Water, Poverty and the Governance of Megaprojects:

The Thai "Water Grid"

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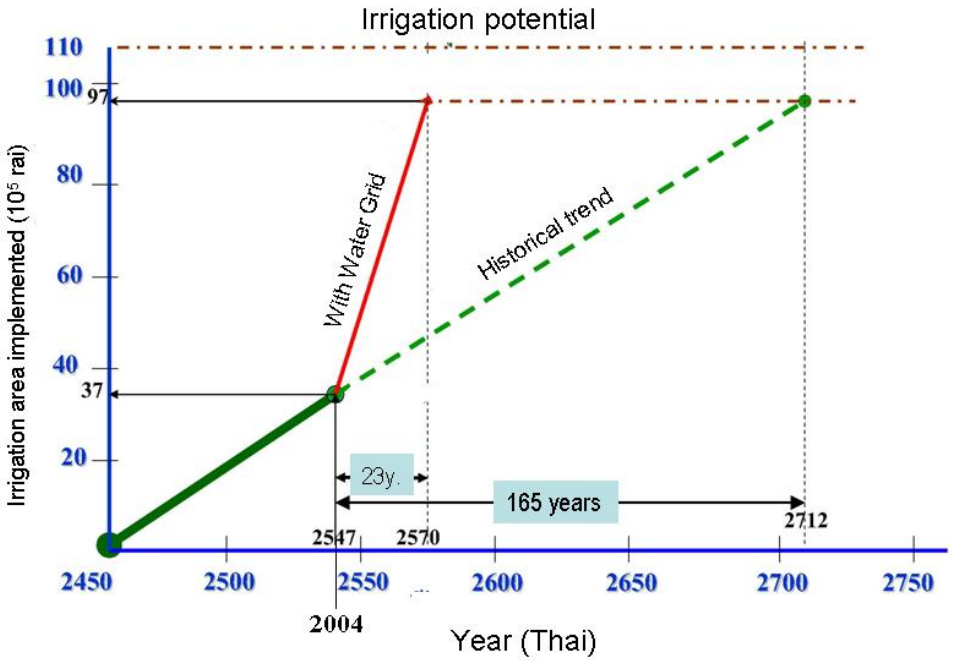

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1 Introduction

Water resources development has long been a favorite option of governments seeking to ensure national food security, alleviate poverty, control potential social unrest, and procure political gains (Sampath 1992; Abu Zeid 2001). The development of water-regulation infrastructure and expansion of irrigated areas during the period 1950-1980 has achieved many benefits including increasing incomes and farm production, and achieving a global food sufficiency that is reflected in the long-term decline of grain prices (Comprehensive Assessment, chap. 3). In the absence of opportunity costs for labor such rural development projects have large multiplier effects and their economic justification is quite strong. Because of the opposition to dams, declining benefit/cost ratios and – perhaps – the very successes achieved in terms of food production, such projects have lost their economic appeal, and funding by lead development banks has dramatically dropped. In the last 4 to 5 years, however, the World Bank has tried to reengage on large-scale "high risk/high reward" projects, and a number of countries have implemented or floated proposals for massive trans-basin diversion projects (e.g., China, India, Jordan, Brazil, etc.).

In Thailand, large-scale irrigation development started in the Chao Phraya delta in the late nineteenth century but the bulk of the dams and irrigation schemes in the northeast region dates back to the post-WWII period. According to Sacha et al. (2001), Thailand's irrigated area is now around 30 million rai (4.8 million ha), that is, approximately 20 percent of the total farmland, although public irrigation is generally said to be around 22 million rai. Its dams can now store 70 billion cubic meters (Bm^3) of water and most major dam sites have been exploited. A number of reservoirs are still under planning or construction, but their typical size is around 250 million cubic meters (Mm^3) and they face growing opposition from civil society, forcing the Electricity Generation Authority of Thailand to look for ventures and alternative sites in neighboring countries (Mitchell 1998).

The northeast of Thailand remains the poorest region in the country. It is endowed with relatively poor soils and faces a period of 6 months with scant rainfall. Although it accounts for 45 percent of agricultural land, it received only 18 percent of irrigation expenditure (World Bank and NESDB 2005). This is mainly due to the lack of attractive sites for dams and to environmental constraints, reflected in an average per hectare cost higher than in other regions (World Bank and NESDB 2005). Although the percentage of the population living below the poverty line has fallen dramatically (from 57% in 1962 to 38.5% in 1976 and to 12.7% in 1996), poverty remains higher in rural areas in general (16%) and in the northeast in particular (26%) (Fan et al. 2004). The region distinguishes itself by a higher degree of specialization in rice farming, a higher rate of subsistence farmers, a lower use of agrochemicals, indebtedness of two farmers out of five, and a low implantation of industrial units that produce only 4 percent of the national manufacturing added value (World Bank and NESDB 2005).

In 2003, the Thaksin government launched the idea of investing $5 billion (in this paper $ means US$) in a project dubbed "water grid," supposed to do away with water problems in the country. In late 2005, the government argued that sustaining growth over the medium term required a sustained rebound in capital expenditure. The government planned to spend up to 1.7 trillion baht ($43 billion) over 5 years and embarked in the promotion of megaprojects aimed at boosting activity and reducing poverty, including investments in the irrigation sector (MOAC 2006). These projects epitomize the official view of development as a matter of

technology and capital investment. This paper deals with the decision-making process, the rationale, and the systemic consequences of the water-grid project. Recent political changes have probably dealt a fatal blow to the project as a whole. However, we are concerned here with the governance and political mechanisms that make such plans enter the sphere of possibility through their official announcement and endorsement. Our emphasis is on the magnitude of the gap between what is politically announced and what is possible on the ground, as a way to explore and illustrate how lopsided planning governance can produce plans which are extremely disconnected from reality but which may, nevertheless, materialize one way or another with damaging results.

2 Greening Isaan and the "Desert Bloom" Syndrome

Dry countries, or at least their leaders, have frequently been captivated by the "desert bloom" syndrome and embraced large-scale irrigation engineering (Molle and Floch, 2007). In the nineteenth century, various large-scale irrigation projects became popular success stories (US, Italy, Spain, India, Egypt, etc.) across the world. The French thought "the El Dorado would be within reach once irrigation is developed" in the inner delta of the Niger basin (Schreyger 1984), and that the "Rome granary" would flourish again in Morocco. In South Africa, scientists called for rivers to be "tamed and domesticated" like they were said to be in China, so that "deserts [could be] turned into gardens" (Turton et al. 2004). California, in particular, became an icon of the "desert bloom" (Ertsen 2006).

On the same wavelength, an editorial from Thailand's English-language newspaper the Bangkok Post of 28 July 2003 recalled sympathetically that "The idea of transforming the Northeast into a 'promised land' where poor farmers can grow rice and other crops and raise livestock to make enough money to sustain a traditional livelihood without having to travel to the city to make a living every dry season has never faded from the minds of some caring northeastern politicians."

With relatively dry climatic conditions and a high percentage of rural poor in the region, Thailand's development agencies perceived water resources development as a key strategy toward stimulating the modernization of the northeast as early as the 1950s (Sneddon 2002). Moreover, with the region subject to high population growth and seen by many as vulnerable to communist takeover,[1] both national and multilateral lending agencies provided abundant funds for infrastructural development in general and for irrigation and dams in particular (Barker and Molle 2004).

As a prelude to the formation of the intergovernmental Mekong Committee in 1957,[2] the United Nations' Economic Committee for Asia and the Far East (ECAFE) commissioned a reconnaissance study by the United States Bureau of Reclamation (USBR) which posited that the only way of ensuring the large quantities of water required for large-scale cultivation of

[1] "The US was to sustain her 'historic' efforts to assist in the evolution of the free, responsible and prosperous nations: she has been called upon to extend the spirit of the Declaration of Independence to designated nations of an interdependent world" (Coffin 1964). Fulfillment of this mission included containing the spread of Communism, a master plan for which seemed to have been unfolding as early as the late 1940s (Chomchai 1994).

[2] The Mekong Committee was created in 1957 with original member nations of Cambodia, Laos, Thailand and Vietnam, and sponsored by the United Nations' regional office in Bangkok and the Economic Commission for Asia and the Far East (Jacobs 1995).

crops would be to tap the flow of the Mekong River (USBR 1956), a conclusion supported by a later Japanese study team (EPDC 1960); a 1965 study of the Chi-Mun basin by USBR (1965) reiterated that the development of multipurpose water resources was needed for "orderly economic growth" in the area and designed the Pa Mong dam, a major dam on the Mekong mainstem itself, located close to Vientiane, as the cornerstone of the project of harnessing the Mekong.

