

### III. 専門家業務内容（2011年度～2012年度）

#### <プロジェクト運営管理>

##### -年間計画の進捗管理

PDM (Project Design Matrix)に基づき、PO (Plan of Operations)及びAPO (Annual Plan of Operations)を作成し、プロジェクトの進捗状況をモニタリングした。

また、四半期毎の業務報告書において、「活動」における進捗度をモニタリングし、進捗が遅れている活動があれば、それらの問題の分析をおこない、その原因を究明し、必要な対応策を講じた。

##### -カウンターパート本邦研修

以下のとおり、2011年度及び2012年度にカウンターパート本邦研修を実施した。

- ・2011年度
  - 研修分野 建設工事の品質能力向上支援
  - 研修日程 2011年11月6日～25日
- ・2012年度
  - 研修分野 建設工事の品質能力向上支援
  - 研修日程 2012年7月15日～8月4日

カウンターパート本邦研修は、カウンターパートにとって、モチベーションを維持、向上させることのできるプロジェクト運営ツールのひとつであり、本プロジェクト期間中を通じて、有効に活用することができた。本研修に参加したカウンターパートも、研修後は積極的にプロジェクト活動に関与する傾向がみられたことが収穫であった。

##### -技術交換事業の実施

本プロジェクトと類似プロジェクトであるフィリピンで実施されている「道路・橋梁の建設・維持に係る品質管理向上プロジェクト（フェーズII）」に本プロジェクトの専門家、カウンターパート3名を派遣し、当該プロジェクト専門家及びフィリピン人カウンターパートと意見交換及び橋梁のパイロットプロジェクトサイトの視察を行なった。フィリピンはカンボジアに比べて、組織・運用体制も発達しており、今後のカンボジアにおける組織・運用体制の構築の観点からも非常に参考になった。また、カンボジア人カウンターパートは同地域のフィリピンの道路、橋梁の補修技術、知識とカンボジアのそれらとの格差について、一種のカルチャーショックを受け、カンボジアでの更なる知識、技術の習得を痛感したことは、大きな成果であった。

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#### （目的）

本プロジェクトに先行する形で、フィリピン国において、「フィリピン道路・橋梁の建設・維持に係る品質管理向上プロジェクト（Improvement of Quality Management for Highway and Bridge Construction Maintenance project）」が2007年2月17日から2010年2月16日の期間で、マニラ首都圏、セブ、ダバオ、バギオの地域で実施され、現在、当該プロジェクト（フェーズII）が実施されている。他方、本プロジェクトは、フィリピン国で実施された（されている）プロジェクトと同類の内容で、2009年5月～2012年10月の予定で実施されている。そこで、本年10月に終了するにあたり、本プロジェクトのカンボジア人カウンターパートと共にフィリピン国に赴き、以下の内容で技術交換事業の実施を計画している。

- ①フィリピン国の道路・橋梁の建設・維持に係る品質管理向上プロジェクト（フェーズI）で

の成果を確認すると共に、フェーズ I における自立発展性、インパクト、効果等について意見交換を行う。

②技術・知識において先行しているフィリピン国及びフィリピン人カウンターパートと道路、橋梁に関する品質管理について意見交換を行い、カンボジア国の今後の道路、橋梁に関する品質管理方法について習得させる。

③本プロジェクト実施機関先において、来年度 4 月（予定）から「カンボジア橋梁プロジェクト（仮称）」が実施される予定であり、橋梁の保守点検手法、補修技術等の習得をさせる。

（参加者の氏名及び職位）

- |                       |                               |
|-----------------------|-------------------------------|
| 1) 桑野忠生               | チーフアドバイザー／道路建設・維持管理           |
| 2) 石田和基               | 業務調整／図書室運営管理                  |
| 3) Mr. Samrongdy NAMO | Deputy Director of PWRC, MPWT |
| 4) Mr. Hum VUTHY      | Deputy Director of PWRC, MPWT |
| 5) Mr. Kem SOCHEAT    | Department Chief of RID, MPWT |

（事業実施日程）

<2012 年 10 月 7 日～12 日（6 日間）>

日順	月日	曜日	時間		
1	10/7	日		プノンペン(10:05) ⇒ バンコク(11:10)	(TG581)
				バンコク(15:15) ⇒ マニラ(19:30)	(TG624)
2	10/8	月	09:00	JICA フィリピン事務所 挨拶	
			10:30	道路・橋梁の建設・維持に係る品質管理向上プロジェクト 訪問、意見交換	
				マニラ(15:30) ⇒ ダバオ(17:20)	(PR813)
3	10/9	火	10:00	DPWH Davao Regional Office 訪問、意見交換	
			13:00	プロジェクトサイト① 視察	
4	10/10	水	09:00	プロジェクトサイト② 視察	
			15:30	DPWH Regional Office 報告、意見交換	
5	10/11	木		ダバオ(07:10) ⇒ マニラ(09:00)	(PR820)
			10:30	道路・橋梁の建設・維持に係る品質管理向上プロジェクト 訪問、報告	
			14:00	マニラ首都圏の道路、橋梁状況視察	
6	10/12	金	10:00	JICA フィリピン事務所 報告	
				マニラ(13:05) ⇒ バンコク(15:20)	(TG621)
				バンコク(18:15) ⇒ プノンペン(19:25)	(TG624)

（期待される効果）

・同類プロジェクトが共通に抱えている課題、問題点を把握し、分析することにより今後のプロジェクト運営に寄与することができる。

・カンボジア国より先行しているフィリピン国における道路、橋梁に関する品質管理手法について意見交換、現場視察を通して、習得させることができる。

・フィリピン国における運営体制を習得することによりカンボジア実施機関内での運営体制の再構築を検討させることができる。

・先行しているフィリピン国のインフラ整備状況を視察することにより、個々のカウンターパートの業務に対するモチベーション向上につながるることができる。

・来年度から実施予定である技プロ「カンボジア橋梁プロジェクト（仮称）」の開始にあたって、効果的なプロジェクト運営管理体制の構築に寄与することができる。

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#### ー機材（供与機材／携行機材）

2010年度供与機材（第3次調達：2010年12月22日申請）分の大部分が、2011年6月10日に到着し、未着であった「密度／水分計（電磁波水分・密度計）」が7月27日に到着し、2010年度供与機材全機材が実施機関側に供与された。

試験所に供与した試験機材・機器は、本プロジェクトの目的でもある、「道路、橋梁の建設の品質管理向上」のために、積極的に活用されており、今後も更に各機材・機器が活用され、カンボジアでの品質向上のための一翼を担うことを期待する。

また、2011年度供与機材（トータルステーション等）が2012年3月16日に到着し、実施機関側担当者と協同で検収を実施した。本供与機材の場合、最新の機材のため、当初その使用方法が理解できず、数回のトレーニングを行った後に、やっと活用されるようになった。また、高額な機材であるために、その管理場所を本プロジェクト内にしてほしい等の要望が実施機関側から示されたが、「自立発展性」の観点から、実施機関側で管理、運用するように指導した。

#### ＜広報活動について＞

2009年度～2010年度に JICA ホームページ掲載のプロジェクトニュース（第1号～第20号）及びプロジェクト・パンフレット（日本語版／クメール語版）を作成し、本プロジェクトの広報活動に努めた結果、比較的職人色の濃い一般には馴染みにくい本プロジェクトの目的、意義、活動等を理解してもらうことができたことは満足している。

2011年度～2012年度は、プロジェクトニュース（第1号～第2号）に替わり、「プロジェクトニュースレター」を作成し、より効果的に本プロジェクトの更なる普及をおこなった。

本プロジェクトニュースレターは、以下のホームページから閲覧できるので、併せて参照願いたい。  
(URL) <http://www.jica.go.jp/project/cambodia/002/news/index.html>

#### ＜図書室運営管理＞

2011年度から本来業務である「業務調整」に加えて、「図書室運営管理」業務が追加された。これは、本プロジェクトの成果2:「完成図書統合集中管理システム (Database Management System) の構築」の活動を行う上で、統合集中管理システム (Database Management System) を設置する図書室が、実施機関では倉庫代わりに使用されていたため、当該システムを運用する上で、「図書室の整備」は不可欠となり、JICA 側及び実施機関側と協議をした結果、図書室の整備と併せて運営管理システムの導入を実施することになり、過去に携わった案件において、小職が「図書室運営管理」を指導した経験があることから、2011年度から担当することになった。以下に、本分野の活動内容を時系列的に示す。

#### - 2011年第1四半期

- (1) 完成図書管理体制（受付→データ変換・入力→データ更新→管理）の規程（ルール作り）の構築
- (2) 図書室運営管理

当初図書室だった部屋は、その半分が RAMP (Road Asset Management Program) 事務所になってしまい、書籍数及び今後収集される完成図書の増大に伴い、現状の図書室規模では、到底、対応できないのが現状であるので、まずは実施機関側と図書室の場所も含め、図書室機能について、彼らがどのような構想、将来像を描いているのか？聴取した。

・データベースマネジメントシステムを MPWT 職員に認知、活用させるための方策として、MPWT 省内 LAN を活用して、職員が容易に当該システムにアクセスできるようにシステムの改善を行った。

・ 規程（ルール作り）を構築するために以下の提案を行った。

<Suggestion and recommendation>

#### 1. Work Procedure

-How and who hand out to submit the completion documents and to whom?

-When submit the completion documents to the database?

-Who entry these data and make scan data into the database?

-What is the content of completion documents?

#### 2. Future Activities

##### 2-1 Training

##### 2-1-1 Training of trainer for database system

-Training shall be requested from a consultant so that the administrator and operator can perform user training.

##### 2-1-2 The course for user will conduct in the MPWT training program.

-It consider to carry out in MPWT training program successively and it think it may be desirable that it is with lecture, and system person in charge acts as training for the MPWT staff and users.

##### 2-1-3 Publication for Users

-User training by carrying out not only how to use "Completion document System" but also widely known to a lot of users by announcing. It thinks an effective means to improve availability. On the other hands, administrator (administrator, operator) will be more advanced than the use of feedback and improve the way coming up from the user. The management system promotion is expected to establish for the update and the data storage.

##### 2-2 Future Plan and objection

##### 2-2-1 Sustainability

-It is thought that the monitoring is necessary to attempt the degree of operation. Therefore it lasts how the issue and problem to be found deal when I will manage a system in future and we should follow up the activities in this project.

##### 2-2-2 System Support and maintenance

-Depending on the operational status of the system maintenance and support is deemed necessary.

-If the operation is to ensure that we maintain that making a support contract.

- 2011 年度第 2 四半期

(1) 図書室運営管理システム概要（第 1 次案）を策定し、本 1 次案をたたき台に、カウンターパートと意見交換を行った。

- 2011 年度第 3 四半期

図書室運営管理業務の 4 本柱を以下のとおり決定し、各業務の具体的な活動計画を決定し、活動準備を行った。

<活動目標>

-1. Database Management System の更新

-2. 書籍管理システム (Book Inventory System) の開発、実施

-3. 図書室の機能的改修及び書籍・報告書の整理

-4. 標準図集検索システム (Standard Drawing Searching System) の開発、実施

- 2011 年度第 4 四半期

(1) 前四半期に決定した各業務の具体的な活動計画を実状に合わせて適宜変更しながら、業務計画を

実施した。

<活動計画詳細>

1. Database Management System の更新
2. 標準図集検索システム (Standard Drawing Searching System) の開発、実施
3. 書籍検索システム (Book Inventory System) の開発、実施
4. 図書室の機能的改修及び書籍・報告書の整理

- 2012 年度第 1 四半期

1. Database Management System の更新

- (1) 完成図書 (Completion Documents) のデータベース化 (A1 及び A3 サイズ As-built drawing のスキャニング)
- (2) 完成図書 (Completion Documents) のデータベース化に関する MPWT 内部行程のルール作り
- (3) 完成図書 (Completion Documents) のデータベース化実施マニュアルの策定

2. 標準図集検索システム (Standard Drawing Searching System) の開発、実施

上記、2) の MPWT 内部のルール作りに対する提言については実施機関側に提出し、実施機関内の行程の確立を促したが、省庁全体に係わる内容とのことで、ペンディングになっている状態である。また、5) の Standard Drawing に関するシステム開発、実施については、本プロジェクトの活動のひとつである、「道路構造物標準図集の編纂」が完了したのを受け、「Database Management System」「書籍管理システム (Book Inventory System)」と共に「標準図集検索システム (Standard Drawing Searching System)」を開発し、ユーザーが 3 システムを活用しやすいように、ひとつの画面から選択できるようにした。更に、3 システムそれぞれにカウンター機能を加え、利用者数の把握ができるようにした。

3. 書籍検索システム (Book Inventory System) の開発、実施

4. 図書室の機能的改修及び書籍・報告書の整理

当該活動については、Database Management System や標準図集検索システム (Standard Drawing Searching System) と共に、「運営管理」という観点からは、非常に重要な活動であり、今後、実施機関側が包括的管理を行う上で、有効なシステム構築であったが、残念ながら、実施機関側にとっては、主たる活動とはとらえられず、副次的な活動という位置づけであったため、カウンターパートが積極的に関与することはなく、小職、外部コンサルタント及び本プロジェクトが備上した司書を中心に、意見交換を重ねながら構築した。

今後、本プロジェクト終了後、システムメンテナンス契約の更新及び司書の雇用を実施することが肝要であるが、実施機関側の慢性的な予算不足のため、当該システムに係るメンテナンス経費、備人費の優先順位は低位であるため、その維持管理が大きな課題となるものと思料する。

実施機関側が人材も含めた維持管理を実施しなければ、おそらく 1 年以内に当該システムはその機能を失われることも考えられ、今後の実施機関側の予算措置、必要性・重要性の認識をもつことが肝要である。

- 2012 年度第 2 四半期

1. Database Management System の更新

- (1) 完成図書 (Completion Documents) のデータベース化 (A1 及び A3 サイズ As-built drawing のスキャニング)
- (2) 完成図書のデータベース化に関する MPWT 内部行程のルール作り
- (3) 完成図書 (Completion Documents) のデータベース化実施マニュアルの策定

当初予定していた完成図書（Completion Documents）のデータベース化（A1<1,250 枚>及び A3 サイズ<2,000 枚>As-built drawing のスキャンニング）が7月下旬に終了した。当スキャンニングは、外部委託及び司書で実施し、データベース化実施手順書（英文／クメール語）を策定した。本プロジェクトでは、完成図書の中でも As-built drawing に限定してデータベース化を実施したので、本プロジェクト終了後も、必要と考える書類（契約書、見積書等）を実施機関側が引き続きデータベース化することを強く希望する。

## 2. 司書研修の実施、システムの広報活動及びシステムメンテナンスの実施

2012 年度第 2 四半期は、小職の指導分野である「図書室運営管理」の総仕上げを行った。

本プロジェクトにおいて雇用した司書（Librarian）の日常業務について、王立プノンペン大学フンセン図書館及びカンボジア日本人材開発センター（CJCC）図書室にお願いをして、司書研修を 8 月 6 日～17 日の 2 週間実施した。

当該司書は、現在、図書室の運営・管理（書籍、報告書の登録、貸出業務）を実施することができ、また、完成図書のスキャンニング作業及びデータベース入力を行うことができるようになった。

しかしながら、当初から実施機関側にお願いしていた、プロジェクトで雇用した司書を実施機関側で再雇用することについては、予算を確保できないという理由から見送られることになり、今後、どのように図書室を運営管理していくのか、また、どのように完成図書のスキャンニング作業及びデータベース入力していくのか？実施機関側としては、重い課題が残ってしまった。

### 指導分野及び関連分野に係る受入国、協力先の現状と問題点

#### （業務調整員分野）

本プロジェクトの実施機関先である公共事業運輸省（MPWT）は、過去、JICA スキームにおいて、調査団、個別専門家受入や有償・無償事業受入の実績はあったが、技術協力プロジェクトの実施は初めてであった。従って、当初、技術協力プロジェクトにおける運営管理手法も全く分からず、また、省庁が技術系省庁であり、職員の多くがエンジニアであるため、技術系でないプロジェクトを運営管理する業務調整員業務に対してはあまり興味がなかったように思料する。その後、日本側プロジェクトチームの努力により、少しずつではあったが、技術協力プロジェクトへの対応、理解度も醸成されていき、業務調整員業務の認識も深まっていき、一定の評価を得ることができたが、“エンジニアではない者は専門家にあらず”という深層心理は、最後まで払拭することが出来なかったことは、残念な事であり、小職の不徳の致すところであった反省する次第である。

#### （図書室運営管理）

上記と関連するが、所謂、非技術業務である図書室運営管理関連業務もエンジニアである職員の業務ではないという認識があるようで、残念ながら、実施機関先もカウンターパートも興味をもって対応することはなかった。とはいえ、小職の TOR であったので、システム構築の部分でカウンターパートの意見を求める形で当該業務に関与させ、それ以外の部分は、小職と外部委託者とで対応した。当該分野では、既述どおり、① Database Management System、② Standard Drawing Search System、③ Book Inventory System の 3 種類のシステムを構築すると共に、それぞれのシステムを活用するためのオペレーション・マニュアルと管理者用マニュアルを策定した。しかしながら、今後、上記システムのメンテナンス費用、及びデータ更新をする人材の確保が課題であるが、実施機関先では、道路、橋梁の建設費、メンテナンス経費等に重点をおいているため、なかなか上記関連予算を計上しないことが予想されるため、どのように維持、運用するかを検討する必要がある。

