



Socio-economic Analysis of the Tonle Sap Region, Cambodia: Building Links and Capacity for Targeted Poverty Alleviation

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ABSTRACT *Cambodia is recovering from three decades of violence. The Tonle Sap region is the poorest part of this deprived country. Its economy now suffers from substantial informal and destructive activities. A socio-economic analysis of the region—a part of the Mekong River Commission's Water Utilization Programme, which serves the lower Mekong's Basin Development Plan (BDP)—is documented. Besides the multifaceted collection and analysis of data and information from participatory fieldwork, various databases, mathematical models, expert interviews and so forth, a crucial part of the work is to build up and reinforce links between the Mekong River Commission, ministries, provincial authorities, non-governmental organizations, universities and ultimately local communities, and thereby root the BDP into the emerging civil society. Otherwise, the BDP is at high risk of sharing the fate of its predecessors on the Mekong as well as in many other parts of the world. This fate has too often been a failure of the plan, however integrated it has attempted to be.*

Introduction

The distance from centralized, international river basin agencies to the local villages and communities of those basins seems very great. Geographically this is unavoidable if a basin is large—yet this is not the key issue. In terms of institutions and communication the remoteness is often excessive—and a far more serious problem than the geographical distance.

The same applies to the opposite direction: from villages to agencies. Perhaps the detachment in this direction is still larger in all ways due to many practical and capacity-related issues. These ways should—and definitely could—be shortened and paved one way or another.

We all talk about integrated water resources management. The very basic institutional and communication gaps such as those addressed above are, however, indicators of disintegration rather than integration.

This paper documents an attempt to construct and enhance links across a seriously disintegrated institutional system in Cambodia, namely from the Mekong River Commission (MRC) through national and provincial authorities all the way to the poorest and most isolated communities of the country. The target region includes the surroundings of Cambodia's Great Lake, the Tonle Sap, which is the home of around 1.1 million people.

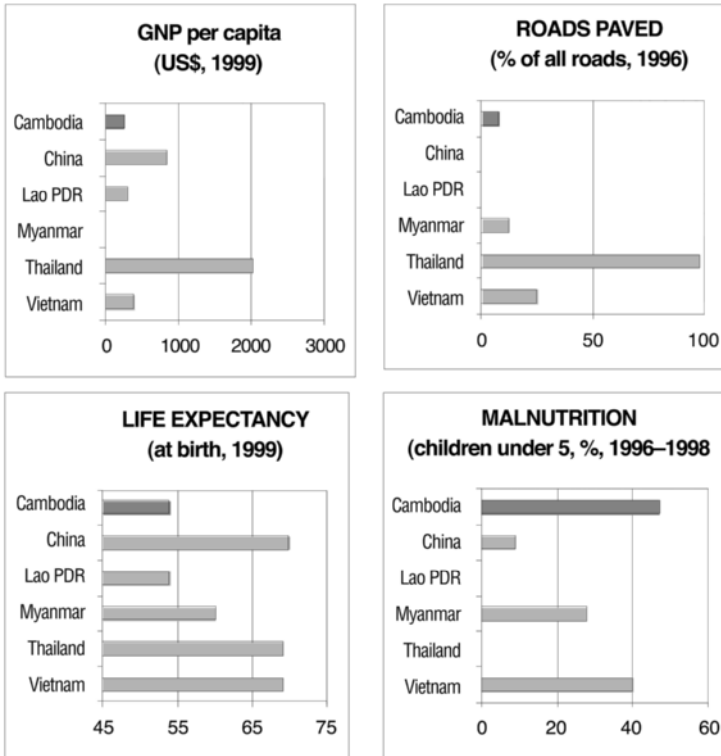


Figure 1. Selected development indicators of the countries in the Mekong region. *Source:* World Bank (2001).

The Mekong, Tonle Sap and Cambodia

The Mekong River is the ninth largest river in the world if measured by run-off. With its 500 km³ that it carries each year it is 10 times the size of the Nile. In terms of catchment area, however, the Mekong is not bigger than 800 000 km². This is slightly more than one-quarter of the Nile’s drainage area. The Mekong is one of the world’s most pristine large rivers.