Although enthusiastic feasibility studies and master plans unfolded, the Pa Mong[3] dam tumbled into difficulties linked to its scale and to its massive impacts on river-based livelihoods of people. Initial net storage for the early Pa Mong proposal was to reach 77 Bm^3, inundating 3,722 km^2, and forcing the resettlement of 400,000 people on both borders of the Mekong (USBR 1965; SMEC 1981). It was thus easier for the Thai government to start developing tributaries of the Mekong; large-scale and multipurpose projects[4] remaining the primary choice of planners until the late 1970s, when upgrading of irrigation distribution networks and the development of small resources started to feature prominently in the government's priorities (AIT 1978; USAID 1980; Bruns 1991).

The fifth economic and social development plan (1981-1986) for the first time included greater social and economic equity as an objective on the ground of "national security." A poverty program identified the 12,652 poorest villages (60% in the northeast) and showered them with water supply, roads, schools, irrigation, electrification, and soil improvement (Baker and Pasuk 2005). In 1987, Army Commander-in-Chief General Chavalit Yongchaiyudh was aiming at becoming prime minister and undertook to present His Majesty the King with a master plan for the development of the northeast called "Green Isaan" (*Isaan Kiew*). A severe drought had just hit Khon Kaen and several other provinces in 1987, and the project was opportunely presented as a response to this problem (Bruns 1991). The report, prepared by British Biwater Company, was presented to General Chavalit in late 1987 and was geared towards accelerated development of water resources, ensuring water supply, increasing reafforestation, and improving rural incomes (Biwater 1987). The project was billed "Nam Pratan Nai Luang," that is, "Water from the King", and initial planning was largely done by army staff. Subsequently, greater attempts were made to involve the National Economic and Social Development Board and other agencies, but it was unclear to what extent plans drew on the extensive experience which existed in dealing with the problems of the northeast (Bruns 1991).

The establishment of agro-industry was the focal point of development and would "produce the processed goods for regional export and create both the employment opportunity in the urban areas and the demand for agricultural products…; irrigation, required to produce raw materials for the agro-processing industry, will create wealth and job opportunities in the rural areas" (Biwater 1987). A Thai General was reported to say that it was "necessary for us to launch a campaign like the Green northeast project. It is a matter of national security and the northeast is of much strategic importance" (LabourNet 2004), a statement which must be assessed in a context of fear about Vietnamese expansionism into Cambodia (Puangthong 2004). Although Chavalit tried to negotiate a loan with the World Bank (Hewison 1994) and

[3] Description of the Pa Mong would later vary from "Prima Donna" and "Would be giant" to "problematic" and "dubious" (Muscat 1990).

[4] In the upper reaches of the Mun river, the Lam Takhong and the Lam Phra Plerng rivers were harnessed, while in the Chi basin the Nam Pong and Lam Pao rivers were impounded by large-scale storage reservoirs. The Lam Dom Noi dam, in Ubon Ratchathani province, was completed in 1971.

although the project was bundled into a major arms deal purchase with the British government[5] (The Nation 1994; LabourNet 2004), it never materialized.

In the late 1980s, a new grand vision was elaborated under the banner of the Khong-Chi-Mun (KCM) project. The project largely drew from earlier planning documents which had accumulated over the years and integrated them into one large planning framework. The now-infamous Rasi Salai dam, for example, had already been studied in 1982 by a Dutch consultant NEDECO (1982) who had earlier assisted the Mekong Secretariat in studying pump irrigation in northeast Thailand; the Lam Dom Yai project had been proposed numerous times since the 1950s by various consultants; the Pak Mun dam,[6] deemed utterly unattractive in 1967 was (re)considered as feasible in 1980 by the French firm Sogreah (Keppelman et al. 2003; Sogreah 1980);[7] the use of floodplains for storage, too, had been proposed earlier both for the Chi and the Mun rivers. The full development of channel storage in the Chi River would consist of a cascade of regulated reaches with dams located at an average interval of about 80 km (RID 1988). In 1989, the Mekong Committee reported that it had introduced a new concept in the design of flood control and storage projects by constructing reservoirs in the areas affected by annual flooding (Mekong Secretariat 1989). Because the Thai government was beset by resettlement problems and constrained by the depletion of attractive dam sites in northeast Thailand, the intergovernmental body recommended that the Government of Thailand should adopt the concept of floodplain storage in a consolidated way, with each step clearly demonstrated to be economically and technically feasible[8] (Mekong Secretariat 1989).

In 1989, such a consolidated strategy was proposed with the KCM project, which received a boost from the government of the then-Prime Minister General Chatichai Choonhavan (1988-1991), whose declared intention "to turn the battlefields [of Indochina] into market places" soon became the semi-official policy for development plans in northeastern Thailand (Pednekar 1997; Kamkongsak and Law 2001). In 1989, the Council of Ministers of the Chatichai government passed a resolution approving the implementation of the project and asked the National Energy Administration (which later became the Department for Energy Development and Promotion), an agency under the Ministry of Science, Technology and Environment, to complete feasibility studies by 1992. Initially proposed with the objective of systematically meeting water supply and consumption needs and of making water shortage in northeast Thailand a thing of the past, the 1992 feasibility study detailed that it was

[5] Thatcher's government was ready to grant $100 million and provide a loan of $500 million for the Green Isaan project if agreement was found on a major package of military equipment purchase. Although the Thai government allocated money for the program in the 1989 budget plan, the joint project foundered, partly because the Americans succeeded in reasserting themselves as the main arms supplier (LabourNet 2002).

[6] As such the Pak Mun dam was not part of the KCM, since it had been planned by EGAT (Electricity Generation Authority of Thailand), but EGAT managed to insert the project proposal on the Cabinet's meeting agenda during the Chatichai Cabinet's touring of the northeastern province of Khon Kaen. The Pak Mun was approved on April 8, 1989 when the Cabinet approved the project in principle without consultation and participation from the affected communities (Traisawasdichai Lang 2005). On the Pak Mun dam story see also Keppelman et al. 2003; Foran 2004; Missingham 2003; Van Wickling III 1998.

[7] This was partly due to the increase in the cost of thermal energy, which raised the comparative advantage of hydropower.

[8] It should be recalled here that the Chi Basin Water Use Study (RID 1988) considered "that the construction of channel storage dams on the Chi river is less attractive than the creation of the conventional storage in the Upper Chi catchment, but that the possibility of developing channel storage on smaller tributaries of the Chi is worth investigating, particularly where the nature of the topography and flood regime permits the use of inflatable dams."

technically feasible to irrigate an area of 4.98 million rai (796,800 ha) in 15 provinces, with construction being envisioned in three successive stages over a period of 42 years (ASEAN et al. 1992).

Unlike the earlier Green Isaan project, however, the KCM project was (partly) implemented. Weirs were constructed in the Chi and Mun floodplains and new pumping stations complemented the already impressive number of stations constructed in earlier years by the Department of Energy Development and Promotion (DEDP). Construction of the Rasi Salai dam on the lower Mun river was completed in 1994; the Huana dam, the largest dam structure within the overall scheme and downstream of Rasi Salai, was constructed shortly afterwards (1992-2000). Both projects triggered protests from the local population whose livelihoods depended on the services the floodplains had so far provided. There was also heavy criticism from civil society pointing to the lack of research, transparency and participation (Sretthachau et al. 2000; Rasi Salai Declaration 2003; Shannon 2005).

In 1993, the NESDB issued a regional development plan for the lower northeast region with the collaboration of Nippon Koei Company, which foresaw industrial development in the region, with Korat destined to become the “Detroit of Thailand.” Two years later, the Mun River Basin Water Resource Development Plan (Binnie and Partners 1995) was completed with EU funding under the auspices of RID but the NESDB eventually denied funding to RID, although proposals for further development of water resources and irrigation had been dramatically tuned down, in line with hydrologic reality. In addition, in recalculating preliminary costs and EIRRs (Economic Internal Rate of Return) of possible projects in the Mun basin, the report concluded that the most economically favorable of the new schemes might be expected to have an EIRR in the range of 1 percent to 8 percent, and that, since the economics were so dependent on diversified farming, this should be proven on existing irrigation schemes before new schemes are built.[9]

In 1997, Prime Minister General Chavalit gave full support to the KCM project as the only way to ensure sufficient water supply to "long-suffering farmers of the northeast" and vowed to fulfill the long-held promise of “turning the northeast green” in front of an assembly of village and district chiefs gathered in a five-star hotel at Khon Kaen (Sneddon 2003). With the advent of the financial crisis of 1997 large-scale capital-intensive projects were once again shelved. The KCM remained incomplete, with its cascade of weirs along the Chi and Mun lower reaches challenged on social and environmental grounds, and with no additional water imported from the Mekong River.

