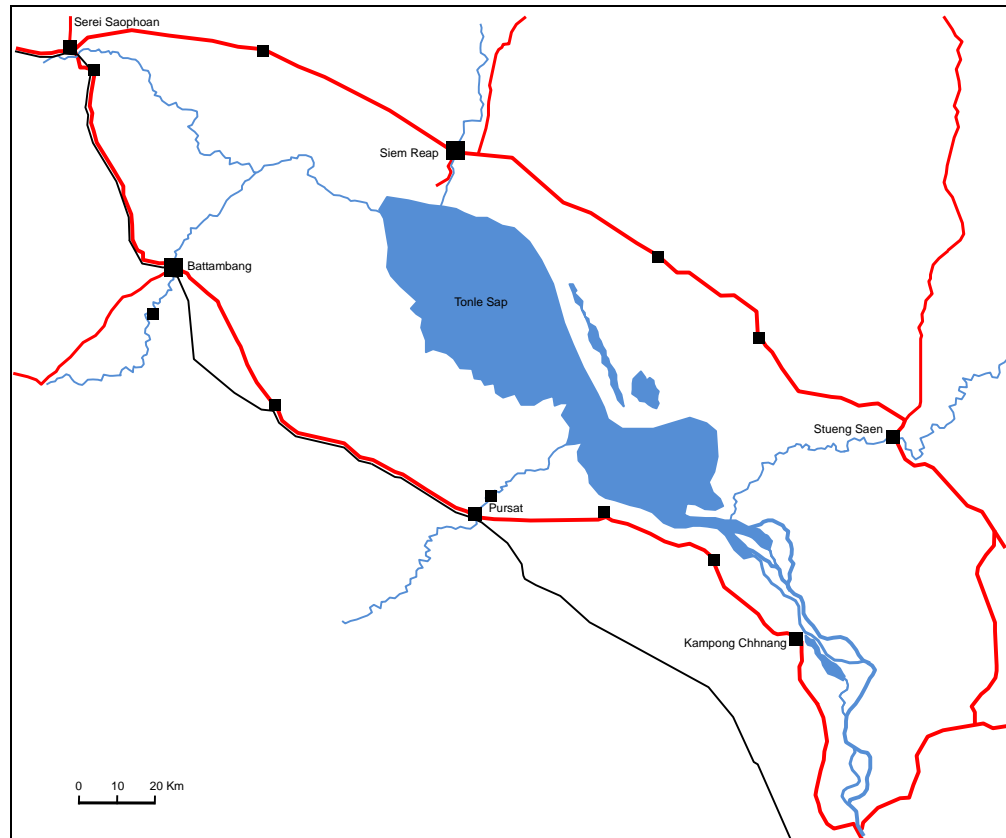


Integrated Urban Environmental Management in the Tonle Sap Basin

Ministry of Public Works and Transport, Phnom Penh, Cambodia



Tonle Sap Urban Areas Development Framework

June 2014

Prepared with support from an ADB technical assistance (ADB TA 7986-CAM)

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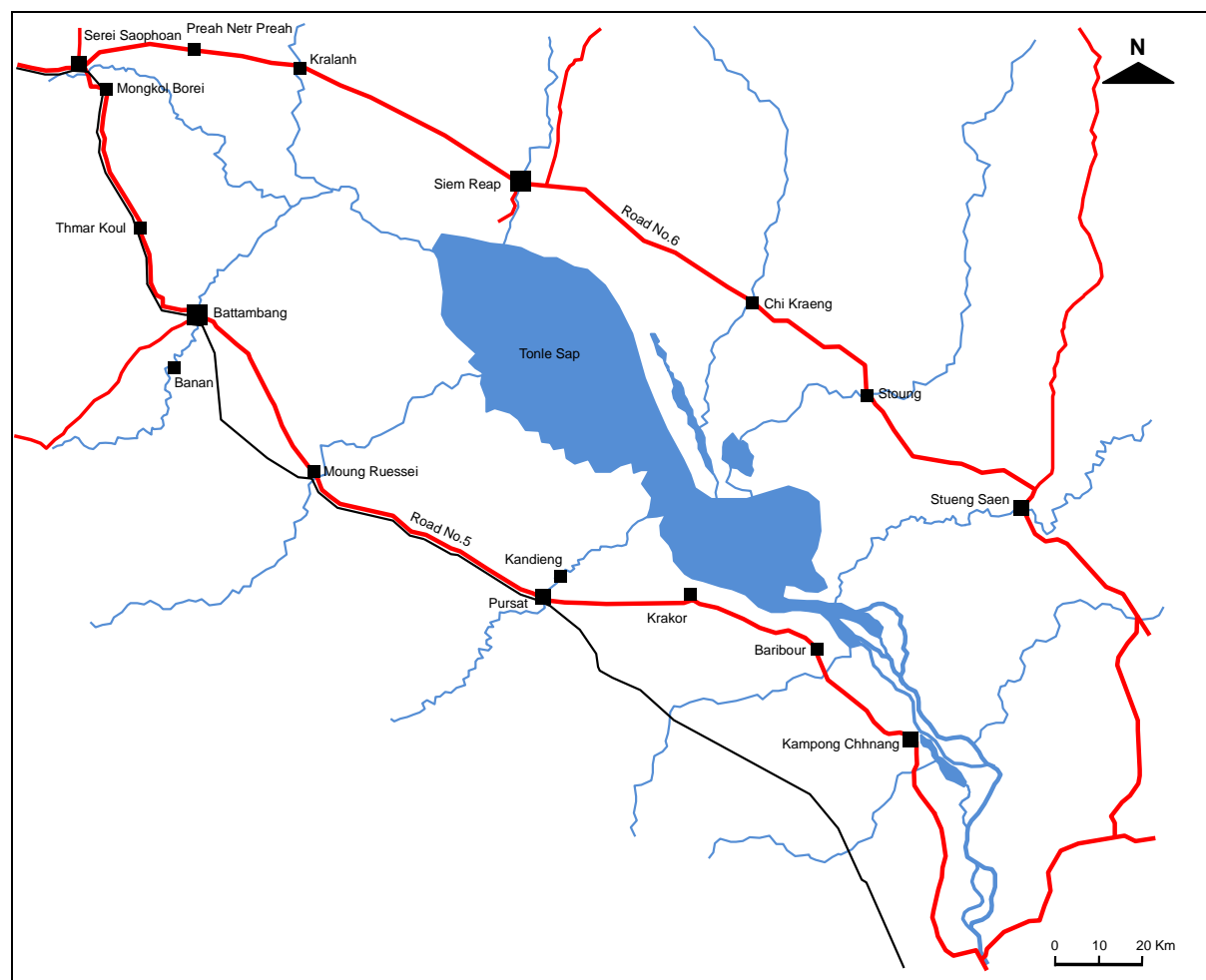
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Summary of Recommendations

