effective use of land and water resources to improve the living standards of the inhabitants in the whole downstream area. These countries should implement these schemes *en masse* with a shared comprehensive and well-balanced concept of watershed development. The ECAFE and US reports were eye-opening for policymakers in the field of the downstream area's development.<sup>12</sup>

---

<sup>10</sup> ECAFE, *Preliminary Report on Technical Problems Relating to Flood Control and Water Resources Development of the Mekong: An International River*, Flood/8/Review1, 1952.

<sup>11</sup> USA-Bureau of Reclamation, *ICA Reconnaissance Report on Lower Mekong River Basin*, Washington: Bureau of Reclamation, 1956.

<sup>12</sup> Hiroshi Hori, *Mekong gawa kaihatsu to kankyō*, Kokinsyoin, 1996: p.89.

Based on the preliminary report in 1952, ECAFE launched a fully-fledged investigation in 1956 and published another report (*The Development of Water Resources in the Mekong River Basin*) in the next year<sup>13</sup>. With ample data for rainfall, flow rate, and topography, the report calculated the potential for water resource development in the Lower Mekong River areas. The data set included the future demand for hydropower, ship transportation, irrigation, and flood control. Based on the results, the report recommended the development of dams at six Mekong River streams: Luang Blanc, Pamon, Takeku, Kemarath, Korn Waterfall, and Sambour, as well as the construction of an operating weir to control Tonle Sap Lake.

The 1956 ECAFE report further led to the detailed investigation in five locations: Pamon, Kemarath, Korn Waterfall, Sambour, and Tonle Sap. The report also suggested the creation of an executive agency to receive international, financial, and technological aid, and to coordinate with stake holders.

In October 1957, four countries (Cambodia, Laos, Thailand, South Vietnam) in the Mekong River Basin established the Committee for the Coordination of Investigation of the Lower Mekong Basin, simply known as the Mekong Committee. This was established to promote fundamental research into the development of the water system of the Mekong River in the lower areas. The National Mekong Committee was also established in each country to coordinate related domestic organs. The Mekong Committee, composed of the plenipotentiary representatives from the four member states, adopted a unanimous voting system in order to submit a unified demand to international institutions and foreign countries for technical and financial assistance. The secretariat of the Mekong Committee was established within ECAFE's headquarters in Bangkok as the initial step. Then throughout the 1960s, the committee elaborated upon an integrated plan for the water resource development's overarching flood control, irrigation, ship transportation, hydroelectric power generation, drainage, agriculture, fishery, and economic and social development in the lower areas of the Mekong River Basin. In this way, the committee became a venue in which each state and international organ could come together to create a unified development plan.

## **5. The 1958 UN Report, Japan's Participation, and Kubota's Contribution**

Japan's initial attempt to commit to the development of the Mekong River Basin appeared as a part of its assistance to a UN-led reconnaissance geological survey. Between November to December, 1957, the United Nations Program of Technical Assistance, whose headquarters were located in New York, dispatched the Wheeler Investigation Team, which was named after captain

---

<sup>13</sup> ECAFE, *Development of Water Resources in the Lower Mekong Basin*. Flood Control Series, no.12, Bangkok, 1957.

Lieutenant General Raymond A. Wheeler (who was retired from the US Army Corps of Engineers and the then technical adviser to the International Bank for Reconstruction and Development). Yutaka Kubota, CEO of the Japanese engineering consulting firm Nippon Koei, assisted the team in carrying out their investigation alongside G. Duval (a French consulting engineer), John W. McCammon (a former general manager of the Québec Hydroelectric Committee and an advisory engineer in Canada), Kanwar Sain (the chairperson of the Central Water Resources Hydropower Committee of the Indian Government, and the technical director of the later Mekong Committee), and Tan Bao Tai (a Chinese technician)<sup>14</sup>. The UN-led mission completed a report titled *Program of Studies and Investigations for the Comprehensive Development of the Lower Mekong Basin*, which was simply known as the “Wheeler Report” on January 23, 1958<sup>15,16</sup>.

The 1958 UN report recommended conducting a long list of researches including a hydrological survey by monitoring water levels and flow rates; an investigation into the economy, agriculture, and the underground natural resources in the Mekong Delta; and an overall estimation on the effects of the entire development by taking the improvements in irrigation, power supply, and ship transportation into consideration. Moreover, the report showed the approximate cost of conducting these studies. In fact, many of the engineers writing this report had also participated in the publishing of the abovementioned reports (*Report on Technical Problems Relating to Flood Control and Water Resources Development of the Mekong: An International River* and the ICA’s *Reconnaissance Report on the Lower Mekong River Basin*). Hence, it might be safe to say that the UN report reflected the dialogue between the publishers of these two reports, namely, the US Department of Interior and ECAFE. In response to the recommendation for various researches by the 1958 UN report, ECAFE launched the “Mekong Project” between 1959–1964 in which the UN, France, the US, New Zealand, the UK, Australia, Canada, and Japan offered their assistance.

