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SEACAP PROGRAMME

Managed by
Crown Agents & Halcrow Group

SEACAP 2
CAMBODIA Transport
MAINSTREAMING PARTNERSHIP

WORKING PAPER 2
Website & Dissemination
Strategy
(Component 4)

Draft 30 April 2005

Project Office: MRD, Corner St. 169 & Russian Boulevard, Phnom Penh, Cambodia
Tel/Fax: 855 (0)23 883 607
e-mail: intech-trl@fpt.vn & Intech_Cambodia@online.com.kh

Our Ref: 0421/VA4
Your Ref: CTMP – SEACAP 2

18 May 2005

Attention Excellency Suos Kong
Secretary of State
Ministry of Rural Development
Chairman, Interim SEACAP Steering Committee

Dear Excellency Suos Kong,

RE: SEACAP 2 Website and Knowledge Dissemination Strategy Report

Please find attached a copy of the draft Website and Dissemination Strategy Report (Component 4) for the Cambodia Transport Mainstreaming Partnership (SEACAP 2).

The report has been prepared by Trevor Bradbury, the Consultant's IT adviser, with the support of the Intech-TRL team in Cambodia.

We would welcome any comments or further contributions from the Interim Steering Committee on the draft report and any aspect of the CTMP initiative.

Yours sincerely

Robert Petts
Project Manager

cc H.E. Lim Sidenine, MPW&T, Vice Chairman SEACAP Interim Steering Committee
Dr. Om Romny, ITC, Member SEACAP Interim Steering Committee
Dr. Simon Lucas, DFID, Hanoi
Le Minh Nguyet, Crown Agents, Vietnam
Pham Hai Bang, Halcrow, Vietnam
Dr Colin Jones, TRL, UK.
Heng Kackada, Intech Cambodia

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ABBREVIATIONS & ACRONYMS

ASP	Active Server Page
CD-ROM	Compact Disk – Read Only Memory
CIDA	Canadian International Development Agency
CNCTP	Cambodia National Community of Transport Practitioners
DFID	Department for International Development
EIC	Engineering Institution of Cambodia
FTP	File Transfer Protocol
GAIS	Government Administration Information System
GB	Great Britain
IFG	International Focus Group (on Rural Road Engineering)
IFRTD	International Forum for Rural Transport Development
ILO	International Labour Organisation
IP	Internet Protocol
IRAP	Integrated Rural Accessibility Planning
IT	Information Technology
ITC	Institute of technology of Cambodia
LCS	Low Cost Surfacing
MB	Megabyte
MOT	Ministry of Tourism
MOC	Ministry of Commerce
MPTC	Ministry of Posts and Telecommunications
MPW&T	Ministry of Public Works and Transport (Cambodia)
MRD	Ministry of Rural Development (Cambodia)
NCP	National Community of Practitioners
NFG	National Focus Group (for Rural Road Engineering)
NGOs	Non-Governmental Organisations
NiDA	National Information Communications Technology Development Authority
PHP	PHP: Hypertext Preprocessor
PIARC	World Road Association
RRGAP	The Rural Road Gravel Assessment Programme
PRIP	Provincial and Rural Infrastructure Project
RRSR	The Rural Road Surfacing Research
RRST	Rural Road Surfacing Trials
SEACAP	South East Asia Community Access Programme
SMS	Short Message Service
SSL	Secured Socket Layer
TKP	Global Transport Knowledge Partnership
TMP	Transport Mainstreaming Partnership
ToR	Terms of Reference
TRL	Transport Research Laboratory
UK	United Kingdom
URL	Universal Resource Locator
USA	United States of America
US\$	United States Dollar

GLOSSARY

- Bug - A computer bug is an error, flaw, mistake, failure, or fault in a computer program that prevents it from working correctly or produces an incorrect result. Bugs arise from mistakes and errors, made by people, in either a program's source code or its design.
- Domain - A domain name is a unique name that is used to identify and locate computers on a network (including the internet), it can be used for websites and/or email addresses. For instance: www.helpwithpcs.com.
- Dynamic Content - Website content generated by the web server from a database. Dynamic content can change to meet the users' demands.
- Host - Host refers to a computer running host software which is connected to a [network](#) and provides data/services to one or more computers. A typical example of a host is a website host that stores and then serves pages and images to users via the internet, this is accomplished by running host software on the machine, the host software manages requests from other machines and fulfills the requests according to whatever [protocol](#) the machines are using.
- Patch - A software patch is code written for a specific customer to address local functionality issues not currently fixed with the latest Minor Software Upgrade.
- Spam - The use of mailing lists to blanket private email boxes with indiscriminate advertising messages; the future of successful marketing online will involve customizing products and information for individual users. The use of the old mass market techniques in the new media environment is likely to have diminishing effectiveness.
- URL - A URL is the address of a page on the World Wide Web. It stands for Universal Resource Locator. URLs look something like this: <http://www.google.com>.

EXECUTIVE SUMMARY

Introduction

The SEACAP 2 programme has provision for the establishment of a Cambodia Transport Mainstreaming Partnership (TMP) website to partially fulfil the dissemination objectives of the programme and support the MPW&T and MRD, especially in the task of updating and disseminating their rural transport standards and specifications.

Since the Government of Cambodia has already mandated the establishment of a Cambodia National Community of Transport Practitioners (CNCTP) website and the objectives of the TMP and the CNCTP overlap, it is proposed that provided CNCTP agree, the website created under the SEACAP 2 TMP programme will be launched as the website for CNCTP, augmenting the existing forum and its activities.

Producing a dynamic website requires the creation of a database and associated web pages by a suitably qualified web programmer. A website domain name and host will also need to be procured and a long term website maintenance arrangement established to handle regular updates and site maintenance.

For a website to be sustainable it needs to be, financially, institutionally and socially sustainable. Financial sustainability can be achieved by selling services and products through the website and by negotiating with potential affiliates who could benefit from the publicity and internet traffic generated from the site. Institutional sustainability requires a commitment from the entity responsible for maintaining the website to provide a long-term staffing for the website. Social sustainability can be achieved by ensuring the website meets the needs of its target audience and retains a solid core group of users.

Assessment of capacity and needs of key stakeholders

An assessment of the needs and capacity of the various primary stakeholder organisations has been carried out. The objective of the assessment was to understand how best to position the website in terms of political ownership and from a technical hosting and management perspective. The following key needs and capacities were identified, in both MRD and MPW&T.

- Need to build IT capacity and the expertise required to manage IT systems including websites.
- Need to build their own sustainable websites to improve communication within the ministries and with the public.
- A wealth of technical and policy information which needs to be disseminated.

Website requirements

To overcome some of these capacity restraints, the new CNCTP website will:-

- have a diverse target audience, ranging from Government officials, through to the private sector both within Cambodia and abroad. Therefore, for optimum impact it must be made available in both English and Khmer.
- be effective in engaging the private sector: the website must not be seen by its users as a government website; even if it is being operated as such. It must have a separate look

and feel to that of the MRD and Public Works websites. However, it is recommended that it should be affiliated to the MRD and linked with the MPW&T.

- be a repository for a large quantity of transport sector documentation relevant to Cambodia. There is a wealth of information available from a number of sources; including ILO-Upstream, SEACAP, MPW&T and MRD.
- be preferably at least partially operational before the end of May, when a workshop will be held that brings together the key stakeholders to launch the CNCTP officially.

Analysis and Recommendations

An analysis of the available options for domain name choice, web hosting entity and website maintenance was undertaken. As a result, the following recommendations are made for the short and medium term.

- In the short term, the website should be launched under a '.net.kh' or '.org.kh' domain name and not one of the government domains i.e. '.gov.kh'. This is because the website must be seen as a resource for all stakeholders in the transport sector, both private and public and not solely a government venture. In the medium term there is unlikely to be a need to change the domain name.
- In the short term the website should be hosted outside of Cambodia by a dedicated hosting company (possibly in the US, following the lead taken by the RGC Ministry of Tourism and the Ministry of Commerce). In the medium term this arrangement can be easily changed to bring the hosting of the website within an entity inside Cambodia. However, this should only occur if the new host can provide the same level of service or better.
- In the short term, maintenance of the website can be carried out under a co-operative arrangement between MRD, CNCTP and SEACAP. In the medium term maintenance should be moved to a dedicated and resourced team, possibly under the MRD.
- In the short term the website can be financed through the budget available under SEACAP for the development of the website (US\$3000), with maintenance funds secured from MRD, MPW&T and the PRIP under the CNCTP mandate. In the medium term the website will gradually become self financing through revenues earned from increased levels of service provision, advertising and affiliation.

The way forward

The following issues are outstanding and will need to be resolved before the establishment of the CNCTP website can take place.

1. Agreement with CNCTP that the TMP website can be produced as the CNCTP website needs to be attained.
2. The website mission and objectives will need to be agreed with CNCTP.
3. A web designer will need to be appointed to produce the website code and design the underlying database. This is urgently required as the timeframe for this is very tight.
4. Agreement from the MPW&T to electronically publish their standards and specifications needs to be attained.

5. Translation of key documents needs to be undertaken and translation resources for the longer term identified.

1 INTRODUCTION

1.1 South East Asia Community Access Programme (SEACAP)

A substantial programme of DFID, World Bank and ADB co-funded transport knowledge generation and dissemination projects is now underway in Cambodia, Laos and Vietnam under the South East Asia Community Access Programme (SEACAP). These research and dissemination initiatives follow on from the previous DFID Infrastructure and Urban Development (IUD) Engineering Knowledge and Research (EngKaR) programme. The SEACAP programme is currently expanding from 17 to 21 projects. SEACAP builds upon the successful collaborative research projects already completed in Cambodia and Vietnam on identifying ways to improve sustainable access to rural communities to facilitate benefits from health, education, trade, social facilities and services, thereby creating opportunity for pro-poor growth and escape from poverty.