3 The "Water Grid" as the Latest Megaproject

In July 2003, a workshop on "Sustainable Water Resource Management" was organized by the National Water Resource Committee, opening with a quote from His Majesty the King.[10] Despite the alleged priority to demand-management proclaimed in the Ninth National Plan (2002–2006) it was announced that the irrigated land of 29.46 million rai would be incremented by an additional 103 million rai within 5 years, with the expected benefit of

[9] More specifically, the EIRRs for Rasi Salai and Hua Na projects of the Khong-Chi-Mun scheme (Phase 1b, with 34,420 and 86,240 ha respectively) were found to range between -15.2 percent and -13.1 percent under the current agricultural practices, and 2.5 percent and 2.2 percent under the consultant-proposed diversified farming.

[10] “The main point is the need of water for consumption, and water for agriculture because water is life. People can’t live without water. People can live without electricity. If there is electricity but no water, people can’t live.”

enabling farmers to cultivate and access water all year round. The plan presented included trans-basin diversions, the Kok-Ing-Nan (2.08 Bm^3) and the Salween-Ping (3.8 Bm^3), diversions from Cambodia and three Lao rivers, and 18 alternative diversion plans listed. The project would cost 200 billion baht ($5 billion) to solve the problem of water scarcity in Thailand and help "turn Thailand into an agricultural powerhouse" (The Nation 14 September 2003). The northeastern region was to be the major beneficiary of the project conceived as part of the plan to "eradicate poverty" in the country, with Deputy Prime Minister Suvit Khunkitti (himself a representative of Khon Kaen province) in charge of overseeing the initiative.[11] Borrowing from the power generation sector, the project was dubbed "Water Grid," to describe a set of interconnected reservoirs and basins allowing the movement of water from sources to water-short areas,[12] although its official name ("Sustainably holistic water management project") attempted to garner legitimacy from the Integrated Water Resource Management discourse (Hirsch 2006).

Although project targets announced in the newspapers proved to be fuzzy and contradictory, they all pointed to a dramatic increase in irrigated land.[13] The current achievement of 22 million rai was contrasted with a total of 131 million rai of cultivable land nationwide. The public presentation indicated that "11 million rai would be fully irrigated, and that 25 million rai could be planted with crops that require much less water than rice. Another 73 million rai would be irrigated for household consumption and self-sufficiency in agriculture" (Bangkok Post 3 May 2004b), while "a nationwide tap water system will be installed by 2005 so villagers and farmers throughout the country can enjoy running water all year-round." A document subsequently posted on the website of the Department of Water Resources (DWR) modified several aspects of the proposal, notably considering a time frame of 23 years to implement an additional 60 million rai of irrigated land (figure 1), and also reducing the overall potential from 131 to 111 million rai (DWR 2004). It provided maps of the major projects envisaged and mentioned two projects almost ready to be implemented (from 2005 onward): the Petchaburi/Prachuab Kirikhan interlinking, with water sourced from the Mae Klong basin, and the Nam Ngum-Chi-Mun project which would transfer over 4 Bm^3 of water from the Mae Ngum dam in Laos through a siphon under the Mekong River, with pumping stations allowing transfer to the Chi basin. Figure 2 sketches out this project as well as other companion projects for the northeast region.

This proposal gained momentum with the nomination of Suvit Khunkitti as Minister of Natural Resources and Environment (MNRE). The change removed Minister Praphat Panyachartrak who had been credited with a genuine intent to upgrade Environmental Impact Assessment (EIA) procedures in order "to catch up with the rapid economic growth" and to promote participation from the public who, according to him, should "be allowed a much bigger say in state development projects, which will also face tougher scrutiny from a new agency" (Bangkok Post February 2004). Although the move provided decisive support for the

[11] A few years earlier Suvit, then Minister of Agriculture, had already floated the idea of piped systems that had been implemented in ten pilot projects that later proved to have failed.

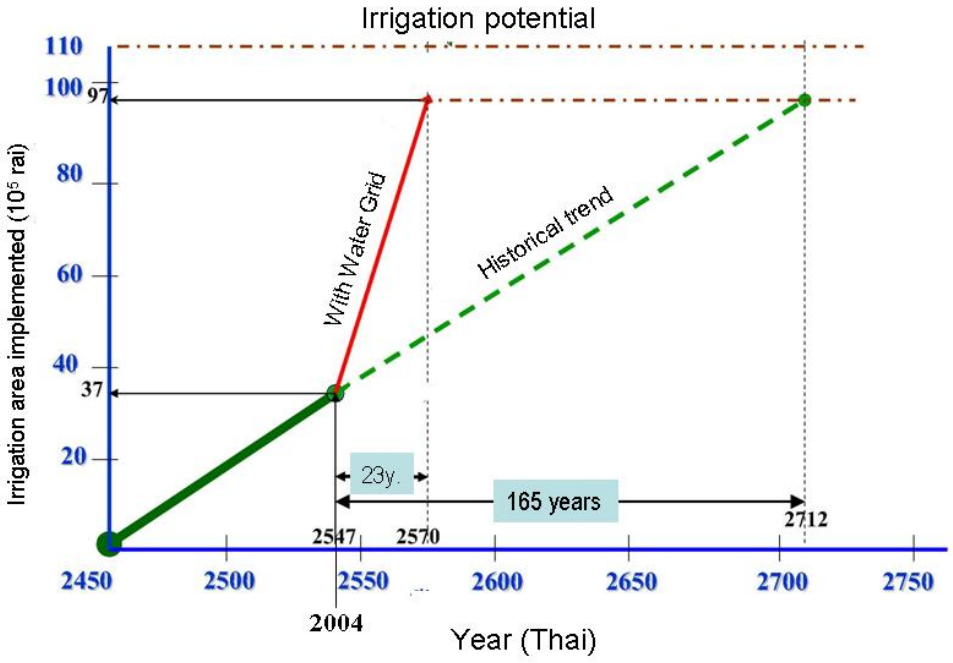
[12] Of course, because of its bulky nature, moving water is a much more expensive venture than moving electricity. Some examples of such pressurized grids, or "carriers," exist in small arid countries, such as Israel, Cyprus, or Tunisia, but their costs have generally prevented expanding the concept at a very large scale.

[13] It was announced that "the project would provide water for more than 60 million rai of farmland in non-irrigated areas" (Bangkok Post 13 June 2004);" "for more than 90 million rai of farmland in non-irrigated areas" (Bangkok Post 24 September 2004); and to supply water to 5.6 million farmers on over 106 million rai of land (The Nation 24 September 2004).

proposal handled by the MNRE, the project remained delayed as a "result of a row between Natural Resources Minister Suvit Khunkitti and Agriculture Minister Somsak Thepsuthin over who should oversee the project," because "both ministers want to supervise the project because it could be promoted in their election campaigns" (Bangkok Post 13 June 2004).

Indeed, the Royal Irrigation Department was seen floating a parallel 400 billion baht proposal (Bangkok Post 18 February 2004) unveiled at a workshop on 22 February 2004 ("Water Grid and Integrated Agricultural Development") that aimed to reach the fatidic 131 million rai of irrigation potential over the next 60 years with a more prudent target for the next 40 years consisting in shifting the irrigated area from 22 to 58 million rai. The design focused on pressurized networks supplied by pumps tapping main rivers and reservoirs (including new ones) and supplying systems of farm ponds,[14] and the proposal was based on a project that was said to be already under implementation.