The following Table summaries the recommendations put forward in the TSUADF. These recommendations should be agreed or supported in principle in order to take the TSUADF forward.

Section	Recommendation
2.1.1	The Government should urgently request the support of development partners to undertake the projects identified by MRC in its Basin Action Plan – Projects 3.2, 4.2 and 5.1.
2.2.2	Consideration should be given to designating the Tonle Sap as a planning region
2.3	TSA Zones should be declared as the only official zones to be enforced. The boundaries of Zones 1 and 2 should be reviewed and adjusted.
3.1	The Action Areas listed above are endorsed and a programme of implementation of the measures is initiated.
3.2	Steps should be taken to instigate the preparation and formal approval of 'fast track' outline development strategies for the urban areas in the Tonle Sap basin
3.3	A study is commissioned to quantify potential climate change impacts in all urban areas in the Tonle Sap Basin and to identify appropriate planning and design measures to address these impacts.
3.4	The Southern Economic Corridor is designated to be a carbon-neutral economic corridor and studies undertaken to establish parameters and targets to achieve this.
3.5	Steps are taken to undertake the production of an Urban Data Book for the Tonle Sap basin. If sufficient funds are available this could be extended to all the urban areas in Cambodia.
3.6	Contracts should be issued for the mapping of the four urban areas of Kampong Chhnang, Pursat, Stueng Saen, Serei Saophoan, and satellite imagery acquired for all urban areas in the Tonle Sap basin.
3.7	The MCA system of checking proposed projects against an agreed set of criteria should be developed and introduced as soon as possible.
4.2	An assessment should be undertaken of infrastructure needs in all urban areas in the Tonle Sap basin, including both the major towns (municipalities) and the small district towns.

Urban Centres in the Tonle Sap Basin



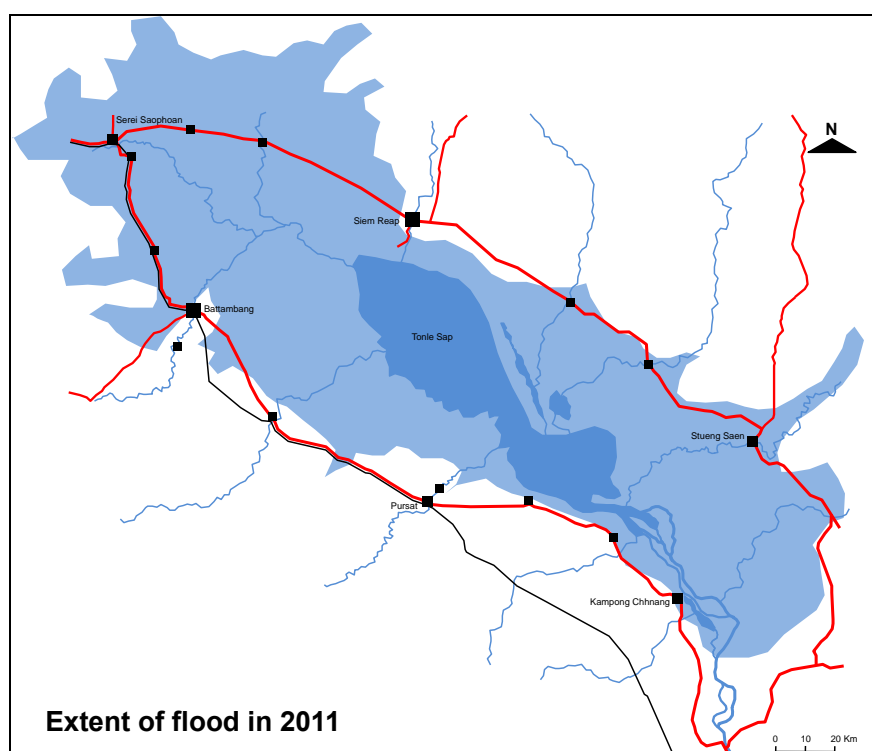
1 Introduction

1.1 The Tonle Sap Urban Areas Development Framework

1.1.1 Rationale

- 1 The intention of preparing the TSUADF is to provide a rationale and guideline for the sustainable growth of the urban areas that lie within the vicinity of the Tonle Sap lake. Urban areas are the focal points of economic growth and will be crucial to the development of the area as a whole. At the same time urban development can have potentially adverse impacts on the water resource and the environment surrounding it.
- 2 The urban areas around the Tonle Sap are all located on rivers that flow into the lake (see map on page v). Urban waste and other forms of pollution entering the rivers therefore end up in the lake. In addition, the annual flood of the lake reaches into several of the urban areas (Figure 1.1). When the floods recede they take with them liquid and solid wastes accumulated during the flood.