The objectives of the Programme are:-

'Livelihoods of poor and vulnerable people in SE Asia improved sustainably'

and include empowering local ownership of their access. This includes initiatives that allow rural roads to be constructed and maintained in a sustainable way by local people using local materials, local labour and skills, local enterprises, and simple, low cost equipment. More affordable in capital and recurrent costs, these rural road solutions are becoming the spine of local governments' policies and this programme is designed to expand the successes of the initial research work.

The SEACAP initiatives will contribute to poverty reduction by scaling-up and using knowledge from various transport sector initiatives in support of the aims and policies of the Governments of Cambodia, Laos and Vietnam which will improve access for the rural poor, lower transport costs and create local employment and enterprise opportunities.

The adoption and use of appropriate, sustainable local resource based techniques and involvement of the communes to rehabilitate the major part of the network will provide all-weather access to the poor communities. It will also help to establish an affordable maintenance regime to safeguard the past and future major transport sector investments. The current and currently planned projects are shown in Table 1

1.2 SEACAP 2 – Cambodia Transport Mainstreaming Partnership

The second phase of the South East Asia Community Access Programme (SEACAP 2) is designed to support the transport sector activities of the MPW&T and MRD, through a Cambodia Transport Mainstreaming Partnership (TMP). The TMP is aimed at resolving a number of outstanding issues in the transport sector relating to consolidation of past research outputs and to the setting up of a unified information system. One component of the SEACAP 2 programme is to facilitate the dissemination of information widely within Cambodia; including, but not limited to the information gathered during the earlier SEACAP work on rural road surfacing technologies and gravel road surface deterioration.

Specifically the programme has provision for the establishment of a website to fulfil these dissemination objectives and the wider objectives of supporting the MPW&T and MRD, especially in the task of revising their rural transport standards and specifications. Other avenues of dissemination should also be explored, including the use of other electronic media, multimedia and the distribution of documents and papers in hardcopy. The bulk of this document deals specifically with the website establishment aspect, but some commentary on other dissemination mechanisms is available in Annex A.

Table 1 - LIST OF SEACAP PROJECTS

Project No.	Description	Country
1	Rural Road Surfacing Research, for Ministry of Transport Vietnam: Dissemination and Mainstreaming of Research	Viet Nam
2	Cambodia Transport Mainstreaming Partnership	Cambodia
3	Appropriate Road Technology in Mountainous areas of VN	Viet Nam
4	Assessment of existing rural road surfaces in VN	Viet Nam
	i) Scoping	
	ii) Full Survey	
5	Impact of rural road access on poverty reduction and growth Phase II	Viet Nam
6	Infrastructure Constraints to growth and poverty reduction in Cambodia	Cambodia
7	Sustainable Mechanism for ownership on local stakeholders	Viet Nam
8	Low-cost surfacing Phase II	Cambodia
9	Full data collection in 2 provinces	Viet Nam
10	Commune Handbook Training to Non-RT2 Provinces	Viet Nam
11	Second Year Programme	Viet Nam
12	Road Map Field Verification and Roll Out for Non-RT 2 Provinces	Viet Nam
13	Provincial Hand Book Training	Viet Nam
14	Role of the Private Sector in Rural Transport	Viet Nam
15	Community participation in the Rural Transport Sector	Viet Nam
16	Institutional, incentive and capacity analysis of the Rural Transport sector	Viet Nam
17	Local Resource Solutions to problematic rural road access in Laos	Laos
18	Capacity Development for Sustainable Commune Infrastructure	Cambodia
19	Development of local resource based standards	Cambodia
20	Development of locally made, low cost equipment for the road sector	Cambodia
21	Rural Infrastructure advisory services and research management	

Note: 1-17: Projects approved

18-21: Intended Projects

1.3 SEACAP 2 – Components

SEACAP 2 includes the following components:-

Output 1 – Operational TMP

Output 2 – Knowledge Products

Output 3 – Practical Demonstration

Output 4 – Website

Output 5 - Policy Standards and Procedures

Output 6 – Improve Road Maintenance

Output 7 – Training Courses

Output 8 – Training Needs Assessment and Delivery (Human Resources Development Strategy)

Output 9 – Improve Road Safety

This Working Paper deals with component 4 above.

2 BACKGROUND

Providing a sustainable website requires a number of technical inputs to establish the website. In addition, the correct mechanisms and institutional arrangements need to be put in place to ensure that the website is maintained and used in the longer term.

Providing a website requires the following technical inputs:

- The website database and code must be created. For an interactive website, with regularly changing content – *dynamic content*, it is desirable to build the site around a database, and code the web pages to manipulate and display the data contained within the database in an attractive format.
- For the website to be fully autonomous, a website name (domain name) must be registered. For example, the website www.google.com has the domain name 'google.com'. If the website is affiliated with an existing website then it is possible for it to be hosted as a sub-site without registering a unique domain name.
- A physical host must be found for the website files. This will be a file server that is permanently connected to the internet. It will need to be maintained by an organisation and/or individual(s) who will be responsible for applying any patches and upgrades to the server and its operating system.

During this process a mechanism for managing the site contents must be agreed upon and then implemented once the site has been launched. A website maintenance procedure will need to be agreed, so that a person or group of people are responsible for updating the website, updating the database, responding to emails, making backups and other general tasks related to keeping the website operational.

For maximum impact the proposed website will draw on a broad cross-section of stakeholders including material suppliers, contractors, oil companies, transport operators, engineers, academics and civil servants. Cambodia already has an established forum for these organisations to interact in the guise of the Cambodia National Community of Transport Practitioners (CNCTP). The structure of the CNCTP organisation can be seen in Annex B.

Since the objectives of TMP and CNCTP overlap and the Government of Cambodia has already mandated the establishment of a CNCTP website, there is little point in duplicating effort by creating two websites with similar objectives. It is proposed that provided CNCTP agree, the website created under the SEACAP 2 TMP programme will be launched as the website for CNCTP, augmenting the existing forum and its mandated activities. The proposed structure of the website and its contents are discussed in more detail in Section 4.

In order for the website to be sustainable, three key 'dimensions' of sustainability must be in place, if one is missing the website will 'fall' as illustrated in Figure 1.

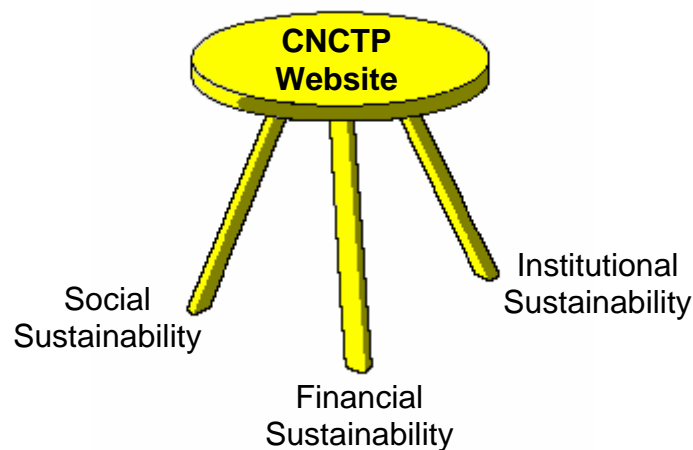


Figure 1. Dimensions of Sustainability Required for a Sustainable Website

2.1 Institutional Sustainability

The institution responsible for maintaining the website must have sufficient human resources to assign to the task of maintaining the website. These resources must be allowed to have dedicated time set aside for maintenance activities, which will most likely be viewed as secondary to more pressing tasks. Maintenance activities should be carried out and understood by a small team of people, so that no interruption in work occurs should someone leave the institution or become incapacitated. Therefore the responsible institution must be committed to the task, have a stable staff group and a sound management structure.

2.2 Financial Sustainability

Operating and maintaining a website requires finance. There are fixed annual costs such as the registration of the domain name and hosting costs as well as variable costs which need to be budgeted for. These arise from possible additional charges from the hosting company based on the amount of information being downloaded, to the cost of employing administrators, translators and IT specialists to establish the website and maintain and update it. Therefore sustainable finance is crucially important. If the site is successful it is possible to generate some income from the website itself through advertising or charging users for services. However this income will largely depend on the popularity of the site and cannot be assured especially in the early stages following the launch of the website.

2.3 Social Sustainability

The purpose of the CNCTP website is first and foremost to disseminate knowledge and information, but parallel to this objective the CNCTP aims to form a community of transport stakeholders. To justify its existence the website will need to maintain a solid user-base of transport professionals from all related sectors. Keeping a sustainable user base can be achieved by providing and demonstrating the benefits of the website to the users and actively promoting it.

3 EXISTING CAPACITY, NEEDS AND BARRIERS

An assessment of the needs and capacity of the various primary stakeholder organisations was carried out through a literature search and a number of meetings held with persons from NiDA, MPW&T, MRD and MOT. The objective of this assessment was to understand how

best to position the website in terms of political ownership and from a technical hosting and management perspective. It immediately became apparent that a two phase strategy would be required, since the timeframe for setting up the website is limited and some of the barriers and capacity constraints will require substantially more time to solve.

3.1 NiDA

NiDA is the National Information Communications Technology Development Authority. Its mission is “to bring the government closer to the people and vice versa; so that essential services can be provided.” As part of this brief in 2002, NiDA embarked on an ambitious programme with the support of the Korean Government to facilitate the Government Ministries of Cambodia in improving their working practices by using electronic documents and processes. The programme known as GAIS (Government Administration Information System) has the ultimate goal of achieving “an efficient and paperless government, e-Government.”

