

これらの活動を技術移転の現場として積極的に活用すべきであり、これらを考慮して人材供与計画・専門家派遣計画を立案すべきである。

#### 5-2-5 国際情報センター機能

##### (1) 現 状

現在実施されている第3国研修 (A Senior Course on Transport Technology ; ASCOTT)は、東南アジア及び太平洋地域の各国の交通担当の本省課長クラスの参加者を対象に交通計画・交通政策の立案にかかわる高度の知識、技法、現状認識の付与を目的とするものであり、開始以来10年が経過している。その間、12カ国から200人を越える参加があり、カントリーレポートとして提出された各国の交通と都市の状況に関するデータの蓄積は、他に類例を見ないものになっている。また、修了生の各国における活躍やそのネットワークなどから、TTCのこの地域での名望も確立されたものとなっている。これを大きな資源として、NCTSにおいても活用することが望まれる。

##### (2) 国際情報センター機能についての基本的考え方

TTCからNCTSへの移行にともなう研究・教育・訓練・調査活動の高度化・研究用機器の導入更新にともなって、現在の第3国研修を基礎にして、国際情報センターとしての機能を質的量的に拡充することが望まれる。量的拡大とは、現在の第3国研修の受け入れ先の拡大であり、質的拡大とは、新しく開始される大学院への留学生のこれらの国からの受け入れとその活動内容の高度化である。

このような制度的組織的拡大と、これによって可能となる様々なレベルでの交流から、情報の収集・交換・蓄積と更新というフィリピンのみならずアジア太平洋地域の交通関連分野の情報のセンターとしてのきわめて重要な機能も発揮できる。収集された情報は、NCTSでの研究・教育・訓練活動だけでなく、フィリピン国及びアジア諸国の交通研究・交通政策立案に重要である。

官庁・民間との共同研究・共同調査・委託調査、あるいは実習演習での収集、さらに第3国研修のカントリーレポートや参加者からの情報収集を通じての諸データを蓄積し、データ整備をはかる。そのためのデータ収集システムの整備、データの維持管理、データベース整備、応用プログラムの整備が必要である。

#### 5-3 専門家派遣計画 (案)

5-2で述べた協力内容を効率的に実施するためには、最低限以下のような専門家派遣が必要である。

- ・チーフアドバイザー

- ・長期専門家（大学院教育担当）
  - 交通計画分野
  - 交通工学分野
- ・長期専門家（訓練部門担当）
  - 交通計画分野
  - 交通工学分野
  - コンピュータ分野
- ・短期専門家
  - 大学院の授業担当（集中講義方式での講義開設）
  - 訓練担当（新しい訓練コースの開設等）
  - コンピュータ分野
- ・アドミニストレーター
- ・調整員（コーディネーター）

大学院教育担当の長期専門家は、JICAの長期専門家として日本から派遣されるが、大学院教育において目標を達成するためには、カリキュラムの作成、講義計画・講義資料の作成、授業の実施と成績の評価、修士論文の指導教官としての研究能力の養成、優秀な学生の確保とそのため入学決定及び奨学金授与決定への参画など、教育に関してはフィリピン側教授陣と同等の権限を有することが必要である。そのために、UPの関係組織(COE及びSURP)から客員教授（あるいは客員助教授）の称号を得ることが不可欠であり、コロンプランによる通常の派遣手続きの他にUPとの間に、客員教授選考の手続きが必要となる。このための協議が必要である。なお、わが国の国立大学では、客員教授の資格審査・選考には長い場合には6カ月から10カ月程度を要することもあり、UPにおいても同程度の期間は必要である。この期間を短縮することは困難であると思われ、大学院教育担当の専門家の派遣計画の策定には、これについての配慮が不可欠である。

NCTSで計画されている活動内容・機能を実現するためには、多数の長期専門家の派遣が不可欠となるが、日本国内の人的制約等から多人数を長期専門家として派遣することは困難である。このため、ある程度は短期専門家で代替せざるを得ない。長期専門家1人1人の専門分野・守備範囲を考慮の上、短期専門家を機動的に派遣することを考えるべきである。

さらに、効果が発揮されるまでに長時間を要するという、教育の特質を考慮する効果を十分なものとするためには、教育・研究の連続性の確保が重要であることは言うまでもないが、1人の専門家を長期にわたって派遣することは日本国内の事情等から難しい。このため、派遣中専門家、派遣前専門家、帰国専門家及び国内支援グループ間の情報伝達・交流・