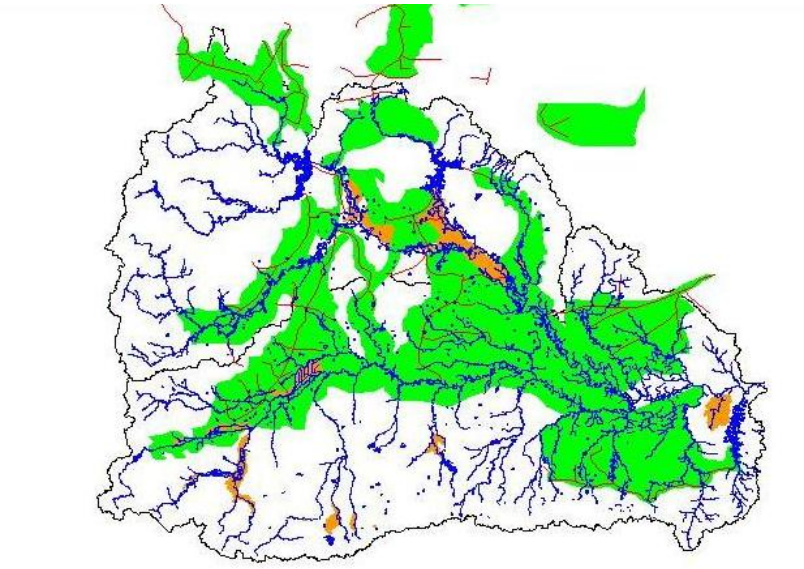
Figure 1. Projection for irrigation development in Thailand (DWR 2004).



In early 2004, the project came under fire from several quarters, including academics doubting its economic profitability (Bangkok Post 30 March 2004), environmentalists predicting salinity problems or recalling that earlier pilot projects had failed (Bangkok Post 14 April 2004; 3 May 2004a; 07 July 2005), as well as water experts such as Senator Pramote Maiklad, who opined that the "project is not cost-effective nor feasible in terms of engineering techniques" (Bangkok Post 3 May 2004b) and its timetable unrealistic (The Straits Times 26 July 2003).

[14] The confusion between the two proposals forced Minister Suvit to make clear that his proposal for an irrigation network was distinct from that of the RID (Bangkok Post 20 March 2004).

Figure 2: Sketch of the main planned development projects in the Northeast region



The feasibility study was nevertheless entrusted to Khon Kaen University's faculty of engineering which asserted that water would be provided to 60 million rai of farmland but confirmed that there was not enough water domestically and that “water diversion from neighboring countries and international rivers is an essential part of the water grid project” (Bangkok Post 13 June 2004). In addition to that, according to a senior irrigation officer, “300 new large and medium-sized reservoirs and 25,000 community reservoirs are needed to support the project” (Bangkok Post 03 May 2004b). Issued in September 2003, the report was praised by Minister Suvit as showing that the project would be a success as "the best option for developing an efficient water management system" when "half the people in the country need water to improve their quality of life" (Bangkok Post 24 September 2004).

Pilot projects worth $1 million (40 million baht) were expected to be kick-started soon and consisted of a diversion of Mae Klong water to Phetchaburi and Prachuap Kirikhan. However, according to the Minister of Natural Resources and Environment, “whatever the outcome of the pilot projects, the government will finish all 13 schemes within five years” (Bangkok Post 24 September 2004), which suggests that “pilot project” is probably a misnomer. With the fall of Thaksin's administration, most projects have been shelved.

4 Justifications and Governance

It is important, first of all, to reflect on the justifications given to such a huge public investment, as well as on the governance of the decision-making process. From a governance point of view the whole process was characterized by secrecy, with often contradictory statements being delivered to the press. Despite the dramatic projected impact on populations, livelihoods and the environment (in terms of benefits, costs and externalities), no participatory mechanism was observed. Although there were calls from civil society groups to get more

information (as entitled by the 1997 Constitution:[15] Mingsarn et al. 1998), details of the projects made public were those presented on the DWR website (while RID's own proposal remained largely removed from the public).

Earlier projects showed that public hearings were often not transparent and a means to legitimize projects, that public participation had been selective, and EIAs shoddy or bypassed (Bangkok Post 28 February 2005; Mingsarn et al. 1998). In phase 1 of the KCM project, for example, dams on the Chi and Mun rivers were aptly referred to as "rubber-weirs" (e.g., the Rasi Salai dam) because EIAs are required for the former but not for the latter.[16] The past stories around the Pak Mun and Rasi Salai dams acted as a traumatic experience of how the assessment of costs and benefits can be distorted (WCD 2000), and on how public hearings can be manipulated (Bangkok Post 12 April 1997).

This situation contradicted the statement of former Natural Resources and Environment Minister Praphat Panyachartrak that “the public will be allowed a much bigger say in state development projects, which will also face tougher scrutiny from a new agency” (Bangkok Post 13 February 2004). The idea put forward by the MNRE that locally elected Tambon Administration Organizations should approve any project (Bangkok Post 13 February 2004) clearly had the potential to jeopardize the water grid and may help understand the subsequent removal of Minister Praphat.

Several striking features of this 200/400-billion-baht denote the willingness to fast-track the project without properly investigating its social, economic and environmental consequences. Minister Suvit, for example, went ahead with the water grid project without consulting the National Water Resource Committee, drawing criticism from economists and environmentalists (Bangkok Post 30 March 2004), and said the government would push ahead with the irrigation pipeline despite the early setbacks of such systems exposed by RID's chief[17] (The Nation 24 September 2004) and NGOs (Bangkok Post 3 May 2004b). Likewise, Prime Minister Thaksin referred to "pilot projects in Phetchaburi and Prachuap Kirikhan worth 40 million baht" but added that "whatever the outcome of the pilot projects, the government [would] finish all 13 schemes within five years" (The Nation 24 September 2004).

Justifications for developing the Water Grid in general and irrigation in particular were based on arguments that merely emphasized expected benefits and were shrouded in a pro-poor rhetoric that magnified the assumed power of the state and attendant benefits. The Prime Minister "vowed to eradicate all water-related problems plaguing the country, which he said were major hurdles in the government's war on poverty," and the study, to be completed within a year, would design "projects to control levels of water in 25 river basins, to help rehabilitate forest and soil resources," helping him meet his goal of eradicating poverty by

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[15] Article 58 of the 1997 Constitution states the following: A person shall be entitled to receive data and public information possessed by state and governmental agencies, public enterprises or local authorities, except when disclosure of such information would affect state security, public safety or the interests of other persons duly protected by law. The exercise of this right shall be in accordance with law.

[16] According to Sretthachau (1999) the Rasi Salai was expected to be a 4.5 m high rubber-weir storing water not higher than the river banks and ended up being a 9-m high concrete dam flooding almost 80 km^2.

[17] Interestingly, one month later the head of the RID had changed his stance and was praising the grid system as an "efficient way to manage water in the current situation" (The Nation 23 November 2003).

2009 (The Straits Times 2003). The "war on poverty" was clearly branded as an overriding meta-justification that offered a means to silence opposition since, obviously, nobody is against poverty reduction (Molle 2006b).

Focus on benefits rather than on cost/benefit ratios was exemplified by the then-Prime Minister Thaksin, who reportedly said "it would not be a problem if the [water grid] project required a lot of money because it would be worthwhile eventually," and by the Deputy Prime Minister in charge of the project, who saw the project as "a worthwhile investment because it will benefit 30 to 40 million people nationwide" (The Nation 23 June 2003).[18] Likewise, a statement by a Deputy Director of the Irrigation Department showed that distributing water was seen as an objective in itself, if not a mission: "We know the problem… if water can't be distributed to people, maximum benefits will not be attained" (Bangkok Post 28 December 2003). That "every farmer, especially those from the 19 provinces in the Northeast, should have access to water" (The Nation 24 September 2004) seemed to be taken as an uncontroversial and desirable future, with no relation whatsoever with costs or alternative options.[19] The costs announced were themselves at best heavily underestimated guesstimates.[20]

The project's alleged inevitability and the pressing need for its implementation were also underlined by references to drought or flood damage, to the number of villages without tap water, or by alarmist discourses (see, for example a high official justifying the Phetchaburi project because the province ran the risk of "becoming a 'desert' because the province received less rainfall than the amount of water evaporating from its soil" [Bangkok Post 14 April 2004]).