### <プロジェクト目標>

直営工事における道路・橋梁の建設及び維持のための品質管理に係る MPWT 職員の能力が、QC/QA システム (SG、RG 及び研修) を通して向上すること。

指導分野で① Database Management System、② Standard Drawing Search System、③ Book Inventory System の 3 種類のシステムを構築したが、上記プロジェクト目標の達成のためには、① Database Management System、② Standard Drawing Search System のデータの更新が不可欠である。特に、Database Management System においては、本プロジェクトでは、完成図書の中で As-built Drawing (竣工図) 約 10,000 枚をデータベース化したのみであり、その他の契約書、報告書等は手つかずのままであり、今後、実施機関側でデータベース化等の対応が肝要である。

本プロジェクトにおいておこなった活動内容を継続的に実施していくためには、①予算、②人材の確保が急務となる。①においては、構築したシステムの維持管理費、地方での研修コース実施のための開催費、更には、策定した SG 及び RG の改訂のための試行工事 (パイロットプロジェクト) の継続的な実施のための予算の確保は不可欠である。また、②については、小職の担当した分野の図書室運営管理も含めて、アウトプット 2 に関しては、データ更新をおこなう担当者、司書が、本プロジェクト終了後には不在になることが予想され、早急に人材を確保することが必要である。

### 【教訓】

#### (1) 事前調査 (評価) の重要性について

プロジェクト開始前に、事前調査 (評価) が実施される。同調査のうち、詳細計画策定調査は、①事業計画の評価 (事業事前評価表の作成に必要な事業計画の妥当性、有効性等の確認) と、②事業の計画策定 (PDM、PO 等) の 2 つの目的を伴う。詳細計画策定調査の成果品は、「ログフレーム (PDM) と実施計画 (PO)」及び「事業事前評価表」を含む報告書である (新 JICA 事業評価ガイドライン【実践編】第 1 版 (執務要領) 平成 22 年 6 月 17 日執務要領 (EV) 第 6-17002 号より引用)。技プロを形成するに当たって、PDM、PO 及び事業事前評価表の策定は、実施するにあたり、重要なプロジェクト運営管理ツール、評価ツールとし認識しているが、他方、以下の項目についても、更に踏み込んだ形で調査、決定し、事業事前評価表の「相手国側の投入 (インプット)」に反映するべきだと思料する。

- プロジェクト実施体制の明確化 (カウンターパートの事前決定)
- プロジェクト補填可否の言明

#### 【プロジェクト実施体制の明確化 (カウンターパートの詳細)】

本プロジェクトでは、事前調査及び R/D 実施協議において、プロジェクト体制の詳細が決定されなかったことが、プロジェクトの開始当初に出遅れた一因となったと思料する。

換言すれば、実施機関先のどの部署から何名程度のカウンターパートが任命されるか? が不明確であったため、プロジェクト開始後にその議論で多くの時間が費やされ、カウンターパートが決定したのは小生が赴任してから約 6 か月後の 2009 年 12 月であった。

現在の事前調査及び R/D 実施協議調査団の時間的余裕を考慮すれば、そこまで踏み込んだ議論は無理なのかもしれないが、プロジェクト開始後に効果的、効率的なプロジェクト運営管理を行うためには、当該期間に、実施機関側にカウンターパート氏名を担保させることが不可欠である。

本プロジェクトの前に専門家として派遣されていたカンボジアでの別のプロジェクトでは、小生が着任の挨拶に行った席で、プロジェクトダイレクターであった大学学長から即座に主要カウンターパートが任命され、着任翌日から、任命された主要カウンターパートとプロジェクト実施計画の策定、スタッフの雇用計画等、プロジェクト運営管理を効果的、効率的に実施することができた。

勿論、カンボジアにおける省庁間の能力差、本気度の違いが本事案に関しては大きな要因になるこ

とは否めないが、JICA 側としても実施機関側の能力を事前に見極め、臨機応変に対応することが肝要であると思料する。

#### 【プロジェクト補填可否の言明】

本プロジェクト開始1年後に、JICA 事務所からカウンターパートへの補填の全面禁止（出張旅費、交通費は除く）が通知された。当初は、本プロジェクトに限らず、カンボジアで実施されていた他技プロにもカウンターパートへの補填の全面禁止という措置に動揺があったが、カウンターパートへ説明した結果、表面的には収まったと仄聞している。本プロジェクトにおいてもカウンターパートに対して説明を行い、納得したように思えたが、実施機関先では、本プロジェクト以外にも中国や韓国が協力をおこなっており、彼らは一様に彼らのカウンターパートに対して謝金を与えているため、本プロジェクトのカウンターパートから不公平感が噴出し、彼らのモチベーションも急激に低下した。

カウンターパートに対して謝金を与えてプロジェクトの業務を行わせることが正攻法とは考えていないし、それがカウンターパートに対する甘え、依存性を醸成させる原因であることも理解しているが、本実施機関先では、他国が協力の代償として謝金を与えている現状、過去からもそのような歴史が継続していたことを考えれば、必要悪と考えるしかないのではないだろうか？

このような状況を改善するためには、事前調査段階において、実施機関先に「JICA ではカウンターパートに対する補填は行わない。」という言明をおこなった上で、どのようにモチベーションを高めていくかの議論を行うことが肝要であり、その方向性をプロジェクトが開始された後も専門家チームが継続していく努力をおこなっていくべきであると思料する。

#### 【提言】

##### (1) 実施機関先の協力体制について

技プロ実施にあたり、カンボジア人カウンターパートは基幹となるものであり、実施機関先は実施機関内で英語ができることに加えて、技術的知識がある、数少ない職員を本プロジェクトのカウンターパートに指名してくれた。このこと自体は非常に感謝しているが、優秀な職員は本来業務に加えて、他ドナー（韓国、中国、国際機関）案件のカウンターパートにも重複して指名されるため、どうしても本プロジェクトに関与する時間、量も制限されるため、結果として、本プロジェクトのカウンターパートとしての関与量は少なくなるということになってしまった。

従って、今後、実施機関先で技プロを実施する際には、既述した通り、実施機関先の許容量を精査し、どの程度の活動が可能であるか？を十分に事前に評価することが肝要である。

##### (2) 実施機関先への協力の在り方について

上記(1)で既述したとおり、実施機関先の許容量の低さを十分認識をしつつ、実施機関先特有の各部署間の連携の低さ、権限の制限等の所謂、「縦割り体制」を十分理解し、本プロジェクトのような部署横断のプロジェクト協力体制の構築は可能な限り控えるべきであると思料する。換言すれば、本プロジェクトの場合、プロジェクトマネージャーは公共事業研究センター(PWRC)の部長であったが、他方、カウンターパートの出身部署は、PWRC だけでなく、道路インフラ部 (RID)、重機センター (HEC)、General Inspectorate (GI)、空港整備部 (AID) 及び MPWT 試験所の計 6 部署からの複合チームになっていたため、PWRC の部長であるプロジェクトマネージャーの命令は他 5 部署の部長の了解がなければ、他 5 部署出身のカウンターパートは動くことが出来なかった。この実施機関体制の硬直化が本プロジェクトの活動の外部阻害要因の一因であったと思料する。当地カンボジアのような組織体制の脆弱、稚拙な機関を実施機関先とする場合は、複数に亘る部署を対象にするのではなく、1~2 部署を対象にしたカウンターパート構成にすることが、肝要である。



## Project Design Matrix (PDM)

- \* Project Name: The Strengthening of Construction Quality Control Project
- \* Project Term: May 11, 2009 - Oct 31, 2012
- \* Project Implementation Agency: Public Works Research Center (PWRC), Ministry of Public Works and Transport (MPWT)

(August 30, 2012)

Narrative Summary	Objective Verifiable Indicators	Means of Verification	Important Assumption
<b>&lt;Overall Goal&gt;</b> Quality and Cycle of road and bridge construction and maintenance are improved.	Large scale defects will not be found on the Defect Liability Inspection in the force account construction projects of	1. Inspection record of Defect Liability 2. Site observation	
<b>&lt;Project Purpose&gt;</b> Capacity of MPWT engineers in the quality control for road and bridges construction and maintenance undertaken by force account is improved through application of the Quality Control and Quality Assurance (QC/QA) system (Standards, Regulations, Guidelines, Procedures).	Full implementation of QC/QA system for 50% of projects of road and bridge construction/ maintenance by force account which will be implemented from the beginning of the 4th year.	1. Construction management record 2. Supervising record 3. Inspection record	
<b>&lt;Outputs&gt;</b> Output 1 Standards, Regulation, Guidelines for quality control of road and bridge construction and maintenance are established.	QC/QA system will be applied to 100% of projects of road and bridge construction/ maintenance by force account which will be implemented from the beginning of the 4th year except emergency work.	1. Contract between MPWT and contractor (DPWT, HEC, other governmental organizations)	1. Force account system will remain at least by the end of terms of cooperation. 2. Budget for pilot projects is allocated without any delay.
Output 2 Centralized and integrated management system of completion documents such as drawing and reports of construction is established.	Database system will be completed, information of Database system will be utilized by MPWT staff, and data will be updated.	1. List of database contents 2. The number of users 3. The number of record of updating	1. Reports and drawing of past projects are collected before project begins. 2. Reports and drawing of finished projects are submitted to the person in charge at the project periodically.
Output 3 Technical training lectured by PWRC lecturers is consolidated by "Road Structure Standard Drawing Collections".	Technical training to be formulated in the project will be incorporated into the training program by Department of Personnel & Human Resources.	1. Annual training plan of Dept. Personnel & HR 2. Record of training 3. Training curriculum and textbooks	1. Trained engineers continue to work. 2. Targeted DPWT staff adopts Standards, Regulations and Guidelines without any delay. 3. Budget for capacity development training by MPWT is
<b>&lt;Activities&gt;</b> 1-1. To conduct the baseline survey on the current duties and capacity of each Department in MPWT related quality control of contract 1-2. To set up Task Force (TF-1, 2) for the formulating draft standards, regulations and guideline. 1-3. To study and analyze the currently applied specifications and standards. 1-4. To formulate the draft regulations determining each Department duties for assuring construction quality. 1-5. To formulate the guidelines for actual application of standards. 1-6. To be authorized the draft standards, regulations and guidelines by the JCC 1-7. To formulate the procurement plan of laboratory equipment to meet the standards. 1-8. To select the pilot construction project and to apply the standards, regulation and guidelines. 1-9. To be officially authorized the standards, regulations and guidelines by the Minister of MPWT, and evaluate the application of the 1-10. To monitor and evaluate the application of the standards, regulations, and guidelines. 2-1. To list the past implemented construction projects of roads and bridges including development partners funded projects. 2-2. To collect the completion documents of construction at the MPWT library. 2-3. To categorize all completion documents by road route wise, structure wise and documental type wise. 2-4. To formulate the database with index for reference. 2-5. To support the making the library management and maintenance plan. 2-6. To arrange of books in the MPWT library and formulate the library management system 2-7. To implement the technical guidance about library operation and management to the Cambodian counterparts. 3-1. To study and analyze existing training courses. 3-2. To re-design training program with additional technical contents. 3-3. To implement training of trainers (PWRC Lecturers). 3-4. To establish Task Force (TF-3) for the "Road Structure Standard Drawings Collections". 3-5. To categorize the road structure and collect ideal road structures drawings from past projects. 3-6. To confirm the worthiness of those road structures in term of design load, material used, structure, and the actual types of road foundation in Cambodia. 3-7. To compile road structure drawings into the "Road and Bridge Structure Standard Drawing Collections" and to be authorized by JCC. 3-8. To prepare the curriculum and materials for pilot training. 3-9. To project and implement pilot training courses for the staff of RID, HEC, DPWT, General Inspectorate and other personnel concerned. 3-10. To be authorized the contents of the pilot training courses by JCC and to officially incorporate into the training course of MPWT. 3-11. To implement follow-up survey for participants in order to confirm the degree of understanding and application to actual construction, and to improve construction, and to improve the contents of training if necessary.		<p style="text-align: center;"><b>(Inputs from Japanese side)</b></p> 1. Dispatching Japanese experts (1) Long-term experts * Project Coordinator/ Library Management (2) Short-term experts * Leader/ Contract Management * Quality Management * Training/ Human Resource Development * Pavement Engineering * Geotechnical Engineering * Bridge/ Road Structure Engineering * System Management * Material Testing * Construction Management 2. Provision of machinery and equipment (1) Laboratory equipment (2) Equipment for Library and Database system 3. Counterpart training in Japan * JFY2010: 3 trainees * JFY2011: 4 trainees * JFY2012: 4 trainees 4. Budgetary allocation for project activities * JFY2009: US\$ 52,621.08 * JFY2010: US\$ 101,940.65 * JFY2011: US\$ 90,771.24 * JFY2012: 19,475.25 (as of June 30, 2012)	1. Project counterparts continue to work in the counterpart agencies. 2. Trained engineers of road and bridge construction/ maintenance continue to work in their agencies. 3. In case, where counterparts or trained engineers are promoted or reassigned, proper turn over and shall be done by DPWT and/or MPWT
			<b>Pre-Condition</b>
		<p style="text-align: center;"><b>(Inputs from Cambodian side)</b></p> 1. Assignment of personnel * Project Director (Director General of Public Works) * Project Manager (Director of PWRC) * Coordinators: 2 persons (Deputy Director of PWRC) * Technical counterparts: 11 persons (PWRC, HEC, RID, AIC, Laboratory) 2. Provision of budgeting and facilities 3. Budget for the pilot project	1. The RGC allocates budget for the project without any delay. 2. Budget for pilot projects is allocated without any delay, and sites for the pilot projects are secured, and implement cooperation with DPWT. 3. Counterparts are allocated properly and in cooperation them.

## Project Design Matrix (PDM)

\* Project Name: The Strengthening of Construction Quality Control Project

\* Project Term: May 11, 2009 - Oct 31, 2012

\* Project Implementation Agency: Public Work Research Center (PWRC), Ministry of Public Works and Transport (MPWT)

\* Target Group Public Works Research Center (PWRC), Road Infrastructure Department (RID), Heavy Equipment Center (HEC), Department of Public Works and Transport (DPWT) <Kandal, Kampong Cham>, Laboratory

Ver. 2 (December 21, 2001)

Narrative Summary	Objective Verifiable Indicators	Means of Verification	Important Assumption
<b>&lt;Overall Goal&gt;</b> Quality and Cycle of road and bridge construction and maintenance are improved.	Large scale defects will not be found on the Defect Liability Inspection in the force account construction project of MPWT.	1. Inspection record of Defect Liability 2. Site observation	
<b>&lt;Project Purpose&gt;</b> Capacity of MPWT engineers in the quality control for road and bridge construction and maintenance undertaken by force account is improved through application of Quality Control and Quality Assurance (QC/QA) system (Standard Guideline, Regulation, Trainings, Standard Drawings).	1. By the end of the project, the revised SG and RG are applied to at least three force account projects of roads and bridges starting from 2013 (new construction or major rehabilitation under periodic maintenance) in three provinces except in the two pilot provinces. 2. Trainers received TOT are assessed and trainees who participate the annual technical training in year 2012 improve the knowledge level and score 70 at post test.	1. A copy of instruction letter from the DG of Public Works directing the application of the revised SG and RG to executor (DPWT, RID, HEC) and the confirmation from executors. 2. Interview to the executors on the preparation of the project. 1. Internal assesment of trainers by management levels 2. Result of training report	1. Appropriate budget to ensure the quality control is allocated for force account
<b>&lt;Outputs&gt;</b> (Output 1) Standard Guideline and Regulation for quality control of road and bridge construction and maintenance are established.	By the end of the project, the second edition of SG and RG are produced after incorporation of the lessons learned from the pilot projects.	1. Revised version of SG and RG 2. Prakas of MPWT	1. Force account system will remain at least by the end of terms of cooperation. 2. Budget for pilot project is allocated without any delay.
(Output 2) Centralized and integrated management system of completion documents such as drawings and reports of construction is established.	Database system is completed, and information of Database system is utilized by MPWT staff.	1. List of database content 2. The number of users 3. The number of record uploading	1. Integrated intranet system in MPWT is established.
(Output 3) Technical trainings are implemented by MPWT lecturers.	Technical training to be formulated in the project will be incorporated into the conventional training program by Dept. Personnel & Human Resources.	1. Annual training plan of Dept. of Personnel & HR 2. Record of training 3. Training curriculum and textbooks	1. Trained engineers continue to work. 2. Budget for capacity development training by MPWT is secured.
<b>&lt;Activities&gt;</b> 1-1. To conduct the baseline survey on the current duties and capacity of each Department in MPWT related quality control of construction. 1-2. To set up Task Force for the formulating draft standard guideline and regulation. 1-3. To study and analyze the currently applied specifications and standards. 1-4. To formulate the draft regulations determining each Department duties for assuring construction quality. 1-5. To formulate the guidelines for actual application of standards. 1-6. To be authorized the draft standard guideline and regulation by the JCC. 1-7. To formulate the procurement plan of laboratory equipment to meet the standards. 1-8. To select the pilot construction project and to apply the standard guideline and regulation. 1-9. To be officially authorized the standard guideline and regulation by the Minister of MPWT, and evaluate the application of the standard guideline and regulation. 1-10. To monitor and evaluate the application of the standard guideline and regulation. 2-1. To list the past implemented construction projects of roads and bridges including development partners funded projects. 2-2. To collect the completion documents of construction at the MPWT library. 2-3. To categorize all completion documents by road route wise, structure wise and documental type wise. 2-4. To formulate the database with index for reference. 2-5. To support the making the library management and maintenance plan. 2-6. To arrange of books in the MPWT library and formulate the library management system. 2-7. To implement the technical guidance about library operation and management to the Cambodian counterparts. 3-1. To study and analyze existing training courses. 3-2. To re-design training program with additional technical contents. 3-3. To implement training of trainers (PWRC lecturers). 3-4. To establish Task Force (TF-3) for the "Road Structure Standard Drawings Collections". 3-5. To categorize the road structures and collect ideal road structure drawings from past projects. 3-6. To confirm the worthiness of those road structures in term of design load, material used, structure, and the actual type of road foundation in Cambodia 3-7. To compile road structure drawings into the "Road and Bridge Structure Standard Drawing Collection" and to be authorized by the JCC. 3-8. To prepare the curriculum and materials for pilot training. 3-9. To project and implement pilot training courses for the staff of RID, HEC, DPWT, General Inspectorate and other personnel concerned. 3-10. To be authorized the contents of the pilot training courses by the JCC and to officially incorporate into the training course of MPWT. 3-11. To implement follow-up survey for participants in order to confirm the degree of understanding and application to actual construction, and to improve the contents of training if necessary.		<b>(Inputs from Japanese side)</b> 1. Dispatching Japanese experts (1) Long-term experts * Chief Advisor/ Road Construction and Maintenance * Project Coordinator/ Library Management (2) Short-term experts * Leader/ Contract Management * Quality Management * Training/ HR Development * Pavement Engineering * Geotechnical Engineering * Bridge/ Road Structure Engineering * System Management * Material Testing * Construction Management 2. Provision of machinery and equipment (1) Laboratory equipment (2) Equipment for library and Database system 3. Counterpart training in Japan * JFY2010: 3 trainees * JFY2011: 4 trainees (plan) 4. Budgetary allocation for project activities * JFY2009: US\$ 52,621.08 * JFY2010: US\$ 101,940.65 * JFY2011: US\$ 29,782.68 (as of September) <b>(Inputs from Cambodian side)</b> 1. Assignment of personnel * Project Director (Director General of Public Works) * Project Manager (Director of PWRC) * Coordinator: 2 persons (Deputy Director of PWRC) * Technical Counterparts: 11 persons (PWRC, HEC, RID, AIC, Laboratory) 2. Provision of budgeting and facilities 3. Budget for the pilot project	1. Project counterparts continue to work in the counterpart agencies. 2. Trained engineers of road and bridge construction/maintenance continue to work in their agencies. 3. In case, where counterparts or trained engineers are promoted or reassigned, proper turn over and replacement shall be done by DPWT.
<b>Pre- Condition</b>			1. The RGC allocates budget for the project without any major delay. 2. Budget for pilot project is allocated without any delay, and sites for the pilot projects are secured, and implement in cooperation with DPWT. 3. Counterparts are allocated properly and in cooperation with them.