Six countries share the Mekong basin (Figure 1). They are China, Myanmar (formerly Burma), Thailand, Lao PDR, Cambodia and Vietnam. The population approaches 60 million. The gross national product (GNP) per capita of the riparian countries ranges between Cambodia’s US\$260 and Thailand’s US\$2010. In Vietnam, Laos PDR and Cambodia, around 40% of the population live below the poverty line (Figure 1). Over 50% of the GNP originates from fishing and agriculture.

Cambodia’s Great Lake, the Tonle Sap, is a unique lacustrine wetland ecosystem (Figure 2). It is the Mekong’s major natural reservoir with annual water-level fluctuations of around 8 m. The surface area exceeds 12 000 km² during the monsoon floods, and shrinks to 2000 km² by the end of the dry season.

The lake is one of the world’s most productive large wetland ecosystems. Its biodiversity is extreme. Over 500 species of fish have been documented to live in the lake. Fish and rice are the backbones of the traditional livelihood in the area.



Figure 2. Map of Cambodia and the Tonle Sap Lake.

Natural conditions are exceptionally favourable to humans and history has seen many advanced cultures flourishing in the Tonle Sap area. The best-known evidence of such cultures is the ancient city of Angkor with its famous Angkor Wat temple close to Siem Reap at the lake's north-western corner.

Cambodia was economically the most advanced country of the Mekong region in the 1950s and early 1960s. However, the countries have followed very different paths ever since. In 1999, Cambodia's GNP per capita was only one-eighth of Thailand's GNP. In the Tonle Sap basin, the figure was only US\$150, which is 41% of the international poverty line of US\$1 per day per person. Measured with this economic indicator, Cambodia is one of the poorest countries of the world, and the Tonle Sap region is its poorest part. Any social indicator tells the same story.

Why does this extreme affluence of nature coincide with one of the world's most striking traps of poverty and deprivation? Most unfortunately, the last three decades have been extremely violent and politically volatile. The country survived the Indo-Chinese War and the early phases of the Vietnam War with modest damage. However, the 1970s saw the incredible collapse of the formerly prosperous Kingdom on the battlefield, and finally the Khmer Rouge emptied all towns, slaughtered practically all the educated people and many others and attempted to create an ideal decentralized, rural society. The country has been violent ever since; only the past decade has seen emerging stability. The country still has more landmines in the ground than any other country in the world.

Nature has fortunately sustained this period with modest degradation.

Cambodia is now in the process of recovery on many fronts. Infrastructure

needs urgent rehabilitation and is undergoing rapid progress; the educational system and health care as well. The impacts on the economic system are already great and profound, and they are still growing. Government institutions, above all ministries, are still weak and corrupt but are obviously improving.

The economy of the Tonle Sap region has declined to very basic subsistence farming and fishing. Poverty touches everybody. Illegal activities, largely based on destructive exploitation of natural resources, mushroom. Illegal logging is the most dramatic example: the country loses 3% of its forests each year.

Nature will not sustain the present informal economy and poverty-driven destructive practices for very long.

The MRC, Water Utilization Programme and Basin Development Plan

The MRC has been the strongest international organization in the region over the years. Among the riparian countries Cambodia, Vietnam, Lao PDR and Thailand are members, but China and Myanmar are not.

The MRC is currently working on a comprehensive master plan for the lower Mekong River basin (basin parts that are within the member countries). This Basin Development Plan (BDP) is supported by a massive six-year background analysis—or a series of analyses—under the title of the Water Utilization Programme (WUP).

The MRC

The Mekong Committee was established in 1957. Its initial members were Thailand, South Vietnam, Laos and Cambodia. Burma and China did not join it. The Committee attempted to solve the regional water controversies with varying success. Its functioning was made especially difficult by China's absence, several national and international conflicts and wars in Vietnam, Cambodia and Laos (Jacobs, 1995).

By 1995, the regional political ambience had become favourable to enhanced political and economic integration in South-east Asia. As one of the results, Vietnam, Lao PDR, Cambodia and Thailand signed the Mekong Agreement on the new modalities of co-operation in the lower Mekong River basin. This agreement re-established the Committee, and it was newly named the MRC.

The MRC has been reinforced in many ways. Cambodia is again a member, yet China and Myanmar continue to be absent. Capacity was improved in all ways. Perhaps the major shift was from being an agency that primarily executed various projects to an agency that has a more strategic mandate. Instead of projects, it commits itself to a set of programmes on a more long-term basis. The vision and mission statements of the MRC (2001) are as follows.