This is not to say that the Japanese government enthusiastically offered plenty of financial assistance from the beginning. It was not until Kubota approached several politically influential persons that a Japanese survey came into being. According to Akio Yoshimatsu, a river engineer who assisted Kubota in conducting the ECAFE and UN-led reconnaissance surveys, Kubota wanted to undertake an investigation regarding the tributaries, yet he ran short of funds (he needed at least USD 300,000 for the survey). Therefore, he requested the Japanese Ministry of Foreign

---

<sup>14</sup> Footnote No. 28. Nguyen Thi Dieu, *The Mekong River and the Struggle for Indochina: Water, War, and Peace* (Washington DC: Praeger, 1999). p. 36. According to Nguyen Thi Dieu, the original Source he cites was *ECAFE Annual Report 29/3/1957-15/3/1958* (New York: United Nations, 1958) p.17.

<sup>15</sup> United Nations, Program of Studies and Investigation for Comprehensive Development of Lower Mekong Basin, UN Survey Mission, Bangkok, 1958.

<sup>16</sup> Franklin P. Huddle, Science Policy Research Division, *Congressional Research Service, Science, Technology and American Diplomacy; the Mekong Project, Opportunities and Problems of Regionalism*, Prepared for the Subcommittee on National Security and Scientific Developments of the Committee on Foreign Affairs, US House of Representatives May 1972; Press and Information Office, Embassy of the Republic of Viet-Nam, *News from Viet-Nam*, Vol.1, Number 1, January 1961, p.204.



Affairs (MOFA) to provide the funds, but MOFA rejected the demand. Kubota then turned to Prime Minister Nobusuke Kishi, as Kubota was personally aware of Kishi in Korea under the Japanese colonial rule before WWII. Ataru Kobayashi, the first president of the Development Bank of Japan, was a friend of Kubota who also persuaded the Japanese Foreign Minister, Aiichiro Fujiyama, and the Minister of Finance, Eisaku Sato. In total, the Japanese government allocated JPY 20 million to the Kubota investigation; half of which came from MOFA, and the other from the Ministry of International Trade and Industry (MITI)<sup>17</sup>.

Yet why was Kubota so engrossed in the business of the Mekong River Basin? It is said that he tried to do the same or similar during Imperial Japan's heyday, but under different circumstances after the ending of WWII. Both before and during the war, Kubota was heavily involved in civil engineering, electrical/electronic engineering, and construction businesses that were consistent with the Imperial Japanese national policy. Kubota had worked at Japan Nitrogenous Fertilizer Company Ltd., between 1924–1945 when Japan was defeated. In his thirties, he had gained plenty of experience as the head engineer in designing the detailed plan for constructing the Pujŏn-kun hydroelectric power plant in colonial Korea. Moreover, in March 1943, Kubota conducted a feasibility study for power generation on the Island of Sumatra, Indonesia, where the Imperial Japanese Army were stationed.

From these experiences, Kubota nurtured a dream of cultivating the wildness in the Asian regions and initiated the concept of a comprehensive water resource development which would cover the production of electricity for industry, irrigation for agriculture, and flood control. According to Shimizu Tomihisa, Kubota wanted to contribute toward the rehabilitation of industry and the economy by transferring an idea and method from Nippon Koei's comprehensive technology to Southeast Asia<sup>18</sup>. When the Japanese government proceeded with its reparations for the Japanese invasion and economic cooperation during the post-WWII era, Kubota sought the chance to tap into the Asian market, and the Mekong River Basin was his resultant business opportunity.

For the purpose of studying the major tributaries in the Mekong River over a three-year period, the Japanese government organized the *Mekong Gawa Tosatai*, or Mekong River Reconnaissance Corp. This reconnaissance party was a combined team led by Kubota and included technicians from different organizations such as Nippon Koei, the Power Development Corporation, Tokyo Electric Power Company, MOFA, MITI, the Ministry of Agriculture and Forestry, and the Ministry of Construction. In January and February, 1959, the Japanese government sent a team of 15 technicians to undertake a land and air reconnaissance of the thirty-four tributaries in the Mekong River Basin. Allegedly, the team traveled 10,000 kilometers by airplane over a five-day reconnaissance, and 7,000 kilometers by vehicle over a 20-day ground inspection in Laos,

---

<sup>17</sup> Yoshimatsu Akio and Koizumi Hajime, *Mekong gawa ryuuiki no kaihatu*, Sankaido, 1996: pp.26-27.

<sup>18</sup> Shimizu Tomihisa, 1973, *Kubota Yutaka – Nippon Koei Chosen – Vietnam*, Shiso 14: pp.33-47.

Cambodia, Vietnam, and Thailand<sup>19</sup>. As a result of their investigations, the team recommended a more detailed survey in the *First Report of the Mekong River Tributary Examination Survey* which was dedicated to the Mekong Project in the same year, and of which the specific date is unknown<sup>20</sup>.

Following this Japanese endeavor, the Mekong Committee conducted follow-up research on four watersheds in the Mekong River Basin after receiving financial support from the United Nations Special Fund (that was later developed into the United Nations Development Program, or UNDP). The studies were respectively conducted in one tributary per country in the Mekong River Basin. As a result, four projects were selected. These were the Nam Guum Multipurpose Dam Development Project in Laos and its tributary in Nam Rik, the Battambang River Basin Development Plan in Cambodia, the Nam Pong Dam Development Plan in Thailand, and the Sessan River Upstream Development Plan in Vietnam. To elaborate upon the projects, fully-fledged investigations began in the countries in the Mekong River Basin.