# プロジェクト・デザインマトリックス (PDM)

\* プロジェクト名： 建設の品質管理強化プロジェクト  
 \* プロジェクト実施機関： 公共事業運輸省

\* プロジェクト期間： 2009年5月11日～2012年10月31日  
 \* ターゲットグループ： 公共事業研究センター、道路インフラ部、重機センター、州公共事業運輸局、試験所

Ver. 2 (2012年8月1日現在)

プロジェクト要約	指標	入手手段	外部条件
<b>&lt;上位目標&gt;</b> カンボジア公共事業運輸省 (MPWT) が実施する道路・橋梁の建設・維持管理の品質が向上する。	MPWTが直営工事で実施する道路・橋梁の建設において、大規模な事故が取組担保検査で確認されないこと。	1. 取組担保検査記録。 2. 現地視察。	
<b>&lt;プロジェクト目標&gt;</b> MPWT技術職員の直営工事で実施される道路・橋梁の建設・維持管理の品質管理能力が、QC/QAシステム (規程、取扱要領、研修、標準図集) の適用を通じて向上する。	1. 本プロジェクト終了までに、改訂された規程及び取扱要領が2013年から実施される道路・橋梁の直営工事の中で、既の実施された2州以外の3州において、少なくとも3直営工事に適用されること。  2. TOTを受講したカウンターパートが、2012年定期研修コースの受講生に対して品質に関する知識を向上させるように講義をすること及び受講後確認試験において70%の得点を取るように講義を行うこと。	1. 工事実施者 (DPWT, RID, HEC) に対して改訂された規程、取扱要領を適用することを命じた局長からのレター及び工事実施者からの確認レターのコピー。  2. 工事実施者に対するインタビュー。 1. 管理者レベルによる内部研修評価資料 2. 研修報告書	品質管理がパイロットプロジェクトにおいて実施されるように予算が確保されること。
<b>&lt;成果&gt;</b> (成果1) 道路・橋梁における建設・維持管理の品質管理に係る実施規程、取扱要領が整備される。	本プロジェクト終了までに、パイロットプロジェクト実施を通して習得、検証した内容が反映された規程及び取扱要領 (改訂版) が作製されること。	1. 規程、取扱要領 (改訂版) 2. MPWT省令	1. MPWTの直営工事制度が少なくともプロジェクト期間終了まで行われていること。 2. パイロットプロジェクトに係る予算が遅延なく配分されること。
(成果2) 完成図書 (図面、報告書等) の統合集中管理のためのシステムが構築される。	データベースシステムが構築され、同システムがMPWTスタッフによって活用されること。	1. データベース・コンテンツリスト 2. 利用者数 3. アップデート数	1. MPWT省内ネットワークシステムが構築されること。
(成果3) MPWT講師によって講義される技術研修が道路構造物標準図集の習得によって強化される。	プロジェクトで編みられた技術研修がMPWT人材研修部によって定期技術研修に組み込まれること。	1. 担当する部署の年間研修計画 2. 研修記録 3. カリキュラム及びテキスト	1. プロジェクトで研修した技術者が継続して勤務すること。 2. 研修プログラムのための予算がMPWTによって確保されること。
<b>&lt;活動&gt;</b> 1-1. 建設の品質管理に関連する業務を担う部署にかかる現状の職務をベースラインとして調査する。 1-2. 建設の品質管理にかかる基準、実施規程、取扱要領を構築するためのタスクフォースを設立する。 1-3. MPWT内で現行運用されている仕様と基準の調査・分析する。 1-4. 建設の品質管理に係る各部署の職務を規定した実施規程案を策定する。 1-5. 基準を実際に適用するための取扱要領を策定する。 1-6. 基準、実施規程、取扱要領について、Joint Coordinating Committee(JCC)で承認を得る。 1-7. 基準に照らして、不足している試験所の試験器具に係る調達計画を策定する。 1-8. 試行工事 (パイロットプロジェクト) を選定し、同試行工事の実施において、基準、実施規程及び取扱要領を適用する。 1-9. JCCで承認を得た基準、実施規程、取扱要領について、MPWT大臣の承認を得て、公式発表し、関係者に共有する。 1-10. 基準、実施規程、取扱要領の運用状況をモニタリングし、評価する。 2-1. ドナー等の支援で、MPWTがこれまでに実施した道路・橋梁プロジェクトをリストアップする。 2-2. 省内関係者、プロジェクト諸負者、ドナー等が所有している竣工図書を図書室に集める。 2-3. 収集した竣工図書を、路線別、構造別 (道路、橋梁)、図書別 (報告書、計算書、図面等) に分類し、竣工図書索引案を作成する。 2-4. 竣工図書を電子データ化し、検索機能の付いたデータベースを構築する。 2-5. MPWT図書室内の整備計画、運営管理計画の策定支援を行う。 2-6. MPWT内図書室所蔵の図書を整理し、回利用環境を整備する。 2-7. カウンターパートに対し、図書室運営管理に係る技術指導を行う。 3-1. MPWT内の既存の研修コースを調査・分析する。 3-2. 技術面で追加すべき研修プログラムと実施計画案を策定する。 3-3. 日本人専門家を中心として主にPWRCスタッフを対象とした講師育成のための研修を実施する。 3-4. 道路構造物標準図集策定のためのタスクフォースを設立する。 3-5. タスクフォースが、カンボジアの道路構造物の分類を行い、ドナー等の道路プロジェクトからカンボジアの道路構造物に適合した図面類を収集する。 3-6. 収集した図面における、設計荷重、使用材料、構造、地質等の適合性を確認する。 3-7. 道路構造物標準図集として編纂し、JCCの承認を得る。 3-8. 試行研修のためにカリキュラムと教材を準備する。 3-9. PWRC講師が中心となって、編纂した道路構造物標準図集を活用し、検査員 (General Inspectorate)、実施監理担当者 (RID, HEC)、直営工事の場合の工事実施者 (各州DPWT, RID, HEC)、その他関係機関の職員を対象とした研修プログラムを企画し試行する。 3-10. 試行した研修プログラム案についてJCCで承認を得て、MPWT省内の研修の一部として正式に組み入れる。 3-11. 研修受講者に対するフォローアップ調査を行い、定着度合いを確認し、必要に応じてプログラム改善を支援する。	<b>(日本側投入)</b> 1. 専門家派遣 (1) 長期専門家 * チーフアドバイザー/道路建設・維持管理 * 業務調整/図書室運営管理 (2) 短期専門家 * 総括/道路工事契約/積算システム * 品質管理                      * 研修/人材育成 * 土構造設計                  * 舗装 * 橋梁/道路構造物維持管理 * 竣工図書管理システム * 材料及び現場試験、機材管理 * 道路工事施工管理 2. 機材供与 (1) 試験所機材 (2) 図書室関連機材 (3) トータルステーション 3. カウンターパート本邦研修 * {FY2010}: 3名、{FY2011}: 4名、{FY2012}: 4名 4. 在外事業強化費 * 2009年度: US\$ 52,621.08 * 2010年度: US\$101,940.65 * 2011年度: US\$ 90,771.24 * 2012年度: US\$ 19,475.25 (2012年6月30日現在)  <b>(カンボジア側投入)</b> 1. カウンターパートの配置 * Project Director (Director General of Public Works) * Project Manager (Director of PWRC) * Coordinator 2名 (Deputy Director of PWRC) * Technical Counterpart 1名 2. プロジェクト活動に必要な土地、施設、機材等の提供 3. パイロットプロジェクトへの予算配分	1. カウンターパートが継続して所属する部署に勤務すること。 2. 道路、橋梁の建設・維持管理研修を行った技術者が継続して所属する部署に勤務すること。 3. カウンターパート或いは研修を行った技術者が昇進、配置転換した場合、MPWT, DPWTに再配置されること。	
			<b>前提条件</b>
			1. カンボジア政府がプロジェクトに対して、遅延なく必要な予算を配分すること。 2. パイロットプロジェクトに係る予算が遅延なく配分され、州公共事業運輸局の協力が得られること。 3. 適切にカウンターパートが配置され、彼らの協力が得られること。







Output	Activities	Work Package	JFY 2009			JFY 2010			JFY 2011			JFY2012			Remarks										
			6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	Expert	Counterpart				
OUTPUT 1-2 (Task Force 2)	Improvement of laboratory equipment and staffs	1-7. Formulate the procurement plan of Laboratory equipment to meet the Standards Regulations	Analysis of existing laboratory equipment or device																	Maeda	Leang				
			Analysis of laboratory staffs ability																			Maeda	Leang		
			Formulation of the procurement plan																				Maeda	Leang	
			Inspection and Installation on delivered equipment at laboratory																				Maeda Yumita	Leang	
			Implementation of lecture for how to use and maintenance of new equipment																				Maeda	Lab Staffs	
			Monitoring of working status for new equipment																					Maeda Yumita	Leang
OUTPUT 2 (Task Force 3)	Centralized and integrated management system of completion documents such as drawing and report of construction is established.	2-1. To list up the past implemented construction projects of roads and bridges including development partners funded projects	Developing the past projects records sheet with reference to road number																		Yashiro Kuwano	Sinaveth Menakak			
			Tidy up at the library and repair if necessary																				Yashiro Ishida	Sinaveth Menakak	
		2-2. To collect the completion documents of construction at the MPWT Library	Arrangement the library to keep the documents accordingly																				Ishida	Namo Ratha Sokly	
			Developing the documents list with reference to road route																					Yashiro	Namo Ratha
		2-3. To categorize all completion documents by road route wise, structure, regulation and guidelines	Selection and contract with the out-recourse																					Yashiro Ishida	Namo Ratha
			Developing the draft documents index																					Yashiro	Namo Ratha
		2-4. To formulate the database with index for reference	Selection and contract with the out-recourse																					Ishida	Namo Ratha
			Encoding the data to computer and developing the primary system																					Yashiro	Namo Ratha Sokly
			Trial operation and preparation of manual																					Ishida	Namo Ratha
			Conduct of training for the administrator and operator																					Yashiro	Namo Ratha
		Developing the regulation (rule) of the system																				Yashiro Ishida	Namo Ratha		













アウトプット	活動	活動詳細	2009年度										2010年度										2011年度										2012年度										備考		
			6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	専門家	ステークホルダー												
アウトプット1(タスクフォース) 道路・橋梁における建設・維持管理の品質向上に係る実施規程、取扱要領が整備される	1-8	タスクフォース会議の実施																					-----																				山内		
		パイロットプロジェクトの実施																					-----																				前田		
		パイロットプロジェクトの評価																					-----																				桑野		
		2012年度パイロットプロジェクトの選定																					-----																				山内		
		2012年度パイロットプロジェクトの準備																					-----																				山内		
		2012年度パイロットプロジェクトにおける品質管理シートの開発と適用																					-----																				山内		
	1-9	分散性粘土土壌の改善試行	プロジェクトサイトにおける分散性粘土の確認																															-----										中村	
		パイロットプロジェクトの実施	パイロットプロジェクトの実施																															-----										岡本	
		パイロットプロジェクトの評価及び規程の適用	パイロットプロジェクトの評価及び規程の適用																															-----										山内	
	1-10	大臣、局長及び部長との会議の開催	大臣、局長及び部長との会議の開催																															-----										弓田	
		実施規程、取扱要領の評価とモニタリング	実施規程、取扱要領の評価とモニタリング																															-----										山内	
		EC及びJCC会議の開催及び実施規程、取扱要領が承認される	EC及びJCC会議の開催及び実施規程、取扱要領が承認される																															-----										桑野	
		基準、実施規程、取扱要領の運用状況をモニタリングし、評価する。	基準、実施規程、取扱要領の運用状況をモニタリングし、評価する。																															-----										弓田	
		実施規程と適用されたコントロールシート(daily)の比較	実施規程と適用されたコントロールシート(daily)の比較																															-----										前田	
		実施規程、取扱要領(タスクフォースメール 語版)の見直し	実施規程、取扱要領(タスクフォースメール 語版)の見直し																															-----										山内	
		道路検査データの改善とフォローアップ	道路検査データの改善とフォローアップ																															-----										山内	
			実施規程、取扱要領(第2版)の見直し																															-----										中村	
																																		-----										野田	

アウトプット	活動	活動詳細	2009年度										2010年度										2011年度										2012年度										備考		
			6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	専門家	カウンターパート
1-2	1-7.	既存の試験所機材の把握、分析																															前田												
		試験所職員の能力の分析																															前田												
		購入計画の見直し																															前田												
		基準に照らして、不足している試験所の試験器具に係る調達計画を策定する。																															前田	弓田											
		供与された機材の使用法維持管理手法に関する講義の実施																															前田												
		供与された機材使用状況のモニタリング																															前田	弓田											
アウトプット2(タスクフォース3)	2-1.	ドナー等の支援で、MPWTがこれまでに実施した道路・橋梁プロジェクトをリストアップする。																															矢代	桑野											
		過去のプロジェクトを路線別に整理																															矢代	桑野											
	2-2.	省内関係者、プロジェクト担当者、ドナー等が所有している竣工図書を図書室に集める。																															矢代	石田											
		図書室に保管されている竣工図書の整理																															石田												
	2-3.	路線別、構造別リストの策定																															矢代												
		取集した竣工図書を、路線別、構造別(道路、橋梁)、図書別(報告書、計算書、図面等)に分類し、竣工図書索引案を作成する。																															矢代	石田											
	2-4.	外部委託の選定と契約																															矢代	石田											
		竣工図書索引案の開発																															矢代												
		外部委託の選定と契約																															石田												
		データベース化の実施及び初期システムの見直し																															矢代												
	完成図書(図面、報告書等)の統合集中管理のためのシステムが構築される。	竣工図書を電子データ化し、検索機能の付いたデータベースを構築する。	データベース化手順書[案]及び[最終版]の策定																															石田											
			管理者及びオペレーターに対する研修の実施																															矢代											
データベース化に関するルール作りの策定																																	矢代	石田											









**The Strengthening of Construction Quality Control Project  
Library Searching Management System**

Activities Plan (Draft)

August 26, 2011

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## SYSTEM OUTLINE

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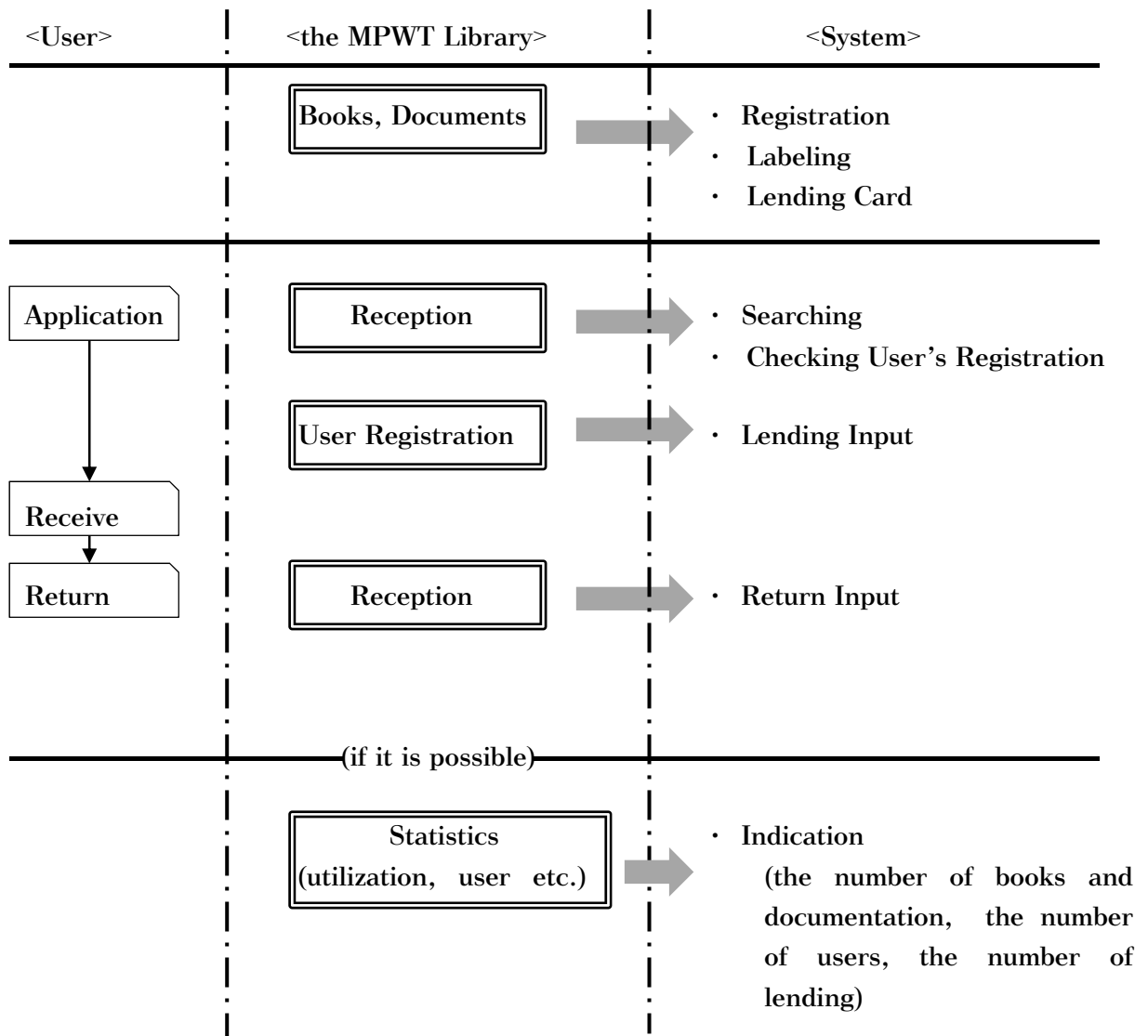
❖ Purpose

The MPWT Library will be managed effectively and efficiently.