Figure 1.1 Extent of Annual Flood



- 3 These urban areas are all growing and will continue to grow. The combined total population in the six main urban areas in 2012 was approximately 480,000. They are expected to grow in population by about 40% between now and 2030¹, so that will be an additional 190,000 people living and working around the Tonle Sap. Increased population will bring other developments such as commercial and industrial developments. Clearly a comprehensive framework is needed to guide this urban expansion. This TSUADF is intended to provide that framework.

¹ TA 7986-CAM consultant estimates based on NIS projections

- 4 The TSUADF's overall goal will be to achieve a balance of urban development and environmental conservation. In order for it to be accepted and adopted by the national, provincial, and municipal authorities the TSUADF needs to be pragmatic and achievable. A key aspect of the TSUADF should therefore be its role as a checklist for the prioritisation of investments for sustainable development. Investments in these urban areas should be evaluated against criteria established under the Framework.

2 Policy Background

5 The TSUADF cannot operate in isolation. It must take into account a wide range of existing and emerging policy documents, strategies and other initiatives. In fact it is hoped that the TSUADF will be a vehicle for the coordination of policy across different sectors.

2.1 Greater Mekong Sub-region

6 As part of the Greater Mekong Sub-region (GMS), Cambodia is closely linked with its neighbours Thailand, Laos and Vietnam. Located towards the southern end of the Mekong river system, Cambodia is impacted by what happens upstream. The Mekong River Commission (MRC) provides overall strategic guidance for the GMS and their policy documents and initiatives form an important base for the TSUADF.

2.1.1 MRC Strategy and Action Plan

7 In 2011 the MRC issued the Basin Development Strategy.² The Basin Development Strategy provides a roadmap setting out priority actions, timeframes and outcomes for its implementation. An early action in the roadmap was the preparation of a Basin Action Plan³, and this was released in May 2013.

8 The Basin Action Plan identifies a number of unfunded projects in Cambodia and these are grouped into Outcomes. Unfunded projects under three of the Outcomes are potentially relevant to the TSUADF, and these are:

- Outcome 3: Uncertainty and risks of climate change and other development are addressed
- Outcome 4: Essential knowledge, tools and guidelines are developed and used to address uncertainty and minimize risks of the identified development opportunities
- Outcome 5: Critical Sub-Basin management objectives and strategies established, and the national and basin water resources management processes including targeted IWRM capacity building program strengthened

9 There are three projects in particular that would have direct bearing on the TSUADF and these are shown in Table 2.1. Clearly these projects are complementary to the TSUADF work and it would be a great benefit if they are carried out in time to be incorporated in the TSUADF.

Table 2.1 Unfunded Projects Identified by MRC Relevant to TSUADF

Outcome No.	Project	Estimated Cost US\$m
3	Project 3.2: Assessing results of upstream and downstream development to support informed policy making processes	1.8
4	Project 4.2: Development of Environmental and Socio-economic Baseline and development scenario impact assessment for Tonle Sap Delta Areas	1.3
5	Project 5.1: Strategic direction preparation for sustainable development and management of the TLS basin, 3S Rivers and Cambodian Mekong	2.4

Source: MRC, Basin Action Plan, May 2013

Recommendation:

The Government should urgently request the support of development partners to undertake the projects identified by MRC in its Basin Action Plan – Projects 3.2, 4.2 and 5.1.

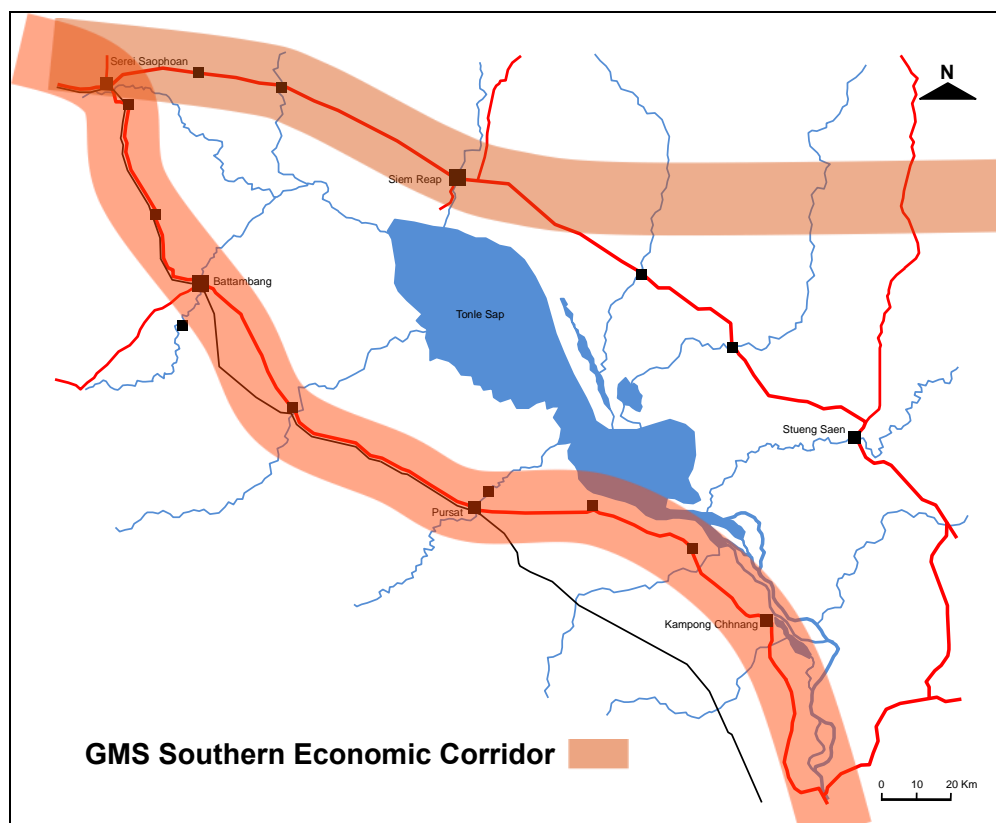
² Integrated Water Resources Management-based Basin Development Strategy, MRC 2011