支援体制を確立し、一貫した効果的な教育・研究・訓練を目指すべきである。

アドミニストレータは、比側との事務的調整などプロジェクト実施の事務手続き面の責任者として、チーフアドバイザーを補助し、プロジェクトの円滑な実施を図る。

#### 5-4 研修員受け入れ計画（案）

##### 5-4-1 TTC事業中の研修員受け入れとその効果

TTCにおいては「TTCのインストラクター」、「TTCの訓練生」、「TTC顧問委員会のメンバー」が日本に研修員として派遣され、その成果として次の点が指摘できる。

###### (1) インストラクターの受け入れ

これは、日本人専門家のカウンターパートである各コースのインストラクターを受け入れてきたもので、日本人派遣専門家の指導の一環としてのものである。日本において、実際の交通状況・新しい試みの見学、最新の機器・データ・理論によって研修させることにより、より一層の効果的な技術移転が可能となった。

###### (2) 訓練生の受け入れ

各コースの訓練生の中で成績優秀な卒業生を派遣してきたもので、主に次の2つの点で効果があった。1つは、フィリピン国の中堅職員（運輸通信省、公共事業道路省等の職員）である訓練生が、この研修の成果を実際の業務に反映させることができたこと、他の1つは、研修を受けた訓練生が卒業後インストラクターとなったり、必要が生じた場合の出向インストラクターとして活躍するものが出てきており、研修の成果をTTCの指導に役立てることができたことである。

###### (3) 顧問委員会メンバーの受け入れ

TTCの運営に責任と権限を持つ委員会メンバーを視察研修として派遣してきたもので、比日関係者の相互理解と友好を深める意味で意義が大きかった。

##### 5-4-2 JICAの研修員受け入れ事業

JICAの研修員受け入れ事業は、集団研修と個別研修とに大別される。集団研修は、開発途上国に共通してニーズの高い研修内容のコースをあらかじめわが国が設定して、研修員を募集する方法である。これに対し、個別研修は各国からの個々の要請に応じて研修員を受け入れるものであり、特定の目的をもってあらかじめ定めた国、地域を対象として集団研修に準じた形態で行う「特設研修」、相手国の要請を待って、随時研修プログラムを策定して研修員を受け入れる「単発一般研修」、わが国が実施している技術協力事業の相手国側従事者を研修員として受け入れる「カウンターパート研修」等に細分されている。したがって、NCTSプロジェクトにおいても基本的には、このスキームに則って研修員受け入れを行うこ

とになるが、次項で述べるようなNCTSの特殊性もあり、これらを十分考慮することが必要である。

#### 5-4-3 NCTS事業における研修員受け入れの基本的考え方

基本的には、JICAの現在の研修員受け入れ事業によって研修員の受け入れを行うが、NCTSの活動内容とレベルからみて、以下のような新たな必要性が考えられ、対応方策を考慮する必要がある。

##### (1) NCTS教授等の研修

日本の専門分野の研究・教育について深く掘り下げた研修が必要である。個別研修（VIP研修）で対応が可能であり、受け入れ先としては主として大学が想定される。

##### (2) インストラクターの研修

- ・大学院の講義に対応するため、さらに研究能力を上げるため、専門とする分野について深く掘り下げた研修が必要であり、日本の大学や研究機関等に比較的長期間（最低1年程度）滞在して研修を受ける。個別研修である程度対応が可能と思われる。
- ・NCTSの教授を継続的に供給するためには、学位（博士号）を有する優秀な人材の確保・養成が不可欠である。TTCのインストラクターは、潜在的にNCTS教授陣の予備軍であり、彼らのレベルアップ、学位取得のために日本あるいは第3国の大学や研究機関等において長期間滞在し、研修・研究できるシステムが必要である。現在のJICAの研修員受け入れスキームでは困難であるが、JICAの文部省国費留学生推薦枠の活用、あるいはJICAの枠組みにとらわれないこと、その他のルートによる国費留学生としての受け入れ、私的奨学金による受け入れ等との組合せの方策も考慮すべきである。
- ・専門領域の拡大のためには、集団研修コースへの受け入れも重要である。

##### (3) 大学院生の研修

- ・大学院生はインストラクターの予備軍とも考えられ、優秀な大学院生についてはインストラクターと同等の研修の機会が確保されることが望ましい。このような機会が用意されることは、大学院生の研究・学習に対するインセンティブとしても重要である。

##### (4) 訓練生の研修

- ・一定分野の全体的包括的研修に加えて、大学院へ進学するためにも特定の専門分野の科目について深く掘り下げた研修が必要であろう。このような機会は、優秀な人材の発掘と訓練についてのインセンティブとして重要であり、この効果はTTCの経験が示すとおりである。