- *Vision* for the Mekong River basin: "An economically prosperous, socially just and environmentally sound Mekong River basin".
- *Vision* for the MRC: "A world class, financially secure, international river basin organization serving the Mekong countries to achieve the basin Vision".
- *Mission*: "in accordance with the 1995 Agreement: To promote and coordinate sustainable management and development of water and related resources for

the countries' mutual benefit and the people's well being by implementing strategic programmes and activities and providing scientific information and policy advice".

The programmes are classified as follows.

(1) Core programmes:

- the WUP (targeted to Goal 1; see the list below);
- the BDP (Goal 2);
- the Environmental Programme (Goal 3).

(2) Sector programmes (supporting Goal 2):

- fisheries;
- agriculture, irrigation and forestry;
- water resources;
- navigation;
- tourism.

(3) Support programme (focusing on capacity building of the MRC).

What is important is the shift from considering the promotion of various sector activities and their promotion as 'goals' *per se*, but instead seeing them as 'tools' in working towards more general and strategic development goals:

... from economic development activities such as hydropower, irrigation and flood control, in conjunction with such core activities as hydrographic, hydrological and meteorological data collection and co-alition...[to] a balance between the economic, social, and environmental decisions and development. With the majority of the basin's inhabitants being rural-based and poor, socio-economic considerations inevitably assume vital importance in development planning and implementation. (MRC, 2000)

The five goals are as follows.

- Goal 1: *rules*. To establish and implement 'rules' for water utilization and inter-basin diversions.
- Goal 2: *planning*. To establish a dynamic basin development planning process as a framework for natural resource management and sustainable development; and to plan and execute corresponding priority sector programmes and projects.
- Goal 3: *regulation*. To establish and promote MRC environmental and socio-economic management systems, recommendations and policy guidelines.
- Goal 4: *development*. To establish an effective organization, capable of promoting, in partnership with other institutions, basin-wide development and co-ordination.
- Goal 5: the strengthening of the MRC.

The BDP and WUP

The new MRC continues thus with its activities in planning. Now, this can be seen as the third wave of basin development plans. The former attempts, first during wartime in the 1960s and the second during Cambodia's internal

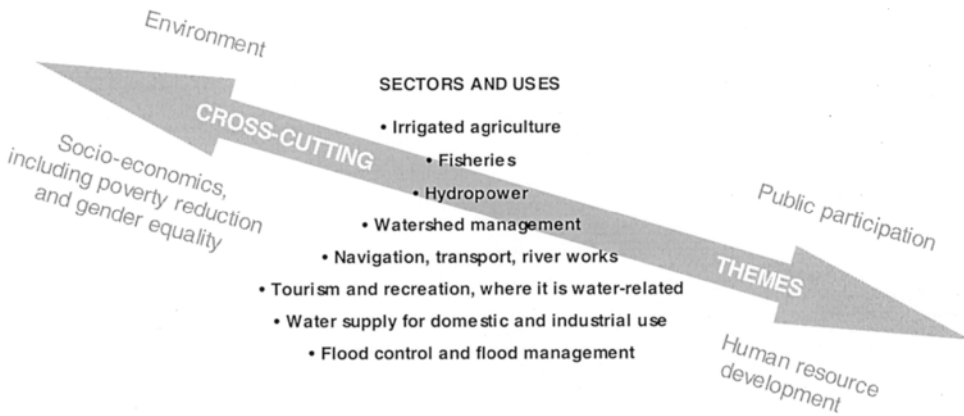


Figure 3. The sector developments are connected by a number of cross-cutting themes.

confusion in the 1980s, both largely failed. The contemporary one—shortened as the BDP—is in many ways different from the previous ones. This is obvious due to the more long-term, strategic type of approach that the MRC has in comparison to its predecessors.

Besides addressing different sectors such as agriculture, fisheries, hydropower and so forth, it has a strong focus on ‘cross-cutting themes’ (Figure 3). The BDP should also comply with national planning practices. The Kingdom of Cambodia has committed itself to the regional War Against Poverty, which is a broad framework for policy programmes for sustainable development and poverty reduction. The BDP should comply with this framework, which guides national ministries in their activities.

The BDP is supported by a massive six-year background work, the WUP. The WUP’s first part focuses on the Tonle Sap region, including the establishment of the basic data and information infrastructure, hydrological, hydraulic and water quality modelling and a socio-economic component. The WUP for Tonle Sap is also known as the WUP-FIN Project. The socio-economic component of WUP-FIN is summarized below (for more details see Keskinen, 2003; Keskinen *et al.*, 2003; Varis, 2003).