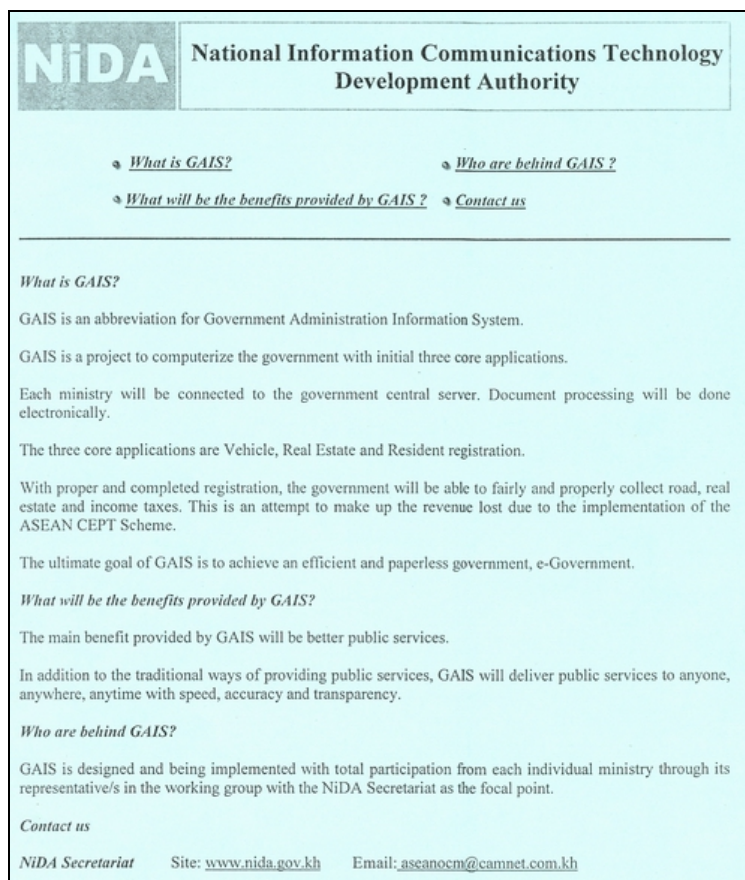


Figure 2. Memo on GAIS taken from the NiDA website www.nida.gov.kh

The programme has provided each ministry with a file server and a small number of local network access points and computers. Each of the ministry file servers are interconnected through a wide area network, so that information can be shared between the different Government ministries. Technically it should be possible to use either the main server at NiDA or one of the ministry servers to host the CNCTP website.

The GAIS programme is due to end in 2005, under the programme, NiDA are providing IT training courses to civil servants, nominated by their respective ministries, the courses are set at different levels, from the most basic tuition in using Microsoft Windows, through to

more advanced training in Microsoft Office applications. It is important that both MRD and MPW&T take this opportunity to increase the level of IT competency within their ministries.

3.2 MRD (Ministry of Rural Development)

The ILO is working with the MRD on the establishment of a MRD website. The software has been completed and the intention is to use hardware supplied by NiDA to host the site. There needs to be some official approval before the website can be launched, with an expected start date sometime in June 2005. There is a budget line under the MRD to maintain the website, which is vitally important. The website provides basic information on the ministry and its activities and will be expanded upon to include more information and communiqués in the future.

Capacity needs to be built within the ministry to improve its information technology capabilities. Hardly any of the computers within the ministry are connected to a local area network and the level of IT skills needs to be developed (most likely through the NiDA GAIS programme). In the interim, the launch of the ministry website could have a significant impact on communication within the ministry. A large proportion of the computers at the ministries disposal are connected to the internet via phone lines and leased lines, so they will be able to access the website and view the information on it even though there is no local area network available. By publishing policy information, ministers speeches and core documents on the website, all employees, consultants, contractors and cooperation agencies with access will be able to stay up to date with current ministry strategy and activities.

3.3 MPW&T (Ministry of Public Works and Transport)

The Ministry of Public Works and Transport (MPW&T) had its own website provided under a CIDA programme in 2001. However, when the programme ended, funding for the website stopped and now the site is no longer available. It is hoped that a copy of this website can be recovered as an initial building block for a new MPW&T website. The ministry has asked SEACAP to formulate an initial proposal for creating a new website and general improvements to the ministries IT infrastructure. The draft proposal can be found in Annex C. This falls outside of the budget for SEACAP 2, but falls within the complementary aims of assisting MRD and MPW&T with their dissemination requirements.

In terms of IT infrastructure, the MPW&T has limited resources to create an effective local area network. Although there is some equipment within the ministry which can be used to carry this out, including the NiDA file server, there is a lack of network specialists to advise the MPW&T in setting it up. A significant proportion of the ministry's computers are connected to the internet directly and as per the Ministry of Rural Development a website could play a vital communication role within the ministry as well as to the outside world.

MPW&T have a wealth of information including the national standards and specifications that could be usefully added to, or at the very least linked to, the CNCTP website. In the interim, key documents should be identified for web publishing and an agreement for the distribution of revenue from these electronic documents (if any) should be made with the MPW&T.

3.4 General Barriers

The biggest barrier to engaging the ministries as owners and operators of any website is their technical capacity, to fully understand and operate a website. Building this capacity within the ministries through training programmes cannot be sustainable if their employees are remunerated at current civil service levels - typically \$20 - \$30 per month. Skilled IT professionals can demand much higher salaries in the private sector, which creates a huge pressure for trained IT specialists to leave the civil service for better paid jobs elsewhere. There are only two solutions to this problem. The first is to pay highly skilled specialists

significantly more within the existing civil service structure. This will necessitate the introduction of a unique career structure and remuneration programme for these individuals; something which is very unlikely to happen in the near future. The second solution is for the ministries to buy these skills in from the private sector, effectively outsourcing their IT requirements. This is a sound and workable solution, although there seems to be some resistance to this approach from some sources within the ministries.

The CNCTP website will need to be used by both English and Khmer speakers. This presents an ongoing translation requirement as more material is added to the website. This is an additional cost and requirement that must be resourced for the website to be sustained.

4 OVERVIEW OF THE WEBSITE REQUIREMENTS

The website should be attractive and easy to navigate, with regularly updated content that is relevant to the target audience. It should aim to provide online services that will be of use to the target audience in order to maintain a solid user base.

A terms of reference for a web designer to produce the site is provided in Annex D, including a draft programme presented as a Gantt chart.

4.1 Target Audience

The CNCTP website will have a diverse target audience, ranging from Government officials, through to the private sector both within Cambodia and abroad, including, but not limited to the following:

- Cambodia Ministry of Rural Development
- Cambodia Ministry of Public Works and Transport
- Consultants
- Contractors
- Academic and research institutions including ITC and EIC
- NGO's
- Bilateral and multilateral donors and funding agencies
- Bitumen suppliers
- Road building material suppliers
- Equipment suppliers i.e. road building tools and plant
- Petrochemical companies

To reach this audience the website will need to be dual language: Khmer and English. This will necessitate the translation of documents as well as the text used for the pages of the website.

4.2 Website Objectives

To be effective in engaging the private sector, the website must not be seen by its users as a government website; even if it is being operated as such. It must have a separate look and feel to that of the MRD and Public Works websites. However, it is recommended that it should be affiliated to the MRD and linked with the MPW&T. This delicate balance of independence from government, whilst at the same time being linked to it, is important: It gives the website the freedom to publish information from the private sector, without having to seek the approval of the ministries, whilst at the same time affording it the benefits of playing host to government information and documentation.

The objectives of the site will need to be formerly agreed with the CNCTP, including the wording of the CNCTP website mission statement. The following objectives are given as examples for guidance purposes.

- Dissemination of research outputs
- Details of upcoming training courses and events
- Discussion forum
- Advertisements of forthcoming contracts in the transport sector.

4.3 Website Content

The website will be a repository for a large quantity of transport sector documentation relevant to Cambodia. There is a wealth of information available from a number of sources.

- Documents published under the ILO-Upstream project in collaboration with the MRD. This information is available in Khmer and English on CD-ROM and should be added to the website as soon as possible.
- Documents arising from the research undertaken under the SEACAP programme in Cambodia currently available in English only, these should be translated and added to the website.
- Policy level documentation produced by MRD is available and should be disseminated through the MRD website, and the CNCTP website.
- Technical documents produced by the MPW&T including specifications and standards. Some of which should be made freely available on the website and others made available for a small fee. This will need to be agreed with MPW&T, since they may wish to host these documents on their new website when it is available. To facilitate this, it will be necessary to ensure that the document system is a separate module within the database and that the MPW&T documents can be easily identified and extracted for transfer to the MPW&T website and linking back to the CNCTP website.

To assist with financial sustainability, the website must be designed to allow for the posting of advertisements from/for companies; including invitations to tender on road contracts and recruitment adverts as well as more general advertising from suppliers should the website prove to be popular.

The website should contain links to other useful websites active in the transport sector, including but not limited to the following:

- www.transport-links.org – DFID funded website disseminating much of the DFID funded transport research.
- www.ifgworld.org – website of the International Focus Group on Rural Road Engineering (IFG). The CNCTP will link with the IFG to share knowledge on the rural road sub-sector internationally. The IFG site contains a number of technical and policy information notes, that provide succinct information on a wide variety of topics.
- www.gtkp.org – website of the TKP (Transport Knowledge Partnership), dedicated to working with existing institutions to improve the exchange and management of transport related knowledge within developing countries.

- www.ba21.org/buan/ngo/seacap.htm - website for SEACAP, currently only available in Vietnamese.

4.4 Timeframe

The CNCTP website is needed urgently and should preferably be at least partially operational before the end of May, when a workshop will be held that brings together the key stakeholders to launch the CNCTP officially. Soon after this workshop there will be another CNCTP workshop on road management and maintenance that will draw together a different group of stakeholders. Ideally the websites document publishing system should be operational by this time, so that the workshop report can be made available for distribution electronically.