❖ System Structure

The system will be used the existing system (the Database management system) and modify these system.

❖ System Concept



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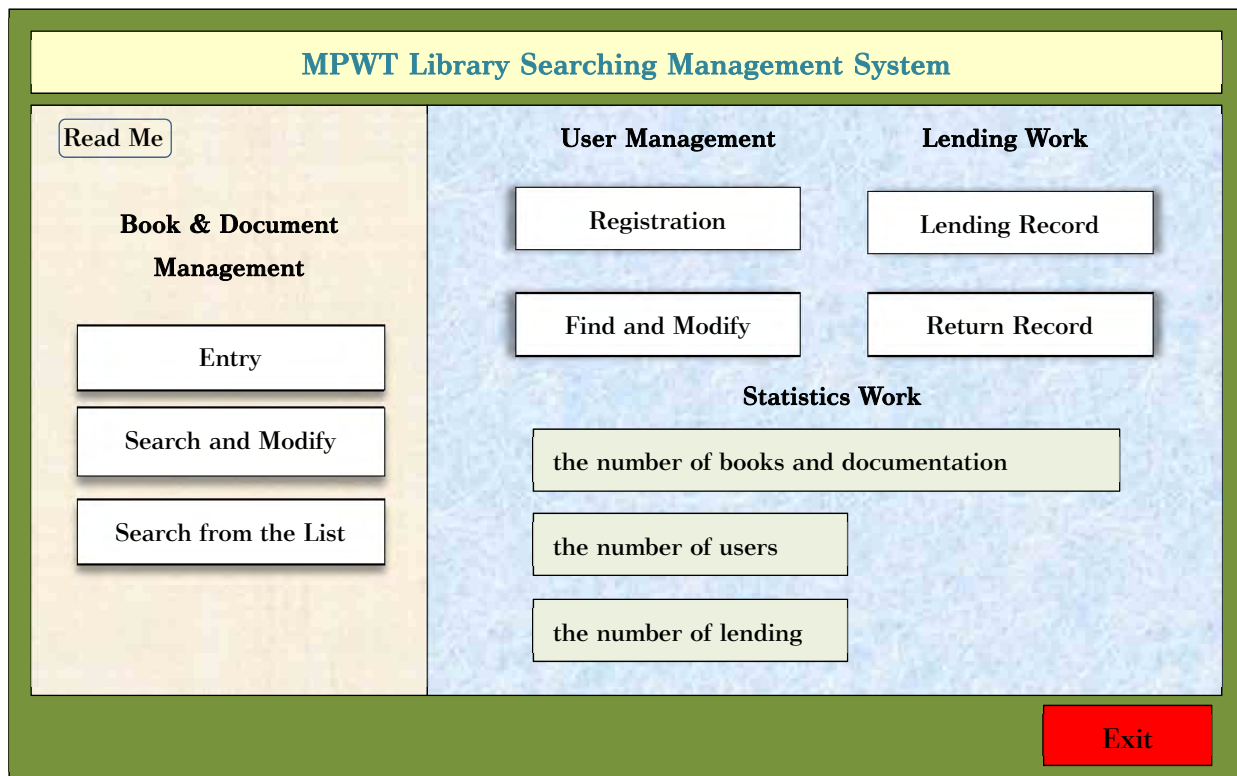
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# LIBRARY SEARCHING MANAGEMENT SYSTEM

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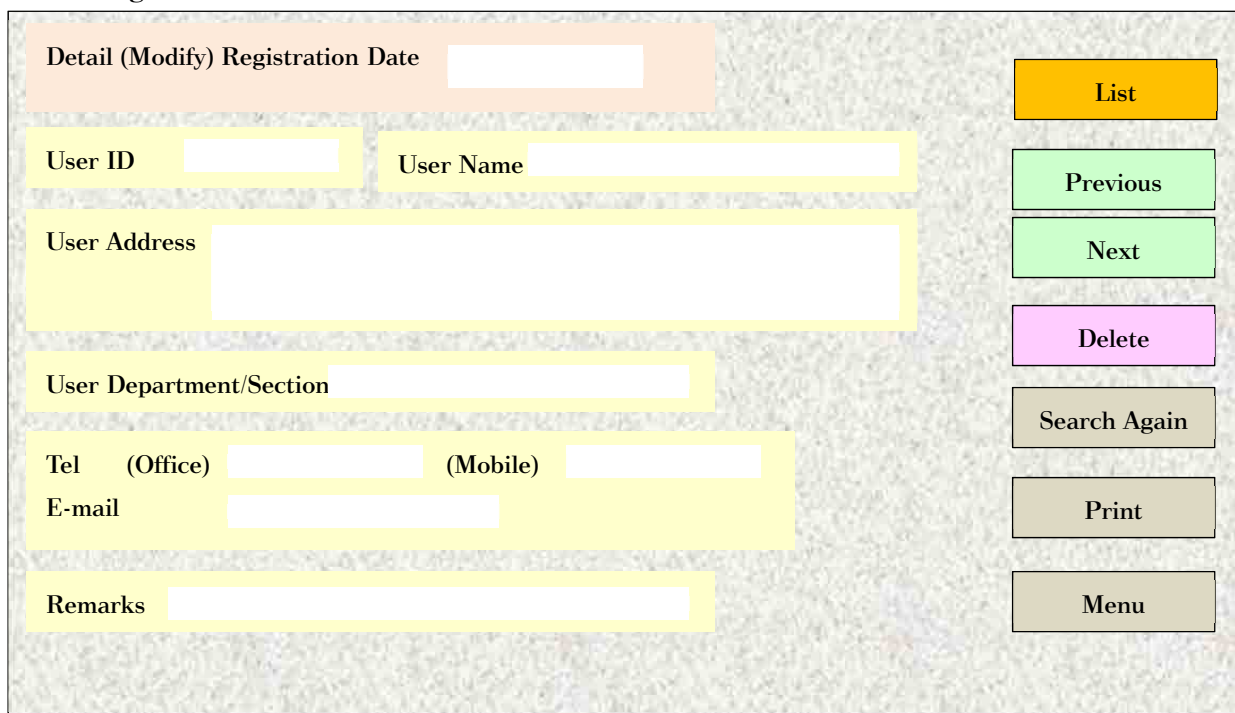
<Menu Screen>



The menu screen is titled "MPWT Library Searching Management System" and is divided into several functional areas:

- Read Me**: A button located at the top left.
- Book & Document Management**: A section containing three buttons: "Entry", "Search and Modify", and "Search from the List".
- User Management**: A section containing two buttons: "Registration" and "Find and Modify".
- Lending Work**: A section containing two buttons: "Lending Record" and "Return Record".
- Statistics Work**: A section containing three buttons: "the number of books and documentation", "the number of users", and "the number of lending".
- Exit**: A red button located at the bottom right.

<User Registration Screen>



The user registration screen contains the following fields and buttons:

- Detail (Modify) Registration Date**: A text field with a white background.
- User ID**: A text field with a yellow background.
- User Name**: A text field with a yellow background.
- User Address**: A large text field with a yellow background.
- User Department/Section**: A text field with a yellow background.
- Tel (Office)**: A text field with a yellow background.
- (Mobile)**: A text field with a yellow background.
- E-mail**: A text field with a yellow background.
- Remarks**: A text field with a yellow background.
- List**: A yellow button.
- Previous**: A light green button.
- Next**: A light green button.
- Delete**: A pink button.
- Search Again**: A grey button.
- Print**: A grey button.
- Menu**: A grey button.

<Books & Documents Registration Screen>

Entry	Creation Date	<input type="text"/>	(YYYY/MM/DD)	<input type="button" value="New Entry"/>
Book No.	<input type="text"/>	(Duplicated Value id NOT allowed)		
Title	<input type="text"/>	<input type="button" value="Previous"/>		
Alphabetic Title	<input type="text"/>	<input type="button" value="Next"/>		
Sub-title	<input type="text"/>			
Series Title	<input type="text"/>	<input type="button" value="Delete"/>		
Author (s)	<input type="text"/>			
Alphabetic Author (s)	<input type="text"/>	<input type="button" value="Print"/>		
Edition	<input type="text"/>	Imprint Date	<input type="text"/>	(YYYY)
Place of Publication	<input type="text"/>			
Publisher	<input type="text"/>	<input type="button" value="Menu"/>		
ISBN No.	<input type="text"/>			
Language (s)	<input type="text"/>	Key Word (s)	<input type="text"/>	

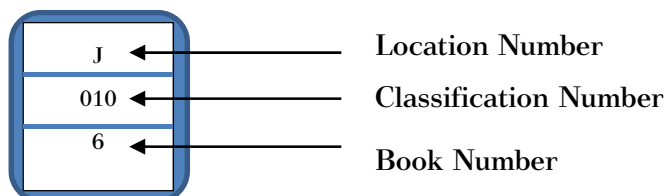
  

Type of Materials	<input type="text"/>		
Price	<input type="text"/>	Category of Budget	<input type="text"/>
Donator	<input type="text"/>		
Remarks	<input type="text"/>		

<Barcode>



<Labeling>



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## THE RELATED EQUIPMENT

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❖ Equipment List (Reference)

No	Item	Manufacturer	Model	Qty.	Unit price US\$)	Total price (US\$)
1.	Computer	DELL	XPS 8300	1 unit	1,607.40	1,607.40
2.	Server	DELL	PowerEdge R210	1 unit	1,038.79	1,038.79
3.	2-D Barcode Reader	ALF	OPI-2201	1 unit	610.29	610.29
4.	Software for Barcode Print	ALF	Nice Label Express	1 pc	646.65	646.65
5.	Printer for Barcode	Nichiei Intec	N-314TT	1 unit	3,869.49	3,869.49
6.	Printer cable	Nichiei Intec	N-CA/SR3	1 unit	81.22	81.22
7.	Automatic cutter for Barcode label	Nichiei Intec	N-HK3	1 unit	142.83	142.83
8.	Rotating Bookshelf (for 400 books)	Kihara	30772-0	3 unit	1,610.12	4,830.37
9.	Chest for books & documents	Kihara	H332/46020-0	10 box	88.30	883.00
<b>TOTAL (US\$)</b>						<b>13,710.04</b>





## ACTIVITIES PLAN

Activities	Details	Person in Charge	JFY2011										JFY2012						
			2011										2012						
			Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
<b>Library Management</b>																			
1. Location	Requesting and decision.	Mr. Bunthoeun Mr. Namu					●	—	—	—	—								
2. Selection of the system and related equipment	(1) <b>Selection of the using system</b> for the Library management system.	Mr. Bunthoeun Mr. Namu					—	—											
	(2) <b>Selection of the related equipment.</b>	Mr. Sokly Mr. Ratha						—	—										
	(3) <b>Purchase and/or contract.</b>	JICA								—	—								
3. Develop the new system	(1) <b>Build the new system.</b>	Outsourcing Mr. Sokly Mr. Ratha								—	—	—							
	(2) <b>Check the operation feature</b>	Mr. Sokly Mr. Ratha										—	—						
	(3) <b>Re-build the system</b> if it is necessary.	Outsourcing Mr. Sokly Mr. Ratha										—	—	—					
4. Selection of the books and documents which should be keeps in the laboratory	(1) <b>Selection</b> of the books and documents.	Outsourcing Temporary staff					—	—	—	—	—	—							
	(2) <b>Keep an unnecessary books and documents</b> in the boxes.	Outsourcing Temporary staff										—	—						



Activities	Details	Person in Charge	JFY2011										JFY2012									
			2011										2012									
			Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
5. Labeling and arrangement	(1) <b>Labeling</b> the selected books and documents.	Outsourcing Temporary staff																				
	(2) <b>Placement</b> of the selected books and documents follow to the DDC (the Dewey Decimal Classification) system.	Outsourcing Temporary staff																				
6. Input the data (books and documents information)	(1) <b>Input</b> a related data.	Outsourcing Temporary staff																				
	(2) <b>Check</b> the operation features	Mr. Sokly Mr. Ratha																				
7. Inner training for the person in charge (librarian) at the library	(1) <b>Duties and responsibilities</b> as a librarian	Outsourcing																				
	(2) <b>How to input a data and operating the system.</b>	Mr. Sokly Mr. Ratha																				
8. Maintenance	<b>Hardware, Application and Database.</b>	Mr. Sokly Mr. Ratha																				
9. Publication	<b>Inform to all MPWT staffs</b> about NEW MPWT LIBRARY.	Experts and all C/P's																				

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## LOOK OF THE MPWT LIBRARY

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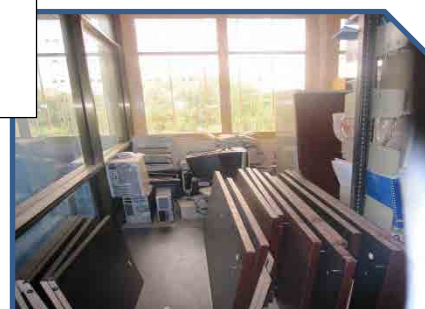
As of March 2010



As of April 2010



As of September 2011



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## BOOKS & DOCUMENTS CLASSIFICATION SYSTEM

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❖ What's DDC?

The **Dewey Decimal Classification (DDC)**, also called the **Dewey Decimal System** is a proprietary system of library classification developed by Melvil Dewey in 1876. It has been greatly modified and expanded through 23 major revisions, the most recent in 2011. This system organizes books on library shelves in a specific and repeatable order that makes it easy to find any book and return it to its proper place. The system is used in 200,000 libraries in at least 135 countries.

❖ Design

The DDC attempts to organize all knowledge into ten main classes. The ten main classes are each further subdivided into ten divisions, and each division into ten sections, giving ten main classes, 100 divisions and 1000 sections. DDC's advantage in using decimals for its categories allows it to be purely numerical, while the drawback is that the codes are much longer and more difficult to remember as compared to an alphanumeric system. Just as an alphanumeric system, it is infinitely hierarchical. It also uses some aspects of a faceted classification scheme, combining elements from different parts of the structure to construct a number representing the subject content (often combining two subject elements with linking numbers and geographical and temporal elements) and form of an item rather than drawing upon a list containing each class and its meaning.

Except for general works and fiction, works are classified principally by subject, with extensions for subject relationships, place, time or type of material, producing classification numbers of at least three digits but otherwise of indeterminate length with a decimal point before the fourth digit, where present (for example, 330 for economics + .9 for geographic treatment + .04 for Europe = 330.94 European economy; 973 for United States + .05 form division for periodicals = 973.05 periodicals concerning the United States generally).

Books are placed on the shelf in increasing numerical order of the decimal number, for example, 050, 220, 330, 330.973, 331. When two books have the same classification number the second line of the call number (usually the first letter or letters of the author's last name, the title if there is no identifiable author) is placed in alphabetical order.

The DDC has a number for all books, including fiction: American fiction is classified in 813. Most libraries create a separate fiction section to allow shelving in a more generalized fashion than Dewey provides for, or to avoid the space that would be taken up in the 800s, or simply to allow readers to find preferred authors by alphabetical order of surname.

Some parts of the classification offer options to accommodate different kinds of libraries. An important feature of the scheme is the ability to assign multiple class numbers to a bibliographical item and only use one of them for shelving. The added numbers appear in the classified subject catalog (though this is not the usual practice in North America). For the full benefit of the scheme the relative index and the tables that form part of every edition must be understood and consulted when required. The structure of the schedules is such that subjects close to each other in a dictionary catalog are dispersed in the Dewey schedules (for example, architecture of Chicago quite separate from geography of Chicago).