## **6. Developments Between the Mekong River Reconnaissance Corp's Final Report in 1961 and the Mekong Committee's Indicative Basin Plan in 1970**

In 1961, the Japanese-funded Mekong River Reconnaissance Corp submitted a final report to ECAFE proposing a comprehensive development plan. While selecting 102 promising points in the thirty-four tributaries that Japan was assigned to work in and by demonstrating the development scheme for these points, the plan also recommended the construction of dams at 10 consecutive sites in the Mekong's mainstreams (Pugven, Ruang Prabang, Sayaburi, Pamon, Bunkan, Takeku, Kemarath, Pakse, Stung Tren, and Sambour).

The Japanese plan suggested a development concept in which 10 million kilowatts of generating capacity was expected in only 10 of the consecutive dams in the mainstream, while 15 million to 17 million kilowatts could be calculated in total when combined with the many tributary dams in the downstream areas of the Mekong. By assuming that electric power was a prerequisite for the growth of industry, the plan conceived of a grand scheme to promote irrigation and drainage with the construction of dams, and devised a strategy to improve agricultural productivity in Cambodia and in northeastern parts of Thailand.

The plan also proposed the concept of constructing the Stung Treng High Dam. The newly built dam was supposed to submerge the entire Khone falls (Laos near the border with Cambodia)

---

<sup>19</sup> *The Bangkok Post*, U Nyun, "A success from Two Angles", November 28, 1964, p.12. In the article, the old photo and its explanation were attached. In the photo, Mr. Kurzuo Pamada (sic) stood in front of the Toyota's van, with its body being put the sign of United Nations Mekong Investigation Team, Japan."

<sup>20</sup> Mekong Gawa Tosatai, *Mekong gawa syuyou siryuu tosa dai ichiji houkokusho*, 1959.

which was a hard spot to pass. This implied that the successive construction of stepwise dams would make upstream cruising possible from the mouth of the Mekong River to the higher areas of Thailand and Myanmar. Further, the consecutive dams were supposed to enable vessels to travel downhill, which was considered useful for the local timber industries in the upstream areas.

It was, in fact, a Japanese engineer who came up with the concept of comprehensively developing the Mekong River Basin by establishing such multi-purpose dams to benefit industry, agriculture, forestry, and ship transportation. This was the crux of the integrated development concept that the Japanese team conceived of, and Kubota, as the leader of the Japanese team, expounded his views on the development concept of the River as follows<sup>21</sup>:

There is a great necessity for what you call “multipurpose development” that could improve ship transportation, irrigate the flatlands on both banks, develop hydropower, and control floods in the Mekong River. Since it seems almost impossible to increase the water depth by dredging a long waterway in such a large river, you should instead think about adjusting the annual flow rate as much as possible and improving the water depth in a dry season to let the deep-draft ships pass through smoothly. For this purpose, let’s say [we can consider] detecting appropriate spots in the flow path, installing some weirs, submerging the shallows to increase the water depth, and discharging the adjusted water downstream in the drought seasons. At the dykes, we shall construct some hydropower stations as well as sluice gates to let vessels go upstream and downstream. Fortunately, because the average river gradient is moderate, even [average sized] dykes can store a large volume of water; the flow volume control and power generation are tremendously effective because the backwater can reach distant locations. In conjunction with the development of agriculture, forest industry, and mineral resources promoted by ship transport, we can make the best use of generated electric power for industrialization along with an easier supply of raw materials and delivery of products in the related areas.

In parallel with the Japanese attempt to conduct a series of researches and show ECAFE their development concept, the Mekong Committee compiled its own development plan after receiving advice from ECAFE between 1964–1970. In 1970, the Committee finally released their *Report on Indicative Basin Plan*, or IBP 1970<sup>22</sup>. This report drew a 30 year roadmap (from 1971 to 2000) in which sequential dams were considered in 17 spots in the mainstream and in 87 spots in tributaries in accordance with short-term and long-term organized schedules. Nevertheless, many

---

<sup>21</sup> Kubota Yutaka, Tounan asia suiryoku kaihatu kyouryoku no jittai, *Asia mondai*, November 1957: p.39.

<sup>22</sup> Committee for Coordination of Investigations of the Lower Mekong Basin, *Report of Indicative Basin Plan*, Bangkok, 1970.

of these enumerated items in the IBP 1970 report owed their recommendations to the Mekong River Reconnaissance Corp as organized by the government of Japan<sup>23</sup>. After pointing out that the downstream areas adjacent to the Nam Gum Dam in Laos were decisively left untouched in the 1960s, Hori argued that this was why it was possible to have such grandiose dreams of improving the situation from scratch in the Lower Mekong River<sup>24</sup>.

