

The Nam Theun 2 Hydro Project: A better kind of dam?

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Rob Laking, School of Government, Victoria University of Wellington¹

Rob.laking@vuw.ac.nz

Abstract

Nam Theun 2 (NT2) is a one gigawatt hydropower station on the Nam Theun river in the highlands of Lao PDR, constructed with financial support from the World Bank and other IFIs. About 1200 poor rural households have been directly displaced by the project and there are significant effects on downstream communities as well. There are major environmental impacts in the reservoir and the catchment area and through changing river levels downstream. To mitigate these effects, a great deal of effort has gone into negotiating social and environmental safeguards into the commercial agreements for the project, as a condition for participation by the World Bank and other multilateral agencies. NT2 has indeed been advertised as the first – perhaps only – serious attempt to meet the safeguards recommended by the World Commission on Dams and adopted by the World Bank. With about one year to go to commercial operation, what are the prospects that it will be a good model for future hydro projects? This paper discusses some of the uncertainties in this question.

The impact of large dams

1. In the first half of the 20th century, and in countries with significant rivers, large dams quite often occupied centre stage in modernisation plans. As well as providing electricity for industrialisation, dams were seen as having benefits for “irrigation, urban water supply, navigation, flood management, and recreation and tourism” (Scudder (2005), p 5). Scudder reports the World Commission on Dams estimate that, through irrigation, large dams supplied water for about 15% of world food production. (Ibid, p 6). Dams like Aswan, Volta and Kariba were quite often the biggest single development project in a country.
2. By the 1960s, accounts were starting to emerge of the adverse social and environmental impacts of these mega-projects. Big dams leave huge footprints on their environment, not only by flooding large areas for their reservoirs and destroying natural habitats, but in

¹ The author is a member of the International Advisory Group (IAG) on the Nam Theun 2 Power Project. The IAG provides independent advice to the President of the World Bank on the environmental and social aspects of the project.

catchment areas by contributing to deforestation, and downstream by interfering with natural flood cycles. Involuntary resettlement of people whose homes would be flooded by the reservoir not only resulted in loss of traditional livelihoods but also created severe social and cultural stress for the resettlers. Downstream of dams, and often in much greater numbers than the resettlers above the dam, people using floodplains for agriculture, grazing, fishing and other activities also had their livelihoods severely affected. A study of 50 large dam projects cited by Scudder concluded that only eight of them had unambiguously resulted in restored or improved living standards for the majority of people affected by the project. In 31 projects, living standards for the majority actually got worse.

3. By the 1980s, under criticism from a wide range of NGOs, big dams had become a significant political issue for many Western governments. A World Commission on Dams met from mid-1998 and reported in late 2000, recommending principles that among other things would address the social and environmental risks of dam projects. (Scudder *op cit* p 326). Under pressure from NGOs and some of its major shareholders, the World Bank reviewed its own record on dam projects and found some significant shortcomings in project planning and execution which were directly contributing to the adverse impacts. The Bank eventually built a number of safeguards into its operational policies, covering topics such as involuntary resettlement, indigenous peoples, protection of physical cultural resources, environmental assessments and natural habitats. The Bank's safeguards have been criticised as neither specific enough (in terms of actual targets for mitigation and restoration of harm) and not ambitious enough. In particular, the policy on involuntary resettlement appears to be that those affected should have their standards of living merely restored, not improved².
4. The Bank's less than whole-hearted adoption of the principles originally recommended by the World Commission on Dams probably reflects the quite often strong differences of viewpoint amongst its shareholders. Major developing country shareholders with significant projects of their own may not be interested in endorsing tough standards that might require them to accept unpalatable restrictions in return for World Bank or other IFI financial support, or cast their domestic policies in a bad light. The safeguards that were adopted were probably the best that could be achieved under the circumstances and represented a significant step forward.

² "Displaced persons should be assisted in their efforts to improve their livelihoods and standards of living or at least to restore them, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher." World Bank (2007).

5. According to David McDowell, a member of the NT2 Panel of Experts³, it was important that the Bank adopt some standards, because it would be seen as the global standard setter. While the Bank may exert some moral leadership in terms of these matters, though, its direct leverage through financing is in practice quite limited. Generally, the role of IFIs in financing significant infrastructure projects has diminished significantly in the last 30 years as the part played by private capital has grown. McDowell notes: "Dam construction peaked in the 70s and 80s with around 540 new dams going up each year. Then in the 90s the numbers fell to around 300 new dams p.a. In parallel, the WB's funding percentage fell from 3.5% of new dams in the developing countries to around 0.9% covering around 4 new dams a year." (McDowell (2008)).