❖ **Classes**

The Dewey Decimal Classification is a system of library classification made up of ten classes, each divided into ten divisions, each having ten sections (although there are only 99 divisions and 908 sections in total, as some are no longer in use or have not been assigned).

**000 Computer science, knowledge & systems**

- 000 Computer science, knowledge & general works
- 001 Knowledge
- 002 The book (*i.e. Meta writings about books*)
- 003 Systems
- 004 Data processing & computer science
- 005 Computer programming, programs & data
- 006 Special computer methods
- 007 [Unassigned]
- 008 [Unassigned]
- 009 [Unassigned]

**010 Bibliographies**

- 010 Bibliography
- 011 Bibliographies
- 012 Bibliographies of individuals
- 013 [Unassigned]
- 014 Of anonymous & pseudonymous works
- 015 Bibliographies of works from specific places
- 016 Bibliographies of works on specific subjects
- 017 General subject catalogs
- 018 Catalogs arranged by author, date, etc.
- 019 Dictionary catalogs

**020 Library & information sciences**

- 020 Library & information sciences
- 021 Library relationships

- 022 Administration of physical plant
- 023 Personnel management
- 024 *No longer used—formerly Regulations for readers*
- 025 Library operations
- 026 Libraries for specific subjects
- 027 General libraries
- 028 Reading & use of other information media
- 029 *No longer used—formerly Literary methods*

### **030 Encyclopedias & books of facts**

- 030 General encyclopedic works
- 031 Encyclopedias in American English
- 032 Encyclopedias in English
- 033 In other Germanic languages
- 034 Encyclopedias in French, Occitan & Catalan
- 035 In Italian, Romanian & related languages
- 036 Encyclopedias in Spanish & Portuguese
- 037 Encyclopedias in Slavic languages
- 038 Encyclopedias in Scandinavian languages
- 039 Encyclopedias in other languages

### **040 No longer used—formerly collected essays by language**

- 040 [Unassigned]
- 041 [Unassigned]
- 042 [Unassigned]
- 043 [Unassigned]
- 044 [Unassigned]
- 045 [Unassigned]
- 046 [Unassigned]
- 047 [Unassigned]
- 048 [Unassigned]
- 049 [Unassigned]

### **050 Magazines, journals & serials**

- 050 General serial publications
- 051 Serials in American English
- 052 Serials in English
- 053 Serials in other Germanic languages
- 054 Serials in French, Occitan & Catalan
- 055 In Italian, Romanian & related languages
- 056 Serials in Spanish & Portuguese
- 057 Serials in Slavic languages
- 058 Serials in Scandinavian languages

- 059 Serials in other languages

#### **060 Associations, organizations & museums**

- 060 General organizations & museology
- 061 Organizations in North America
- 062 Organizations in British Isles; in England
- 063 Organizations in central Europe; in Germany
- 064 Organizations in France & Monaco
- 065 Organizations in Italy & adjacent islands
- 066 In Iberian Peninsula & adjacent islands
- 067 Organizations in eastern Europe; in Russia
- 068 Organizations in other geographic areas
- 069 Museum science

#### **• 070 News media, journalism & publishing**

- 070 News media, journalism & publishing
- 071 Newspapers in North America
- 072 Newspapers in British Isles; in England
- 073 Newspapers in central Europe; in Germany
- 074 Newspapers in France & Monaco
- 075 Newspapers in Italy & adjacent islands
- 076 In Iberian Peninsula & adjacent islands
- 077 Newspapers in eastern Europe; in Russia
- 078 Newspapers in Scandinavia
- 079 Newspapers in other geographic areas

#### **080 General collections**

- 080 General collections
- 081 Collections in American English
- 082 Collections in English
- 083 Collections in other Germanic languages
- 084 Collections in French, Occitan & Catalan
- 085 In Italian, Romanian & related languages
- 086 Collections in Spanish & Portuguese
- 087 Collections in Slavic languages
- 088 Collections in Scandinavian languages
- 089 Collections in other languages

#### **090 Manuscripts & rare books**

- 090 Manuscripts & rare books
- 091 Manuscripts
- 092 Block books
- 093 Incunabula
- 094 Printed books

- 095 Books notable for bindings
- 096 Books notable for illustrations
- 097 Books notable for ownership or origin
- 098 Prohibited works, forgeries & hoaxes
- 099 Books notable for format

## **100 Philosophies**

- 100 Miscellany of philosophy & psychology
- 101 Theory of philosophy
- 102 Miscellany of philosophy
- 103 Dictionaries of philosophy
- *104 No longer used—formerly Essays*
- 105 Serial publications of philosophy
- 106 Organizations of philosophy
- 107 Education, research in philosophy
- 108 Kinds of persons in philosophy
- 109 Historical treatment of philosophy

## **110 Metaphysics**

- 110 Metaphysics
- 111 Ontology
- *112 No longer used—formerly Methodology*
- 113 Cosmology (Philosophy of nature)
- 114 Space
- 115 Time
- 116 Change
- 117 Structure
- 118 Force & Energy
- 119 Number & quantity

## **120 Epistemology, causation, humankind**

- 120 Epistemology, causation & humankind
- 121 Epistemology (Theory of knowledge)
- 122 Causation
- 123 Determinism & indeterminism
- 124 Teleology
- *125 No longer used—formerly Infinity*
- 126 The self
- 127 The unconscious & the subconscious
- 128 Humankind
- 129 Origin & destiny of individual souls

## **130 Paranormal phenomena**

- 130 Parapsychology & occultism
- 131 Occult methods for achieving well-being
- *132 No longer used—formerly Mental derangements*
- 133 Parapsychology & occultism
- *134 No longer used—formerly Mesmerism and Clairvoyance*
- 135 Dreams & mysteries
- *136 No longer used—formerly Mental characteristics*
- 137 Divinatory graphology
- 138 Physiognomy
- 139 Phrenology

#### **140 Specific philosophical schools**

- 140 Specific philosophical schools
- 141 Idealism & related systems
- 142 Critical philosophy
- 143 Intuitionism & Bergsonism
- 144 Humanism & related systems
- 145 Sensationalism
- 146 Naturalism & related systems
- 147 Pantheism & related systems
- 148 Liberalism, eclecticism, traditionalism
- 149 Other philosophical systems

#### **150 Psychology**

- 150 Psychology
- *151 No longer used—formerly Intellect*
- 152 Perception, movement, emotions, drives
- 153 Mental processes & intelligence
- 154 Subconscious & altered states
- 155 Differential & developmental psychology
- 156 Comparative psychology
- *157 No longer used—formerly Emotions*
- 158 Applied psychology
- *159 No longer used—formerly Will*

#### **160 Logic**

- 160 Logic
- 161 Induction
- 162 Deduction
- *163 Not assigned or no longer used*
- *164 Not assigned or no longer used*
- 165 Fallacies & sources of error



- 166 Syllogisms
- 167 Hypotheses
- 168 Argument & persuasion
- 169 Analogy

### **170 Ethics (Moral philosophy)**

- 170 Ethics
- 171 Systems & doctrines
- 172 Political ethics
- 173 Ethics of family relationships
- 174 Economic & professional ethics
- 175 Ethics of recreation & leisure
- 176 Ethics of sex & reproduction
- 177 Ethics of social relations
- 178 Ethics of consumption
- 179 Other ethical norms

### **180 Ancient, medieval, Oriental philosophy**

- 180 Ancient, medieval & eastern philosophy
- 181 Oriental philosophy
- 182 Pre-Socratic Greek philosophies
- 183 Sophistic & Socratic philosophies
- 184 Platonic philosophy
- 185 Aristotelian philosophy
- 186 Skeptic and Neoplatonic philosophies
- 187 Epicurean philosophy
- 188 Stoic philosophy
- 189 Medieval Western philosophy

### **190 Modern Western philosophy (19th-century, 20th-century)**

- 190 Modern western philosophy
- 191 Modern Western philosophy United States & Canada
- 192 Modern Western philosophy British Isles
- 193 Modern Western philosophy Germany & Austria
- 194 Modern Western philosophy France
- 195 Modern Western philosophy Italy
- 196 Modern Western philosophy Spain & Portugal
- 197 Modern Western philosophy Soviet Union
- 198 Modern Western philosophy Scandinavia
- 199 Modern Western philosophy Other geographical areas

### **200 Religion**

- 200 Religion

- 201 Religious mythology, general classes of religion, interreligious relations and attitudes, social theology
- 202 Doctrines
- 203 Public worship and other practices
- 204 Religious experience, life, practice
- 205 Religious ethics
- 206 Leaders and organization
- 207 Missions and religious education
- 208 Sources
- 209 Sects and reform movements

## **210 Natural theology**

- 211 Concepts of God
- 212 Existence, attributes of God
- 213 Creation
- 214 Theodicy
- 215 Science & religion
- *216 No longer used—formerly Evil*
- *217 No longer used—formerly Prayer*
- 218 Humankind
- *219 No longer used—formerly Analogies*

## **220 Bible**

- 221 Old Testament
- 222 Historical books of Old Testament
- 223 Poetic books of Old Testament
- 224 Prophetic books of Old Testament
- 225 New Testament
- 226 Gospels & Acts
- 227 Epistles
- 228 Revelation (Apocalypse)
- 229 Apocrypha & pseudepigrapha

## **230 Christian theology**

- 231 God
- 232 Jesus Christ & his family
- 233 Humankind
- 234 Salvation (Soteriology) & grace
- 235 Spiritual beings
- 236 Eschatology
- *237 No longer used—formerly Future state*
- 238 Creeds & catechisms
- 239 Apologetics & polemics

## **240 Christian moral & devotional theology**

- 241 Moral theology
- 242 Devotional literature
- 243 Evangelistic writings for individuals
- *244 No longer used—formerly Religious fiction*
- *245 No longer used—formerly Hymnology*
- 246 Use of art in Christianity
- 247 Church furnishings & articles
- 248 Christian experience, practice, life
- 249 Christian observances in family life

## **250 Christian orders & local church**

- 251 Preaching (Homiletics)
- 252 Texts of sermons
- 253 Pastoral office (Pastoral theology)
- 254 Parish government & administration
- 255 Religious congregations & orders
- *256 No longer used—formerly Religious societies*
- *257 No longer used—formerly Parochial schools, libraries, etc.*
- *258 No longer used—formerly Parochial medicine*
- 259 Activities of the local church

## **260 Christian social theology**

- 261 Social theology
- 262 Ecclesiology
- 263 Times, places of religious observance
- 264 Public worship
- 265 Sacraments, other rites & acts
- 266 Missions
- 267 Associations for religious work
- 268 Religious education
- 269 Spiritual renewal

## **270 Christian church history**

- 271 Religious orders in church history
- 272 Persecutions in church history
- 273 Heresies in church history
- 274 Christian church in Europe
- 275 Christian church in Asia
- 276 Christian church in Africa
- 277 Christian church in North America
- 278 Christian church in South America

- 279 Christian church in other areas

## **280 Christian denominations & sects**

- 281 Early church & Eastern churches
- 282 Roman Catholic Church
- 283 Anglican churches
- 284 Protestants of Continental origin
- 285 Presbyterian, Reformed, Congregational
- 286 Baptist, Disciples of Christ, Adventist
- 287 Methodist & related churches
- *288 No longer used—formerly Unitarian*
- 289 Other denominations & sects

## **290 Other & comparative religions**

- 291 Comparative religion
- 292 Classical (Greek & Roman) religion
- 293 Germanic religion
- 294 Religions of Indian origin
- 295 Zoroastrianism (Mazdaism, Parseeism)
- 296 Judaism
- 297 Islam, Bábism & Bahá'í Faith
- *298 No longer used—formerly Mormonism*
- 299 Other religions

## **300 Social sciences, sociology & anthropology**

- 300 Social sciences
- 301 Sociology & anthropology
- 302 Social interaction
- 303 Social processes
- 304 Factors affecting social behavior
- 305 Social groups
- 306 Culture & institutions
- 307 Communities
- *308 No longer used—formerly Polygraphy*
- *309 No longer used—formerly History of sociology*

## **310 General statistics**

- *311 No longer used—formerly Theory and methods*
- *312 No longer used—formerly Population*
- *313 No longer used—formerly Special topics*
- 314 General statistics Of Europe
- 315 General statistics Of Asia
- 316 General statistics Of Africa
- 317 General statistics Of North America

- 318 General statistics Of South America
- 319 General statistics Of other parts of the world

### **320 Political science**

- 321 Systems of governments & states
- 322 Relation of state to organized groups
- 323 Civil & political rights
- 324 The political process
- 325 International migration & colonization
- 326 Slavery & emancipation
- 327 International relations
- 328 The legislative process
- *329 Not assigned or no longer used*

### **330 Economics**

- 331 Labor economics
- 332 Financial economics
- 333 Land economics
- 334 Cooperatives
- 335 Socialism & related systems
- 336 Public finance
- 337 International economics
- 338 Production
- 339 Macroeconomics & related topics

### **340 Law**

- 341 International law
- 342 Constitutional & administrative law
- 343 Military, tax, trade, industrial law
- 344 Social, labor, welfare, & related law
- 345 Criminal law
- 346 Private law
- 347 Civil procedure & courts
- 348 Law (Statutes), regulations, cases
- 349 Law of specific jurisdictions & areas

### **350 Public administration**

- 351 Of central governments
- 352 Of local governments
- 353 of U.S. federal & state governments
- 354 Of specific central governments
- 355 Military science
- 356 Foot forces & warfare

- 357 Mounted forces & warfare
- 358 Other specialized forces & services
- 359 Sea (Naval) forces & warfare

### **360 Social services; association**

- 361 General social problems
- 362 Social welfare problems & services
- 363 Other social problems & services
- 364 Criminology
- 365 Penal & related institutions
- 366 Association
- 367 General clubs
- 368 Insurance
- 369 Miscellaneous kinds of associations

### **370 Education**

- 371 School management; special education
- 372 Elementary education
- 373 Secondary education
- 374 Adult education
- 375 Curriculums
- *376 No longer used—formerly Education of women*
- *377 No longer used—formerly Ethical education*
- 378 Higher education
- 379 Government regulation, control, support

### **380 Commerce, communications, transport**

- 381 Internal commerce (Domestic trade)
- 382 International commerce (Foreign trade)
- 383 Postal communication
- 384 Communications; Telecommunication
- 385 Railroad transportation
- 386 Inland waterway & ferry transportation
- 387 Water, air, space transportation
- 388 Transportation; Ground transportation
- 389 Metrology & standardization

### **390 Customs, etiquette, folklore**

- 391 Costume & personal appearance
- 392 Customs of life cycle & domestic life
- 393 Death customs
- 394 General customs
- 395 Etiquette (Manners)

- *396 No longer used—formerly Women's position and treatment*
- *397 No longer used—formerly outcast studies*
- 398 Folklore
- 399 Customs of war & diplomacy

#### **400 Language**

- 400 Language
- 401 Philosophy & theory
- 402 Miscellany
- 403 Dictionaries & encyclopedias
- 404 Special topics
- 405 Serial publications
- 406 Organizations & management
- 407 Education, research, related topics
- 408 With respect to kinds of persons
- 409 Geographical & persons treatment

#### **410 Linguistics**

- 411 Writing systems
- 412 Etymology
- 413 Dictionaries
- 414 Phonology
- 415 Structural systems (Grammar)
- *416 No longer used—formerly Prosody (linguistics)*
- 417 Dialectology & historical linguistics
- 418 Standard usage; Applied linguistics
- 419 Verbal language not spoken or written

#### **420 English & Old English**

- 421 English writing system & phonology
- 422 English etymology
- 423 English dictionaries
- *424 No longer used—formerly English thesauruses*
- 425 English grammar
- *426 No longer used—formerly English prosodies*
- 427 English language variations
- 428 Standard English usage
- 429 Old English (Anglo-Saxon)

#### **430 Germanic languages; German**

- 431 German writing system & phonology
- 432 German etymology
- 433 German dictionaries

- *434 Not assigned or no longer used*
- 435 German grammar
- *436 Not assigned or no longer used*
- 437 German language variations
- 438 Standard German usage
- 439 Other Germanic languages

#### **440 Romance languages; French**

- 441 French writing system & phonology
- 442 French etymology
- 443 French dictionaries
- *444 Not assigned or no longer used*
- 445 French grammar
- *446 Not assigned or no longer used*
- 447 French language variations
- 448 Standard French usage
- 449 Provençal & Catalan

#### **450 Italian, Romanian, Rhaeto-Romanic**

- 451 Italian writing system & phonology
- 452 Italian etymology
- 453 Italian dictionaries
- *454 Not assigned or no longer used*
- 455 Italian grammar
- *456 Not assigned or no longer used*
- 457 Italian language variations
- 458 Standard Italian usage
- 459 Romanian & Rhaeto-Romanic

#### **460 Spanish & Portuguese languages**

- 461 Spanish writing system & phonology
- 462 Spanish etymology
- 463 Spanish dictionaries
- *464 Not assigned or no longer used*
- 465 Spanish grammar
- *466 Not assigned or no longer used*
- 467 Spanish language variations
- 468 Standard Spanish usage
- 469 Portuguese

#### **470 Italic languages; Latin**

- 471 Classical Latin writing & phonology
- 472 Classical Latin etymology & phonology



- 473 Classical Latin dictionaries
- *474 Not assigned or no longer used*
- 475 Classical Latin grammar
- *476 Not assigned or no longer used*
- 477 Old, Postclassical, Vulgar Latin
- 478 Classical Latin usage
- 479 Other Italic languages