However, the activities of the Mekong Committee became more and more stagnated due to the protracted conflict in Vietnam until 1975, the outbreak of the Cambodian Civil War in 1970, and Pol Pot's brutal dictatorship. Therefore, the idea of the Mekong River Reconnaissance Corp of Japan, as adopted in the IBP 1970 report, was shelved until recently.

## **7. Japanese Commitment: The Case of the Prek Thnot Dam Project**

Although the Japanese plan for the total development of the Mekong River Basin was not fully realized, their recommendations were partially fulfilled. As we have already seen, the Mekong River Reconnaissance Corp recommended promising sites for the integration of the River Basin's development in 1959. After four of these prospective sites were selected, studies began under the support of the United Nations Special Fund. Meanwhile, independently from the UN, the Japanese government also promoted it using technical cooperation for three projects in Prek Thnot (Cambodia), Nam Phueng (Thailand), and upstream Srepok (Vietnam). The concept of the development for these sites was originally recommended in the second report of the Mekong River Reconnaissance Corp in 1960. Taking the Prek Thnot Dam Project as an example, let us now turn to the way in which Japan deepened its own technical cooperation, and the extent to which such efforts were achieved.

Figure 1 shows the Prek Thnot River catchment area. The Prek Thnot River is 232 kilometers long, and has a drainage area of 5,050 square kilometers. The headwaters are located in Kravang Mountain (1,177 meters high) in the western part of Phnom Penh. After flowing through a gorge in a mountainous area, the River gradually flows while meandering the plain areas with a gradient of 1:2,500 meters to 1:3,000 meters. Having passed through Kampong Speu in the downstream area, the River flows toward Phnom Penh along the National Highway 4 (connecting Sihanoukville and Phnom Penh) and joins the Bassac River in the south of Phnom Penh.

The average annual rainfall between 1953–1973 was 1,312 millimeters according to the Phnom Penh Observatory. The annual average runoff between 1964–1969 in Anlong Touk (▲ and

---

<sup>23</sup> Mekong Reconnaissance Team Organized by Government of Japan, *Comprehensive Reconnaissance Report on the Major Tributaries of the Lower Mekong Basin*, Tokyo, 1961.

<sup>24</sup> Hori, *Mekong gawa*: pp.129-134.

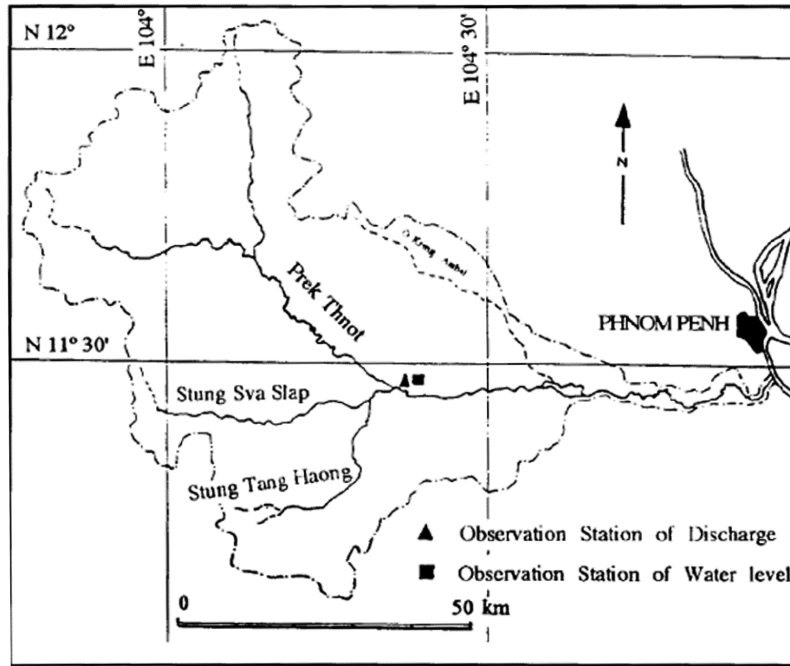


Figure 1. Prek Thnot River Catchment Area  
 Source: Takeuchi, Jayawardena, Takahashi (1995: 39)

■ point in Figure 1) was 39.4 cubic meters per second (with a maximum of 426 cubic meters per second and a minimum of 0.27 cubic meters per second). In 1991, land use in the basin consisted of forests (67.7%), paddy fields (20.6%), other agriculture (6.6%), and urban areas (0.2%)<sup>25</sup>.

The Mekong River Reconnaissance Corp sated in the *First Report of the Mekong River Tributary Examination Survey* (1959) that it was necessary to study the Prek Thnot River to gain more detailed information, since the River included a vantage point to form a reservoir. Using a topographical map, the report also argued that building a dam and a reservoir would allow the storage of gigantic volumes of water in the catchment areas (equivalent to 5,000 square kilometers). In addition, the report asserted that a reservoir would enable a constant flow rate of 100 cubic meters per second throughout the year, which would be adequate for promoting irrigation, installing an electrical capacity around 40,000 kilowatts, controlling floods, and fertilizing parched lands in Tonle Bassac, even in a dry season.