³ Basin Action Plan, MRC May 2013

2.1.2 GMS Corridor

- 10 The Tonle Sap is located between two arms of the GMS Southern Economic Corridor – see Figure 2.1. Initiatives based on Economic Corridor designation are likely to increase development pressure on the environment of the Tonle Sap.

Figure 2.1 GMS Southern Economic Corridor in Cambodia



2.2 National Policy

2.2.1 National Strategies and Plans

- 11 The National Strategic Development Plan (NSDP) is the guiding document for economic development in Cambodia. The current plan covers the period 2009-2013 and the next one is now in draft. The current and previous NSDPs include little detail on urban areas, and have no geographic or spatial planning elements. It is understood that the new one will include more on the role of urban areas in national development.
- 12 There is an urgent need for a national policy on urban development. This need should be met by the national spatial development strategy, work on which is being done under ADB CDTA 8121 CAM Capacity Development for Urban Management.

2.2.2 Sub-national Strategies and Plans

- 13 Currently the Government does not prepare plans for regions within Cambodia, and the first level of planning below national is the provincial level. However, the Ministry of Lands Urban Planning and Construction recently completed a strategic plan for the coastal zone, which is effectively a regional plan. The Cambodia National Mekong Committee (CNMC) has undertaken research, data collection and analysis of the Tonle Sap sub-area as defined by MRC. The area is shown in Figure 2.2.

- 14 The Tonle Sap is a critical region for the economy and food supply of the country and there would be merit in identifying it formally as a region for planning purposes.

Recommendation:
Consideration should be given to designating the Tonle Sap as a planning region.

Figure 2.2 The Tonle Sap Sub-area used by CNMC

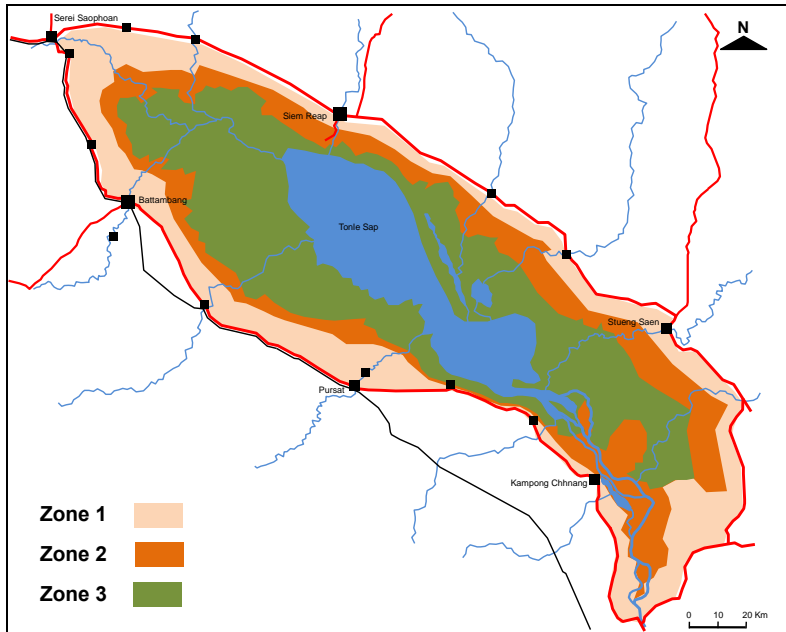


Source: CNMC (date)

2.3 Tonle Sap Strategies and Plans

- 15 The Tonle Sap has been the subject of numerous studies in the past. However, these have mostly related to ecological and water resource issues and very little has been done on urban development.
- 16 The Tonle Sap Authority was established, under the Ministry of Water Resources and Meteorology (MOWRAM), by Royal Decree in June 2009. The mandate of the TSA is to manage and coordinate the overall activities in the Tonle Sap lake and related region. It is an inter-ministerial organisation under the direct supervision of the Prime Minister.
- 17 The TSA has defined three zones around the lake (see Figure 2.2). The zones are as follows:
 Zone 1: Generally residential area and traditional paddy fields with rain-fed farming
 Zone 2: Cultivated area with dry season rice that is inundated in the wet season
 Zone 3: Area of flooded forests, natural lakes and muddy areas (fully protected)
- 18 These zones provide some degree of protection and control over land and water use and development generally, and Zone 3 has been delineated on the ground with permanent markers. However, neither the TSA does nor its provincial representatives have sufficient resources to properly enforce the regulations.

Figure 2.3 Tonle Sap Authority Zones



- 19 There are some issues with the boundaries of Zones 1 and 2 that need to be addressed if they are to be sensibly and effectively enforced. The boundary of Zone 2 needs to be more accurately defined in locations where it runs close to development area. For instance, in Kampong Chhnang the boundary follows the edge of the Tonle Sap to the south of the town but then cuts inland through the northern part of the town. This is unlikely to be intentional, and is presumably just a result of the approximation of the boundary that is adequate in rural areas.
- 20 In the majority of the protected area the outer boundary of Zone 1 is defined by National Roads 5 and 6. This does not make sense where the roads pass through urban areas as it means that half the urban area is within the zone and half not – see example of Battambang in Figure 2.4. A better outer limit for Zone 1 would be one that includes the whole of the urban areas situated along the national roads. A possible revised zone is shown in Figure 2.5.