The WUP for the Tonle Sap Region: The Socio-economic Part

Components of the Socio-economic Analysis

Socio-economic issues in the Tonle Sap area are extraordinarily complex and diverse. This is for various reasons: the unique nature of the lake, its floods and its whole ecosystem; the remarkable seasonal variation of occupations; cultural and ethnic divisions; the massive incidence of poverty and growing population pressure; unequal access to natural resources and insufficient rights to land tenure; unusual fishing legislation that is under major transition; as well as the tumultuous history of the area and the whole of Cambodia.

The socio-economic analysis of Tonle Sap’s WUP targets the implementation of the principles of the MRC summarized above. It has the following components (Figure 4).

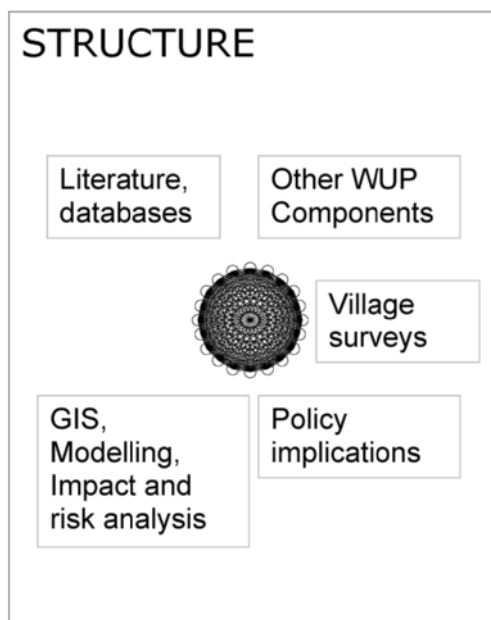


Figure 4. The structure of the socio-economic part of the WUP for the Tonle Sap region in Cambodia.

- *Collection and review of existing literature.* A very typical situation is faced: a few tens of documents of varying quality are available. Some of them are co-ordinated with one another and many are fairly contradictory. Hardly any peer-reviewed material exists.
- *Collection and analysis of existing data.* Some highlights include some recent activities of the government. It has performed an extensive population census and some other socio-economic surveys, which are openly available as spatial data.
- *Building up links with international, national, provincial and local actors.* The level of co-ordination is not good, and linking some of the activities is extremely important. Motivation in most organizations is high but tasks are huge in comparison to capacities.
- *Village survey.* The MRC and most other centralized organizations have not been active in going to the grassroots level. Some non-governmental organizations (NGOs), some United Nations organizations and certain aid organizations have been active. Provincial authorities try their best but are extremely weak in capacity. The existing participatory systems (using approaches such as participatory rural appraisal (PRA)) are used as the bases to build upon. Besides complementary data to the databases on local conditions, community development is enhanced.
- *Database construction.* On the basis of available socio-economic databases, complementary field data, spatial data on the physical and environmental system and so forth, a geographic information systems (GIS) database is constructed and put at the disposal of adjacent ministries and the MRC.

- *A policy model.* A systematic risk analysis of basin development scenarios, key policy options and consequent environmental and social impacts on different stakeholders and development objectives is carried out.

The outline of these phases is described below.

Outline of Socio-economic Data Collection

The complexity of the socio-economic situation means that the socio-economic survey must make use of various different sources of information and be exceptionally extensive. However, finding the most essential information is challenging due to the varied number of organizations and projects working in the Tonle Sap area, and the lack of co-ordination between them. Diverse socio-economic information derived from the study area also contains both qualitative and quantitative data, and combining these two different forms of data is not simple either. Finally, results from the socio-economic survey must be easily integrated into the entire WUP and linked to the lake and its floods. The details of the data analysis including the fieldwork results are documented by Keskinen (2003) and Keskinen *et al.* (2003).

The main focus of the socio-economic data analysis is on spatial data at the village level. This is due to the fact that bigger administrative units (districts, provinces) are too large for efficient examination of the study area. This relates especially to the seasonal nature of the lake: changing water level—which is one of the main factors of the socio-economic situation—does not follow administrative boundaries.