Decision making was also made fuzzy because of the lack of a clear definition of the roles and responsibilities of the different departments. According to the Director of Thailand Wildlife Fund "what we see are agencies competing against one another to push their own initiatives." RID considered that the new Water Grid project was only replicating a project that was already being implemented under its purview (Bangkok Post 3 May 2004b). Infighting with the DWR became so severe that the two departments "were forced to hold talks after their overlapping powers became a source of heavy criticism" and "an obstacle to the development of the country's water resources" (Bangkok Post 17 August 2004). Uneasiness from the RID was perceptible from the onset, with calls for sticking to the priorities and projects already

[18] The project would also be justified because farmers in irrigated areas earn three times more than those forced to find their own water supplies, said Mr. Thaksin, and because "if the irrigation system was extended, both farmers and the government would reap higher revenues" (The Straits Times 26 July 2003).

[19] In contrast with demand management strategies that are emphasized in the 7th Plan, this conception seems to be quite widespread within water agencies: see also the comments by a high-level official: "Water distribution doesn't completely cover those irrigation areas; we've lost a balance between storage and distribution" (Bangkok Post 28 December 2003); or M. Rungrueng: "We urgently need to find water and we must do it whatever way we can. It is as if we are about to drown; we have to grasp anything, even a floating dead dog" (The Nation 24 April 1994).

[20] The first announcement of the water grid estimated costs at 200 billion baht but speaking on his first day on duty Minister Suvit said he "favored the 300-billion-baht project to lay a network of water pipelines nationwide" (12 Mar 2004), while these estimates were later superseded by the 400-billion alternative project by RID. Judging from the concern expressed by the chief of the RID that the real cost could be as much as 1.2 trillion (The nation 2 July 2003) it is safe to conclude that these numbers were at best guesstimates heavily underestimated by the "irrigation optimism" syndrome (Jones 1995), typical of megaprojects (Flyvbjerg et al. 2003).

defined by the department as well as for NESDB to coordinate between RID and DWR (The Nation 2 July 2003).

It is no secret that one of the major stakes behind the roles and mandates of each department is the definition of who selects the projects and of which channels money will flow through. In general terms, substantial budgets are frequently set aside in the event of droughts or flooding: for example, 60 billion baht were pledged in February 2005 to bring tap water to the 15,837 villages deprived of it, and 800 million baht to dig artesian wells in 4,628 villages nationwide this year "to ease severe droughts." “Although the Land Development Department is creating 5,000 ponds a year” said Somsak [Minister of Agriculture], “this does not meet farmers' demands for water" and "at least 30,000 ponds, costing about 5,500 baht each, would be built this year." In addition to the 400 billion baht water grid project, several other actions are justified as part of the "water against poverty" project. All these projects potentially bring political and financial rewards to people at the helm. In November 2004, in a very unusual and unprecedented move, one thousand officials of the MNRE submitted a letter of complaint to the Permanent Secretary demanding the removal of Chief Kasem Chanthajaroonpong for personal use and mismanagement of funds related to irrigation projects and to the 1.66 billion baht village water supply scheme (Bangkok Post 30 November 2004).

5 The Water Grid and Its Environment: Removing or Compounding Constraints?

A project of the magnitude of the envisaged Water Grid can only have massive regional impacts: agricultural production does not unfold in a vacuum and has serious economic and environmental implications. This section investigates what could be the linkages and implication of the Water Grid in terms of a) water supply, b) labor force, c) environmental change, and d) agricultural output markets, and discusses investment alternatives in the light of current socioeconomic transformations in Isaan.

5.1 Where Will the Water Come from?

That Isaan does not offer adequate storage sites to store runoff during the wet season has long been recognized (and was one of the reasons why small-scale dams were advocated by RID in the 1950s; see Kambhu 1956). The only solution allowing irrigation on a massive scale is therefore to divert water from the Mekong, which according to Tawatchai and Singh (1996) makes it an "attractive solution [to consider] an integrated development of all three river basins" [Khong/Chi/Mun].

Although it stated "that the equivalent of 1,875,000 rai of new irrigation will be required by 2002" (Biwater 1987) the model used by the "Green Isaan" study "clearly demonstrated that the controlling factor in the Chi-Mun basins is the storage of water. Although pump schemes and small-scale projects are attractive, only very few can proceed without adversely affecting the investment in existing schemes in the lower Mun and Chi. The demands of small schemes appear to be low, but their cumulative effect in abstracting runoff early in the rainy season conflicts with pump schemes downstream." To allow expansion of irrigation the project envisaged the diversion from the Mekong to the Songkram basin, the development of reservoirs in the upper-Chi basin, and the construction of three weirs on the lower Mun River.

With the abandoning of the Pa Mong dam on the Mekong, from which water was supposed to be abstracted and used in Isaan in early projects, planners had to design alternative ways to divert water by pumping. The combination of the lack of storage capacity to properly store water during the wet season and of the political difficulties associated with abstracting water

from the Mekong mainstem in the dry season stimulated planners' ingenuity. The KCM considered damming the outlet of two tributaries of the Mekong, including the Huay Luang where water would be impounded (and potentially replenished by water abstracted from the Mekong), and pumped upstream into the Lam Pao reservoir. The water grid borrowed from a study done in 1998 by Sanyu Consultants of a project aptly dubbed the "Laos-Thai Friendship Water Development for Sustainable Agriculture" which envisaged building two dams on the Xe Banghiang river in Laos, close to the confluence with the Mekong, from which 3.3 Bm^3 of water could also be abstracted and siphoned under the Mekong into Isaan (RiversWatch 2002). Another plan studied by Sanyu in 2004 considered siphoning water off the Nam Ngum dam in Lao PDR to the Huay Luang stream. While this option is technically feasible the expected cost of 0.5 baht for a cubic meter of water raises serious doubts about the economic relevance of the project.[21]

Academics involved in the feasibility study at the Khon Kaen University also emphasized the need to approach neighboring countries, notably Laos, and/or the Mekong River Commission, in order to secure agreements allowing an increase in supply to Isaan (Bangkok Post 30 March 2004). Uneasiness about the issue grew a few months after the official launching of the water grid, with Thailand trying to redefine the terms of the 1995 agreement[22] and the Director of the DWR stating that "it would be a violation of national sovereignty if a nation could not implement development projects or use water from it's river independently" (Bangkok Post 11 November 2003). It is not clear to what extent bilateral agreements have been made (and whether the MRC has been party to them) but the plans to buy and withdraw 4.73 Bm^3 from the Nam Ngum reservoir are still hypothetic.[23] This volume is huge compared with the capacity of the dam (7 Bm^3) and the implications of such transfer for the short and long term of the basin have not been thoroughly investigated.

It must be noted that although consultants have emphasized the need for interbasin transfers if the project is to be implemented, this politically thorny aspect of the project is not discussed openly and has not been reported in the news.[24] Some official declarations even seemed to suggest that the problem could be solved internally and quickly. The Prime Minister, for

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[21] An hectare of paddy typically requires around 15,000 m^3 for one crop.

[22] The agreement between the member states includes the following:
A. On tributaries of the Mekong river, including Tonle Sap, intra-basin uses and interbasin diversions shall be subject to notification to the Joint Committee.
B. On the mainstream of the Mekong river:
1. *During the wet season:*
a) Intra-basin use shall be subject to notification to the Joint Committee.
b) Interbasin diversion shall be subject to prior consultation, which aims at arriving at an agreement by the Joint Committee.
2. *During the dry season:*
a) Intra-basin use shall be subject to prior consultation, which aims at arriving at an agreement by the Joint Committee.
b) Any interbasin diversion project shall be agreed upon by the Joint Committee through a specific agreement for each project prior to any proposed diversion. However, should there be a quantity of water available in excess of the proposed uses of all parties in any dry season, verified and unanimously confirmed as such by the Joint Committee, an interbasin diversion of the surplus could be made subject to prior consultation.

[23] The idea to purchase water from neighboring countries through bilateral agreements, however, had already been put forward by Prime Minister Chuan Leekpai (1992-1995) who declared that his policy for solving the domestic water shortage would be to buy international water from neighbors (The Nation 1994).

[24] Just how touchy the diversion of water resources might become was exemplified by the Japanese International Cooperation Agency's (JICA) turning down of RID's request for funding a feasibility study for the Kok-Ing-Yom diversion project, which would divert water from the Kok and Ing rivers in Chiang Rai province to fill the Sirikit dam. A source in an international agency dealing with Mekong development declared that JICA was aware of the possible effects of the project on downstream countries and did not wish to be involved in future conflicts (The Nation 24 April 1994).