Figure 2.4 Zone 1 in an Urban Area (Battambang) on Road No.5

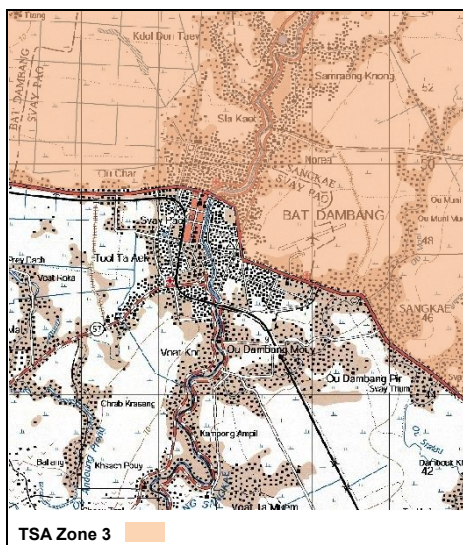
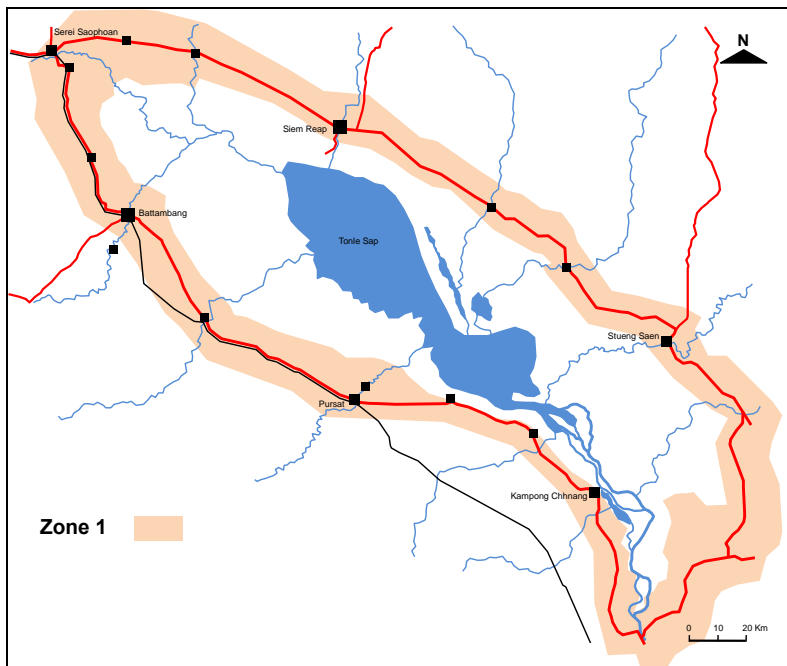


Figure 2.5 Suggested Extension of Zone 1



Recommendation:
*TSA Zones should be declared as the only official zones to be enforced.
The boundaries of Zones 1 and 2 should be reviewed and adjusted.*

3 Framework for Action

3.1 Sustainable Development of the Urban Areas

- 21 Chapter 2 dealt with general principles for urban development and improving the management of urban areas. This chapter looks specifically at an action plan for the urban areas in Tonle Sap basin.
- 22 An overall framework for the development of urban areas should be based fundamentally on sustainable growth of the towns. Sustainable growth means that they develop in harmony with the environment minimising the impact on natural resources, and the target should ultimately be growth that is carbon-neutral.
- 23 Seven action areas have been identified for a programme to move towards the sustainable development of the urban areas around the Tonle Sap. These actions areas and measures to implement them are shown in Table 4.1.

Table 3.1 Action Areas and Measures for Implementing Sustainable Development in the Tonle Sap Urban Areas

Action Areas	Measures
Deal with existing sources of pollution	<ul style="list-style-type: none"> ▪ Improve and extend urban drainage ▪ Improve and expand wastewater treatment coverage ▪ Improve solid waste collection and management ▪ Improve flood protection
Introduce measures to prevent further pollution	<ul style="list-style-type: none"> ▪ Introduce stronger environmental controls for every new development ▪ Identify areas to be protected, conservation areas
Prepare spatial plans	<ul style="list-style-type: none"> ▪ Prepare flexible, realistic, responsive urban spatial plans ▪ Action plans for high priority areas ▪ Plan for climate change
Improve infrastructure planning	<ul style="list-style-type: none"> ▪ Use systematic prioritisation methodology ▪ Design for climate change ▪ Improve coordination between sectors
Improve enforcement	<ul style="list-style-type: none"> ▪ Plans and regulations properly and rigorously enforced ▪ Regulations clarified and publicised
Improve revenues to help pay for services	<ul style="list-style-type: none"> ▪ Improve revenue collection for existing services ▪ Identify other potential revenue streams ▪ Identify opportunities for PPP
Raise institutional and community awareness	<ul style="list-style-type: none"> ▪ Undertake publicity and education programmes ▪ Introduce more participatory planning

Recommendation:

The Action Areas listed above are endorsed and a programme of implementation of the measures is initiated.

3.1.1 Supporting Activities

- 24 The implementation of the measures listed in Table 3.1 will take significant time and resources and the Government should look to its development partners to assist with some aspects of this.
- 25 Suggested areas of assistance are outlined below.