The first phase of the database review was to find the most appropriate databases to map and characterize the differences between different socio-economic indicators in the areas (zones) around Tonle Sap. These socio-economic indicators include basic demographic indicators, different occupations and their seasonal variations, use of natural resources as well as environmental change.

Several databases include information on different kinds of socio-economic indicators from the Tonle Sap area. The ones viewed and used most in this socio-economic survey are presented in Table 1.

The village-level data are available for all of these databases and are therefore adaptable to GIS, except for the World Food Programme data. Therefore, they can relatively easily be linked to soil maps, digital elevation data, land cover maps, satellite images and so forth, as well as to the various hydrological, hydrodynamic and water quality models developed and used for the lake and its basin in the WUP for Tonle Sap. Besides these more general databases, there exist several other ones with a specific focus on food security, nutrition, crop production, health or education, for example.

When considering the facts presented above and the overall scope of the socio-economic analysis, it makes sense to concentrate only on a couple of databases. Consequently, the decision was made to focus on the 1998 Census and the MRC's Fishing Household Survey.

In order to keep the number of factors bearable, single villages must be classified to representative groups according to their specific characteristics. These characteristics must be selected so that they classify villages in distinct subgroups that differ clearly from each other. Due to the nature of the study area, the most important characteristics are related to geographical location

Table 1. The most important databases from the Tonle Sap area

Name of the database	Year of survey	Organization
Population Census	1998	National Institute of Statistics of the Ministry of Planning
Fishing Household Survey	1995–96	DoF/DANIDA/MRC
Cambodia Socio-Economic Survey	1999	National Institute of Statistics of the Ministry of Planning
Tonle Sap Database	1997–2000	Oxfam, Quebec
Poverty Mapping	2000	World Food Programme
Commune Database	1996–2000	SEILA (a national, inter-ministerial task force for decentralized planning and financing of participatory rural development in the five provinces of the Tonle Sap area)

(topography and proximity to the lake and roads), population (size and age distribution), occupational distribution (fishing and agriculture) and standard of living (poverty). Accordingly, the study area was divided into four topographical zones and one urban zone (provincial capitals).

Literature Reviews and Expert Interviews

A review of various different kinds of literature is an important source of information for the survey. In literature reviews the emphasis was put more on qualitative than on quantitative data. Information was derived, for example, from different field studies, participatory surveys and socio-anthropological research. It therefore gives important support for the authors' field studies as well. Information in these reports is normally at the village level and thus easily applicable. More importantly, these kinds of reports give access to the traditional information of local people—the actual focus group of the survey. Some of the most important sources include participatory field studies by the Food and Agriculture Organization (FAO), Gesellschaft für Technische Zusammenarbeit (GTZ, the German governmental organization), and the Cambodian Area Rehabilitation and Regeneration Project (CARERE, a decentralization and participatory project funded by the United Nations Development Programme to support the SEILA network), as well as various other books, articles and research reports (for details, see Keskinen, 2003).

Due to its qualitative rather than quantitative nature, information derived from the literature is not easy to combine and compare with the quantitative information derived from different databases. Also, the quality of implementation as well as that of reporting varies hugely between different surveys, making objective evaluation of certain reports difficult. Because of the lack of up-to-date studies, some of the reports are also rather old. In spite of the problems mentioned, these reports present a valuable standpoint for better understanding of the complex and diverse socio-economic situation in the study area. Moreover, reports help to see behind the extensive but simplistic quantitative data originated from different databases and accordingly offer ways to recognize the biases in their information.

Collecting information on reports and other existing literature proved to be quite challenging. There are many international, local and governmental organizations working in Cambodia and in the Tonle Sap area, with old projects ending and new projects emerging all the time. Still, there is a clear lack of co-operation and co-ordination between different organizations. Moreover, there does not exist a complete database or library where different project reports are listed or, even better, available.

Besides different reports and databases, valuable information and comments were gained through different expert interviews carried out either personally or by email. Interviews and meetings were also a useful way to find out more about different organizations and actors working with similar projects and objectives.

Field Studies

In addition to database and literature reviews as well as various expert interviews, one's own data gathering forms an essential part of the analysis. This data gathering is done through socio-economic field studies. Field studies have been conducted in the provinces around Tonle Sap, namely Kampong Chhnang, Pursat, Battambang, Kampong Thom and Siem Reap. The field study team consisted of two on-the-job trainees, local team members and a socio-economist. Field studies made use of different rapid and participatory methodologies and methods.