Description of the project

6. NT2 is a hydro power project being constructed on the Nam Theun river in the central highlands of Laos. The facility will have an installed capacity of 1.07GW. Water from the Nam Theun and tributaries is backing up behind a 48m high dam to create a reservoir which will cover 450 km² when it is full. The project diverts water from the Nam Theun via the intake tunnel, power house and a diversion canal into the Xe Bang Fai river, whence it flows down to the Mekong. The level of water in the NT2 reservoir will fluctuate seasonally between a minimum level of 100 km² in the dry season (October-March) and the maximum, creating a "drawdown area" of 350 km².
7. At time of writing (December 2008), the physical works are almost complete. The dam was closed in April this year and the reservoir filled during the 2008 rainy season. The project company expects to be able to complete testing and commissioning over the next year and be ready to supply electricity by the commercial operating date in late 2009. All the approximately 1200 households whose villages were in the reservoir area have been resettled in their new homes.

The economics of hydropower in Laos⁴

8. NT2 is only one of a number of hydro projects either planned or underway in Lao. According to the Bank's Project Appraisal Document (PAD) for the NT2 project, Lao's total hydropower resources are estimated at 26.5GW. Not all of these resources are economically feasible to exploit but electricity generation could increase Lao annual GDP growth by a percentage point or more. Demand from neighbouring countries has

³ A group constituted under the Concession Agreement for the NT2 project to monitor and advise on whether the CA conditions were being met. David McDowell is a former Chief Executive of the New Zealand Department of Conservation and head of the International Union for Conservation of Nature. Other members are Thayer Scudder, a member of the World Commission on Dams and whose book on large dams I have relied upon extensively in researching the background for this paper, and Lee Talbot.

⁴ Information in this section and the following one on financing is largely obtained from World Bank (2005).

increased rapidly in recent years: particularly Thailand but also potentially Vietnam, Cambodia, and China. The government has long-term supply agreements with Thailand and Vietnam and potentially also with Cambodia and China. NT2 revenues flow to the government from a resource tax, dividends paid by NTPC and taxes on NTPC income. They will contribute 3-5% of total government revenues in the period to 2020 and grow more rapidly after that (when debt servicing ends). The PAD says that this is a “relatively modest” increase in total government revenues but, if targeted to priority sectors like education or health, could make a significant contribution to the well-being of Lao’s poor.

Financing

9. The total financing requirement of the project, with allowance for contingencies, is about US\$1.45bn as shown in Table 1 below. The World Bank Group’s contribution to the total financing of the project is relatively minor. IDA and MIGA guarantees total US\$90m and there is a US\$20m IDA grant towards the GOL equity contribution. Other international agencies involved in the project include the Asian Development Bank and Agence Francaise de Developpement (AFD), the French aid agency. Several investment banks and national export credit guarantee agencies are also backing the financing.
10. The main private investors are Electricite de France (EDF), Italian-Thai Development Public Company Limited (ITD), EGAT, and the Lao Government through a state holding company. EDF was a French Government Corporation until 2004 but is now a limited liability company, capitalised on the stock market. As at the end of 2007, the French Government still owned 85% of the shares. EDF is supplying most of the project management. The senior management of the project company, Nam Theun Power Company (NTPC) are long-term EDF staff. EGAT is a Thai state owned enterprise and is also signatory to the electricity supply agreement with NTPC. ITD is a private company listed in Thailand. ITD is providing engineering services for the project and is likely to sell out its holding after project commissioning.

Table 1: Nam Theun 2 Financing

	US \$m
International commercial lenders supported by guarantees	350
Public and private lending secured on the project	660
Total debt	1000
Private equity	335

Lao PDR Government equity	115
Total equity	450
Total funding	1450

11. There may also be indirect benefits for the project financing from the World Bank's participation. Other lenders may take comfort from presence of the IFIs, particularly the Bank. The GOL also gained negotiating power and expertise from having the Bank involved.