3.2 Urban Strategy Plans

- 26 As described in Chapter 1, the TSUADF will provide the rationale and overarching guidance for urban growth. Within the parameters set by the TSUADF more detailed urban planning will be required.
- 27 Spatial plans are urgently needed for the expanding urban areas. Outline development strategies should be prepared which will do the following:
- Identify key problems, such as areas of infrastructure deficiency, and constraints to development
 - Assess and prioritize needs
 - Identify the principal opportunities for town growth, including main areas for expansion
 - Allocate suitable land for industry that will avoid adverse impacts, both on the environment and on neighboring land-uses
 - Identify and resolve potentially conflicting demands (e.g. industry and tourism)
 - Be responsive to the needs of all stakeholders, especially the urban poor
 - Be integrated with the plans of all sector agencies
- 28 These outline development strategies could be seen as an interim measure - an early response to an urgent need. They could also be seen as a stepping stone towards more responsive and dynamic zoning plans. They can play an important role in ensuring that development conforms generally to a framework designed to utilise town resources and to protect major assets.
- 29 In highlighting the directions for growth, and identifying key deficiencies, the strategies will provide guidance on where investments should and shouldn't be made. This is particularly the case for infrastructure investments. In particular the strategies could be used to define primary and secondary networks and to draw attention to gaps in these networks. The preparation of the strategies should be consistent with the MLMUPC National Policy on Spatial Planning.

Recommendation:

Steps should be taken to instigate the preparation and formal approval of 'fast track' outline development strategies for the urban areas in the Tonle Sap basin.

3.3 Sustainability and Climate Change Preparedness

- 30 As described in Chapter 2, the MRC has predicted a range of possible consequences of climate change. However, the same report also states that there is a high degree of uncertainty related to both the climate change scenarios and the different development plans in the basin. Most of the climate change research in the GMS generally and Cambodia specifically stops short of identifying actual impacts in particular locations, and little work has been undertaken on climate change implications for urban areas.
- 31 There is a need for targeted analysis of tangible impacts of climate change in urban areas of the Tonle Sap basin. The design of sub-projects under recent and current ADB technical assistance projects (ADB TA 7644 REG - Corridor Towns, and TA 7986 Integrated Urban Environmental Management in the Tonle Sap Basin) has shown that it is possible to identify the potential effects of climate change on specific localities and to design infrastructure to address these. This analysis could be extended to all infrastructure in all towns in the basin.
- 32 The results would be a quantification of the types and extent of potential impacts by location. It would provide a comprehensive guide to the incorporation of climate change measures into spatial planning and the planning and design of infrastructure in the urban areas. Outputs would also include programmes for capacity building to improve understanding and technical competencies.
- 33 Part of the work will be to review the sustainability and capacity of current engineering designs, standards and guidelines in use by the various ministries involved in planning and infrastructure provision.

- 34 In undertaking this it will be important to link it to other ongoing initiatives including the national programme under the National Adaptation Programme of Action for climate change (NAPA), the ASEAN Clean Tourist City programme, and projects supported by development partners (including work under the ADB TA for Mainstreaming Climate Change Resilience into Development Planning in Cambodia).

Recommendation:

A study is commissioned to quantify potential climate change impacts in all urban areas in the Tonle Sap Basin and to identify appropriate planning and design measures to address these impacts.

3.4 Carbon-neutral Corridor

- 35 Increased traffic and development along the GMS corridors is leading to increased greenhouse gas emissions and environmental changes. These need to be carefully managed to ensure environmental sustainability. In 2012 a report was published regarding the transport sector's contribution to greenhouse gas emissions along the GMS East-West Economic Corridor and identify viable ways to reduce them⁴.
- 36 The study revealed that transport emissions along the corridor, which connects Lao PDR, Thailand and Viet Nam, were 1.1 million tonnes in 2005, and could triple in two decades if business-as-usual continued. It also found that the freight sector was responsible for 60% of emissions despite providing only 30% of corridor transport activity. As a result of this, the corridor has been earmarked to become a carbon-neutral corridor.
- 37 In view of the expected increase in traffic along the GMS Southern Economic Corridor and its proximity to the Tonle Sap, it would be sensible to undertake a similar study for that corridor as well and for it also to have the target of being carbon-neutral.

Recommendation:

The Southern Economic Corridor is designated to be a carbon-neutral economic corridor and studies undertaken to establish parameters and targets to achieve this.

3.5 Urban Data

- 38 In Cambodia data is currently assembled by administrative area, i.e. provinces, municipalities and districts. There is a need for a comprehensive database of information for the urban areas, which are not contiguous with any administrative boundaries. This data is essential for the purposes of effective urban planning and infrastructure planning in the country's urban centres. This would involve the following:
- Assembly of data from all existing sources including Government, NGOs, and others.
 - Use of mapping to identify geographic extent of urban areas and the component villages.
 - Assimilation of data into urban data files
 - Production of Urban Data Book for distribution to all sectors involved in urban development

Recommendation:

Steps are taken to undertake the production of an Urban Data Book for the Tonle Sap basin. If sufficient funds are available this could be extended to all the urban areas in Cambodia.