以上の点から、今後の研修員受け入れ事業において検討が必要とされる課題をまとめると、次のようになる。

- ① 事業団の事業のうち、研修員個々の要望に沿った研修ができ、かつ研修時期・研修期間を研修員の事情に合わせやすいというメリットを持つ「個別研修」を活用した派遣の検討
- ② 博士号の取得を目的にした新たな研修の導入
- ③ 研修目的に沿った、研修期間・研修内容・研修レベル・研修実施機関等についての体系的・継続的体制の検討

## 5-5 機材供与計画（案）

### 5-5-1 現状

TTCが現在有している研究・訓練実施のための諸機材は、いずれも良くメンテナンスされ十分活用されているが、非常に古く、その基本性能は現在となっては高くない。このため、NCTSに要求される機能を果たすことはできないと考えられ、比側から現有機材の更新拡充の要請がなされている。

### 5-5-2 機材供与の基本方針

フィリピン側の要請と5-2で述べた協力の部門別計画に基づき、供与機材の選定を行った。選定に関しては、

比側の吸収能力

建物床面積等の物理的キャパシティ

専門家派遣計画

の3点に特に着目し、これらについて問題がないと判断された機材について、さらにプライオリティ・協力の年次計画を勘案して機材供与計画を作成した。しかし、実際の供与については各年度の予算、専門家派遣、事業の進捗状況等を考慮してダイナミックにプライオリティを考え、決定することが重要である。

#### (1) 供与機材供与のプライオリティの考え方

プライオリティは次のように考えた。

A：機能・数量とも絶対にこれだけは必要

B：若干の機能低下（下位レベルの機能への変更）や数量減が可能なもの

C：大幅な形態変更が可能なもの（自動測定システムから手動システムへの変更等）

D：削除可能なもの

## (2) 供与機材の年次計画

年次計画は以下のように考えた。

技術移転の効果を考えると最終年度に近くなつての供与は望ましくない。以下のような配分も考えられる。これは、人事計画との関連・アナウンス効果も考慮したものである。

平成3年度	大きなもの（総額のだいたい半分程度）
平成4年度	残りの大きなもの
平成5年度以降	ほとんど0（細かいもの）

### 5-5-3 グループ別供与機材の概要

#### A. コンピュータシステム

##### A-1 メインフレームコンピュータシステム

###### ① 必要機能

下記のような多様な要求に対応できることが必要である。このためシステムの構成としては、

メインフレームコンピュータ：数値処理・データベース機能・各課題の課金情報等の機能に優れており、現システム、フィリピン国内の他計算機システムとの互換性に優れているため、現資源（ソフトウェア、データ）の活用が容易。

ワークステーション：グラフィック処理・論理演算などの非数値処理に優れている。地理情報システム、地域データベースシステムの構築に不可欠である。機動性にも優れているため、主として研究・調査活動にとって重要なシステムである。当然、メインフレームとの結合によってその使用価値は飛躍的に向上する。

パソコン：パソコンの特徴は使用が容易なこと、市販のソフトウェアが安価に入手容易であることであり、レポート作成システムとしての活用が期待できる。また、演習・実習用各種システムの開発及びそれを利用した研修・授業プログラムの作成もパソコンシステムに要求される機能であり、このためメインフレーム、ワークステーションとネットワーク化されていることが必要である。

LANシステム：メインフレーム、ワークステーション、パソコンのそれぞれ特長を相互に活用し、全体としての機能の向上のためには、各システムが相互にネットワークされていることが必要であり、そのためのソフトウェア、ケーブル、サーバー等が必要である。また、研修、講義における計算機の活用のためには、計算機のオペレーションをリアルタイムに大画面上に表示できるAVシステムと、それとの接続も不可欠である。

がうまく配置されていないければならない。

WS等の高性能化・価格低下により、WSのみをネットワーク化したシステムの優位性が現在高まりつつあると言われているが、NCTSの計算機システムとして上記のメインフレーム、WS、パソコンをLANによって接続したシステムが適当だと判断した理由は以下のとおりである。