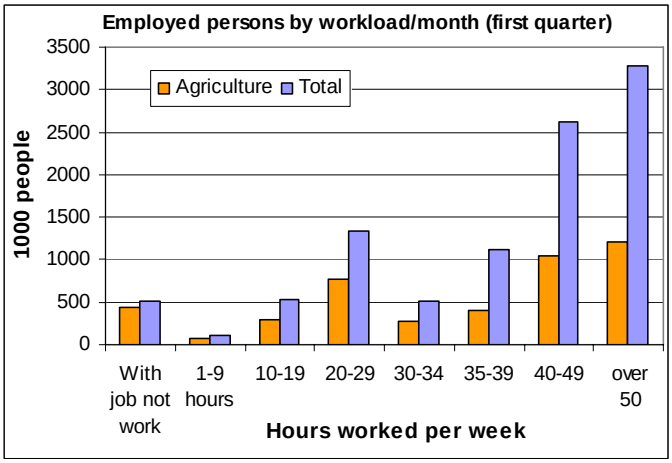
example, was reported to “believe northeastern provinces have enough water resources and the problem is the irrigation and distribution system, which needs to be improved” and had instructed the “Irrigation Department to fix the lack of water in Isaan provinces and report to him on ways to solve the problem within one month" (The Nation 24, April 2004).

5.2 Where will the labor come from?

A massive augmentation of irrigated areas would absorb a large amount of labor. The seasonal (or long-term) migration of Isaan people to Bangkok or other places seems to suggest that the lack of opportunities have pushed them to look for options elsewhere. At the same time, and probably because of these movements, there are several indications that labor has become short in rural Isaan, with observers describing the "exodus of young labor" (Funahashi 1996). In eastern provinces, for example, farmers commonly resort to Lao migrant labor for harvesting rice. The quick spread of direct seeding techniques in lieu of transplanting also indicates labor shortages (Konchan and Kono 1996). It is therefore uncertain whether enhanced local agricultural opportunities would significantly alter migration patterns. We may attempt to assess the residual available workforce by using data from labor force surveys.

A first part of the potentially available workface lies with employed people who work less than an average of 40 hours a week, taken here as the equivalent of full employment. Figure 3 shows the distribution of the employed population according to the number of working hours, during the first quarter (January-March), which corresponds approximately to the period when dry-season cropping would take place. By computing the shortfall of hours worked to the 40 hour standard for the fraction of the population declaring being available for more work we can get an upper estimate of the available workforce.

Figure 3: Employed persons in the Northeast region, according to weekly work load

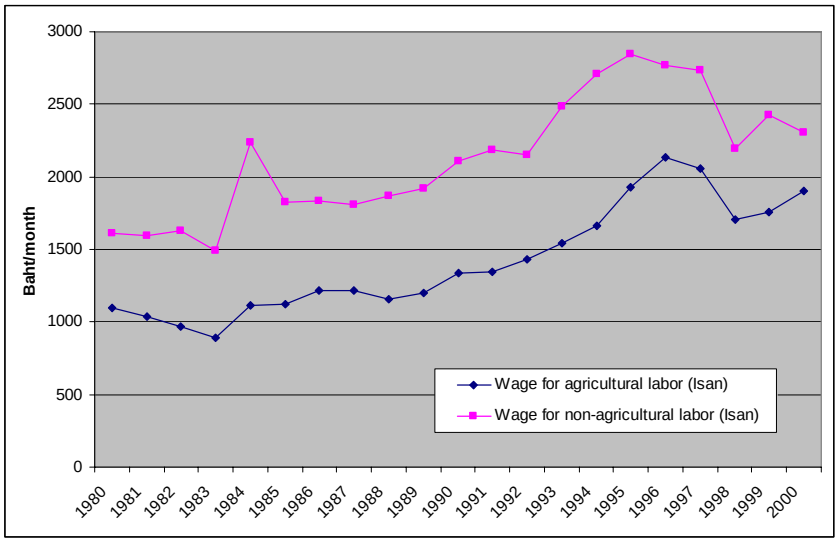


Non-working people are the principal potential source of labor, although not all persons look for activities. The 2004 survey provides a breakdown of the labor force in Isaan according to whether they work or look for a job, or not (see table 1 in the appendix). By considering the number of persons who declare to be looking for work we get a lower estimate of the potentially available workforce; by adding the number of persons not looking for work we obtain a high estimate, and by adding the number of seasonally inactive persons we get a maximum estimate.

If we compute the total of working hours potentially available and express them as full-time workers (over 3 months), we obtain a conservative estimate of 17,832 person-labor, a high estimate of 96,349 and a maximum value of 151,557. Since these extreme values are unrealistic we may tentatively take an average of 60,000 as an order of magnitude[25] and derive the conclusion that it is very hard to see how such a labor force could cope with an increase in the cultivated area by, say, one million hectares (or even much less). Even considering the dramatic changes in labor input brought about by labor-saving technologies in the last 20 years, with a shift from 130 work-days of labor for one hectare of transplanted rice (Fukui 1993) to around 30 work-days at present (Somporn and Hossain 1998), the mismatch is blatant.

The possibility of attracting labor back to agriculture is also doubtful judging from the differential in wage between agricultural and non-agricultural labor (figure 4) and even more from (the higher) differential between wages in Isaan and wages in Bangkok (the former being half the latter). In addition, in northeast Thailand, the net profit from paddy cultivation was estimated from minus $49 to plus $21/ha/crop for irrigated HYV rice in the wet and dry seasons, respectively, and at minus $44 for the traditional wet season rain-fed local variety rice (family labor valued at 2.5/day) (Nesbitt 2003).

Figure 4. Differential in Wages (northeast region, 2004).



Another worrying factor is the current demographic evolution in the region, and more generally in Thailand. The demographic transition has been extremely sharp in the country and annual population growth is now lower than 1 percent. Already in 1995, the Mun Master Plan (Binnie and Partners 1995) found that greater attention should be given to the role of women in agriculture, particularly in view of the increasing feminization of the region's rural population. With many ageing farmers, economic diversification, and migration opportunities, the future of farming in the region is threatened and patterns of agrarian change will be heavily shaped by tensions on the labor market as time goes by (Bangkok Post 08 December 2005).

Moreover, the transition from a mostly rural to an increasingly urban population is very likely to develop. In preparation of an Action Plan to Improve the Water Quality in the northeastern

[25] Even such a number is optimistic because not everybody is willing or able to perform rice cultivation operations.

basin (PCD 1997), the Pollution Control Department projected that by 2015, an average of 35 percent of the northeastern population will be concentrated in and around urban centers (see figure 1 in the appendix). Last, hypothetical labor movements back to agriculture in Isaan would have an impact on labor costs in Bangkok and the industry in general, thus reducing the macroeconomic benefits from the investments. In summary, the expectation that large and idle reservoirs of labor could be tapped by large-scale development of irrigation is misconceived and illusory: it stands against all current trends of demise of agriculture, not only in Thailand but also in most of Southeast Asia, which show that farmers are ageing and increasingly sell their land, and that most technical change is shaped by shortages on the labor market (Molle and Srijantr 2003; Rigg 2001)

5.3 Environmental Change

The northeast of Thailand is well known for its soil salinity, which is widely considered as one of the most critical environmental problems of the region. The salt source for saline water and soil in northeast Thailand is primarily from rock salt of the Mahasarakham Formation occurring at variable depths (20-500 m) from the ground surface (Srisuk 1997), and from tectonic stress during the quaternary that has produced superficial domes with a high salt content (van Liere 1974). Soil salinization is also induced by human activities, namely deforestation, water storage and groundwater abstraction for salt production (Japakasart and Workman 1981; Williamson et al. 1989; Wiszniewski 2003).

With about 2.8 million hectares of land affected in the discharge areas and a corresponding 3.1 million hectares in the recharge area (Yuvaniyama 1997) the buildup and spread of salinity in northeast Thailand have resulted in major economic and environmental impacts. High salinity levels in rain-fed rice fields, for example, affect the annual crop yields (Yuvaniyama 1997, 2001). In addition, soils in Isaan are generally poor, with low organic matter, and the least suitable for agriculture of Southeast Asia (Parnwell 1988).