#### **480 Hellenic languages; Classical Greek**

- 481 Classical Greek writing & phonology
- 482 Classical Greek etymology
- 483 Classical Greek dictionaries
- *484 Not assigned or no longer used*
- 485 Classical Greek grammar
- *486 Not assigned or no longer used*
- 487 Preclassical & postclassical Greek
- 488 Classical Greek usage
- 489 Other Hellenic languages

#### **490 Other languages**

- 491 East Indo-European & Celtic languages
- 492 Afro-Asiatic languages; Semitic
- 493 Non-Semitic Afro-Asiatic languages
- 494 Ural–Altaic, Paleosiberian, Dravidian
- 495 Languages of East & Southeast Asia
- 496 African languages
- 497 North American native languages
- 498 South American native languages
- 499 Miscellaneous languages

#### **500 Sciences**

- 500 Natural sciences & mathematics
- 501 Philosophy & theory
- 502 Miscellany
- 503 Dictionaries & encyclopedias
- *504 Not assigned or no longer used*
- 505 Serial publications
- 506 Organizations & management
- 507 Education, research, related topics
- 508 Natural history
- 509 Historical, geographic, persons treatment

#### **510 Mathematics**

- 511 General principles
- 512 Algebra & number theory
- 513 Arithmetic
- 514 Topology
- 515 Analysis
- 516 Geometry
- *517 Not assigned or no longer used*
- 518 Numerical analysis
- 519 Probabilities & applied mathematics

## **520 Astronomy & allied sciences**

- 521 Celestial mechanics
- 522 Techniques, equipment, materials
- 523 Specific celestial bodies & phenomena
- *524 Not assigned or no longer used*
- 525 Earth (Astronomical geography)
- 526 Mathematical geography
- 527 Celestial navigation
- 528 Ephemerides
- 529 Chronology

## **530 Physics**

- 531 Classical mechanics; Solid mechanics
- 532 Fluid mechanics; Liquid mechanics
- 533 Gas mechanics
- 534 Sound & related vibrations
- 535 Light & parafhotic phenomena
- 536 Heat
- 537 Electricity & electronics
- 538 Magnetism
- 539 Modern physics

## **540 Chemistry & allied sciences**

- 541 Physical & theoretical chemistry
- 542 Techniques, equipment, materials
- 543 Analytical chemistry
- 544 Qualitative analysis
- 545 Quantitative analysis
- 546 Inorganic chemistry
- 547 Organic chemistry
- 548 Crystallography
- 549 Mineralogy

## **550 Earth sciences**

- 551 Geology, hydrology, meteorology
- 552 Petrology
- 553 Economic geology
- 554 Earth sciences of Europe
- 555 Earth sciences of Asia
- 556 Earth sciences of Africa
- 557 Earth sciences of North America
- 558 Earth sciences of South America
- 559 Earth sciences of other areas

## **560 Paleontology; Paleozoology**

- 561 Paleobotany
- 562 Fossil invertebrates
- 563 Fossil primitive phyla
- 564 Fossil Mollusca & Molluscoidea
- 565 Other fossil invertebrates
- 566 Fossil Vertebrata (Fossil Craniate)
- 567 Fossil cold-blooded vertebrates
- 568 Fossil Aves (Fossil birds)
- 569 Fossil Mammalia

## **570 Life sciences**

- 571 Physiology
- 572 Biochemistry
- 573 Physiological systems of animals
- *574 Not assigned or no longer used*
- 575 Physiological systems of plants
- 576 Genetics and evolution
- 577 Ecology
- 578 Natural history of organisms
- 579 Microorganisms, fungi, algae

## **580 Plants**

- 581 Botany
- 582 Plants noted for specific vegetative characteristics and flowers
- 583 Dicotyledones
- 584 Monocotyledones
- 585 Gymnospermae (Pinophyta)
- 586 Cryptogamia (Seedless plants)
- 587 Pteridophyta (Vascular cryptogams)
- 588 Bryophyta
- *589 Not assigned or no longer used*

## **590 Zoological sciences/Animals**

- 591 Zoology
- 592 Invertebrates
- 593 Protozoa, Echinodermata, related phyla
- 594 Mollusca & Molluscoidea
- 595 Other invertebrates
- 596 Vertebrata (Craniata, Vertebrates)
- 597 Cold-blooded vertebrates, fishes
- 598 Aves (Birds)
- 599 Mammalia (Mammals)

## **600 Technology (Applied sciences)**

- 600 Technology
- 601 Philosophy & theory
- 602 Miscellany
- 603 Dictionaries & encyclopedias
- 604 Special topics
- 605 Serial publications
- 606 Organizations
- 607 Education, research, related topics
- 608 Invention & patents
- 609 Historical, geographic, persons treatment

## **610 Medical sciences; Medicine**

- 611 Human anatomy, cytology, histology
- 612 Human physiology
- 613 Promotion of health
- 614 Incidence & prevention of disease
- 615 Pharmacology and therapeutics
- 616 Diseases
- 617 Surgery & related medical specialties
- 618 Gynaecology & other medical specialties
- 619 Experimental medicine

## **620 Engineering & Applied operations**

- 621 Applied physics
- 622 Mining & related operations
- 623 Military & nautical engineering
- 624 Civil engineering
- 625 Engineering of railroads, roads
- *626 Not assigned or no longer used*
- 627 Hydraulic engineering

- 628 Sanitary & municipal engineering
- 629 Other branches of engineering

### **630 Agriculture**

- 631 Techniques, equipment, materials
- 632 Plant injuries, diseases, pests
- 633 Field & plantation crops
- 634 Orchards, fruits, forestry
- 635 Garden crops (Horticulture)
- 636 Animal husbandry
- 637 Processing dairy & related products
- 638 Insect culture
- 639 Hunting, fishing, conservation

### **640 Home economics & family living**

- 641 Food & drink
- 642 Meals & table service
- 643 Housing & household equipment
- 644 Household utilities
- 645 Household furnishings
- 646 Sewing, clothing, personal living
- 647 Management of public households
- 648 Housekeeping
- 649 Child rearing & home care of sick

### **650 Management & auxiliary services**

- 651 Office services
- 652 Processes of written communication
- 653 Shorthand
- *654 Not assigned or no longer used*
- *655 Not assigned or no longer used*
- *656 Not assigned or no longer used*
- 657 Accounting
- 658 General management
- 659 Advertising & public relations

### **660 Chemical engineering**

- 661 Industrial chemicals technology
- 662 Explosives, fuels technology
- 663 Beverage technology
- 664 Food technology
- 665 Industrial oils, fats, waxes, gases
- 666 Ceramic & allied technologies

- 667 Cleaning, color, related technologies
- 668 Technology of other organic products
- 669 Metallurgy

### **670 Manufacturing**

- 671 Metalworking & metal products
- 672 Iron, steel, other iron alloys
- 673 Nonferrous metals
- 674 Lumber processing, wood products, cork
- 675 Leather & fur processing
- 676 Pulp & paper technology
- 677 Textiles
- 678 Elastomers & elastomer products
- 679 Other products of specific materials

### **680 Manufacture for specific uses**

- 681 Precision instruments & other devices
- 682 Small forge work (Blacksmithing)
- 683 Hardware & household appliances
- 684 Furnishings & home workshops
- 685 Leather, fur, related products
- 686 Printing & related activities
- 687 Clothing
- 688 Other final products & packaging
- *689 Not assigned or no longer used*

### **690 Buildings**

- 691 Building materials
- 692 Auxiliary construction practices
- 693 Specific materials & purposes
- 694 Wood construction; Carpentry
- 695 Roof covering
- 696 Utilities
- 697 Heating, ventilating, air-conditioning
- 698 Detail finishing
- *699 Not assigned or no longer used*

### **700 Arts**

- 700 The Arts; fine & decorative arts
- 701 Philosophy & theory
- 702 Miscellany
- 703 Dictionaries & encyclopedias
- 704 Special topics

- 705 Serial publications
- 706 Organizations & management
- 707 Education, research, related topics
- 708 Galleries, museums, private collections
- 709 Historical, areas, persons treatment

#### **710 Civic & landscape art**

- 711 Area planning (Civic art)
- 712 Landscape architecture
- 713 Landscape architecture of trafficways
- 714 Water features
- 715 Woody plants
- 716 Herbaceous plants
- 717 Structures
- 718 Landscape design of cemeteries
- 719 Natural landscapes

#### **720 Architecture**

- 721 Architectural structure
- 722 Architecture to ca. 300
- 723 Architecture from ca. 300 to 1399
- 724 Architecture from 1400
- 725 Public structures
- 726 Buildings for religious purposes
- 727 Buildings for education & research
- 728 Residential & related buildings
- 729 Design & decoration

#### **730 Plastic arts; Sculpture**

- 731 Processes, forms, subjects of sculpture
- 732 Sculpture to ca. 500
- 733 Greek, Etruscan, Roman sculpture
- 734 Sculpture from ca. 500 to 1399
- 735 Sculpture from 1400
- 736 Carving & carvings
- 737 Numismatics & sigillography
- 738 Ceramic arts
- 739 Art metalwork

#### **740 Drawing & decorative arts**

- 741 Drawing & drawings
- 742 Perspective (graphical)
- 743 Drawing & drawings by subject

- *744 Not assigned or no longer used*
- 745 Decorative arts
- 746 Textile arts
- 747 Interior decoration
- 748 Glass
- 749 Furniture & accessories
- **750 Painting & paintings**
  - 751 Techniques, equipment, forms
  - 752 Color
  - 753 Symbolism, allegory, mythology, legend
  - 754 Genre paintings
  - 755 Religion & religious symbolism
  - *756 Not assigned or no longer used*
  - 757 Human figures & their parts
  - 758 Other subjects
  - 759 Geographical, historical, areas, persons treatment

#### **760 Graphic arts; Printmaking & prints**

- 761 Relief processes (Block printing)
- *762 Not assigned or no longer used*
- 763 Lithographic (Planographic) processes
- 764 Chromolithography & serigraphy
- 765 Metal engraving
- 766 Mezzotinting & related processes
- 767 Etching & drypoint
- *768 Not assigned or no longer used*
- 769 Prints

#### **770 Photography & photographs**

- 771 Techniques, equipment, materials
- 772 Metallic salt processes
- 773 Pigment processes of printing
- 774 Holography
- 775 Digital photography
- 776 Computer art
- *777 Not assigned or no longer used*
- 778 Fields & kinds of photography
- 779 Photographs

#### **780 Music**

- 781 General principles & musical forms
- 782 Vocal music
- 783 Music for single voices; The voice



- 784 Instruments & Instrumental ensembles
- 785 Chamber music
- 786 Keyboard & other instruments
- 787 Stringed instruments (Chordophones)
- 788 Wind instruments (Aerophones)
- *789 Not assigned or no longer used*

#### **790 Recreational & performing arts**

- 791 Public performances
- 792 Stage presentations
- 793 Indoor games & amusements
- 794 Indoor games of skill
- 795 Games of chance
- 796 Athletic & outdoor sports & games
- 797 Aquatic & air sports
- 798 Equestrian sports & animal racing
- 799 Fishing, hunting, shooting

#### **800 Literature, rhetoric & criticism**

- 800 Literature & rhetoric
- 801 Philosophy & theory
- 802 Miscellany
- 803 Dictionaries & encyclopedias
- *804 Not assigned or no longer used*
- 805 Serial publications
- 806 Organizations
- 807 Education, research, related topics
- 808 Rhetoric & collections of literature
- 809 Literary history & criticism

#### **810 American literature in English**

- 811 Poetry
- 812 Drama
- 813 Fiction
- 814 Essays
- 815 Speeches
- 816 Letters
- 817 Satire & humor
- 818 Miscellaneous writings
- *819 Not assigned or no longer used*

#### **820 English & Old English literatures**

- 821 English poetry

- 822 English drama
- 823 English fiction
- 824 English essays
- 825 English speeches
- 826 English letters
- 827 English satire & humor
- 828 English miscellaneous writings
- 829 Old English (Anglo-Saxon)

### **830 German & related literatures**

- 831 German poetry
- 832 German drama
- 833 German fiction
- 834 German essays
- 835 German speeches
- 836 German letters
- 837 German satire & humor
- 838 German miscellaneous writings
- 839 Other Germanic literatures

### **840 Literatures of Romance languages**

- 841 French poetry
- 842 French drama
- 843 French fiction
- 844 French essays
- 845 French speeches
- 846 French letters
- 847 French satire & humor
- 848 French miscellaneous writings
- 849 Occitan & Catalan literatures

### **850 Italian, Romanian, Rhaeto-Romanic**

- 851 Italian poetry
- 852 Italian drama
- 853 Italian fiction
- 854 Italian essays
- 855 Italian speeches
- 856 Italian letters
- 857 Italian satire & humor
- 858 Italian miscellaneous writings
- 859 Romanian & Rhaeto-Romanic

## **860 Spanish & portuguese literatures**

- 861 Spanish poetry
- 862 Spanish drama
- 863 Spanish fiction
- 864 Spanish essays
- 865 Spanish speeches
- 866 Spanish letters
- 867 Spanish satire & humor
- 868 Spanish miscellaneous writings
- 869 Portuguese literature

## **870 Italic literatures; Latin literature**

- 871 Latin poetry
- 872 Latin dramatic poetry & drama
- 873 Latin epic poetry & fiction
- 874 Latin lyric poetry
- 875 Latin speeches
- 876 Latin letters
- 877 Latin satire & humor
- 878 Latin miscellaneous writings
- 879 Literatures of other Italic languages

## **880 Hellenic literatures; Classical Greek**

- 881 Classical Greek poetry
- 882 Classical Greek drama
- 883 Classical Greek epic poetry & fiction
- 884 Classical Greek lyric poetry
- 885 Classical Greek speeches
- 886 Classical Greek letters
- 887 Classical Greek satire & humor
- 888 Classical Greek miscellaneous writings
- 889 Modern Greek literature

## **890 Literatures of other languages**

- 891 East Indo-European & Celtic
- 892 Afro-Asiatic literatures Semitic
- 893 Non-Semitic Afro-Asiatic literatures
- 894 Ural-Altaic, Paleosiberian, Dravidian
- 895 Literatures of East & Southeast Asia
- 896 African literatures
- 897 North American native literatures
- 898 South American native literatures
- 899 Other literatures

## **900 History**

- 900 History & geography
- 901 Philosophy & theory
- 902 unassigned
- 903 Dictionaries & encyclopedias
- 904 Collected accounts of events
- 905 Serial publications
- 906 Organizations & management
- 907 Education, research, related topics
- 908 With respect to kinds of persons
- 909 World history

## **910 Geography & travel**

- 911 Historical geography
- 912 Graphic representations of earth
- 913 Ancient world
- 914 Europe
- 915 Asia
- 916 Africa
- 917 North America
- 918 South America
- 919 Other areas

## **920 Biography, genealogy, insignia**

- 921-928 This range is reserved as an optional location for biographies, which are shelved alphabetically by subject's last name.
- 929 Genealogy, names, insignia

## **930 History of ancient world (to ca. 499)**

- 931 History of ancient world; China
- 932 History of ancient world; Egypt
- 933 History of ancient world; Palestine
- 934 History of ancient world; India
- 935 History of ancient world; Mesopotamia & Iranian Plateau
- 936 History of ancient world; Europe north & west of Italy
- 937 History of ancient world; Italy & adjacent territories
- 938 History of ancient world; Greece
- 939 History of ancient world; Other parts of ancient world

## **940 General history of Europe**

- 941 General history of Europe; British Isles
- 942 General history of Europe; England & Wales
- 943 General history of Europe; Central Europe; Germany

- 944 General history of Europe; France & Monaco
- 945 General history of Europe; Italian Peninsula & adjacent islands
- 946 General history of Europe; Iberian Peninsula & adjacent islands
- 947 General history of Europe; Eastern Europe; Russia
- 948 General history of Europe; Northern Europe; Scandinavia
- 949 General history of Europe; Other parts of Europe

#### **950 General history of Asia; Far East**

- 951 General history of Asia; China & adjacent areas
- 952 General history of Asia; Japan
- 953 General history of Asia; Arabian Peninsula & adjacent areas
- 954 General history of Asia; South Asia; India
- 955 General history of Asia; Iran
- 956 General history of Asia; Middle East (Near East)
- 957 General history of Asia; Siberia (Asiatic Russia)
- 958 General history of Asia; Central Asia
- 959 General history of Asia; Southeast Asia

#### **960 General history of Africa**

- 961 General history of Africa; Tunisia & Libya
- 962 General history of Africa; Egypt & Sudan
- 963 General history of Africa; Ethiopia
- 964 General history of Africa; Morocco & Canary Islands
- 965 General history of Africa; Algeria
- 966 General history of Africa; West Africa & offshore islands
- 967 General history of Africa; Central Africa & offshore islands
- 968 General history of Africa; Southern Africa
- 969 General history of Africa; South Indian Ocean islands

#### **970 General history of North America**

- 971 General history of North America; Canada
- 972 General history of North America; Middle America; Mexico
- 973 General history of North America; United States
- 974 General history of North America; Northeastern United States
- 975 General history of North America; Southeastern United States
- 976 General history of North America; South central United States
- 977 General history of North America; North central United States
- 978 General history of North America; Western United States
- 979 General history of North America; Great Basin & Pacific Slope

#### **980 General history of South America**

- 981 General history of South America; Brazil
- 982 General history of South America; Argentina

- 983 General history of South America; Chile
- 984 General history of South America; Bolivia
- 985 General history of South America; Peru
- 986 General history of South America; Colombia & Ecuador
- 987 General history of South America; Venezuela
- 988 General history of South America; Guiana
- 989 General history of South America; Paraguay & Uruguay