Entrusted by the Overseas Technical Cooperation Agency, the afore-mentioned Nippon Koei conducted an intensive survey from October 1961 to May 1962, and published the *Kingdom of Cambodia's Prek Thnot River Development Preliminary Report* in December 1962 under the leadership of Kubota<sup>26</sup>. This report contained measurements for charting aerial photographs, a

<sup>25</sup> Takeuchi Kuniyoshi, Jayawardena A. W and Takahashi Yutaka ed, *Catalog of Rivers for Southeast Asia and the Pacific*. Vol. I -2-1, UNESCO and IHP Publication, 1995: pp.34-42.

<sup>26</sup> Nihon seifu Prek Thnot gawa chousadan, *Cambodia oukoku Prek Thnot gawa kaihatsu yobihoukokusho*, Tokyo, 1962.

geological study, an agricultural general survey, the installation and observation of rain gauges, and a collection of data concerning weather, hydrology, agriculture, livestock, electric power circumstances, and administrative issues.

Following the survey, the report concluded that the Prek Thnot Project would be one of the most important projects in the Mekong sub-basin, as it was believed to meet the future demand of both electricity and water. The main facilities in the Prek Thnot Project were to be built in dry areas where farmers eagerly awaited irrigation, and in suburban areas of the capital, Phnom Penh, where electricity was in high demand. The Project was expected to start with power generation, although it placed the greatest importance on irrigation since the latter would take some time to launch. Nevertheless, according to the report, the Project was deemed to be profitable enough as the related facilities could be utilized for power generation in the first stage (for perhaps more than a decade) until the agricultural waterways were fully installed.

## 8. Official Inauguration of the Prek Thnot Project

The Prek Thnot Project featured the construction of a series of multipurpose dams that aimed at irrigation, power generation, and flood control near the confluence of the Prek Thnot River and the Stan Ton River. Following an overall preliminary survey by the Japanese team between 1959–1962, Israel conducted an agricultural irrigation survey between 1962–1965, and Australia created a plan for preparing the construction of a dam to generate power between 1964–1965. In 1966, Australia, Cambodia, Israel, Japan, and the Mekong Committee met to compare notes about the possible Project, thereby completing the *Prek Thnot Cambodia First Stage (18,000 kW Power and 18,500 ha Irrigation) Pre-Construction Report*<sup>27</sup>.

In the report, the masterplan recommended the construction of five small-sized dams with the embankment connecting some hills with the main dam, with a height of 28.5 meters, and which would cross the mainstream of the Prek Thnot River. The estimated high-water discharge of the dams was 4,400 cubic meters per second. The effective reservoir volume was expected to be 980 million cubic meters upon completion of the construction. The masterplan also recommended the installment of 18,000 kilowatts of power plants (9,000 kilowatts x 2 units), and facilities for 5,000 hectares of irrigation (diversion weir, adjustment weir, waterways) for the time being<sup>28</sup>.

In September 1968, the International Conference on the Electrical Irrigation Project was held

---

<sup>27</sup> Technical Working Party (Australia, Cambodia, Israel, Japan and the Mekong Committee Secretariat), *Prek Thnot Cambodia First Stage (18,000kW Power and 18,500ha Irrigation) Pre-Construction Report*, Phnom Penh, 1966.

<sup>28</sup> Arai Tsutomu, “Prek Thnot Dam Kensetsu kouji”, *Kensetsu no Kikaika* vol. 239, 1970: pp.44-47.