The main aim of the field studies was to achieve qualitative socio-economic information at the village level. This information was then analysed and combined with information derived from different databases and literature. An important source of information are participatory field study reports by other projects: in 1995 the FAO carried out rapid rural appraisal- (RRA-) based field studies in six villages in Siem Reap; GTZ carried out PRA surveys in several villages in Kampong Thom; and governmental ministries together with CARE in 1997 carried out field studies in eight villages in Battambang. Field studies also give better practical-level understanding of local circumstances as well as use of different rapid and participatory methodologies. A separate field study report was prepared from each of the field studies in both Khmer and English.

Primarily, field studies make use of RRA and PRA (see, for example, Chambers, 1994, 1998). Due to the nature of the survey, field studies are used to get a better understanding of local realities and the study area, not for the empowerment and development of specific villages. The main aim is thus to collect information on certain socio-economic indicators, not primarily to empower local people. Approaching the field studies is therefore inevitably more extractive and thus closer to RRA than PRA. This, of course, does not prevent us from using methods and principles based on participatory methodologies—in fact most of the methods used are based on PRA.

Methods used in the field studies are as follows.

- Key informant interview (semi-structured interview).
- Group discussion (semi-structured interview).
- Participatory mapping.
- Transect walk and observation.
- Seasonal calendar and occupational preference ranking.

- Time ranking.
- Final discussion and analysis of the study.

The methods are presented in chronological order. The idea was first to use the key informant interview to collect more overall information on the socio-economic situation in the village. Key informants usually included the village chief, a member of the village development committee and a village elder. After the key informant interview, the group discussion focused more on the main indicators of the field study, i.e. livelihood, occupations, natural resources and environmental changes. Both the key informant interview and group discussion made use of the semi-structured interview method.

With the help of the results from semi-structured interviews and information derived from participatory mapping and a transect walk, the study then concentrated on issues of seasonality and recent changes in livelihood, occupations, natural resources and environment. This was done using two different ranking exercises: seasonal calendar and time ranking. All different visualization methods were based on PRA. They did not just create a useful final product (e.g. map or matrix) but also acted as tools for further discussion about the issues of seasonality, environmental changes and the causes behind them. Information derived from one participatory exercise was normally achieved also in some other exercise. This allowed cross-checking of collected information, which is one of the basic principles of PRA as well.

In the final discussion, the information and products derived from different exercises was put together and then analysed with villagers. In this meeting, villagers' comments on the field study and its results were achieved as well. This final discussion was thus an essential conclusion for the whole field study and allowed final cross-checking of the information derived during the field study. Also, important changes and clarifications to the information derived could still be done at this phase.

The number of villagers in different group exercises was typically between 15 and 20 persons. Members of the group were chosen by the village chief after discussions with the field study team. The group should naturally be as representative as possible and therefore it included people of different genders, ages, wealth and occupational groups.

Socio-economic Model

The methodology used for this task—Bayesian causal networks (Varis, 1998; Varis & Fraboulet-Jussila, 2002; Varis & Lahtela, 2002)—is based on the systematic analysis of causal interconnections in complex environmental–social–economic systems. The objective is to assess risks to various components of the environmental and social system of concern, as consequences of different policy strategies under evaluation.

The social system components consist typically of stakeholders, i.e. different communities and groupings of people that are influenced by the implementation of policies in the geographical area studied. It is common for their aspirations and interests to be in conflict with one another.

The information from various sources and of varying quality—as outlined above—is condensed in a risk analysis framework, and a multidisciplinary analysis is performed, which reveals the major risks, uncertainties, mismatches

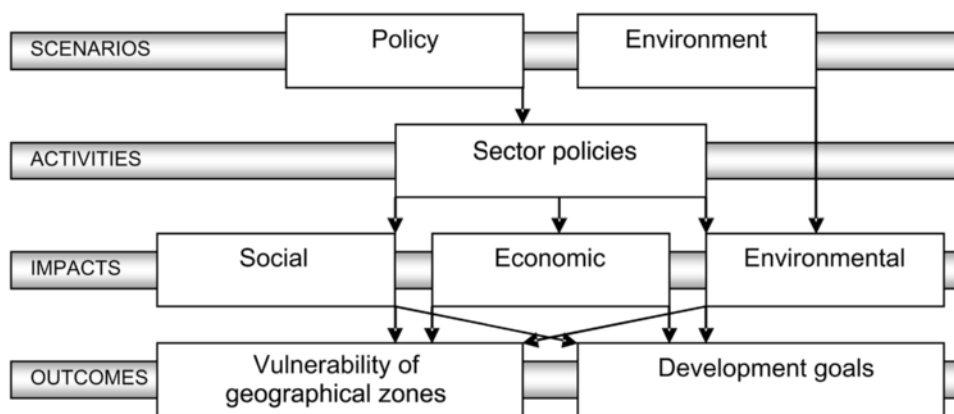


Figure 5. The logical chart of the model analysis.