5 AVAILABLE TECHNICAL OPTIONS

A full analysis of the available options for website maintenance, hosting and domain name registration was undertaken. A number of options were identified for each aspect, described in detail below. The recommendations made in Section 6, take all of these available options into account.

5.1 Hosting Options

Functionally the website hosting entity has no impact on the external appearance and operation of the website. Nevertheless the selection of the host is important, since the 'behind the scenes' operation of the site, its availability and speed are largely dependent on the host. A host can be selected from anywhere in the world, including Cambodia, with the final selection being based on the desired level of service against cost.

The core components that should be offered by the hosting package are:

- Sufficient web space to hold all of the files and documents that will be made available under the CNCTP website. This is estimated to be in the region of 10GB to allow for expansion.
- Sufficient bandwidth to cope with site traffic. Preferably bandwidth should be unlimited or additional bandwidth should be charged at a reasonable rate.
- At least 10 email boxes for use by the maintenance and administration team to streamline their workflow. E.g. enquiries@cnctp.org.kh , news@cnctp.org.kh , etc.
- Virus and spam protection to prevent the proliferation of harmful or unwanted viruses and emails.
- Support for the following scripting languages (ASP, PHP and 'ASP.NET'), all of which can be used to manipulate data within a database. At least one of these is essential for the creation of a dynamic website.
- FTP access to allow the easy transfer of files to and from the website by the administration and maintenance team.
- SSL secure web space for online transactions. Should the website be used to sell advertising space or documents, although this could be handled by a third party company on behalf of the CNCTP.

Due to the vast number of potential hosts it isn't practical to carry out a detailed study of every available option. Instead the options have been grouped together and some general observations have been made for each group.

5.1.1 Hosting within Cambodia government

From a political standpoint it is desirable to host the website within the Government of Cambodia, however NiDA do not appear to be undertaking website hosting at present and the individual ministries are ill equipped to host a website, which is to be expected since website provision is not part of their remit.

In the medium term it may be possible through inter-ministry collaboration and NiDA for the Government to undertake web hosting for all of its ministries, administered through a single server managed by NiDA.

5.1.2 Hosting within Cambodia private sector

There are a number of hosting companies within Cambodia, the two most prominent ones are Camnet (www.camnet.com.kh) and Online (www.online.com.kh). Examining the websites for both companies, details of exactly what services are offered are limited and on closer inspection it seems that neither offer the core services required to operate a dynamic website effectively.

5.1.3 Hosting within a foreign hosting company.

The MOT and MOC have already established hosting accounts in the USA with the same company. This is a proven and reliable option that provides a good level of service at low cost. The details of the hosting company were not made available to the author, but it may be possible to add an additional domain name to one of the existing hosting accounts for minimal additional cost, subject to an agreement with either MOT or MOC on the sharing of hosting costs.

Alternatively the CNCTP website could be hosted using the same host as the IFG, TKP and Transport-Links websites (www.fasthosts.co.uk). The existing "fasthosts" account held by TRL on behalf of these organisations has unlimited space and bandwidth and allows for the registration of multiple domain names for no additional charge.

5.1.4 Private hosting

It is possible to host a website privately without going through a dedicated hosting company. A computer powerful enough to be a web server would need to be purchased and a dedicated connection to the internet leased ideally with a static IP address. The initial costs are high, the recurrent costs may be lower than using a hosting company. The major drawback with this approach is the need to maintain the server hardware, which would normally be carried out by the hosting company. This is unlikely to be financially viable for hosting a single website.

5.2 Domain Name Options

The CNCTP website could be located under a sub directory of the new MRD website, after it is operational, with a URL format similar to www.mrd.gov.kh/cnctp for example. The drawback with this is that the address tends to be quite long and difficult to remember. It is therefore desirable to register a new domain name for the website. For example, the website www.google.com has the domain name 'google.com'. These names can be purchased from companies who provide a domain name registration service for a small annual subscription fee: typically US\$20 to 30.

The choice of name needs to be considered carefully and must adhere to the following criteria:

- Domain names should comprise only from the letters a-z, the digits 0-9 and the hyphen "-"
- Domain names cannot start or end with a hyphen "-"
- Domain names are not case-sensitive. (i.e. you may use a mix of upper or lower case letters)

Additionally it is desirable that the domain name is:

- Easy to type accurately,
- Easy to remember,
- Pertinent to the content of the website it refers to.

The domain level extension is also important, since the different extensions (.com, .net, .org etc.) have different connotations attached to them. For example .com was originally intended for use by commercial ventures. In reality anyone can register a .com domain regardless of whether they are a commercial entity or not. Since the CNCTP website is focused on Cambodia it makes sense to opt for one of the .kh extensions (such as .net.kh or .org.kh). This tells the user immediately that the website is Khmer. A good practice is to find a domain name that still has availability on all of the common extensions and then purchase all of them. Although more expensive it has the benefit of ensuring that forgetful people have a good chance of reaching the website and prevents other websites from occupying similar names which could cause future embarrassment and confusion.

Certain domain extensions are reserved for government use. In Cambodia, the '.gov.kh' is reserved and can only be registered by applying to the Ministry of Posts and Telecommunications (MPTC).

5.3 Funding Options

The website will require a steady trickle of funding to pay for site updates and maintenance. No one funding option should be pursued at the expense of other revenue streams. The level of funding required is comparatively tiny compared to the entire road and transport expenditure in Cambodia. Contributions in kind (such as the provision of trained staff for website maintenance) are also extremely valuable.

If the website is to generate its own revenue streams a method of managing these funds will be required. This may be possible through an online broker such as PayPal (www.paypal.com) or through one of Cambodia's retail banks (Cambodia Commercial Bank). The Cambodia Commercial Bank for example is in partnership with MoneyGram (www.moneygram.com) which enables electronic payments to be made worldwide.

5.3.1 Revenue from existing programmes and budgets

Although not a sustainable source of finance, some income can be mobilised from the existing sector programmes within Cambodia, including the ILO and PRIP programmes and the budgets of the MRD and MPW&T.

5.3.2 Selling of reports

A facility to sell key electronic and/or hardcopy reports through the website could be made available. The charge for electronic documents should be small, since demanding a significant fee for electronic documents may deter users from downloading the information and consequently reduce the effectiveness of the website as a dissemination mechanism.

5.3.3 Advertising

The website could be used by private companies or organisations to advertise their services, vacancies and contracts. A small charge would be levied for advertising space on the website. Initially this facility could be provided free of charge to gauge interest and then a small charge introduced once a significant user base has been established. Key clients could include:

- Fuel suppliers
- Quarry and material companies
- Equipment supply and lease companies
- Car manufactures (e.g. Honda, Toyota)
- Consultants (e.g. Intech-TRL)
- Development agencies (e.g. World Bank, ADB etc.)
- Non-Government Organisations operating in the transport sector

Advertisers would need the facility to have a small logo or banner on the site homepage as well as a page for the main text of their advert.

5.3.4 Affiliate schemes

Some websites create revenue from an affiliate scheme. An affiliate scheme is similar to advertising, but with a charging structure based on performance. Under an affiliate scheme a link to the affiliated website would be placed prominently on the CNCTP website. The number of times this link is used to direct users to the affiliate website is recorded and the affiliate pays the CNCTP website accordingly.

5.3.5 Donations

Some limited revenue can be generated from donations from individual users themselves. Users are most likely to donate if they find the site to be useful and they feel involved in the site's community. There is then the possibility of some compulsion to contribute to the running costs of the website.

5.4 Maintenance Options

The management and maintenance of the website pages need not be carried out by the entity responsible for hosting the website. The web server, through an FTP connection will allow for remote access from any computer connected to the internet, provided the right security details are given.

Managing the site content is unlikely to be a full time job. However, personnel will be required to periodically update the site and carry out routine 'house keeping' activities. The proposed website structure includes a web based administration interface that will allow much of the content of the site to be updated, by staff not familiar with databases and

programming web pages. Technical staff versed in these fields will be required for major modifications and additions, but their time inputs will be small, compared to the non-technical staff.

Maintenance can therefore be carried out by a virtual team of people working out of different offices and institutions if necessary. One caveat to this is that the maintenance team should be in close communication to prevent duplication of effort and ensure that activities are carried out in a co-ordinated manner.

6 ANALYSIS AND RECOMMENDATIONS

6.1 Short term recommendations

From the analysis of the collected information, CNCTP would be ill advised to host the website within either MRD or MPW&T in the short term. The capacity of these institutions to effectively develop, host and manage a website is insufficient at present although the NiDA GAIS programme provides a mechanism to improve this in future, which is welcome.

Therefore it is recommended that in the short term the website is hosted by a professional hosting company outside of Cambodia. This approach has already been adopted by the Ministry of Tourism and the Ministry of Commerce for their websites, both of which are hosted in the United States. The advantages of this approach are clear: fast, cheap and reliable internet hosting, and independence from any of the government organisations in the interim period.

Ideally the website should be launched using a domain name that has the extension of '.org.kh' clearly identifying the site as an organisation originating in Cambodia. An extension of '.gov.kh' should be avoided for two reasons. Firstly it ties the website inextricably with the Cambodian government, which is undesirable in terms of flexibility and private sector involvement. Secondly it requires additional government authorisation to obtain a '.gov.kh' domain name, which are usually reserved specifically for government use.

In the short term maintenance of the website can be carried out under a co-operative working arrangement between MRD, CNCTP and SEACAP, with a view of transferring the responsibility fully to CNCTP and MRD at a later date. During this period a terms of reference should be produced for website maintenance, setting out exactly what is required and the desired level of service. MRD personnel should also be trained on-the-job in the various tasks required to keep the site operational and up to date.

Funding for the website in the short term will include the budget available under SEACAP for the development of the website (US\$3000). Once developed the maintenance funds will need to be secured from MRD, MPW&T and the PRIP under the CNCTP mandate. In parallel with this, a business plan should be established setting out how to move the website from being financially dependent on contributions from government to a situation where it is financially independent, surviving on revenue streams generated from the content and services offered by the website.