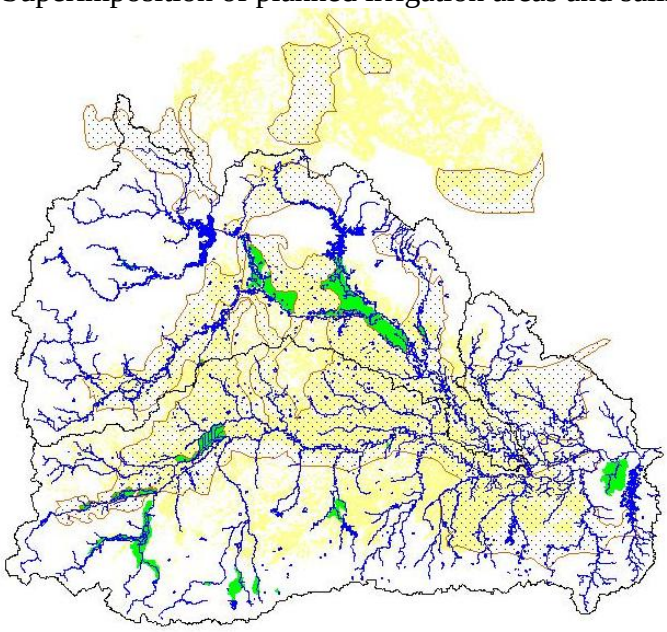
Salinity constraints in Isaan were identified early on. The reconnaissance survey on the Chi-Mun basin carried out by the US Bureau of Reclamation in 1965 acknowledged that salinity problems would doom the project "to eventual failure without adequate drainage facilities, which in the area may not be financially feasible" (USBR 1965). The KCM project would prove this prediction true and serves here as a reminder of how the development and spread of salinity impact on, and interfere with, rural production and livelihoods. With the construction of the Rasi Salai dam, the balance of seasonal distribution of saline water in the Mun River was affected, with closed gates storing (saline) dry-season flows, which were subsequently planned for irrigation water use through pump irrigation. With saline water accumulating in the storage facility and used for irrigation, highland paddy fields suffered salinization, which in turn forced farmers to increasingly give up dry-season cultivation, the very reason why the storage was built in the first place. In addition, water tables raised by the impounding of water by the weirs have come close to the surface and fuelled capillary rises and subsequent salinization of the soil surface. A farmer was reported to say that “We [the farmers] can see the muddy salt dust on the ground, and in the dry years, our rice seedlings die completely. We have rapidly become poor during these years, and have to buy rice to eat every year. We are no longer real farmers” (Sretthachau et al. 2000).

To consider and analyze the impacts of large-scale infrastructure, such as the KCM project, the Office of Environmental Planning and Policy (under the Ministry of Science, Technology and Environment), selected an “expert committee to analyze environmental impacts,” mostly as a response to sustained protest regarding the implemented KCM structures in the Lower

Chi-Mun basin (Kamkongsak and Law 2001). The report, which was submitted in 1993, criticized the KCM project and stated that the project design was inappropriate to the geographical landscape of the northeastern region and that the information in the feasibility study was misleading. The committee further warned of increasing salinity problems as a result of the large-scale water diversion and irrigation plans (Wiszniewski 2003). So did the 1995 Mun Water Resources Development Master Plan Study (Binnie and Partners 1995), which observed that "Insufficient data exists on the inter-relationship between surface water, groundwater movement and salinity, and there is a high risk of increasing salinity hazard by developing groundwater or transferring surface water in the basin on a large scale." Figure 5 shows the extension of the planned water grid superimposed to areas identified as actually or potentially affected by salinization and speaks for itself, making further comments on the risk incurred unnecessary.

Other negative impacts that can be expected from massive development of field crop cultivation in the dry season are pollution and health hazards derived from the use of agrochemicals. Dr. Sacha from the Khon Kaen University cautioned that switching from conventional to intensive agriculture would cause a severe environmental impact due to sharp increase in the use of hazardous chemicals in the fields (Bangkok Post 13 June 2004). Similar impacts can be expected on fisheries, within the basin and in the Mekong River itself (Kamkongsak and Law 2001).

Figure 5. Superimposition of planned irrigation areas and saline soils.



Source: Land Development Department

5.4 Agricultural Production and Markets

The last question begged by such a project is: what will be produced and how will it be sold? Although the price of rice at the Thai farm gate is strongly determined by the international market it is obvious that massive increases in production would only further deplete already declining real prices, undermining the attractiveness of double-cropping to farmers who already allegedly see little virtue in it. Indeed, several reports suggest that dry-season rice cropping has not developed according to expectations and has left many infrastructures idle. Adulvudhaya and Tsuchiya (1986) report that problems always stated by farmers concerning the adoption of dry-season cropping are lack of capital, shortage of labor and soil salinity,

which altogether seem to hinder the adoption of dry-season cropping. Analyzing pumping projects in northeast Thailand, the Mekong Secretariat concluded that agronomic potential generally remained underutilized (Mekong Secretariat 1991), while Kamkongsak and Law (2001) reported that pumping stations have only covered around 67 percent of the total area originally targeted, and that for the past 30 years, total land under dry-season rice cultivation remained at about 14 percent of the total irrigated area. This critically undercuts the possible profitability of the investment and jeopardizes the financial capacity of the farmers to foot the energy bill as a water supply charge.

This constraint is recognized by Dr Sacha who warned that "under the new irrigation system, farmers would have to greatly change their farming practices in order to shoulder water fees" (Bangkok Post 13 June 2004). Farmers are expected to switch from rice cultivation to other cash crops, which consume less water than rice. The contract farming system with agribusiness companies, such as Charoen Phokpand Co., is believed to ensure that farmers can sell their produce at reasonable prices. The question of diversifying away from rice cultivation has been emphasized in all agricultural policies since WWII, in Thailand as elsewhere.[26] It has been shown, however, that public policies aimed at fostering diversification were little successful (Jierwiriyapant 2004) and unable to capture the complexity of farmers' decision making and constraints and were sometimes inducing farmers into debts and bankruptcy (Siriluck and Kammeier 2003). The price fluctuations undergone by cash crops like chili are well known and any production on a large scale would drive prices below the profitability threshold and lead farmers to indebtedness or bankruptcy.

Historically, diversification in Thailand has been fostered by middlemen in close connection with market demand, leading to both higher diversification in paddy-growing areas and deforestation to accommodate field crops in demand in the market (Rigg 1987; Cheyroux 2003). Such market demand is often induced by deficits in the regional or world markets (e.g., kenaf in the 1960s (Kono *et al.* 1994), pulp in the 1980s, rubber at present) and cannot be generated artificially. This does not mean that contract farming has no role to play: the experience of the Nam Oon project, for example, has successfully shown that there are niche markets which can bring substantial profit and opportunities to farmers, benefiting 4,000 households in 1993 (Dolinski 1995). The same experience, however, has shown that development of cash crops had leveled off due to three main factors: limited market opportunities, labor constraints and unwillingness of farmers to face the health hazards brought about by pesticide use. Additional water management problems have shifted the project into the "unsuccessful project" category (World Bank 2005). Crops that can be successfully grown on a large scale and be economically attractive are yet to be found and it is wishful thinking to entrust contract farming with the daunting task of doing away with market constraints at a regional level.

The recent opportunity generated by high demand for rubber in China has raised hopes that rubber trees could provide such an attractive option. Such production is not irrigated but might have competed for space with the water grid, if the latter had been developed on a large scale too.

[26] For Isaan, see conclusions by Ng (1970) in the late 1960s.

6 Investment Alternatives

Overriding national policies have justified much of the water resources and irrigation development in Asia during the period 1950-1980. Concerns for enhancing national security, maintaining political stability, alleviating rural poverty, food security, self-sufficiency or export-substitution, were pervasive. "Modernization" has also been a compelling and emblematic flagship of policies. Other strategic or geopolitical objectives, such as halting the "spread of Communism" in Asia, have also fuelled infrastructural development.

As stated in the introduction, there is now a wide recognition that under present circumstances massive injection of public investments in irrigation infrastructure is unsound, at least where there are no large contingents of unemployed people. Fan et al. (2004) have estimated the benefit/cost ratios of different types of investments in Thailand. For the northeast region they found that irrigation would yield the lowest benefit (0.76 baht for one baht invested), while corresponding figures for roads, education, and electricity were 1.23, 1.26 and 8.66, respectively. At the country level, the highest ratio was found for agricultural research and development (12.62). This suggests that irrigation is the least interesting infrastructural investment at the moment. The recent study by the World Bank and NESDB (2005) does not point to the priority of expanding irrigation but, rather, to the necessity of improving the skill of workers (education), better targeting of poor segments of the population by existing rural support programs, strengthening and empowering public administrations from villages to provinces, and increased integration within the Mekong Subregion.