of information and opportunities to find win–win solutions among the various stakeholders and the environment.

A logical sequence in the socio-economic model study starts from a set of scenarios, which are followed by the specification of sector policies, which allow the society to react to these scenarios. Different policies have different impacts on the environment and the socio-economic system. Finally the local and national stakeholders feel these changes—they either benefit or suffer from them (Figure 5).

The model will allow trade-off analyses between different development objectives, and find policy combinations that create a maximum number of win–win situations between the competing stakeholders. The socio-economic model and the results obtained in the analysis are documented in detail (Varis, 2003).

The Function of the Socio-economic Part of the WUP

The WUP is primarily intended to serve the planning process of the lower Mekong basin, namely the BDP. The plan, however, should not be a stand-alone product at the disposal of the MRC alone. History has shown too many times—also in the case of the previous basin development plans of the MRC—that if the planning process is not implanted into the institutions and into the society as a whole, it has a high risk of failure.

It goes without saying that the MRC's vision and mission statements are well in line with the Global Water Partnership's (2000, p. 3) definition of integrated water resources management (IWRM):

IWRM is a process, which promotes the co-ordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.

In order to set the lower Mekong basin into the IWRM process, the BDP must be rooted to the society and the institutions must be well prepared to work out its goals, particularly in their environmental and social dimensions. In the WUP for Tonle Sap, the task is primarily allocated to the socio-economic study.

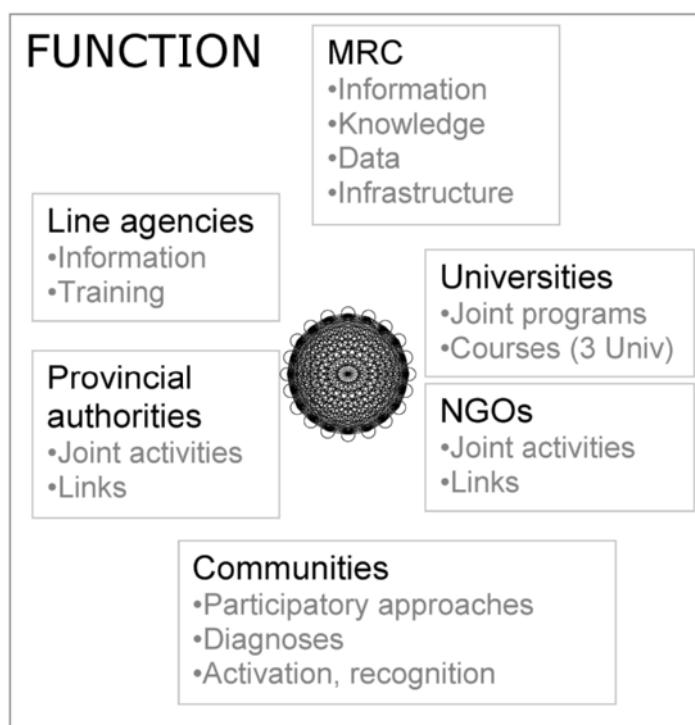


Figure 6. The function of the socio-economic part of the WUP for the Tonle Sap region in Cambodia.

The MRC must be made aware of the socio-economic situation in the target region. It must know much better than before the local and provincial actors—such as NGOs, regional and local authorities and their approaches. Ideally, it should actively link its activities with those actors, which has traditionally not been the case. The same goes for the MRC's connections with academia. The links in both directions have conventionally been almost non-existent.

Universities must be involved in the development discourse. This is vital for the rooting process of the BDP into the society. Now, the WUP for Tonle Sap is organizing training and courses for three Cambodian universities on the approaches and tasks of the WUP. This is a modest attempt and hopefully an overture to more extensive and functional links between the MRC and the universities.