Conditionality

12. NT2's significance both for the Bank's involvement in lending for dams and for the wider issue of dam safeguards is the extent to which the parties to the financing accepted some significant conditions aimed at improving the outcomes for project affected persons and introducing some significant environmental safeguards. In return for Bank involvement, the GOL has accepted a number of conditions:

- (1) The Concession Agreement between the project company and the government includes provisions covering involuntary resettlement, physical cultural resources, indigenous peoples and natural habitats; as well as restoration and compensation for communities downstream of the dam;
- (2) The government has agreed to allocate an amount in its budget, equivalent to the net revenues that the government will receive from the project, for programmes of benefit to poor people or supporting the environment.

Conditions in the Concession Agreement

13. The unique feature of the NT2 Concession Agreement⁵ is the extent and specific nature of the commitments that the company is required to make which reflect the Bank's safeguard policies. For the resettlers, these include:

- (1) *Specific income targets* - at the household level: within five years of implementation, a minimum for each household of USD800 in cash and in kind; this is the national poverty line, and compares with a baseline for plateau households before the project of USD450. By the end of the implementation period, households in each village must achieve an average "Village Income Target" of USD1200. During the implementation period, resettler households have also had preference for

⁵ The full Concession Agreement is not a public document but is summarised in Nam Theun 2 Power Company Limited (2005). The provisions regarding resettlers and social and environmental provisions are contained in Government of Lao PDR and Nam Theun 2 Power Company Limited (2005), which is publicly available.

employment on the project and in resettlement activities (e.g. land clearance) financed by the company; vulnerable households are receiving food support “until they achieve the Household Income Target” (Government of Lao PDR and Nam Theun 2 Power Company Limited (2005), p 85).

- (2) *Consultation on physical planning for resettlement* (location of villages, plans for houses, land use plans for forestry, agriculture, grazing etc) to be done in consultation with the resettlers: “The parties agree that the primary factor in determining size and location of the resettlement villages must be the preference of the Resettlers themselves, linked to the capacity of the sites to provide the necessary economic opportunities.” (Ibid, p 24).
- (3) *Clear property rights*: Resettlers to be given title to their land within 18 months of settlement; restricted rights of dealing in title until end of implementation period; communal rights to village land use areas (with “tenure and management arrangements ... put in place for common property land and resources”); rights to access of common property resources (e.g. reservoir and forest land) protected against migrants moving onto the plateau looking for opportunities.
- (4) *New infrastructure and community assets*: village roads, electricity for all houses, household water supply; primary schools; health centres; village halls and offices; markets and warehouses; rice milling and storage; other buildings.
- (5) *Relocation of physical cultural assets* (religious buildings, historical artefacts, graves) in consultation with resettlers. “Consultations and negotiations will be carried out to determine culturally acceptable relocation to nominated sites.” (Ibid, p 40).
- (6) *Specific arrangements for resettlement of ethnic minorities* (e.g. Vietic peoples) – e.g. “relocation of Vietic or other vulnerable groups into separate administrative village units with clearly demarked boundaries and rights to resources”. (Ibid, p 48). Special consideration is given to the traditional harvesting of non-timber forest products (NTFPs).
- (7) *Ongoing assistance with developing new sustainable sources of household income*:
 - (a) An Agricultural Development Program covers soil fertility improvement and cultivation of cash crops “depending on market demand” (p 57). It includes irrigation of village garden plots, and training in agricultural techniques including wet rice farming.
 - (b) A Community Forestry Program is based on mapping the sustainable forest resource in resettlement area and establishing a Plateau Village Forestry Association to manage forest and run forestry businesses including logging and sawmilling.

- (c) A Fisheries Development and Management Program with self-management (setting and monitoring fish catch targets) by the “fishing community” (the company is supplying 600 boats for reservoir fishing). (Ibid, p 59).

(8) *Specific arrangements for gender balance in opportunities for livelihood activities.*

14. With respect to resettler livelihoods, there are two important related features of the CA conditions. First, they are mostly based on outcomes, and commit the company to achieving these outcomes regardless of cost: the implementation period under the CA does not end until the target average village incomes are achieved. The second aspect is that the conditions at least partly reflect a development approach to resettler livelihoods. Many project agreements and national legal frameworks for resettlement are built on a principle of compensation. Scudder says:

Policies based on compensation alone are not an acceptable option because they replicate poverty. Even attempts merely to restore income and living standards require a combination of compensation and development. (Scudder (2005), p 129)