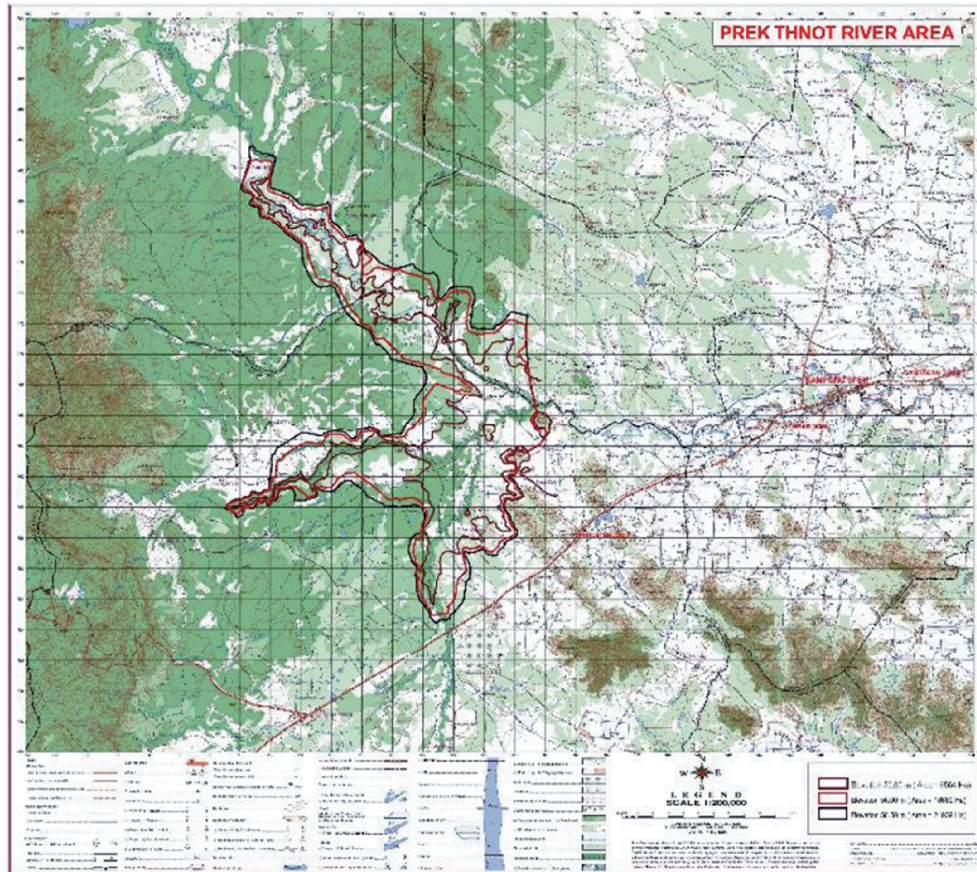


Figure 2. The Prek Thnot Dam Plan  
 Source: Kouji Kanzaki<sup>29</sup>.

in Cambodia under the auspices of the ECAFE, and the Mekong Committee, Japan, UK, Australia, Canada, Italy, India, Netherlands, West Germany, the Philippines, and Pakistan agreed to join the Prek Thnot Project under the newly established cooperative framework<sup>30</sup>.

The Prek Thnot Project was officially launched when the Agreement on Administrative Arrangements for the Prek Thnot (Cambodia) Power and Irrigation Development Project was signed at the UN's headquarters in New York on November 13, 1968. By this Agreement, the Cambodian government became responsible for carrying out the construction works, while the *Societe Nationale des Grands Barrages*, or National Society of Large Dams (the national agency for the dam construction), undertook the supervision, and the National Bank of Cambodia was assigned to manage a fund. The project assumed USD 19,245,900 of gratis funding aid and loans for the Prek Thnot Project. As the largest donor country, Japan pledged a loan of USD 4,215,000 and a grant-in-aid of USD 4,215,000.

The breakdown in the rest of the expenditure was as follows: Australia offered to provide

<sup>29</sup> Kanzaki Kouji, *Prek Thnot Dam is Necessary to Prevent Flooding*, 26/March/2017.

<sup>30</sup> Kaigai gizyutu kyouryoku jigyouudan kaihatsu chousabu, *Mekong gawa shiryu kaihatsu keikaku*, Tokyo, 1968.

technical services of USD 2,075,000 by the Snowy Mountains Hydroelectric Authority; Canada offered a grant-in-aid of USD 2,000,000; West Germany promised a loan of USD 1 million at an interest rate of 3% per year for 25 years; the UK pledged a loan of USD 1 million with no interest rate for 20–25 years; France offered a 20-year loan of USD 1 million with a 3.5% interest rate; Italy pledged an 18-year loan of USD 1 million with a 3% interest rate; the Netherlands offered to provide a grant of USD 1 million; the United Nations Development Program (UNDP) pledged a grant of USD 810,900; Denmark offered to provide a grant of USD 500,000; India offered to provide a grant and technical services of USD 200,000 in total; Pakistan offered to donate materials and services of USD 150,000; and the Philippines offered to donate USD 80,000 as a drawing cost. After the funding scheme was decided, international bidding commenced between January–May 1969<sup>31</sup>. The joint venture of Japan’s Maeda Corporation and Tomen won the bid, and they began the construction in August 1969.

Again, Japan was expected to become the largest donor as it pledged the largest funding amount. This stands to reason because the Cambodia–US relationship had become strained by the anti-US attitude of the Cambodian ruling monarch, Norodom Sihanouk, by the time of the Prek Thnot international agreement. Since the US-backed south Vietnamese military operations caused damage in Cambodian villages from time to time, Sihanouk treated everything the US did with suspicion, while the US regarded him as an unfavorable pro-communism neutralist. The Cambodian–US diplomatic ties were cut in May 1965 and reestablished in July 1969. Nevertheless, even during that four-year period, the US still thought that regional stability was essential for them to conduct battles on neighboring Vietnam’s soil, and is the reason why they pushed the Japanese government to take the lead in the Prek Thnot Project<sup>32</sup>.

## 9. Moving Forward During Cambodia’s Civil Strife

Six months after the construction work started, Sihanouk was suddenly expelled by General Lon Nol’s *coup d’etat*, which was backed by the US as Sihanouk visited Beijing on March 18, 1970. As mentioned above, Sihanouk was believed to be a pro-communism neutralist by the US. Unable to go back to his country, Sihanouk called for the Cambodian people to rise up in rebellion against Lon Nol’s regime, during which the Kingdom of Cambodia was renamed as the Khmer Republic. Following some sporadic riots in rural areas, north Vietnam suddenly invaded the Cambodian

---

<sup>31</sup> Yokota Tomoaki, “Prek Thnot Dam keikaku; Cambodia ni taisuru tasuukoku enjoyo”, *Suirikagaku* vol. 13(6), 1970: pp.115-128. And Sato Syunichi, Prek Thnot Dam (Cambodia) ni taisuru wagakuni no enjoy, *Tokinohourei* vol.693: pp.37-40.