The conventional links between the MRC and the ministries have been the strongest among those in Figure 6. However, it was seen to be reasonable to include a relatively large in-house training programme for ministry staff, in which the trainees do part of the WUP work within the consultant team, learning from and contributing to the work and its approaches. Ministries are also closely involved in the fieldwork of WUP for Tonle Sap.

The provincial authorities in Cambodia are extremely resource-scarce and very disconnected from the central government. The ministries have only a faint idea about what is going on in the provinces. Instead, a rich flora of NGOs is blooming, typically with foreign resources. Provincial authorities are very much allied to the NGOs and seem to find common interests. These activities are very visible in villages and particularly in the provincial capitals, although the central

government seems to be largely ignorant of them. It is vital to the WUP to detect such mismatches and missing links and at least to bring them into the daylight. NGOs and provincial authorities have also been included in the fieldwork with ministry staff by hoping that this will create and reinforce some links in order to provide the best possible expertise to the WUP.

All agendas ruminates on the poverty issue, but the link from those writing and executing these agendas to the poor is too often wafer-thin if not non-existent. The WUP for Tonle Sap has made some attempts—albeit very modest ones—to build and strengthen such links. The integrated analysis of databases by the government, international organizations, local task forces and NGOs with participatory fieldwork is—again hopefully—an activity that opens new paths to the actors in the capital. Otherwise its value remains very small.

After all, the task of the socio-economic analysis is far from being solely a conventional analysis of data, literature, models and field observations. In addition, at least in the conditions that prevail in Cambodia during the first years of the new millennium, there is much to do in the field of facilitating IWRM at the level of the whole society. This does not mean that the conventional, analytical part should be in any way understood as having a reduced value. On the contrary, it is crucial that the analyses are not aseptic number-rich documents with no taste of the life in villages, and done without links to local and provincial actors as well as academia.

Conclusions

Given the very tough starting point that the violent situation of the past three decades has offered this region, development must find a controlled path. Strengthening the capacity of and building trust in formal institutions, amplification of any other possible components of the civil society, mobilization of the informal institutions for common benefit instead of illegal, destructive activities, supporting rural development, particularly egalitarian and participatory empowerment of the poor and providing education and health care are the key points in developing this region into a prosperous one that will still enjoy a rich nature. The opposite scenario—a deprived society with a destroyed nature—is also a very possible option. Things evolve and may change very much in a time frame of only a decade or two. History has shown this many times in South-east Asia and there is no doubt that it will show it again.

The project serves as an important phase in bridging gaps between central authorities—primarily the MRC and its national unit as well as various ministries, provincial authorities, communities and villages. There are several actors in place in the villages to help the poverty-trapped communities, but the co-ordination and any level of a systematic and egalitarian approach is missing. With the new links between grassroots-level activities and centralized actors attempts are being made to bridge these enormous gaps.

With the components documented above, the following initiatives targeted at poverty alleviation have been taken.

- *Diagnostics.* To go beyond and build upon the government databases in detecting the most vulnerable ones among the poor communities, particularly to environmental changes including hydrology, and to report in which respect the communities are vulnerable.

- *Enhancing local participation.* By enhancing and building upon existing (chiefly non-governmental) participatory mechanisms, and promoting their connections to the government organizations and the MRC.
- *Developing a systematic approach.* This part of the WUP pioneers the other parts, and the experience and findings feed the WUP's planning for other parts of the basin.
- *Local policy implications.* Key targets are the local villages: the results, being a product of a major basin-wide programme, will hopefully influence the development policies in the whole basin with respect to reducing the vulnerability of most critical communities and help target policies of poverty reduction in the Tonle Sap region.
- Last but not least, the task of *reinforcing the links between the various actors* on the scene is crucial. In other words, the civil society must be a living component in IWRM, which in turn must be understood as a process. This work is very delicate and situation-specific, but this component must be there.

The ambitious goals and plans of the MRC and governments all command respect. However, it is not always easy to make such activities reach the poorest communities. Policy-related, pragmatic socio-economic studies and planning tools are perhaps still in their infancy—like environmental impact studies two or three decades ago. Instrumental approaches that comply with environmental, water resources and economic studies and plans are desperately called for. One such approach has been developed and is operating in one of the most poverty-trapped regions of Asia, the Tonle Sap region, in a regional-scale poverty alleviation context.

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