6.2 Medium Term recommendations

Since both MRD and MPW&T are facing substantial barriers to setting up and managing their own websites, a logical solution would be for all government ministries to co-operate and appoint a web hosting company to host and maintain all government websites. Possibly in the medium to long term NiDA could fulfil this role, should a public rather than a private solution to the problem be required, although there is no indication at present that they (NiDA) have an interest in website hosting.

In a climate where IT professionals are in demand and have a market value far in excess of a government salary, hosting all the websites within NiDA or a web hosting company within Cambodia, would neatly sidestep the problem of developing information technology capacity within the ministries themselves,. Furthermore it means that the websites are housed within an entity that is best equipped to undertake web hosting activities as their core business, driving down cost and increasing performance.

There is no urgency to transfer hosting of the CNCTP website from the short term arrangement of a company outside of Cambodia to NiDA or one of the private web hosting companies within Cambodia. Functionally both arrangements will be similar although it is politically desirable to host the website in Cambodia. It is therefore recommended that the website should only be transferred to Cambodia should the following criteria be met by the new hosting entity.

1. Same or better value for money,
2. Same or improved level of technical support,
3. Same or improved functionality,
4. Same or improved uptime (% of time the website is available).

No change in the domain name is required when moving hosts. The domain can be transferred easily from one to the other with the minimum of effort .

In the medium term the funding and maintenance of the website should follow the business plan and terms of reference established after the launch of the website. Maintenance should be moved to a dedicated and resourced team, possibly linked to the MRD. The required skills will have been transferred during the short term and this should be handled as a smooth transition as opposed to an abrupt change of working practices. Financially the website will continue to need support from the Cambodian government although the required level should diminish over time as more private sector funds come on stream through advertising and affiliation schemes. Again it is important that the level of funding is sustained and no abrupt change in funding occurs.

7 WAY FORWARD

The following issues are outstanding and will need to be resolved before the establishment of the CNCTP website can take place.

1. Agreement with CNCTP that the TMP website can be produced as the CNCTP website needs to be attained.
2. The website mission and objectives will need to be agreed with CNCTP.
3. A web designer will need to be appointed to produce the website code and design the underlying database. This is urgent as the timeframe for this is very tight.
4. Agreement from the MPW&T to electronically publish their standards and specifications needs to be attained.
5. Translation of key documents needs to be undertaken and translation resources for the longer term identified.

The following issues will need to be dealt with following the launch of the website and before the end of 2005.

1. Following the launch of the website a terms of reference for website maintenance will need to be drafted.
2. After a short bedding in period and following an initial assessment of website traffic and projected traffic, a website business plan should be drafted.

REFERENCES

1. SEACAP 2, CAMBODIA Transport Mainstreaming Partnership, **INCEPTION REPORT**, March 2005.

ANNEX A. WIDER DISSEMINATION STRATEGY

OTHER DISSEMINATION PATHWAYS

A website is only one way of disseminating information to a large audience and whilst a website has many benefits it isn't necessarily the ideal solution for all dissemination needs. A website relies heavily on the capacity of its intended audience to actually retrieve the information presented on it. Assumptions are made that the target user group have a computer connected to the internet, that the user is internet literate and the user is aware of, and able to locate the website.

There are a number of other dissemination mechanisms, which can be employed; a few of these are discussed in more detail below:

Email

The use of email as a dissemination and communication tool is widespread. Many companies and institutions email regular bulletins and updates to a list of email contacts, keeping them up-to-date with recent developments. This practice is not to be confused with 'spam' or unsolicited emails which are a constant annoyance to email users.

The advantage of disseminating via email compared to a website is that it has a greater chance of reaching the target audience, since most people check their email regularly even if they do not visit websites. Additionally people who do not have their own computer or internet connection will go to Internet cafes in order to check their email.

The emails themselves can be set out in an attractive way including small graphics to make them visually appealing. Documents can be attached to the emails, but often it is better to simply email a link to the document on the website as this has the benefit of not using up too much of the users mailbox capacity and forces them to visit the website to download the document if they are interested.

The email list can be formed through the website registration process or through a simple field on the website where visitors can submit their email address without having to register in full. In either case an option for users to unsubscribe from the list should be made available.

Push Technologies

The biggest problem with a website is that it requires the user to check back to the site in order to see available updates. One possible solution to this problem is to make a small tool available to the user as an internet plug-in. Once this tool is installed it automatically checks the website for updates each time the user connects to the internet, reporting them in a small toolbar at the top of Internet Explorer. The software to author these toolbars can be purchased off-the-shelf and customised for a small financial outlay. An example of this is the TKP toolbar shown in Figure 3. This can be downloaded from the TKP website at http://www.gtkp.org/ie_toolbar/index.asp.

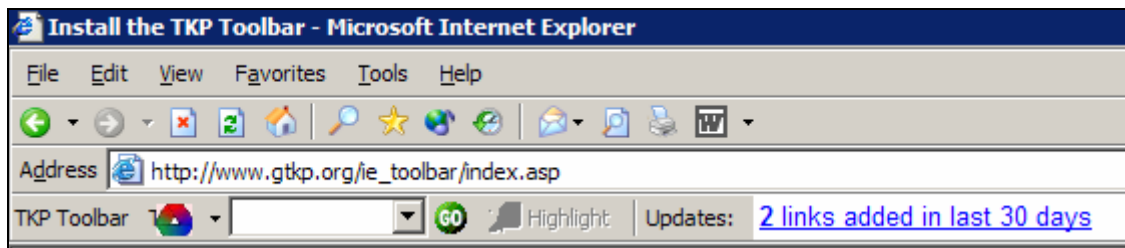


Figure 3. An example of using a toolbar plug-in to keep users informed

CD-ROM

Most computers are now fitted with CD-ROM drives, so even if they are not connected to the Internet a CD-ROM can be used to disseminate information electronically. The big advantage of using CD-ROMs is their large storage capacity. Each disk can hold upwards of 640MB of information, making them ideal for the dissemination of large files or groups of large files which would otherwise take a long time to download from the Internet or be prohibitively expensive to produce, store and post in hardcopy format. A CD-ROM can also contain multimedia content such as training videos and presentations, making them a powerful and cheap dissemination tool.

Fax

The fax is still widely used across the world, although increasingly less so with the advent of email. Faxed information can be useful and it is possible to offer a fax service, whereby documents can be faxed across to people on request. These requests would need to be made either by fax or telephone. The need for such a service depends heavily on the facilities available in the rural areas. If computers and the use of the internet (either within institutions or through internet cafes) are widespread then there is no real need to use the fax as a dissemination tool as it offers no benefit over email.

Mobile Phone

The mobile phone network within developing countries generally provides a good service, with even some of the most remote areas having network coverage. Since the cost of providing and maintaining the infrastructure to operate a mobile network is considerably less than that for a fixed line network, this trend is likely to continue for the foreseeable future.

Although with the current network technology and handsets available in Cambodia it isn't possible to send large documents to mobile phone handsets, it is possible to send short messages via SMS (Short Message Service). These brief messages can be used to raise awareness of important developments and contain information on how to obtain the most recent information and documentation relevant to the user.

For this service to be practicable, users would have to register their mobile phone number on the website or send it via email so that it could be added to the SMS mailing list. As with the email mailing list an unsubscribe feature is important.

Hardcopy

Professionally produced paper copies of documents still have a significant role to play in the overall dissemination strategy. A bound report can be easily stored for future reference or presented during meetings and discussions as credible evidence to backup a well reasoned argument. Loose leaf pages printed from the internet or photocopied from a report don't convey the right message when trying to convince decision makers to change their policies. The obvious disadvantage of hardcopy production and distribution is cost. It can be prohibitively expensive to produce documents on-demand, or even to produce batches and

store them. Documents have to be placed in to envelopes, addressed and posted. This can require significant labour inputs.

Financing of hardcopy dissemination can be achieved by charging for the documents. Developing a business model for this is difficult since demand is largely unknown until the service has been established.

CREATING A COORDINATED DISSEMINATION STRATEGY

For a successful dissemination strategy it is important to understand the role of each of the dissemination mechanisms and apply them in the most appropriate manner. Additionally it is important to ensure that the overall strategy is co-ordinated, so that the different dissemination pathways interlink and work together. For example, when sending out hardcopies, ensure that the URL of the website is included prominently on the cover, provide links on CD-ROMs that link to pages on the website or open up email forms, and enable a mechanism on the website for the online ordering of hard copies. By linking the different mechanisms together into a coherent package, the target audience are free to choose the delivery mechanism that is best suited to their needs.

In addition it is advisable to undertake some form of advertising to raise awareness of the services on offer. This could take the form of a simple leaflet or an advert in a widely read trade journal or national newspaper.

SUGGESTED WIDER DISSEMINATION STRATEGY FOR CNCTP

The following suggestions do not fall within the existing SEACAP 2 contract. Nevertheless, these suggestions may be revisited by CNCTP should further funding become available at a later date.