<sup>32</sup> The diplomacy between the US and Japan over the Prek Thnot project will be discussed in the different article that the authors are preparing.



territories as requested by the Cambodian communists. The lands occupied by the Vietnamese communist troops were soon handed over to the Cambodian communist insurgents, which led to the development of what was termed the Khmer Rouge, resulting in the Civil War.

On June 21, 1970, a large-scale battle broke out near Kampong, halting the construction work. The sixty Japanese engineers could not help but to return to Japan. However, the next month saw eight remaining Japanese engineers resuming the construction. Nonetheless, in a turbulent environment, the remaining engineers were forced to concentrate on the construction of downstream branch dams, the maintenance of machines and facilities for the construction, and the procurement of management for the construction materials to be shipped from foreign countries. The Lon Nol government concurrently petitioned Japan and France to continue the works of installing permanent plants such as hydraulic turbines, generators, gates, and channels. Since the Prek Thnot Project was an internationally approved enterprise, its continuation seemed to help in proving the legitimacy of Lon Nol's government. Yoshio Meguro, a former officer of public relations at Maeda Corporation, also surmised that the Lon Nol regime intended to impress the people inside and outside of Cambodia in regard to its steady progress of the internationally approved Prek Thnot Project, despite the insurgencies<sup>33</sup>.

The engineers had to commute to the construction site from Phnom Penh by car every day. Skirmishes and artillery bombardment broke out sporadically along their route. Such extremely anomalous and inefficient conditions lasted until September 25, 1971, when the engineering works stopped again due to a bombardment against the storehouse containing the heavy machinery at the dam's construction site. In November of the same year, the engineers decided to bring the damaged equipment back to Phnom Penh for repair. In February 1972, the engineers managed to resume the construction of the diversion weir (Figure 3).

Notwithstanding the Lon Nol regime's insistence on construction, the Prek Thnot Project was indefinitely suspended soon after the completion of the diversion weir in May 1973. In the summer of the same year, a part of the newly-constructed weir was destroyed by the Khmer Rouge communist armed insurgents. When Sihanouk ruled Cambodia, his government signed the international agreement on the Prek Thnot Project. However, Sihanouk himself was very hesitant about the Project, since he always sensed that the US agents had formed conspiracies against his government. As such, Sihanouk only reluctantly gave them the green light for the Prek Thnot Project to begin when the US decided not to join and left most of the related business to Japan; it was actually his aides and ministers who sincerely promoted the Project before Sihanouk was game. Now that the Khmer Rouge became Sihanouk's ally, they began attacking the Project.

On September 12, 1973, Arthur F. Ewing, the resident representative of the UN for the

---

<sup>33</sup> Meguro Yoshio, "Cambodia ni Prek Thnot Dam wo tsukurihajimete" *Dobokugakkaishi* vol. 57(11), 1972: pp.69-72.



Figure 3. Construction of the Prek Thnot Project Between 1971–1973  
 Source: Kouji Kanzaki (dates unknown).

program of the development in the Khmer Republic, and coordinator of foreign aid for energy management and irrigation at the Prek Thnot dam, sent a written declaration to the Ministry of Information of the Lon Nol government<sup>34</sup>. According to Ewing, “the diversion dam completed at the beginning of this year [1973], as well as the surrounding sites, were attacked from August 19 to August 23,” and the construction site was attacked from August 28–30, while “construction equipment of significant value was destroyed or damaged, causing a total suspension of activities at the principle site.” Ewing continued that “there is no, and has never been, any CIA agent,” or “any personnel at the site, since the United States Government does not contribute to the project.” Kouji Kanzaki, who joined the Prek Thnot Project as an engineer for Maeda Corporation, argued that the France and Japan-made materials for the construction works were to be left unattended upon delivery to the warehouse.

<sup>34</sup> Embassy of the Khmer Republic (Washington D.C.), *Khmer News*, Number 3, October 3, 1973, pp.14-15.

## 10. Epilogue: Historical Implications of the Cambodian Prek Thnot Project

Kanzaki entered Cambodia again in 1987 to check the status of the equipment and materials to see if the resumption of the construction works was still feasible, and he voluntarily tried to conduct the necessary maintenance works himself. Nippon Koei also conducted an environmental assessment for the possible resumption of construction in 1994. As such, there surely existed some momentum to restart the project. However, although more than 25 years have passed since then, such embryonic movements have not led to the revival of the Prek Thnot Project as of January 2020.



Figure 4. Current condition at the Prek Thnot Dam Site  
Source: Author (Date: March 26, 2017).

However, perhaps the revitalization of the Prek Thnot Project requires us to reconsider the drastic transformation of the Cambodian society and industry over half a century. If the Prek Thnot Project was to be relaunched today, it would be necessary to take the relocation of 1,633 households into consideration<sup>35</sup>. The local newspaper, the *Phnom Penh Post*, reported that in Dangkor district, around 40 families illegally occupied the riverbank area of Prek Thnot and were concerned about their losses, with some claiming to have lived in the area for years<sup>36</sup>. Whether they are legal or

<sup>35</sup> Kanzaki Kouji, Prek Thnot Dam is Necessary to Prevent Flooding.