- ・NCTSでは、計算機の使用形態は教官・スタッフによる研究・調査・教材作成、学生による研究・計算機実習、訓練生による計算機実習・調査実習が主なものであり、非常に多様な使用形態が想定できる。
- ・WSネットワークの最適設計には、ある程度定型的なジョブを前提しなければならないが、NCTSにおける訓練・教育目的の使用は定型的ジョブから最も遠いところにあるといってもよい。したがって、使用の形態によっては非常に非効率的システムになるおそれもある。
- ・WSは、その開発経緯から非数値的情報処理に優れており、大量のデータを高速に処理することが要求される交通計画・交通工学の研究・調査には必ずしも最適というわけではない。
- ・なお、わが国においてWSのネットワークシステムを教育用に導入した例として、筑波大学及び東京工業大学の教育用計算機システムがあるが、①計算機間の通信・データ転送等に資源の多くを消費し、必ずしも満足の得られる計算性能を発揮していないこと、②学生の多様な（ある意味では、無茶苦茶な）使用のために、システム全体の安定性がネットワーク化されているが故に脅かされることがあり得ること、③WSは周辺機器・ソフトウェアを自由に選定できるというメリットを持つ反面、非常に高度な専門的知識を有する管理者がいなければ、このメリット故にこそシステム全体の安定性・パフォーマンスが損なわれる可能性も高いこと、④JOBの課題管理（課題番号ごとの計算時間の管理、ファイル使用量管理、課金管理など）が必ずしも十分でないこと、⑤OSのバージョンアップが早く、維持管理費がかさむ可能性の高いこと、などの諸問題点も認識されるに至っている。
- ・さらに、計算機の維持管理費をNCTSが自立的に捻出するためには、外部ユーザーによる計算機の使用と使用料徴収が重要である。このためには、外部ユーザーの多様な要求、大量のデータに対応できるとともに、課金情報の管理が重要である。この点からすると、メインフレーム機がWSより優位である。
- ・以上を勘案すると若干の金額の増加はあるものの、メインフレーム、WS、パソコンの特長を最大限活用し、欠点を相互に補うことのできる上記システムが、WS

ネットワークシステムより優れていると判断される。

〔使用形態例〕

- 1) 交通需要予測, 交通行動分析等に必要な大量のデータの処理, 検索, 維持管理と, モデル推定・予測作業・効果分析作業などのための数値処理。
- 2) 交通流, 路面状況, 大気汚染, 騒音振動などの測定結果の処理と推定モデル・設計・評価システムの構築のための数値処理(車載データ処理用PC→計算機, MT→計算機)。
- 3) 交通情報, 国土情報, 都市情報などの蓄積・維持管理・更新と交通計画・都市計画のためのフレーム作成用計量経済分析・統計分析等の数値処理。
- 4) 地図情報システムと統合された種々の現況データ, 種々の推定・予測結果の表示システム(データベース, グラフィック)。
- 5) レポート作成
- 6) CADは計算機システムと切り離して専用機を設置する方が効率的であり, 操作も容易である。

② システム構成

メインフレーム+WS+PC

・メインフレームコンピュータ

主記憶32MB以上, 6チャンネル以上, OSはUNIXとIBMコンパチの2種, 中型～大型汎用計算機

・ワークステーション 4台

・パソコン 15台(LANでメインフレームに接続)

・上記をつなぐLAN

・磁気ディスク(7GB以上), ラインプリンタ2台, 磁気テープ装置2台, コンソール

・ディジタイザ, プロッタ

・無停電電源装置, 発電機, 安定化電源, 空調, 等

・ソフトウェア

OS UNIX, IBMコンパチ

言語ソフト FORTRAN, PASCAL, C, 等

基本ソフト 統計計算, 数値計算, データベース, GIS, 等

応用ソフト 交通計画, 土地利用計画, 等



③ 対応する活動

- ・基本的には、大学院教育のための環境整備  
研究、実習、教材作成
- ・コンサルティング機能、情報センター機能を果たすためのデータ整備、各種ソフト開発
- ・訓練部門

④ 設置場所

メインフレーム+周辺機器+WS：現システムと同位置に設置可（現システムの移動が必要）

ターミナルPC           ：スタッフルーム等

⑤ 供与時期

ハード+基本的ソフト：平成3年度

応用ソフト            ：長期派遣・短期派遣計画と連動させて随時

A-2 パソコンシステム（スタンドアローン）

① 機能

以下の各種訓練機能を円滑・効率的に実施できること

- ・コンピュータ入門（一般コース）、コンピュータコース（短期コース）
- ・演習、実習（確率・統計、交通工学、交通計画、等）
- ・共同プロジェクト
- ・レポート作成