15. This development orientation is not universal: in the project lands, the company is required only to pay compensation for loss of land and property to the project. Downstream along the Xe Bang Fai, the company has a specific cost limit to the assistance it has to provide to affected villages.
16. Finally, while the ultimate power of decision on whether the CA conditions have been met rests with the Government Resettlement Committee, the Committee has to take the advice of an independent monitoring group, the Panel of Experts (POE). The POE visits the project twice a year and its reports range over the whole gamut of environmental and social issues. They have had a significant impact on project decision-making. In February, with only two months to go until the dam was scheduled to be sealed so the reservoir could be filled, the POE reported

serious breaches happening or pending, ranging from non-completion of many of the resettlement villages and their facilities to non-compensation of villagers whose lands had been taken for the project to inadequate removal of biomass from the permanently inundated reservoir area to big gaps in setting up a reservoir management system to foot-dragging on several aspects of the all-important livelihood development work. (McDowell (2008))

17. In a public meeting at the conclusion of its inspection visit, the POE announced that it was not prepared to support sealing of the dam until these breaches of the CA were rectified. In McDowell's words:

We were not popular with the Government or the consortium [but] ... after a day or two only of grumbling about interfering foreigners the parties ... succeeded against

the odds in meeting virtually all the CA (and our) requirements by the time of our next visit in the beginning of April. ... We were pleased to give the go-ahead for the tunnel sealing, which happened on schedule. (McDowell (2008))

The Bank's reputational stake

18. There may be a reputational benefit for GOL from meeting Bank conditions for the project. A question for the GOL in future is whether these benefits are worth the costs of conditionality and the very heavy monitoring requirements.
19. On the other hand, this project is clearly seen by the Bank's Board and senior management as a major reputational risk. The Bank's relatively limited financial exposure to Nam Theun 2 belies the big investment it has made in effort and reputation in the development and implementation of the project.
 - (1) The Bank was closely involved in structuring the financing, development of the Project Agreements, and negotiation of environmental and social safeguards;
 - (2) Bank staff from Washington, EAP region and Laos country office have a continuing close role in implementation of the project.

Environmental and social impacts of the dam

20. Nam Theun 2, like other big hydro projects, has significant environmental impacts. In summary they are:
 - (1) *The direct impact of the project works.* While much of this is reversible, and the company is required to restore the project sites as far as possible, the use of land for construction works has had significant impacts.
 - (2) *The flooding of a large area of land for the reservoir.* About half this land was relatively heavily forested and the rest was savannah. While some of this biomass was cleared before inundation, a lot remains and will be submerged for all or part of the year, creating a source of nutrients for fish but also soaking up oxygen from the water as it rots.
 - (3) *Greater risk of human impacts in the catchment area.* To the north and east of the Nam Theun the land rises to the divide between Lao and Vietnam. This land is heavily forested, and home to several endangered species, including one of the last herds of Asian elephants in the wild. This wilderness area is already subject to incursions: poaching of animal and non-timber forest products, illegal timber harvesting and gold mining. Project roading and a through road to Vietnam increases risks of resource exploitation and illegal activities.

(4) *Effects downstream.* Because water is being diverted from the Nam Theun into the Xe Bang Fai, flows for the first 30-40 km of the Nam Theun downstream of the dam will be much reduced, with significant effects on fish life. The flow through the Xe Bang Fai results in much higher mean levels in that river throughout the year. At least in the first few years of the project, flushing of the reservoir, mainly down the Nam Theun, will also significantly affect water quality.

21. These impacts represent both risks and opportunities for the people on the plateau as well as downstream. The people of the plateau are in five main ethnic groups. Most are subsistence farmers and many are hunter-gatherers as well. They can mostly grow only one dry rice crop a year and only about 17% of families can grow enough rice to last them for the year. Their agriculture has traditionally been swidden ("slash and burn"), supplemented by buffalo and small animals, river fishing, harvesting non-timber forest products, and some revenue from sale of timber (e.g. rosewood). There is probably some drug cultivation and smuggling across the border with Vietnam. The average household income is US\$450, well below the Lao poverty line of US\$850.
22. For the people on the plateau, the major economic impacts are loss of land to the reservoir for agriculture and livestock grazing; reduced access to the catchment area for harvesting forest products; and the need to find new livelihoods to replace traditional ones which are no longer sustainable. New opportunities include cash cropping, fishing in the reservoir, and sustainable-yield forestry. But there are significant social impacts as well, particularly for the first resettlers generation from moving from established modes of existence with clear social organisation and cultural bases to new environments with increased economic and social risk.
23. Downstream the main impacts on people are the taking of land for project works, including the diversion channel carrying water from the powerhouse to the Xe Bang Fai; and the impacts of higher mean flows through the Xe Bang Fai itself. About a quarter of the 24,343 downstream households, are predicted by the company (Nam Theun 2 Power Company Ltd (2008)) to suffer at least one major effect from higher mean flows (flooding, river bank erosion, loss of river bank gardens, reduced water quality or loss of fisheries). Opportunities include development of new irrigation schemes or reinstatement of existing ones and diversification into a wider range of revenue-earning activities such as fish farming.