<sup>36</sup> The Phnom Penh Post October 25, 2018, “Homes in Phnom Penh to be torn down” <https://www.phnompenhpost.com/national/homes-phnom-penh-be-torn-down> (January 31, 2020)

not, the Cambodian government needs to provide compensation for the residents who did not live around the assumedly drowned lowlands in the 1970s. On the other hand, the highlands (which cannot be submerged, even if the Prek Thnot Project was relaunched) have been transformed into centralized plantations to grow sugar cane, and requires plenty of laborers.

Meanwhile, it seems to the authors that the emerging factors give rise to a new necessity of the development of the Prek Thnot River catchment area to Cambodia. First, the spread of the physical distribution bases in the suburban areas of Phnom Penh, especially along National Highway 4, resulted from Cambodia's recent and rapid economic growth, and has drastically increased the demand for industrial water and electricity. Second, the emerging threat of climate change endorses the importance of renewing the Prek Thnot Project. For instance, the Cambodian government needs to reconsider the protection of suburban areas of Phnom Penh from flooding, such as in Kampong Speu and Kandal Stueng in the Prek Thnot River catchment area. Third, as a result of the physical expansion of the so-called "metropolitan area" in Phnom Penh, Cambodia may have to seriously reconsider the comprehensive development plan of the Prek Thnot River Basin.

From the viewpoint of the comprehensive plan for disaster prevention in the metropolitan area and for urban planning, it may be significant to re-examine the experiences of the abortive Prek Thnot Project. In the age of global warming, the ways in which to make Phnom Penh robust and resilient remain to be seen. More scientific data, the modeling of recent weather conditions, the transformation of social and industrial structure, and the knowledge and experiences gained through old endeavors should be integrated.

In this article, the authors reviewed the evolution of the development plan of the Mekong River Basin and the Japanese engineers' contribution. The Prek Thnot River is a tributary that flows into the Mekong River as an international river. Thus, its development plan could be linked to the development concept of the whole Mekong River Basin. It is safe to conclude that the development concept of the Mekong River Basin, which both the Mekong River Reconnaissance Corp of Japan and the IBP 1970 entertained, took a holistic approach in that it attached the greatest importance to establishing the connection between the mainstream and its tributaries. Yoshihiro Kaida, who worked at the Mekong Committee between October 1974 and October 1977, looked back on the situation at the time as follows<sup>37</sup>:

Not so many projects could be completed at once; there were numerous preliminary works that we had to do. For example, we collected and analyzed weather and hydrological data, designed a plan for power, flood prevention, irrigation, and the salt damage problem of the

---

<sup>37</sup> The interview with Yoshihiro Kaida in Kyoto University (December 8, 2017).

Mekong Delta ... for constructing dams in the areas northeast of Thailand, or for planning income security. Besides, in collaboration with the Institute for Water Utilities of France, we simulated the Cambodian macro water environment to calculate the influence on rice cultivation through the development of the PaMong Dam in Laos [that the US seriously considered building, but to no avail]. Meanwhile, I rather considered the construction of the mainstream dam in Cambodia [as a preferable choice], although I understood that the Laos PaMong Dam was potentially important ... Cambodia could increase its production of 200,000 to 400,000 tons of rice. Yet the problem was that there were no counterparts in Cambodia to discuss this with. Nevertheless, both the engineers and the secretariat at the Mekong Committee made an all-out effort [for the Cambodian future dam].

Likewise, the workers and engineers in the construction sites for the Prek Thnot Project also exhibited the similar or same enthusiasm as shown in Kaida's remarks. Even during the Cambodian Civil War, part of the Prek Thnot construction work continued—some of which was completed by engineers and local constructors. As one observer argued, once the international project physically began, the related works were naturally localized. Further, around the site, border-free, person-to-person networks formed which connected geologists, technicians, and civil engineers. In fact, Kanzaki has kept in contact with some previous construction workers. After he retired from Maeda Corporation, Kanzaki founded his own consulting company in Phnom Penh after utilizing personal connections established during the Prek Thnot Project. If such personalized local networks remained elsewhere, this may be a great asset to determine the Cambodian government to consider a new version of water resource development in the Prek Thnot River.

In June 2019, the UNDP released a new report that provided the foundation for better flood management in Cambodia's Prek Thnot River Basin. Although the report did not suggest the revival of the Prek Thnot Project at all, it concluded that the "current capacity for drainage and flood management in the basin is insufficient," and that the "cooperation between different relevant stakeholders remains limited." Regardless of whether Cambodia hopes to resume the project, it may be worthwhile to review the historical experience, knowledge, and human networks formed through the Prek Thnot Project by perusing the past investigation reports from the engineering viewpoints, as well as by hearing the stories from past technicians and engineers. This examination may be of great help to Cambodia and/or the international organ involved in the business of the Mekong River Basin, and may help to bring the Japanese civil engineers' unfinished business to completion.