⁴ Carbon Neutral Transport Corridors: Reducing emissions from freight and forestry in the EWEC, Feasibility study report, GMS EOC September 2012

3.6 Mapping and Satellite Imagery

- 39 There is little existing detailed mapping of urban areas in Cambodia, other than Phnom Penh, Siem Reap and Battambang. Detailed topographical mapping is essential for the purposes of the planning and design of urban growth and in particular the design of infrastructure. This would include:
- Preparation of digital contour maps (contour intervals at 0.5m) of the urban areas of Kampong Chhnang, Pursat, Stueng Saen, Serei Saophoan. Each area is approximately 80 km².
 - Map output at 1:5000 scale
- 40 The Government is currently using poor quality aerial photography from 2005. There is no high-resolution satellite imagery available other than that assembled ad-hoc by certain projects. Detailed satellite images are a crucial tool in the planning of urban areas and infrastructure. There is an urgent need for the acquisition of high-resolution satellite imagery (e.g. Quickbird) for all urban areas in the Tonle Sap basin.⁵

Recommendation:

Contracts should be issued for the mapping of the four urban areas of Kampong Chhnang, Pursat, Stueng Saen, Serei Saophoan, and satellite imagery acquired for all urban areas in the Tonle Sap basin.

3.7 Prioritising Investments

- 41 As mentioned above, a key purpose of the TSUADF will be to provide a rationale for investments in the urban areas. It is proposed that prioritisation is undertaken at two levels, firstly the town level and secondly at the level of specific needs and projects. The town level prioritisation is primarily proposed to assist Government in directing development partners to the more urgent locations. The project level prioritisation reflects a more comprehensive overview of issues and needs across all urban areas.
- 42 For both levels it is suggested that multi-criteria analysis (MCA) is used. The MCA will provide a checklist against which needs can be evaluated and prioritised from a strategic perspective. The two levels are discussed below.

3.7.1 Prioritisation of Urban Projects

- 43 The proposed criteria for prioritising urban projects⁶ shown in Table 4.4 below. As well as being a means to compare and prioritise projects, these criteria can also be used a checklist for each project as it is being formulated in order to ensure that the proposals are consistent with national and local policy and will be of overall benefit.

⁵ Note: Quickbird imagery for Kampong Chhnang was acquired as part of the work on the Kampong Chhnang Master Plan review. However this is currently the property of GIZ.

⁶ *Note: The term 'project' is used here in its most general sense. Project here can be an individual construction scheme, a town-wide improvement scheme, a wide-ranging multi-sector investment plan, etc.

Table 3.2 Proposed MCA Criteria for Urban Projects

Criteria Group	Suggested Criteria
Strategic Alignment	<ul style="list-style-type: none"> ▪ Does the project* meet specific national policy objectives? ▪ Is the project in a strategically important location?
Environmental	<ul style="list-style-type: none"> ▪ Does the project address urgent environmental issues? ▪ Will the project result in direct benefit to the protection of the Tonle Sap water resource? ▪ Can the project improve the location's resilience to the effects of climate change and natural hazards? ▪ Will the project improve the environment or enable actions to protect the environment, reduce pollution and damage to the environment, or improve sustainability? ▪ Is the project robust against the effects of climate change and natural hazards?
Social	<ul style="list-style-type: none"> ▪ What is the total population that will benefit from the scheme? ▪ Will the project directly contribute to improvements in environmental health for the residents? ▪ Will the project specifically support the household and income generation activities of women, reducing the burden for basic tasks, whilst improving women's and children's health and nutrition? ▪ Will the project achieve benefits for poor households? ▪ Will the project achieve benefits for households from ethnic minorities?
Financial and Economic	<ul style="list-style-type: none"> ▪ Is the project likely to support identified areas of investment and growth, providing infrastructure to unlock key elements of these growth areas? ▪ Will the project help to remove barriers to trade, by removing infrastructure constraints such as transport, communications and reliable power supplies? ▪ Does the project have the potential to support expansion of the tourism industry?
Operational and Institutional	<ul style="list-style-type: none"> ▪ Does the project use appropriate technology for Cambodia? ▪ Are the ongoing maintenance and operational costs of the project affordable either through scheme generated revenues or Government support? ▪ Is there, or will there be, adequate capacity to manage the implementation of the project, and to budget and programme?

- 44 The criteria listed in Table 4.4 provide a ready checklist that could be applied by any authority considering developments in the urban areas of the Tonle Sap. However, the system would be more effective if it is operated by one organisation that is recognised as having the role of reviewing all major proposals (see Chapter 5).

Recommendation:

The MCA system of checking proposed projects against an agreed set of criteria should be developed and introduced as soon as possible.

4 Potential Infrastructure Investments

4.1 Identification of Possible Investments

- 45 Strategic plans and urban plans will be the key tools in the identification of infrastructure needs. From these it should be possible to identify two broad types of infrastructure requirements:
- Strategic investments in primary infrastructure, economic zones, and other facilities
 - Urgent investments in town infrastructure
- 46 On the whole these investments will do one or more of the following:
- Provide missing links in primary and secondary infrastructure networks
 - Facilitate new economic activities and diversification
 - Be complementary to other proposed projects, in some cases facilitating completion of unfinished/under-funded projects
 - Facilitate the expansion of the town in accordance with the approved plans and strategies
 - Provide tertiary infrastructure that is supported by existing or proposed primary and secondary links
 - Guide development, for example where the densification of urban development is desirable in terms of land use efficiency, or where planning controls require the support of infrastructure-led development
 - Target the lowest-income settlements within the urban area
 - Support the improvement of the commercial centres of towns, in particular the markets

4.2 Possible Strategic Investments

- 47 The types of investment needs that are likely to emerge from strategic planning are shown in table 5.1 below.