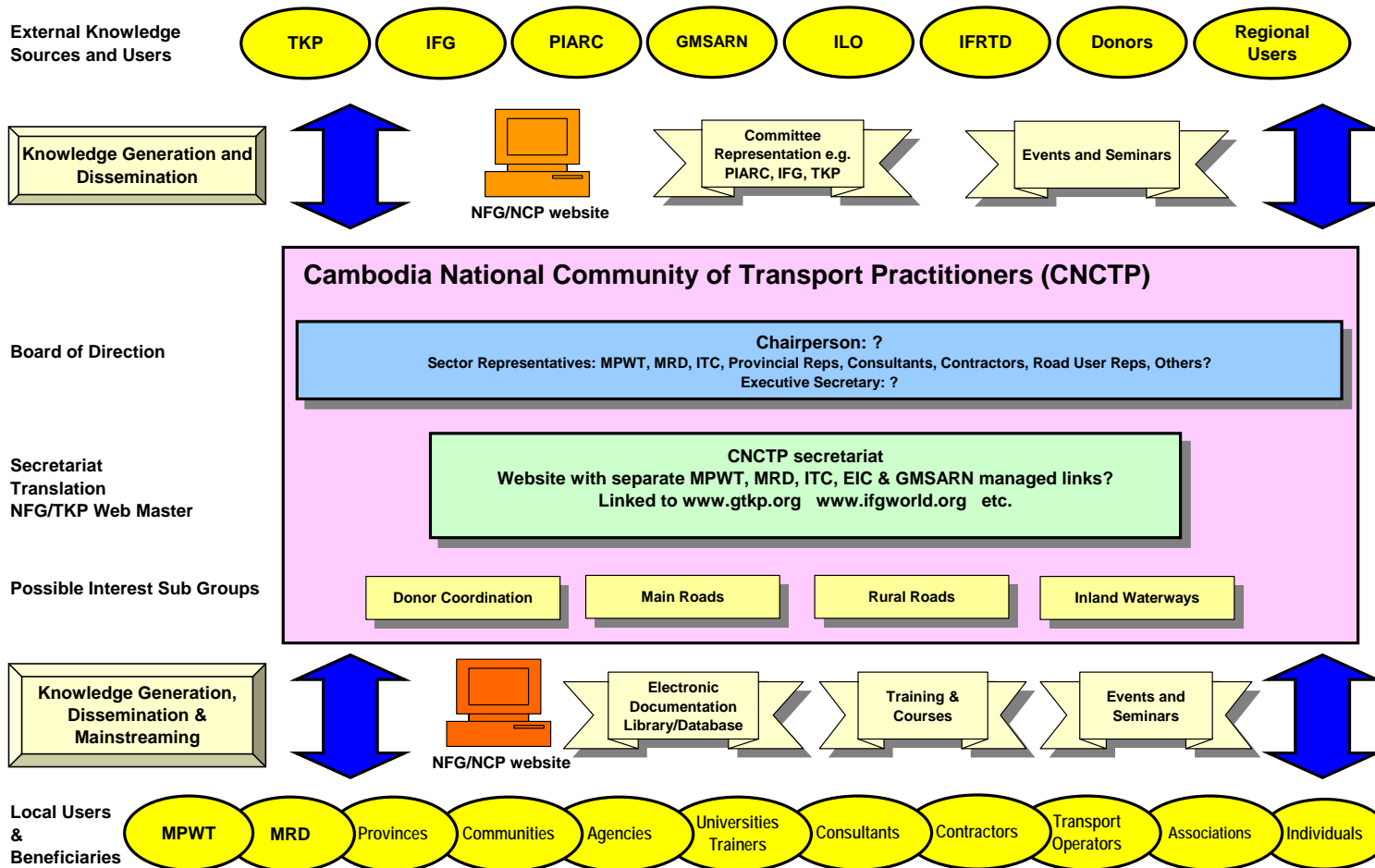
The four key dissemination mechanisms for CNCTP should be its website, an email newsletter, CD-ROMs of documents and distribution of hardcopy. These should be co-ordinated by providing as follows:

- Details of the website should be added to any hardcopy documentation sent out, possibly by adding a self adhesive sticker to the front cover that can be removed by the recipient if they wish.
- A link to the website should be added to any CD-ROMs sent out both within the software and on the cover of the CD-ROMs. If appropriate, information on obtaining hardcopy materials should be added to the CD-ROMs.
- The email newsletter should contain links to the website homepage and relevant documents on the website. It should also provide information about obtaining hardcopy material or CD-ROMs.
- The website should have a facility to subscribe (and unsubscribe) to the email newsletter. It should also contain an online ordering mechanism for obtaining CD-ROMs and hardcopy materials.

ANNEX B. CNCTP ORGANISATIONAL STRUCTURE

CAMBODIA NATIONAL COMMUNITY of TRANSPORT PRACTITIONERS - SHEET 2
 Draft Proposals under consultation
 POSSIBLE STRUCTURE & LINKAGES (DRAFT)

*Roads & Waterways
 (Not Rail or Air Transport)*



ANNEX C. PROPOSAL FOR MPW&T WEBSITE AND CAPACITY BUILDING

Introduction

The Ministry of Public Works and Transport (MPW&T) made a request to the SEACAP 2 (CTMP) team during April 2005 to assist them with the drafting of a proposal for the development of their IT infrastructure and resources, and in particular the development of a Ministry website.

Previously the Ministry had its own website provided under a CIDA funded assistance programme. However when this programme finished the Ministry was not able to sustain the website and it can no longer be found on the Internet. The underlying reasons for this have been identified and has formed the basis of the development of proposals for a sustainable website facility. For the new website to be successful, it is imperative that these underlying needs are addressed as a package of measures to strengthen the Ministry's capacity.

This document is not intended to be a complete proposal, since it lacks financial information, which is not readily available to the author. Instead it highlights some of the issues and important areas which should be included in the final proposal document prepared by the MPW&T.

Background

Five areas of need have been identified as follows:

- Knowledge management – The Ministry has a vast amount of information including statistical data, records, specifications, drawings, contract documentation and publications which need to be managed effectively.
- Human resources – The Ministry has a need for improved levels of expertise in the field of information management and information technology.
- IT Infrastructure – The Ministry requires improved information technology hardware to improve work flows, communications and general working practices.
- Co-ordination – The Ministry needs to integrate its systems with other Government Ministries and institutions where appropriate and co-ordinate with other Ministries to remove duplication of effort and improve efficiency.
- Finance – The Ministry needs a sustainable stream of finance in order to maintain its efforts in providing an improved information environment.

Although development in all of these areas is desirable, this development needs to be properly managed. A paradigm shift in working practices is being proposed, which will require a culture change within the Ministry; this cannot be achieved overnight. It is important to be sensitive to the Ministry's employee circumstances and start by implementing measures which are non-threatening and have clear benefits to employee's day to day working. These early successes will then pave the way for progressively more substantial changes over time.

Knowledge Management

The management and control of information and knowledge is fundamentally important to all organisations. Increasingly the large quantity of information and the need to recall and reference the information quickly has forced many organisations to invest in electronic knowledge management systems. These systems are invariably expensive and complicated to use effectively. The main guiding principle is not to overcomplicate working systems unnecessarily; don't implement change for changes sake.

The MPW&T has a huge amount of information which could be better managed electronically. Broadly speaking there are three different audiences for the Ministry's information.

1. The general public
2. Ministry staff
3. Consultants, contractors and suppliers

A website can in part fulfil all of these roles. Firstly it can inform the public of the Ministry's activities, policies and procedures, including contact details of responsible officers. Media articles and legal or regulation information could also be provided. Secondly it can be used as a valuable communication tool within the Ministry enabling the sharing of information electronically between geographically diverse and disconnected staff. Thirdly it can advise of MPW&T plans, projects and contracts, and invite interest or bids through notification of this work. Even in the absence of a local area computer network a connection to the website could be established through a simple dial-up connection.

In the longer term it is desirable to separate these functions by creating a website to serve the needs of the public and sector partners, and an internal network (intranet), and file system to serve the needs of Ministry employees connected via a local area or wide area network.

It is proposed that frequently accessed information is identified and converted to an electronic format for inclusion on a website. A website should then be established to improve the communication of this information to both the public and Ministry staff. A feasibility study should then be carried out into the establishment of an intranet and recommendations made for a further proposal.

Human Resources

Provision of additional IT infrastructure is pointless unless the Ministry staff are trained in its operation. However there is a major barrier to increasing the IT literacy of the Ministry's staff. A core problem is that good IT specialists can demand a much higher salary within the private sector, therefore even if staff were trained it is unlikely that they would be retained by the Ministry under the current civil service remuneration scheme. There are two possible solutions to this problem. The first solution is to supplement the salary of IT professionals within the Ministry. The second is to buy in expertise from outside. Politically and practically, it is likely that the first solution may encounter considerable resistance from various sources. This makes the second option a more realistic proposition in the current circumstances.

It is therefore proposed that the Ministry will be trained in the basics of IT, including the use of Microsoft Windows, Internet Explorer, Microsoft Outlook, Microsoft Word and Microsoft Excel. Specialist IT skills will then be bought in from outside to manage the IT infrastructure. Management of the website should be carried out by a partnership between Ministry staff and the private sector, with a programmed transfer of skills so that the Ministry can take over the role in the long term.

IT Infrastructure

The information technology hardware and software available to the Ministry at present is limited. It is therefore proposed to implement a scheme to increase the availability of PC's and software within the Ministry. Specifically steps should be made to introduce a local area network (LAN) within the Ministry.

The provision of a LAN has huge benefits. It facilitates the sharing of files between computers on the LAN and by connecting the LAN with a file server information can be stored and retrieved centrally, and backed up to guard against data loss. The LAN may also include a mail server, which could provide local and internet email facilities for all users.

It is proposed that the existing computer server provided by NiDA should form the basis for this LAN within the Ministry. Already a number of PC's have been provided and are connected to this server forming a small network. With additional investment in network routers, cabling and PC's this LAN could be extended to other parts of the Ministry. The objective should be to have a minimum of one networked PC in every working office of the Ministry.

Coordination

It is important that the MPW&T does not work in isolation. It will need to collaborate closely with the NiDA e-government programme, working with their IT specialists in order to make the best use of the equipment already provided.

The MPW&T should also seek advice from other Ministries already operating a website and seek to collaborate with them in order to reduce costs. Hosting costs for example could be significantly reduced by sharing web space with other Ministries. Website maintenance for all government websites could be handled by a single team, again reducing costs.