The lack of assessment of investment options, even solely within the rural water sector, is apparent from the insistence on the qualitative alleged benefits of the projects envisioned. Justifying the massive costs announced (not to mention the likely cost overruns) with such benefits requires some accounting inventiveness and audacity. It is also remarkable that no in-depth assessment of all the small- or medium-scale projects, including deep or shallow wells, weirs, pumping stations, farm ponds and other reservoirs has been undertaken and it is common knowledge that a large part of these investments have been wasted by siltation, lack of maintenance, poor location or realization, lack of interest from farmers, and are largely left idle (AIT 1978; Blake 2003). This accentuates the perception that all these projects have been largely politically motivated, leading to inefficient use of public resources.

Figure 1 suggested that even before planning of the water grid, irrigation expansion was thought of as a natural linear extrapolation of past trends until the total potential area is reached.[27] This can be taken as a reflection of the "natural" tendency of bureaucracies to vie for sustained resources and power and to imagine the future as a replication of the past. In contrast, the former Dean of the Khon Kaen University was reported to have stated that "the only demand for the [KCM] project is among politicians and technocrats" (Kamkongsak and Law 2001).

7 Conclusion

The water grid project announced by the Thaksin administration in 2003 aimed at trebling areas served by irrigation in Thailand. In retrospect, the water grid appears as the ultimate

[27] A video prepared by RID to advertise its version of the water grid refers to a total area suitable for agriculture of 131 million rai, with only 22 million being provided with access to sources of water and concludes that "therefore, there is still 109 million rai in need of irrigation water for agriculture, domestic and other uses."

avatar of a long history of plans to "green the northeast" by diverting massive amounts of water into the region. In the initial announcement of the water grid, the target was to "improve farmers' quality of life," providing enough water for the household and agriculture, providing technical advice for using water efficiently, increasing productivity and income, and preventing/alleviating problems of water shortage and flooding (NWRC 2003). These rather vague targets were not paralleled by any attempt to compare costs and benefits, since the latter – couched in terms of national interest and poverty alleviation – were implicitly presented as overriding. This contributed to crowd out any possible discussion on the relevance and cost-effectiveness of the project.

Political motivation was again visible in the drought which developed in the dry season 2004, when former PM Thaksin pledged to set aside 100 billion baht for solving water problems in the northeast and said that the RID would have about one month to study ways to optimize water management efficiency in the region (Bangkok Post 24 April 2004). This implicit magnification of state power is consistent with the view that money and technology have no limits and that – provided in due quantity – they "will do the job." In the same vein, the water section of the Megaproject initiative listed requirements as "Advance technologies in survey, design and construction for an integrated water resources system such as water diversion, upgrading of storage capacity and high efficiency pumping… needed for enhancing proper water distribution and water stability in target areas" (MOAC 2006). In his address to would-be-investors the former Prime Minister discarded the term “leap-frog development” he had used in the past, and emphasized his willingness "to leap ahead with the power and grace of some other animal, such as a gazelle or other antelopes" (Thaksin 2005).

Megaprojects generally go beyond the technocratic bias which consists in defining needs and lacks in line with the standard remedies and projects that are deemed to be proposed by bureaucracies. They also embody a degree of high-modernism (Scott 1998) which believes in the power of state action to engineer, shape and mould both nature and societies at will, and defines development as synonymous to technology, management and financing (see Thaksin 2006 for an illustration). If megaprojects frequently are embodiments of human hubris they are also prone to systemic cost overruns and to corruption (Flyvbjerg et al. 2003).

The targets of the water grid were so ambitious that it strained the imagination to envision anything close to its realization, not to mention its awesome environmental implications. The project was shown to be highly inconsistent with four distinct and crucial issues: mobilizing water at a high cost to meet the increase in irrigation demand cannot be achieved without heavy tapping of the Mekong river itself, with limited solutions to store water during the wet season and several political and environmental impediments to abstracting water in the dry season; the current limited availability of labor, shown by the hiring of Lao labor at harvest time, contrasted with the huge demand incurred by the project; pervasive salinity problems already made more salient by the KCM weirs built on the Chi and the Mun rivers would likely reach unprecedented levels; with a heavy specialization in rice cultivation, and diversification constrained by actual market demand and risk, only a limited part of the irrigated areas could be cultivated with cash crops; this makes investments economically unsound and does not increase the likelihood that new infrastructures will fare better than the many earlier ones that are often left largely idle.

Even discounting populist undertones, the above account also suggests that Thai politicians tend to stick to the idea that Thais are a nation of rice-growers and that provision of irrigation infrastructure is possibly the best development option for the countryside (Phongpaichit 2000). It ignores voices that argue for a more vigorous orientation of the economy towards

higher value activities, in line with what is observed in Malaysia, for example. It is also apparent that, despite warnings and misgivings from part of the administration or from the civil society, water development plans seem to be only marginally informed by social or environmental concerns. It is high time, for example, that authorities stopped considering salinity problems as a mere externality that can be mitigated (Wiszniewski 2003).

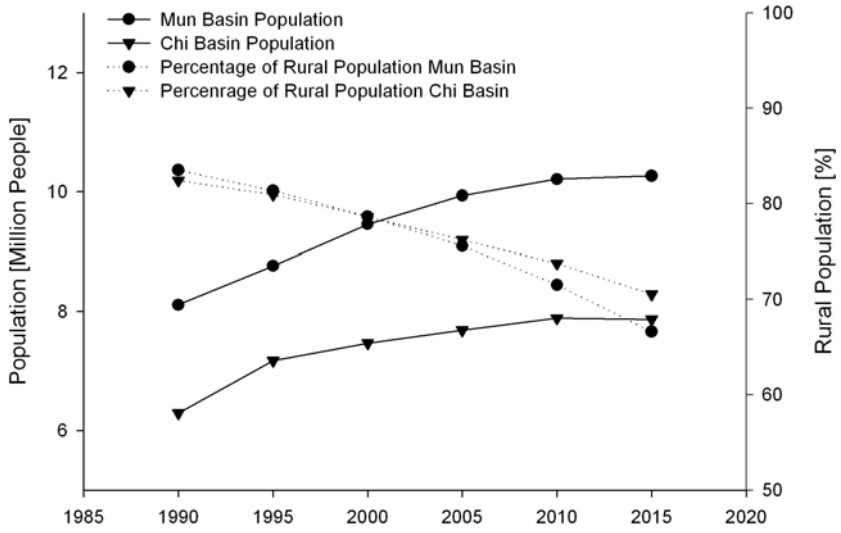
Many water experts, even in concerned agencies, would comment off-record on the near-absurdity of the project. Yet this case study shows that the checks and balances potentially provided by the most professional segments of line agencies and by civil society may be insufficient to both derail the project and impose a more open decision-making process. Secrecy was the rule and even if the whole project arguably had no chance to be realized, it is likely that some part of it would have gone ahead, had not the Thaksin administration been abruptly terminated. This suggests that the governance of large water projects has yet to become more politically balanced and open to public scrutiny, in line with the principles enacted in the (now-redundant) 1997 Constitution.

8 Appendix

Table 1. Distribution of the population according to work status (NSO 2004).

Male			Q1	Q2	Q3	Q4
Total			6,363	6,531	6,630	6,616
1.Current labor force			6,275	6,393	6,618	6,580
1.1Employed			6,010	6,218	6,519	6,499
Unemployed (look for work)			20	24	8	16
Unemployed (not looking for work)			245	151	91	65
Seasonally inactive			88	138	12	36
Persons not in labor force			1,560	1,429	1,340	1,359
Female						
Total			4,475	4,796	5,165	5,242
1.Current labor force			4,274	4,538	5,156	5,180
1.1Employed			4,037	4,387	5,098	5,094
Unemployed (looking for work)			11	10	7	19
Unemployed (not looking for work)			226	141	52	67
Seasonally inactive			201	258	9	62
Persons not in labor force			3,348	3,062	2,701	2,631
	%unemployed		5,5	4,8	1,7	1,8
			9,8	8,5	1,3	2,8

Figure 1.: NE Thailand population projection and percentage of rural population (adopted from PCD, 1997).



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