**990 General history of other areas**

- *991 Not assigned or no longer used*
- *992 Not assigned or no longer used*
- 993 General history of other areas; New Zealand
- 994 General history of other areas; Australia
- 995 General history of other areas; Melanesia; New Guinea
- 996 General history of other areas; Other parts of Pacific Polynesia
- 997 General history of other areas; Atlantic Ocean islands
- 998 General history of other areas; Arctic islands & Antarctica
- 999 Extraterrestrial worlds

# OUTPUT 2 Activities Report

The Strengthening of Construction  
Quality Control Project

## Library Conditions

(as of January 2010)



**Storage Room**



(as of March 2010)



**Renovation**



**Arrangement**



(as of March 2011)



**Storage Room  
AGAIN!**



(as of January 2012)



**Labeling**



**Categorization**



(as of September 2011)



**Cleaning &  
Rearrangement**



**Renovation**



(as of May 2012)



**MPWT Library**





# System Introduction

# Database Management System

## System Portal Page

Access to MPWT LAN



<http://192.168.10.5/portal>

Ministry of Public Works and Transportation

Welcome to MPWT system portal  
You can use these system to refer drawings

- Documents Management Database** [Link](#)  
To find as-built drawings, projects and registered documents
- Searching Standard Drawings** [Link](#)  
To refer Standard Drawings and Bill of Quantity
- Book Inventory System** [Link](#)  
To search book and document in the library

Assisted by JICA  
Ministry of Public Works and Transportation

## Activities Process



Meeting



The 1<sup>st</sup> Digitizing

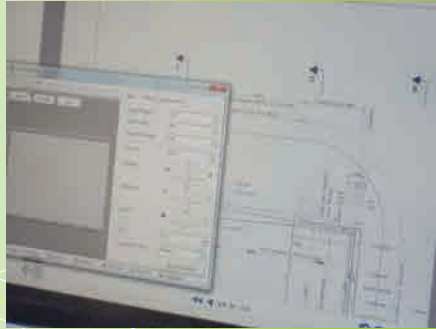


Training to C/P's

## Activities Process (cont.)



### The 2<sup>nd</sup> Digitizing



**Documents Management Database**

Search by:  Project  Document

NR 6 Advance Search

Search > Results

**Catalog Search Result**

No	Subject of bibliography
1	Title : Cambodia Road Improvement Project Contract 66_68 ; Road and Bridges, Drawing(As Built)
2	Title : FLOOD EMERGENCY REHABILITATION PROJECT, NATIONAL ROAD COMPONENT, IDA ..... Road and Bridges, Study Reports, 2010
3	Title : FLOOD EMERGENCY REHABILITATION PROJECT, NATIONAL ROAD COMPONENT, IDA ..... Road and Bridges, Drawing(As Built)
4	Title : HIGHWAY ROUTE No.48 AT STA. 0+000 STA. 148+993.948, KOH KONG SRE AMBEL ..... Road and Bridges, Drawing(As Built)
5	Title : THE PROJECT FOR IMPROVEMENT OF BRIDGES ON NATIONAL HIGHWAY ROUTE 6A ; Road and Bridges, Drawing(As Built)
6	Title : THE PROJECT FOR IMPROVEMENT OF BRIDGES ON NATIONAL HIGHWAY ROUTE 6A BR ..... Road and Bridges, Drawing(As Built)

1-6 of 6 Records

No. of Records : 10 ( 1-6 ) 20

**Documents Management Database**

Search by:  Project  Document

Search  Advance Search

Copyright © 2010 Ministry of Public Works and Transport Developed by Cam Info Services

**Documents Management Database**

Search by:  Project  Document

Search > Results

**Catalog Search Result**

No	Subject of bibliography
No Data in this page	

No of Records : 10 ( 1-6 ) 20

Page 1

Copyright © 2010 Ministry of Public Works and Transport Developed by Cam Info Services

**Documents Management Database**

Search by:  Project  Document

NR 6 Advance Search

Search > Results > Details

**Detail Information**

Subject: Road and Bridges

Type of Document: Project

Documents Detail (By the Project): Drawing(As Built)

Title: FLOOD EMERGENCY REHABILITATION PROJECT, NATIONAL ROAD COMPONENT, IDA CREDIT NO.3472.6A, PROJECT IMPLEMENTATION UNIT WB, P1U.2, Rehabilitation of NR31 and NR 53

Fund Source:

Province and Capital:

Completion Date:

Data File Name: RNDL\_04\_0005\_08

Hard Copy: No  
Soft Copy: Yes

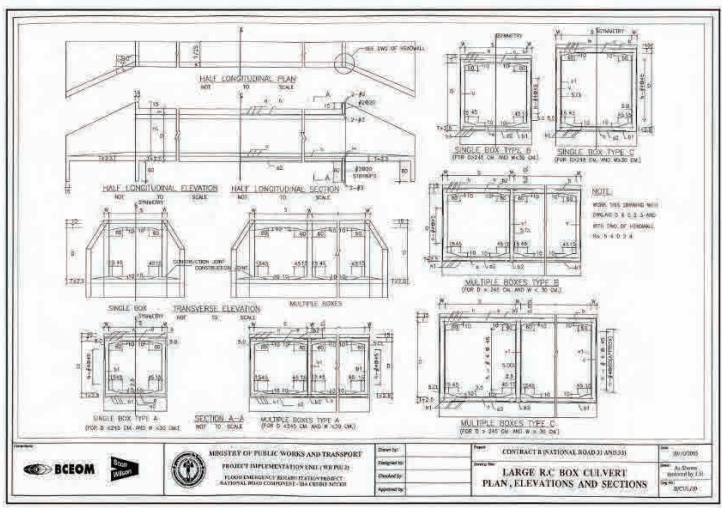
Reference No.:

Document code:

Shelf code:

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# Standard Drawing Searching System



## Standard Drawing Searching System (Top)

KINGDOM OF CAMBODIA  
NATION RELIGION KING  
MINISTRY OF PUBLIC WORKS AND TRANSPORT  
The Strengthening of Construction Quality Control Project

Please click the button below!

ROAD PIPE CULVERT  
BRIDGE BOX CULVERT

Visitor: 006794

Counter (Total Access/ Monthly Access)

## Screen Example (ROAD)


KINGDOM OF CAMBODIA  
NATION RELIGION KING  
MINISTRY OF PUBLIC WORKS AND TRANSPORT  
The Strengthening of Construction Quality Control Project

ROAD


SECTION1	SECTION2
SECTION1: FORMAT OF DRAWINGS	SECTION2: ROAD GEOMETRY DESIGN
SECTION2: ROAD GEOMETRY DESIGN	TITLE OF DRAWING
SECTION3: ROAD SLOPE PROTECTION	DRAWING No.
SECTION4: ROAD DRAINAGE	PDF
SECTION5: ROAD TRAFFIC DEVICES	ROAD STANDARDS
SECTION6: ATTACHMENT: SAMPLE OF DRAWING	ROAD CLASSIFICATION
	TYPICAL CROSS SECTION BY ROAD CLASSIFICATION
	TYPICAL SIDE SLOPE
	TYPICAL PAVEMENT DESIGN
	SUPERELEVATION
	PAVEMENT WIDENING ON CURVES
	TYPE OF JUNCTION 1
	TYPE OF JUNCTION 2
	JUNCTION DESIGN AND SIGHT DISTANCE
	MEDIAN 1
	MEDIAN 2
	FRONTAGE ROAD

Back ROAD BRIDGE PIPE CULVERT BOX CULVERT

### Screen Example (Bridge)



**KINGDOM OF CAMBODIA**  
NATION RELIGION KING  
MINISTRY OF PUBLIC WORKS AND TRANSPORT



The Strengthening of Construction Quality Control Project

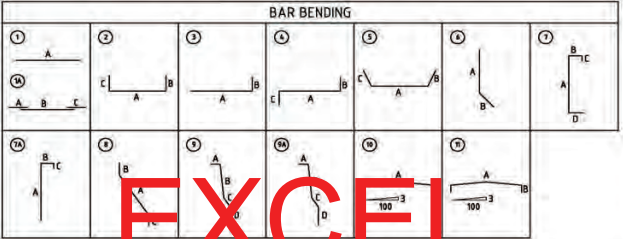
**BRIDGE**

<b>GENERAL</b>	K.C. FLAT SLAB BRIDGE	[SPAN]	SPAN = 20.00m
BRIDGE (SIMPLE SPAN)	R/C GIRDER BRIDGE	15.00m	
BRIDGE (TWO SPANS)	PRETENSION HOLLOW SLAB BRIDGE	18.00m	
MISCELLANEOUS	POST TENSION HOLLOW SLAB BRIDGE	20.00m	
	POST TENSION GIRDER BRIDGE (H-SHAPE)	20.00m	
	POST TENSION GIRDER BRIDGE (I-SHAPE)	20.00m	

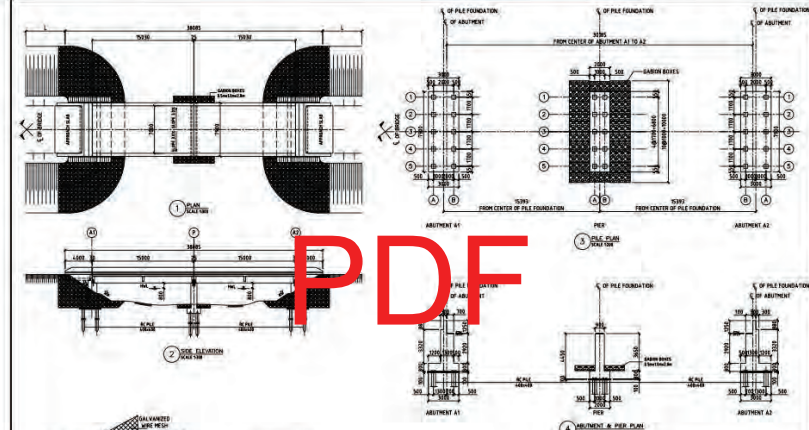
CARRIAGE (m)	TITLE OF DRAWING	DRAWING	REV
7.00m	GENERAL VIEW ABUTMENT - GENERAL DETAIL DECK UNIT TYPE A - REINFORCEMENT DETAIL DECK UNIT TYPE B - REINFORCEMENT DETAIL ABUTMENT WINGWALL REINFORCEMENT DETAIL ABUTMENT REINFORCEMENT DETAIL	PDF	EXCEL
8.00m	GENERAL VIEW ABUTMENT - GENERAL DETAIL DECK UNIT TYPE A - REINFORCEMENT DETAIL DECK UNIT TYPE B - REINFORCEMENT DETAIL ABUTMENT WINGWALL REINFORCEMENT DETAIL ABUTMENT REINFORCEMENT DETAIL	PDF	EXCEL
10.00m	GENERAL VIEW ABUTMENT - GENERAL DETAIL DECK UNIT TYPE A - REINFORCEMENT DETAIL DECK UNIT TYPE B - REINFORCEMENT DETAIL ABUTMENT WINGWALL REINFORCEMENT DETAIL ABUTMENT REINFORCEMENT DETAIL	PDF	EXCEL
12.00m	GENERAL VIEW ABUTMENT - GENERAL DETAIL DECK UNIT TYPE A - REINFORCEMENT DETAIL DECK UNIT TYPE B - REINFORCEMENT DETAIL ABUTMENT WINGWALL REINFORCEMENT DETAIL ABUTMENT REINFORCEMENT DETAIL	PDF	EXCEL

Back ROAD BRIDGE PIPE CULVERT BOX CULVERT

### BOQ

BILL OF QUANTITY														
R/C FLAT SLAB BRIDGE	CARRIAGE WIDTH	SPAN LENGTH												
	7m	10m												
														
No.	BAR MARK	TYPE	DIA (mm)	UNIT WEIGHT (Kg/m)	SHAPE	LENGTH (mm)				QTY (PCS)	LENGTH /PCS	LENGTH TOTAL (m)	WEIGHT TOTAL (Kg)	
1	S1	DB	20	2.465	1	A	B	C	D	E	32	9900	316.80	780.91
2	S2	DB	20	2.465	2			350	550		55	11000	605.00	1491.93
3	S3	DB	16	1.578	11			7800	150	550	36	81000	291.60	460.14
4	S4	DB	16	1.578	11			6900	550	550	69	80000	552.00	871.06
5	S5	DB	16	1.578	3			1400	190		71	15900	112.89	178.14
6	S6	DB	20	2.465	1			9900			57	99000	564.30	1391.00
7	ST	DB	12	0.888	2			50	450	50	94	5500	51.70	45.91
SUB TOTAL WEIGHT (Kg)											DB 20		3669	
SUB TOTAL WEIGHT (Kg)											DB 16		1509	
SUB TOTAL WEIGHT (Kg)											DB 12		46	
TOTAL WEIGHT (Kg)													5218	
TOTAL CONCRETE (m <sup>3</sup> )													79.00	

### Drawing



**BARBON QUANTITY**

BARBON	UNIT	QTY
BARBON #10	m <sup>3</sup>	1.1
STY	PCS	26
TOTAL	m <sup>3</sup>	26

**NOTE:**

- ALL DIMENSIONS ARE IN MILLIMETER.
- ALL EXPOSED PARTS SHALL HAVE SLOPE PROTECTION FOR CONCRETE ON ALL SIDES EXCEPTING:
- SLOPE PROTECTION SHALL BE OBTAINED FOLLOWING SITE INVESTIGATION UNDER THE DIRECTION OF THE CLIENT. (NOTE: IT WILL BE DECIDED BY THE CLIENT'S INVESTIGATION.)
- CONCRETE SHALL BE PLACED IN ONE LAYER UNLESS OTHERWISE SPECIFIED BY THE CLIENT.
- THE LENGTH OF SLOPE PROTECTION IS TO BE VARIED ACCORDING TO THE SITE CONDITION AND TO BE APPROVED BY THE CLIENT.

KINGDOM OF CAMBODIA  
MINISTRY OF PUBLIC WORKS AND TRANSPORT

THE STRENGTHENING OF CONSTRUCTION QUALITY CONTROL PROJECT

REINFORCEMENT DRAWING FOR BRIDGE

NO. 2 SPAN BRIDGE (7x2+5x2) - GENERAL VIEW

AS SHOWN

## Book Inventory System

# System Overview

## Objective

- To manage the books and documents (hereinafter referred to as the "books") in the library effectively and timely.

## Who Use it ?

- Librarian
  - Manage the information of books and documents in the library
  - Manage rending the books and documents
  - Manage users for rending books and documents
- User of library
  - Search books and documents in the library



## Featured

- Easy operation to search books and documents.
- Divide privilege between librarians and users.

# 1.1 User of the library(1)

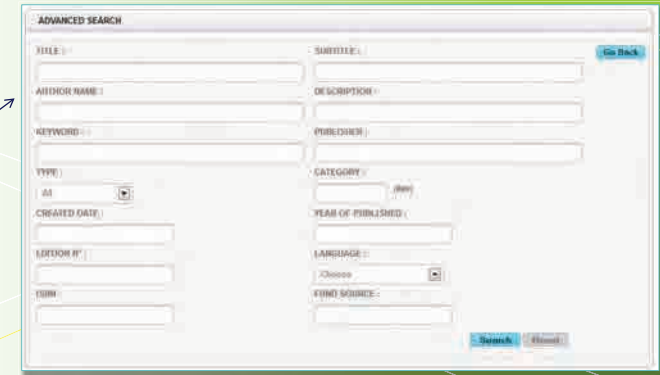
1

Access to Book Inventory System



2

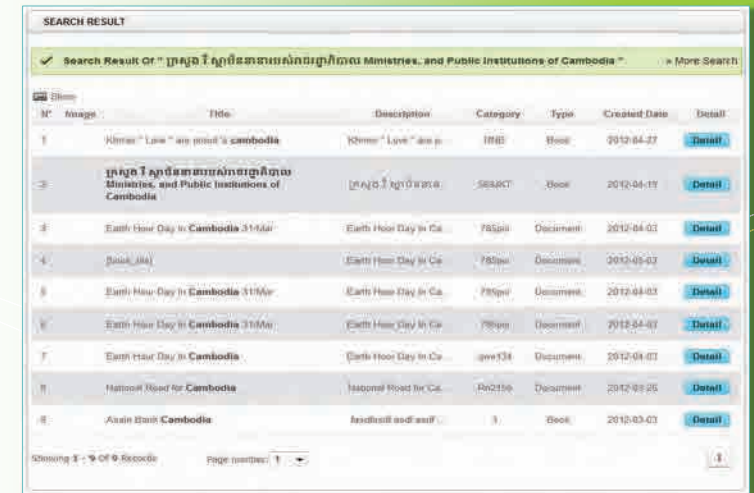
Search books By keyword(s) or By detailed information



# 1.2 User of the library(2)

3

Check the Search Result

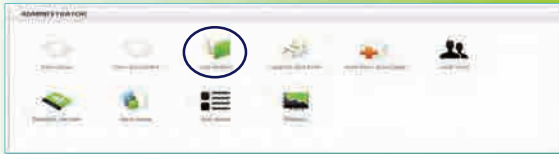


# 1. Usage for User of the library

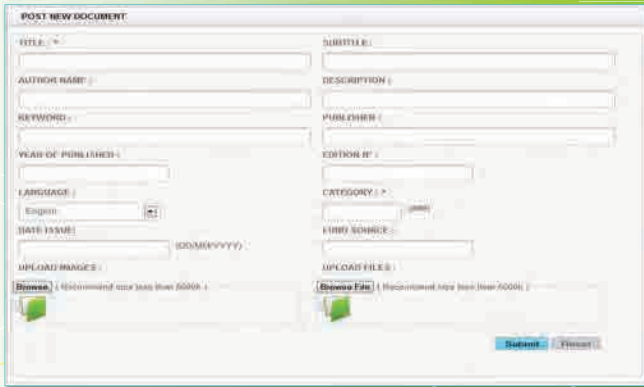


## 2.3 Register new book(1)

1  
Click New Book



2  
Input the book information and  
Click Submit



POST NEW DOCUMENT

TITLE: \*

SUBTITLE:

AUTHOR NAME:

DESCRIPTION:

KEYWORD:

PUBLISHER:

YEAR OF PUBLISHED:

EDITOR IT:

LANGUAGE:

STATE ISSUE:

UPLOADED IMAGES:

UPLOADED FILES:

Submit Cancel

## 2.4 Register new book(2)

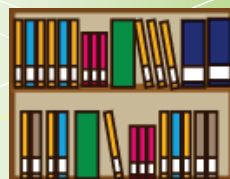
3  
Click Print new input data



4  
Print Label



5  
Paste label to the book  
and put it in the cabinet

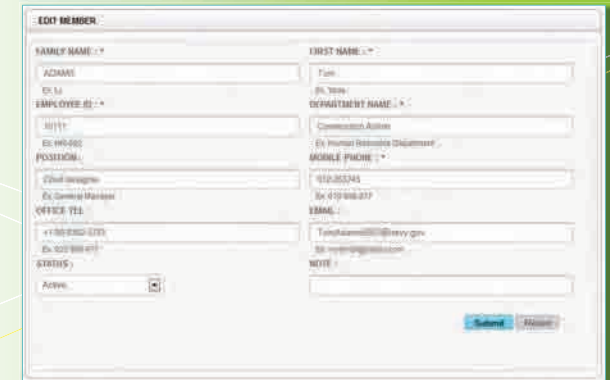


## 2.5 Register Member (for loan book)

1  
Click Register Member



2  
Input the member  
information and  
Click Submit



EDIT MEMBER

FAMILY NAME: \*

FIRST NAME: \*

ADRESS:

EMPLOYEE ID: \*

POSITION:

OFFICE TEL:

STATUS:

ACIVE:

Phone:

DEPARTMENT NAME: \*

MOBILE PHONE: \*

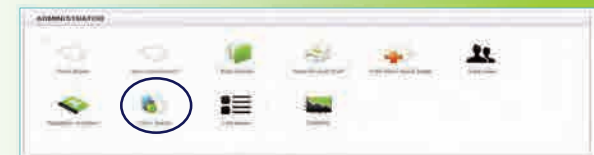
EMAIL: \*

NOTE:

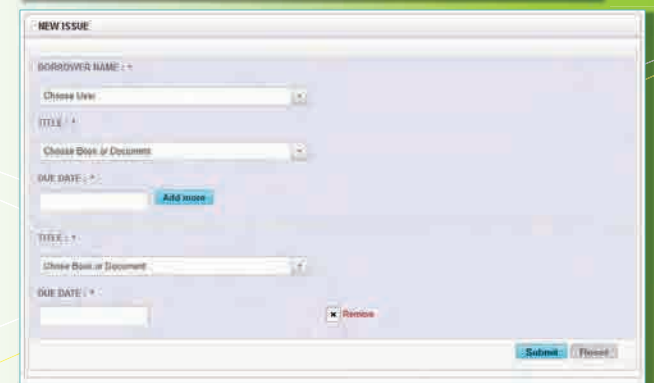
Submit Cancel

## 2.6 Loan book(1)

1  
Click New Issue



2  
Choose  
user ,book and  
input due date



NEW ISSUE

BORROWER NAME: \*

Choose User:

TITLE: \*

Choose Book of Document:

DUPLICATE: \*

ADD MORE

DATE: \*

Choose Book of Document:

DUPLICATE: \*

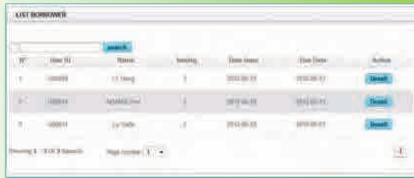
REVISION

Submit Cancel

## 2.7 Loan book(2)

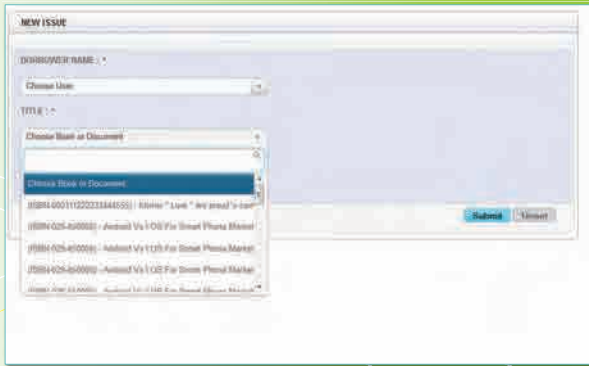
3

Select member from list



4

Search and select book



## 2.9 Loan book(4)

5

Confirm loaned book



## 2.8 Loan book(3)

4

Confirm borrower



5

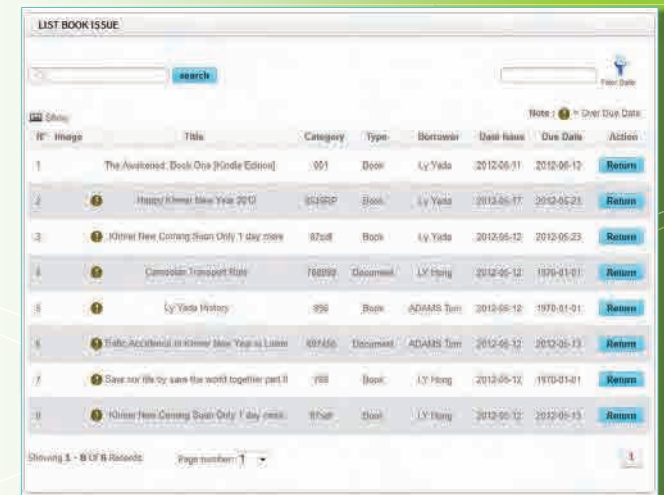
Confirm borrowed books



## 2.10 Loan book(5)

6

Confirm loaned and over limited books





## Issues of Output 2

- **Sustainability**

- Maintenance Cost for System
- Employment of Librarian

- **How to Increase a Number of User**

## Database system (Output 2)

The database system developed last year. After building the system, the team has conducted various works the success of the project. The following main activity was conducted as below.

- Local consultant (system developer) trained counterpart in how to use the system.
- Preparation of demonstration for using video clip.
- Workshop seminar and public relation held a briefing for MPWT.

However, it is necessary to set up the mechanism for updating and operation of the system, while an administrator is waiting concrete indications from the top. The project team searches once again for the problem and critical point about work structure of the system.

### 1. Task of present activities

#### 1.1 Duty and responsibility

At present, there are two (2) members as an administrator from PWRG.

Name	Duty and Responsibility	Daily Working
Mr. Phy Ratha	<ul style="list-style-type: none"> <li>➤ Supporting database system development and management</li> <li>➤ Testing database system</li> <li>➤ Creating introduction video clip of database system</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maintaining hardware and software of database system.</li> </ul>
Mr. Ky Soklay	<ul style="list-style-type: none"> <li>➤ System administrator</li> <li>➤ IT technical Support</li> </ul>	<ul style="list-style-type: none"> <li>➤ Support for Maintaining hardware and software of database system</li> </ul>

#### 1.2 Past Main Activities

It shows that main activities of previously held.

Activities	Details
(1) Training	<ul style="list-style-type: none"> <li>● Created demo video clip of using database system for Users.</li> <li>● Counterpart explained the database system by demo video clip.</li> </ul>
(2) Workshop Seminar	<ul style="list-style-type: none"> <li>● Prepared the presentation tools for Workshop Seminar.</li> </ul>

	It was held annual technical seminar on 30 Dec. 2011.
(3) Public relation to MPWT	<ul style="list-style-type: none"> <li>● Integrated the database system into the MPWT intranet system environment.</li> <li>● The project introduced EC meeting on 21 Dec. 2011.</li> </ul>

### 1.3 Opinion for the improvement of Database system

#### (1) Idea of more user-friendly for Database system (Promotion of utilization)

Counterpart Comments	Expert and Local Consultant Comments
The database system should be included in the MPWT official website and limits the users for security	<p>About Website on MPWT Homepage: (That remain to be seen)</p> <p>About limits the users for security: Currently, It is not recommended such it, the system is designed to share information amount the ministry staff.</p>
There should be a range of access levels for document files so that some files can be accessible by everyone or logon users.	<p>The access levels were discussed early design stage. Presently, the access level is determinate.</p> <p>The problem is that there are only two kinds of users: visitor and operator. Thus, the current implementation should be simple enough.</p>
Editors may be able to set the permission of the document file to be Read-only, Downloadable, or Logon first then access later.	<p>All the uploaded files/documents are read only. Visitor is not allowed to modify (write/update) the uploaded files.</p> <p>Readable and downloadable are almost the same. Once visitor is able to read the file they can print screen/ screenshot thus refrain them from download does not make sense.</p> <p>Logon first then access later, it will make user not to use system. I remembered that the Technical Working Group wants to start from simple thing.</p>
In addition to manual data input, the system shall have import/export functions of data for integration or data transfer with other systems.	<p>The system allow the operator to upload multiple files with multiple selectable</p> <p>Also, the system can help to name and create the folder for each documents in order</p> <p>I am not so sure what the usage of import</p>

	export functions is and what kind of data being expected.
For assuring the data secured, each user should have their own account for using the database system.	That remains to be seen.

## (2) Improvement of Viewer

(Comments)

- Visitors counter functional add on viewer menu for effect measurement.

There are two ways of doing this:

- a. Add visitor counter to show daily access ( Can be viewable by anybody).
- b. Implement access analyzer tools to see the statistic (can be viewable by administrator/operator only).

- Users shall be able to view file types of viewable document or image such as PowerPoint, Pdf, Gif, Jpeg, etc. on the system embedded viewer without having to download the whole file.

(Comments)

- a. Not all files can be viewed online
- b. Actually, visitor does know what kind of data they are looking for i.e. drawing.
- c. To view the document, still we need to download and render on client browser.

## 2. Collection Rules

### 2.1 Person in charge of submission and receiving

The work procedure of rules for collecting the completions documents has to take active measures to promote activity. The system has completed already but it is not ill-defined person in charge. The project accomplishment is to hold the key whether or not the project will be a success.

**Table 1 Clarification of the role-sharing**

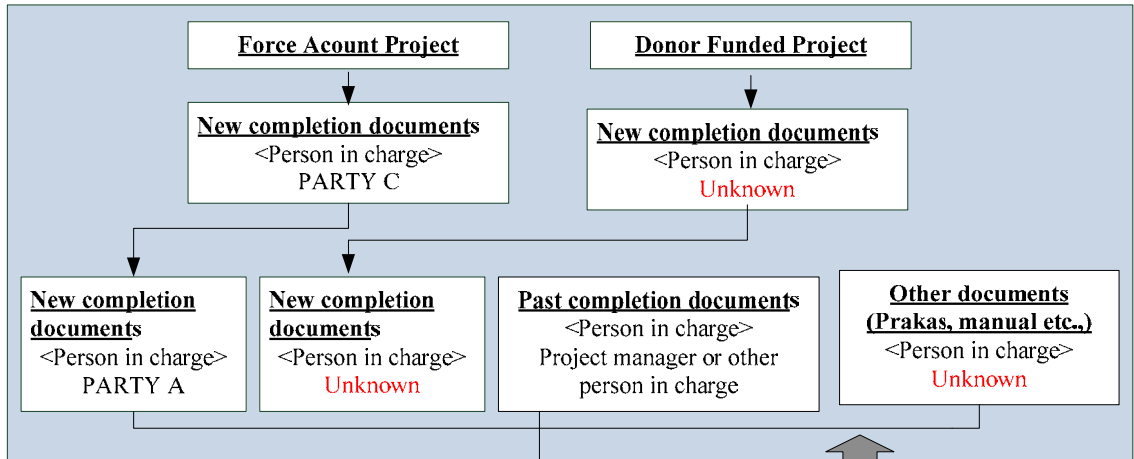
Work Item		Correspondence
Where	Storage location for the submitted completion documents	Library room in MPWT
Who	Person in charge who submit to the completion documents	Project manager or other person in charge
Who	Person in charge who is control (instructor) the database system (Instruction to Administrator and Operator)?	<b>Requirement of urgent countermeasures</b>

Who	Person in charge who receive completion documents and administration	Requirement of urgent countermeasures
Who	Person in charge who receive	Requirement of urgent countermeasures
Who	Person in charge who scan the new completion documents, past its and others relevant documents to data	Requirement of urgent countermeasures
Who	Person in charge who converted data	Requirement of urgent countermeasures
Who	Person in charge who data input a data into the database management system	Requirement of urgent countermeasures
Who	Person in charges who manages and maintain (database, record, documents etc.)	Mr. Phy Ratha and Mr. Ky Soklay

**2.2 Work procedure**

Work procedure of the project mechanism is shown in Figure1. As before (**section 2.1**), it is important that should decide control person and assistant (as necessary) and also how to collect data and documents.

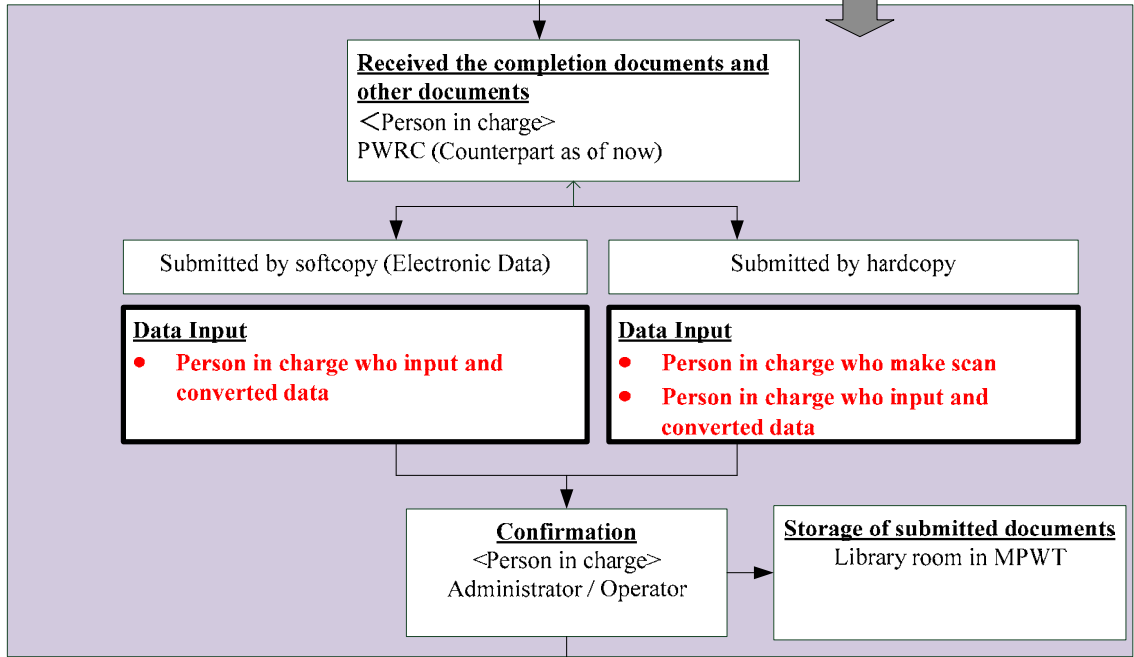
**Submission of the documents**



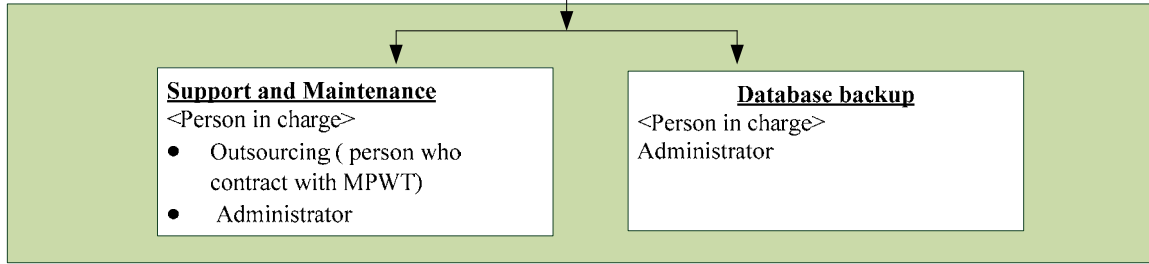
**Received the documents and data**

**Issues :** Who is control (instructor) of all management?

- Who ask person in charge of completion documents?
- Who collect above the documents?



**Management and Maintenance**



Requirement of urgent countermeasures

## Figure 1 Flow chart of Work Process

### 3. Suggestion and Comments

To put all the present condition and issue together, full utilization of the system is that it is necessary such an action for making the task sustainable.

#### 1) Placement of control person (Urgent matter)

Two (2) official staffs as an administrator appointed for this task at present. They have already trained database system of the task and have a lot of knowledge. However it has not steadily established how to collect completion documents and other relevant documents and store into the database system. They can not make decision and management the task of all so far. Due to such uncertainties, it should arrange control person and to make a coordinated response.

#### 2) To hold workshop seminar for public relation to MPWT

It was held workshop seminar for MPWT staff last year. The workshop seminar is greatly beneficial to users for public relation. Then, next seminar will hold on 16 February 2012, one of participants is to attend from DPWT. The workshop seminar can be a good opportunity to introduce the project to penetrate MPWT, DPWT and other relevant staff.

#### 3) Coordination with Library system (utilize data source)

Library system will develop soon. The new system has some relationship with database system. It become a wide range of information available to users. The team expects synergistic effects of widely users utilization.