The resettlement process and its risks

24. Scudder and Colson (1982) propose that involuntary resettlement from large dam projects tends to fall into four stages:

- (1) Identifying resettlers and planning for resettlement (“removal, rehabilitation and development”)
 - (2) “...physical process of resettlement and the years immediately following removal. During this second phase, the behaviour of the majority tends to be risk averse and their living standards can be expected to drop.”
 - (3) In a “small minority” of successful resettlements – there is a “process of community and economic development, during which risk-taking occurs and the majority of resettlers are able to improve their living standards”
 - (4) “Handing over and incorporation”:
 - (a) Project authorities hand over “institutional responsibility and assets” to resettler communities and line government agencies
 - (b) Resettler generation hands over to second generation.
25. This model of the resettlement process has been criticised for being too static and linear (as if each stage was separate and distinct) and for assuming a progression to “success” when most cases were unsuccessful. Scudder (op cit) agrees that the four-stage approach does over-simplify the process, that failure has been much more likely than success, and that this is due to a range of factors that may contribute to backsliding, but that
- (1) the stages do describe the way a lot of people behave during resettlement and
 - (2) with the right combination of factors and resources, success is still possible.
26. In terms of the model, NT2 is at stage 2 where physical resettlement is complete and households are facing the prospect of adapting to new sustainable livelihoods. However there is an element of stage 4 as well, in that the company is preparing for a progressive handover of governance to local agencies of the GOL and the resettlers themselves. Focusing mainly on the plateau resettlers, the intention is here to examine the sort of risks identified by Scudder, whether and how they are present in the NT2 case, what is being done to manage them, and what uncertainties remain.

Economic risks

27. In other large dam projects household incomes commonly fall during resettlement as the resettlers come to grips with their new situation. (Scudder op cit). The NT2 project is entering a critical phase in which the resettlers are likely to become more dependent on the company rather than less. During the construction phase there has been a spike in labour and service demand from the project. Although a large part of the project workforce are foreign nationals (Thai, Vietnamese in particular) with specific skills, many locals have jobs on the project under the preferential hiring policy. In addition there has

been a secondary demand from the project for building materials, food and other supplies for project workers and so on which has been largely supplied by small local businesses. As the project moves towards commissioning, both sources of income are reducing, before alternative sources are available.

28. Household income and expenditure diaries gave the following picture of the average income structure of resettlement villages in July 2008⁶:

Table 2: Plateau Household Income Sources

Income Source	Percent of Total
NTPC Subsidies	27%
Fishery	20%
Employment	12%
Others	12%
Non-timber forest products (NTFPs)	10%
Livestock	9%
Business	5%
Agriculture	4%
Handicraft	>1%

29. Over a quarter of the average household income in mid-2008 was from NTPC subsidies, in the form of rice and protein allocations. Overall from January-July 2008 most average village incomes (excluding the NTPC subsidy) achieved the target of US\$800 per household per year, so that the subsidy seems mostly to have been going to poorer, more vulnerable households. A further 12% came from employment, certainly mostly project-related, and an unknown additional component would have been from sales to the company or project workers. Overall the project in mid-2008 was probably providing 40% or more of the income sources of the average household. The resettlers appear likely to be heading into a period of greater risk to household incomes, as incomes from

⁶ From one of the Company's recent monthly progress reports (Nam Theun 2 Power Company Limited (2008)). Despite a regular survey of resettlers' living standards, evidence of livelihood trends so far is still incomplete and anecdotal. These diary figures provide only very broad indicators of sources of income.

employment on the project and traditional activities (including harvesting NTFPs) decline and new sources of livelihood are still being developed.