It is proposed that a small investigative team be established to meet with other Ministries and NiDA to discuss the development of the MPW&T IT capabilities, the remit of this team will be to establish possible areas of synergy with other Ministries and capture any valuable lessons learnt from those Ministries that have attempted to improve their information technology. This information should be used to guide the implementation of the entire programme.

Finance

With existing budgets already severely constrained, it will not be possible for MPW&T to finance the necessary inputs required to upgrade its capabilities and continue this process in the long term, without new or external support.

Ultimately the benefits of an efficient and effective electronic communication system will vastly outweigh the costs of maintaining it. Improved communication and work flows lead to time savings, enabling staff to be more productive. Additionally, by allowing the public limited access to information stemming from the Ministry, the transparency and reputation of the Ministry's operations will be improved.

It is proposed that in the short term the process will need to be supported either directly through a new donor funded project or by tapping in to existing donor programmes and ensuring that components are included to build the necessary capacity. For example this could be achieved by stipulating that provincial offices will be required to submit all of their documentation electronically for the purpose of project funding and tracking.

ANNEX D. TOR FOR WEBSITE PROGRAMMER AND SPECIFICATION

BACKGROUND

The second project of the South East Asia Community Access Programme (SEACAP 2) is designed to support the transport sector activities of the Ministry of Rural Development and the Ministry of Public Works and Transport, through a Cambodia Transport Mainstreaming Partnership (TMP). The TMP is aimed at resolving a number of outstanding issues in the transport sector relating to consolidation of past research outputs and to the setting up of a unified information system. One component of the SEACAP 2 programme is to facilitate the dissemination of information widely within Cambodia; including, but not limited to the information gathered during the earlier SEACAP work on rural road surfacing technologies and gravel surface deterioration.

The Cambodian government has already given a mandate to establish the Cambodian National Community of Transport Practitioners (CNCTP). The objectives of this organisation are complimentary to those of SEACAP and the TMP and together both organisations wish to establish a website that will disseminate information, and manage the institutional knowledge across all transport stakeholders within Cambodia.

ACTIVITIES

Responsibilities of the contractor

The contractor will be responsible for the creation of the CNCTP website, which is specified in the 'Website Specification' section of these terms of reference. Specifically the contractor will be responsible for the following:

- Create the underlying database for the website.
- Create templates and web pages for the website.
- Upload the website to the supplied web space and launch it publicly.
- Populate the database and website with key documents.
- Create of a web based administration area including a web interface for updating the website.
- Integrate an 'off-the-shelf' discussion forum into the website.
- Thoroughly check the website for bugs and make the necessary adjustments to fix them.
- Write the manual for the operation of the website administration area
- Monitor page hits and produce a report including recommendations for future work.

Responsibilities of Intech-TRL

- Secure agreement with CNCTP that the TMP website can be produced as the CNCTP website.
- Register a domain name and purchase sufficient web space.

- Provide documents and content for the website.
- Agree website mission and objectives with CNCTP.
- Secure agreement from the MPW&T to electronically publish their standards and specifications.
- Arrange translation of key documents and identify translation resources for the longer term.

INVOICING AND MILESTONES

The total contract value is to be within a budget of US\$3000. All work must be completed and invoiced by the end of January 2006. A draft programme Gantt chart is provided in these terms of reference. The final programme of work will need to be agreed with the contractor prior to appointment.

- Completion of Phase 1 US\$TBC
- Completion of Phase 3 US\$TBC
- Completion of Phase 5 US\$TBC

WEBSITE SPECIFICATION

Introduction

The CNCTP website will draw together resources from the research carried out under the SEACAP programme, together with outputs from the ILO-Upstream project and information from the Ministry of Rural Development and the Ministry of Public Works and Transport. The website will contain a mixture of static and dynamic content. The dynamic content will be generated from a database held on the server, which can be administered through a web interface.

Website Structure

The content of the website will be rationalised to fit in to a number of thematic areas. This will facilitate site navigation. The website will need to support both Khmer and English languages. Figure D-1. shows the proposed structure of the CNCTP website. Each of the pages is described in more detail below.

Home Page

The home page is the entry point for the website and will be split into several areas (top bar, two side bars, a bottom bar and a central area). The content of these areas will be a mixture of static and dynamic elements, with the dynamic elements providing a quick and easy way of keeping the homepage up to date and fresh.

The home page will provide the basis for the style of the rest of the site, with the layout and navigational elements being reused for all of the pages. It will feature a number of links to directly take the user to the other pages in the site, as well as options to select language and perform a simple website search.

The right-hand side of the homepage will contain advertising banners and links from companies wishing to advertise on the website. Below these, information will be made available on current recruitment opportunities and contracts being let.

About Us

This will be a simple static page containing all of the background information on the CNCTP including the CNCTP vision and mission statements. The details of the CNCTP Chairperson and Executive Secretary will also be made available on this page.

News and Events

News and events provides users with an up to date list of training courses, procurement opportunities, seminars and workshops.

Links

A page providing links to other relevant online resources such as the Transport Knowledge Partnership (TKP – www.gtkp.org) and the International Focus Group on Rural Road Engineering (IFG – www.ifgworld.org). Links to all of the CNCTP contributors mentioned in Annex B. should be provided.

Contact Us

Page containing contact details of the site administrators, including email addresses. This should include specific email addresses for enquiries relating to advertising, documents, news and events and a general enquiries email.

Discussion Forum

The forum is an area for discussion. Website users can post discussion topics or respond to other users posts publicly. Forums are a very useful tool for stimulating and capturing discussion. Several forum applications are available free of charge over the internet. It is suggested that one of these is used (possibly PHPBB2 or similar) configured and formatted for use on the website. The web-server will need the corresponding components installed (e.g. PHP) in order for the forum to operate. It is suggested that the forum contains a help page which explains what the forum is and how to use it, since many people will be unfamiliar with the concept. The most recent forum post will be displayed on the homepage. Constructing the forum so that it can be used by both Khmer and English speaking users will require some recoding of the forum code so that two different web interfaces (one with Khmer text and labels, one with English) feed into the same forum database.

Site Map

The site map is a page showing links to all of the pages on the website. The site map should be formatted in such a way that it shows the structure of the site, (similar to that shown in Figure D-1). The site map can be accessed from any of the sites pages.

Administrators Area

The administration area, accessible only by website administrators through a secure login procedure will be a fully featured web interface for manipulating and updating all of the database driven features of the website, including Links, News, Tools, Documents, Themes and the forum, the structure of the administration area and some further details are shown in Figure D-2.

Search

Although a simple site search box will be available on every page a separate search page will also be created which offers more advanced search criteria, such as theme type and date of creation.

Document Library

The document library is a central store for all the documents on the website. All documents can be saved on the server and linked to from the database. The database will contain additional information to assist with document classification and searching, such as date of creation, author, theme, file size and type. The documents page will include its own search options to capitalise on this, plus a shortcut to allow users with the right permission level to add their own documents. Some documents may require a small fee to download, therefore a mechanism for charging users will need to be implemented, possibly through a broker agent such as MoneyGram or PayPal.

Themes

Every document on the website will be categorised into a theme, e.g. road safety. Each theme will have its own entry page, giving some background information to the theme and suggested reading material for the uninitiated.