Table 4.1 Possible Strategic Infrastructure

Activities	Possible Investments
Transport infrastructure	<ul style="list-style-type: none"> ▪ Airport construction/improvement ▪ By-pass roads ▪ Railway stations ▪ Bus stations
Trade and commerce	<ul style="list-style-type: none"> ▪ Markets and market improvements ▪ Special economic zones
Manufacturing and processing	<ul style="list-style-type: none"> ▪ Industrial zones ▪ Free trade zones ▪ Special economic zones
Tourism	<ul style="list-style-type: none"> ▪ Improvement of existing tourist sites with better visitor facilities ▪ Development of new attractions based on existing features ▪ Creation of new attractions

- 48 As mentioned above, the need and rationale for strategic infrastructure investments should be drawn from strategic plans. The plans themselves will provide reasoned justification for the investments. At the same time it will be important for all proposals to be vetted using the MCA process described in Chapter 4. In this way the relative priority of major proposals can be assessed.

- 49 For the purposes of the TSUADF it will be important that major developments that have potentially significant environmental impacts, such as industrial zones and transport infrastructure, are fully rationalised and planned across the Tonle Sap basin area.

4.3 Possible Urgent Urban Infrastructure Needs

- 50 Most of the urban areas in Cambodia have similar sets of infrastructure issues and needs. The typical needs are shown in Table 5.2. Based on preliminary assessments the needs in the six main urban areas adjacent to the Tonle Sap have been identified. These need to be verified by further investigation and the process should be extended to all other urban areas in the basin.

Recommendation:

An assessment should be undertaken of infrastructure needs in all urban areas in the Tonle Sap basin, including both the major towns (municipalities) and the small district towns.

Table 4.2 Urban Infrastructure Needs

Infrastructure	Improvements typically required	Kampong Chhnang	Pursat	Battambang	Serei Saophoan	Siem Reap	Stueng Saen
Urban roads	Surfacing and re-surfacing	■	■	□	■	□	■
	Footways	□	□	□	□	□	□
	Tree planting	□	□	□	□	□	□
	Traffic signs	□	□	■	□	■	□
	Street lighting	■	■	■	■	■	■
Storm water drainage	Underground drains and collector pits	■	■	■	■	■	■
	Kerbs and gutters	■	■	■	■	■	■
Public markets	Drainage	■	■	?	■	?	■
	Pavements	□	□	?	□	?	□
	Lighting	□	□	?	□	?	□
	Security fencing	?	?	?	?	?	?
	Parking areas	□	□	?	□	?	□
Bus stations	Drainage	■	■	?	■	?	■
	Pavements	?	?	?	?	?	?
	Lighting	?	?	?	?	?	?
	Security fencing	?	?	?	?	?	?
	Parking areas	?	?	?	?	?	?
Public toilets	Toilet buildings with septic tanks	□	□	?	□	?	□
Riverbank erosion protection	Gabion mattresses or mortared masonry	■	□	■	■	■	■
Riverbank flood prevention	Embankments	■	□	?	■	?	■
Solid waste	Preparation of waste disposal sites	■	■	□	■	□	■
	Access roads to waste sites	■	■	□	■	□	■
	Provision of collection vehicles	■	■	□	■	□	■
Sanitation	Septic tanks – possibly communal	□	□	□	□	□	□
	Provision of tanker trucks	□	□	□	□	□	□
	Sewerage systems and connections	□	□	■	□	■	□
	Wastewater treatment plants	■	■	■	■	■	■
Open space	Creation of public parks	■	■	■	■	■	■

Source: PPTA consultants' preliminary assessments

KEY: ■ Urgent □ Less urgent ? Uncertain

5 TSUADF Implementation, Review and Monitoring

5.1 Ownership of TSUADF

- 51 The ownership of the TSUADF will be a key factor in its success. Ownership will be at two levels. At the strategic level the TSUADF will need a champion to adopt and manage its application within national policy and planning. At the local level it will also need a focal point. At the same time it should be a tool that is used across a range of sectors.
- 52 It will also be essential that the TSUADF be seen as complementary to existing Government policy documents and initiatives, and not in potential conflict with them. In this respect it will be important that the TSUADF is seen as a cross-sector inter-ministerial initiative and not emanating from just one sector or ministry. For this reason the Tonle Sap Authority seems to be the obvious choice to promote, manage and coordinate the TSUADF.

5.2 Project Coordination

5.2.1 Initial Tasks

- 53 The first steps will be to develop the proposals and recommendations set out in this Draft TSUADF and to assemble a plan of action. Key tasks will be:
- Taking forward TSUADF for approval
 - Liaison with development partners in order to secure funding for the activities where their support will be needed (as highlighted in this Draft)
 - Publicity and dissemination of the TSUADF and its aims to all parts of Government
 - Development and refinement of the prioritisation methodology
 - Review and updating of the infrastructure needs assessment in the towns and extension to all other urban areas

5.2.2 Ongoing Review and Monitoring

- 54 The TSUADF should be updated on a regular basis to align with the latest planning and budget priorities, and reflect progress on implementation. The updating process itself should be reviewed and recommendations made on how often updates will be undertaken in the future. As mentioned, TSUADF should be closely aligned with national policy and it is suggested that the review process for TSUADF should be undertaken as part of standard Government review processes.
- 55 As well as reviews at regular intervals, there will be occasions on which intermediate reviews should be undertaken. The triggers for this would include such things as:
- Major amendments to the NSDP
 - Publication of new sector or sub-sector plans
 - Approval of strategic and urban plans
 - Significant changes in development partner programmes
 - Identification of major new projects
- 56 Government agencies and other utility providers should be required to report on progress with projects and provide information about proposed new projects. This information, together with consultation with community representatives, the private sector, and development partners, will help to shape future updates of the TSUADF. When projects and activities are identified between each update of the TSUADF, these projects should be analysed by the Government using the same prioritisation methodology described in this report.

- 57 TSA should prepare a short annual report on progress in funding and implementation of the TSUADF. The report should be discussed with national stakeholders in an appropriate oversight committee, and discussed with development partners (possibly in a infrastructure coordination committee)