30. The plateau offers a range of potential alternative sources of income and the company, in terms of its commitments, has been piloting various alternatives, principally through the agriculture, forestry and fisheries programs developed under the CA. At this stage of the project it is too soon to tell definitely what combination of activities offers the best chance of achieving the income targets. The last resettlers have only just moved into their new houses, the reservoir is filled for the first time and there are still some serious debates about the relative allocation of land to forestry, agriculture and grazing and (in the case of agriculture) choice of technology and the role of irrigation.

Powerlessness and loss of cultural identity

31. Scudder and others argue that no resettlement is completely voluntary. Resettlers inevitably feel that events have been taken out of their hands by the resettlement process. They face uprooting in a number of senses. There is the physical disruption of shifting entire households to new locations, on a timetable not of one's own choosing. Resettlers may have to come to terms with new neighbours as they are moved into new host populations or villages are recombined into larger units. New settlements may also alter traditional authority patterns and the migrants may face competition for business or work opportunities from the host populations. If the means of winning a livelihood change, this may also change roles inside the family. Added to the burden of the physical shift, which often falls more heavily on women, new activities such as more intensive cropping frequently require a disproportionate contribution from women.
32. A sense of loss of cultural identity frequently accompanies resettlement. Scudder refers to a loss of familiar habitats and disruption of customary roles due to "unintentional simplification of a society's cultural inventory that tends to accompany removal" (op cit, p 26). Downing (1996), pp 33 and 36 cited in Scudder) notes that "involuntary displacement forces people to re-examine primary cultural questions which, under routine circumstances, need not be considered. Key among these is ... Who are we? Where are we?". Changes in economic activity patterns frequently mean that rituals deeply associated with economic activity such as rice planting and harvesting may lose meaning, further affecting status and roles in a community. Cultural assets such as monasteries and temples may have to be abandoned. The dead may have to be left behind. For communities with a deep spiritual connection to the land, moving means making peace with spirits who remain on the turangawaewae. In one specific case in NT2, a Vietic community has refused to move from its homeland because to do so would break faith with the spirits.

33. Given the fundamental disruptions of involuntary resettlement, this loss can probably never be forgotten or completely healed. But some principles can be adopted to accord resettlers some control of the process and were indeed largely put into practice in the NT2 case. The principal one is consultation throughout the planning and implementation phases. Villagers were extensively consulted throughout the planning phase on the location and layout of the new villages, the design and amenities of their new houses and the relocation or replacement where possible of physical cultural assets such as stupa and monasteries. Consultation was supplemented by a formal grievance procedure whereby the company and the government heard and generally responded to complaints from villagers about the process.
34. The quality of the new housing was a significant factor. The villagers could see that the houses they were going to were a huge improvement over their existing accommodation: raised well off the ground in the Lao style so there was plenty of room for livestock and farm implements underneath; roofs and walls built from permanent materials; piped water and electricity; bucket-flush toilets; community schools and clinics; land allocated for gardens and the assurance of secure title both to houses and to agricultural plots. The main issue with the physical relocation has in fact been the long time (up to three years) between planning and the actual move. Many communities were impatient to shift and in fact disassembled their existing houses and transported them to the new sites to be next to their new houses while they were being constructed. All the new houses have now been constructed and the move to the new villages is now virtually complete. The few exceptions relate to a small number of Vietic forest-dwelling communities that have refused to move from their traditional homelands. The company and the government (more grudgingly) have accepted this situation, so that as far as possible amenities are being provided for these communities at their traditional sites. Existing communities and ethnic groups have mostly been kept together in the new villages, although – because the government has a policy of a minimum village size for provision of community assets such as schools, clinics and meeting rooms – some old villages have been combined in the new sites.