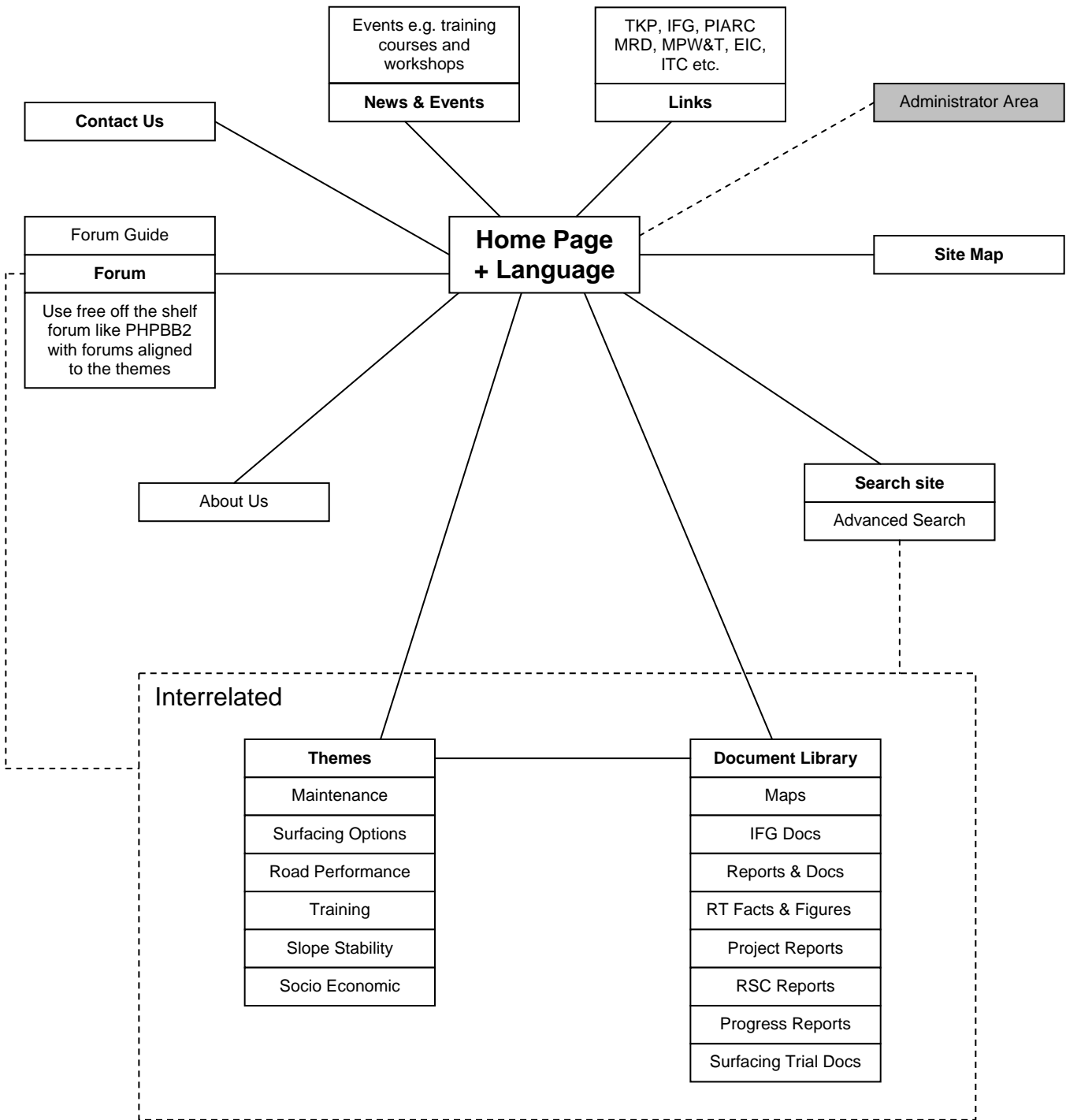


Figure D-1. Structure of CNCTP Website

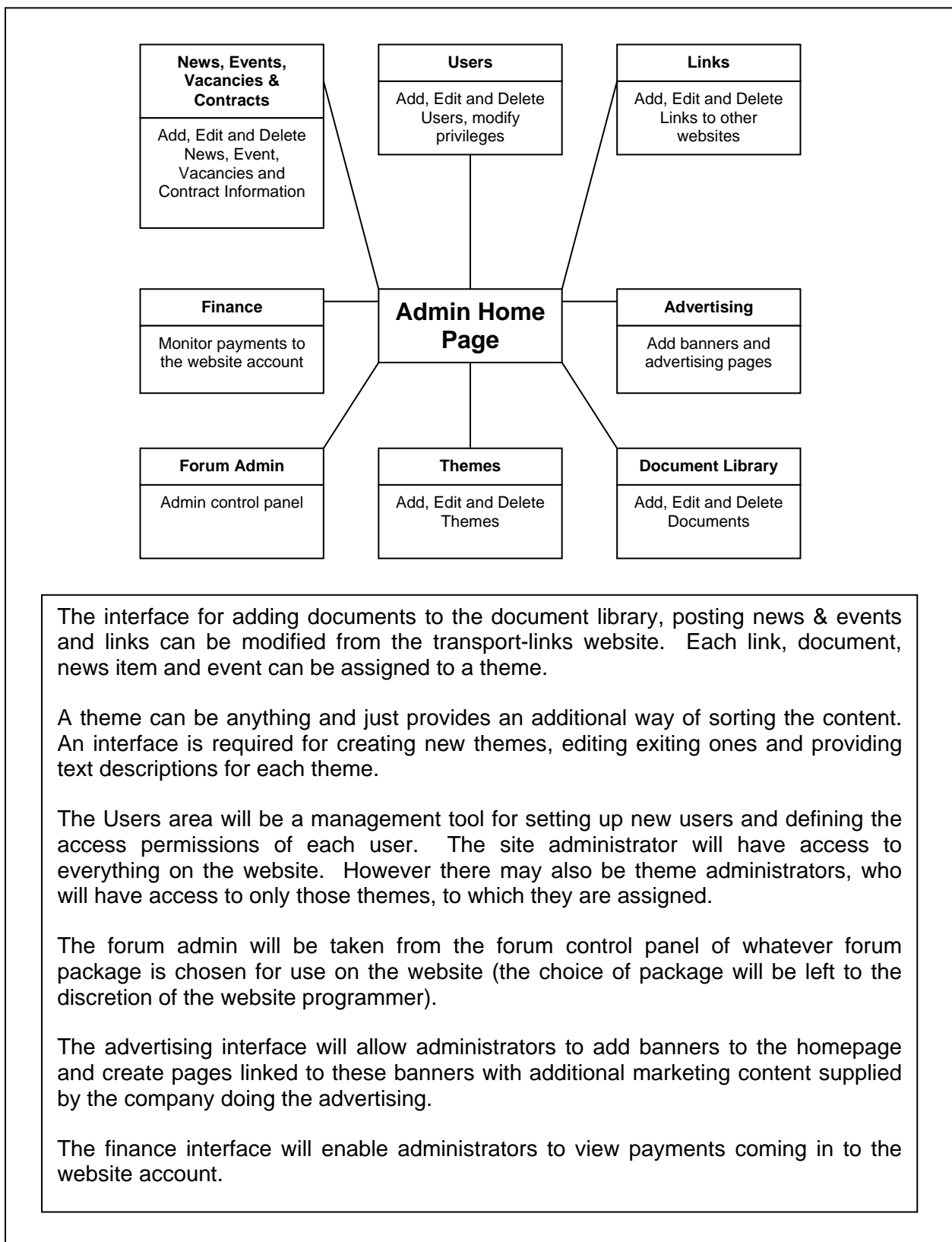


Figure D-2 Structure and details of the administration area

[English](#) [Khmer](#)

CNCTP - Cambodia National Community of Transport Practitioners

Login Search:
Adv. Search
Site Map

Home
News & Events
Forum
Themes
Jobs & Contracts
Library
Contact Us
Links

Latest News


31-3-05
Workshop on gravel road maintenance to be held in Siem Reap (20th June)
[more...](#)

14-3-05
International Focus Group Meeting on Rural Road Engineering in Arusha, Tanzania
[more...](#)

23-2-05
Latest Surfacing Trials results now available
[more...](#)

Latest Forum Discussion

Suggestions for training:
It would be good if someone could arrange for a training course for local contractors involved in labour based works
[more...](#)



Welcome

Please use the navigation bar at the top of this page to find your way around the website. a full description of the different areas can be found in the site map. A description of the main content areas is given below:


- Library: Contains all of the documents on the website
- Jobs & Contracts: Contains details of current transport sector vacancies and contracts within Cambodia
- Themes: A series of themed pages dedicated to specific topic areas.
- Forum: An interactive discussion forum, for asking questions and commenting on everything rural roads

Read more about the CNCTP website [here...](#)


Quick Links


[UKDCP Software Download](#)

Affiliates



**Intech
Cambodia**
CONSULTING ENGINEERS





Most Recent Documents

[Gravel Guidelines Intech/TRL](#)
[more...](#)

[IFG Surfacing Option sheets](#)
[more...](#)


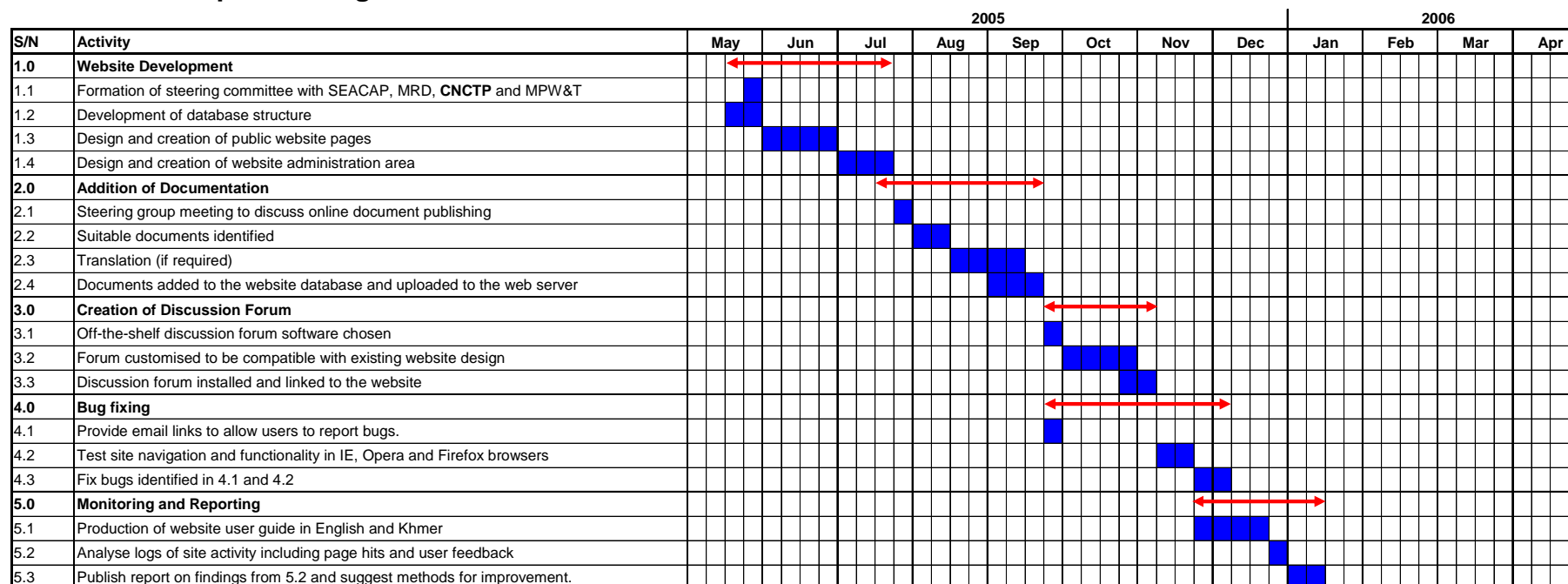
 email: info@cnctp.org.kh

Figure D-3 Homepage Design Mockup

Website Development Programme Gantt Chart





1.1.2 Project Office: MRD, Corner St 169 & Russian Boulevarde, Phnom Penh, Cambodia
Tel/Fax: 855 (0)23 883 607
e-mail: intech-trl@fpt.vn & Intech_Cambodia@online.com.kh