Governance and politics

35. Many aspects of successful resettlement require ongoing commitment from some authority or another to a range of community assets and institutions. A short list with the focus on NT2 includes:
- (1) Community assets such as local and through roading, water and electricity, schools and clinics, halls and monuments must be maintained;
 - (2) Successful development of alternative sustainable livelihoods requires ongoing research and advice for local farmers, fishers and foresters;

- (3) Individual property titles have to be registered and secured and regulations put in place for transfer of title;
 - (4) Access to common property resources such as reservoir fisheries or grazing lands (together with the huge wilderness area in the Nam Theun catchment) has to be defined and policed for protection from outside incursion and fair allocation amongst the resettlers.
36. In the fourth stage of Scudder's original four-stage theory, these assets and institutions – and the ongoing responsibility for supporting sustainable development – are handed over by the project manager to the government in stage 4. One reason for questioning the linear nature of Scudder's original four-stage theory is the probability that stage 4 –will be underway regardless of whether stage 3 – “sustainable community development” – has been reached. Up until now, the company has taken the lead role in resettlement, at least at a local level. This is not to say that the GOL has not been involved – senior political figures in the government have been actively and publicly committed to the NT2 project and the GOL has by and large played its part in enacting the necessary law and regulation to provide the framework for the CA. But at a local level it has been the company's social and environmental team that has taken the lead in planning and implementing resettlement in all its aspects. The time is approaching when these responsibilities must pass fully to the government and local communities. Government officials have been seconded to the company team but there is definitely some concern in the company that the local provincial governments lack the capacity to take on these responsibilities and that assets which need to be maintained may languish through lack of budget funding.

Uncertainty and complexity – the risks to planning

37. The dominant impression of this project is how many different factors come to bear on successful resettlement. The livelihood risks include not only selection of appropriate technologies for agriculture, fisheries, forestry and associated activities, but taking account of the social and environmental context in which these technologies will be embedded. The first resettler generation in particular has to venture into unknown territory – literally as well as figuratively - to take up these new technologies. Farmers more than any group in society are probably aware of the devastating consequences of failure and tend to be risk averse by nature – let alone when they need to depart completely from the familiar.
38. Some of the environmental constraints and impacts of the project on livelihoods have yet to be fully understood: these include sustainable yields from the remaining land allocated for production forestry, the scope for cost-effective irrigation and soil enrichment in the light porous soils of the plateau, the long-term fisheries yields from the reservoir (which

depends in part on how much of the water volume remains anoxic due to rotting biomass and for how long), the scope for productive use of the drawdown area, and the possibilities for more intensive livestock farming based on fodder crops. The project planners are about to go through their first major reassessment of land use on the plateau but there is still a lot to find out about these impacts and it will be several years before it can truly be said that the plateau is stabilising from the major shocks delivered to it by the project.

39. Additionally planners have to contend with the governance context as indicated above. Quite apart from concerns about the capacity of government to take over full responsibility for assets and institutions, Scudder notes that “political will” is a major issue in many large projects. How closely are the objectives of politicians and officials aligned with the environmental and social goals of the project and what are the incentives on them to maintain these objectives? The public commitment of the GOL to the CA is evident but can this be sustained over the two decades or more that will probably be required to maximise the chances of a successful stage three?

Conclusions – implications of NT2 for future hydro projects and the World Bank

40. In establishing a monitoring group to report to him directly on the NT2 project, former World Bank President James Wolfensohn (who personally visited the project) is reported to have said that the success or otherwise of the implementation of the Bank’s safeguards in NT2 would determine whether the World Bank returned to the business of supporting large hydro projects in the future. The CA for NT2 is the Bank’s flagship effort at embedding firm commitments to social and environmental protection in a major dam project. At this stage of NT2, though, we can’t say “mission accomplished”. McDowell says:

[NT2] [s]hould be seen as a comparatively Good Thing thus far in respect of social impacts: the people have had a big influence on planning, their voices have largely been heard and their physical entitlements (land, housing, village facilities, water, training) have largely been honoured and delivered. The jury is still out, however, on whether the livelihood and income targets for the affected people - not just on the plateau but downstream - will be met and whether the revenues from the project will in fact go to poverty alleviation. (McDowell 2008)

41. Through its safeguards policies, the Bank is the de facto standard-setter for the international development community. Of all the international agencies, it has the most potential leverage on national governments and international investors in ensuring that major dam projects have regard to the adverse social and environmental impacts of large dams and do something to mitigate them. But – as is evident from its limited role in dam construction in the world – its leverage is also limited and concessions won by

negotiation. So far, in the case of Laos and NT2, it has won the continuing commitment of the government to the principles in the CA. Some aspects of the legal framework put in place for NT2 such as the requirement for environmental assessments should apply to other projects. But the government makes no secret of its belief that private investors will have observed the relatively onerous requirements on NTPC and be reluctant to accept them for their own projects.

School of Government, Victoria University of Wellington

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