② システム構成と必要数量

訓練用PC            20台（40名の訓練生を想定）

事務用               5台

インパクトプリンタ 8台（PC3台で1台を共有）

机、ラック等の計器

大画面プロジェクタ（AVシステムの項参照）

計算機使用及び計算機を使用しての研修の効率を上げるために、計算機画面上の情報を大画面上に表示できるプロジェクタ及びソフトウェアが重要である。

ソフトウェア

言語ソフト FORTRAN, PASCAL, 等

基本ソフト 表計算, ワープロ, エディタ, 等

応用ソフト 交通計画

### ③ 設置場所

20台のパソコン，7台のプリンタ，マニュアル等の収納スペース，大画面プロジェクタを備えた（備えるのに十分なスペースを有する）パソコン研修室が絶対に必要である。また，講師用にメインフレームとLANによって接続されているパソコンも同室に設置されることが望ましい。

### ④ 供与時期

平成3年度

## A-3 CADシステム

### ① 機能

道路・街路・河川等の社会基盤施設の景観や都市景観を考慮した都市開発・土地開発を論じるためには，計画・設計の段階からの配慮が必要であり，施設整備の種々の条件や方策の応じた多様な景観がシミュレートされ，視覚的にリアルに表示されなければならない。計算速度の向上と取り扱いの容易さの向上を目指したCGによる専門景観シミュレータである。

### ② システム構成

ハードウェア

専用ワークステーション，カラーグラフィックディスプレイ，磁気ディスク，磁気テープ，ドラムスキャナー，TVカメラ，ディジタイザ，等

ソフトウェア

- ・2Dペイント，2D画像処理・・・写真等の合成，色彩処理
- ・3Dモデリング・・・設計図等からの透視図の作成
- ・レンダリング・・・3Dモデリングによる透視図への彩色，陰影表示
- ・データベース・・・種々の図形情報の格納，検索，更新

必要数 一式

### ③ 対応する活動

- ・道路アメニティ，都市開発，交通環境等のための教材作成，実習，研究データの作成（心理評価，経済評価）
- ・都市部の街路デザイン，高速道路デザイン，都市景観等の領域の調査研究設計

### ④ 設置場所

信号制御システムを撤去すれば，同場所に収容可

### ⑤ 供与時期

平成4年度

## B. 研究用機材

### B-1. 交通流・車両関係

#### ① 旅行速度・燃費測定車

- ・旅行速度測定記録装置・3軸方向加速度測定記録装置，消費燃料測定装置を登載した車両。実際に走行することにより旅行速度，加速度，燃費，走行モード等のデータを収集する。
- ・車両，旅行速度測定装置，3軸方向加速度測定装置，流量検出器及びデジタル流量計
- ・交通流理論，交通状況把握，車両の走行特性等に関する研究，教材作成用データ収集，調査活動

#### ② VTR撮影，解析システム

- ・VTRによる交通状況（交通流，歩行者，ターミナル，等）撮影とその解析システム
- ・ビデオカメラ，ビデオモニタ，ビデオポジションアナライザ

#### ③ 運転時注視点分析システム

- ・アイマークレコーダーからの出力情報を記録するシステムを車載し，実際に運転時の注視点を記録するシステム。先行車との速度差，車頭間隔の測定を行うレーダースピードメーター，ビデオカメラ等も車載し，同時に測定記録を行う。
- ・アイマークカメラ及び記録装置，レーダースピードメータ及び記録装置，ビデオカメラ懸架装置
- ・道路線形設計，交通安全施設計画，道路照明計画等に関する研究，教材用データ収集，調査活動

#### ④ 汎用データ収集・変換・処理装置

- ・種々の車載測定装置（燃費，速度，加速度，振動，騒音，等）による測定データの収集，変換，処理装置
- ・データレコーダー，A-D変換器，パソコンインターフェイス，データ読み取り・整理用ソフト

#### ⑥ 対応する活動

大学院講義：道路工学，舗装工学等の講義資料作成のためのデータ収集

研究・調査：フィリピン版道路構造令等作成の基礎資料収集

訓練：データ収集操作・解析技術等の習得

#### ⑥ 供与時期 平成4年度

## B-2 舗装・路面関係

### ① 荷重車

- ・たわみ測定等のための載荷試験装置
- ・大型トラックを改造する。

### ② 路面粗さ測定器, スキッドテスト, 凸凹計, 等

- ・舗装状況の手動測定システムである。
- ・国土幹線道路網の維持管理状況と効率的維持管理計画の策定のための基礎的調査, 研究のためのデータ収集に不可欠である。

### ③ 車両重量計, 平板載荷試験器, ベンケルマンビームたわみ測定器

- ・舗装強度とたわみの測定装置

### ④ フォーリングウェイトデフレクトメータ

- ・新舗装設計方式のために必要な舗装強度試験器

### ⑤ 対応する活動

大学院講義：道路工学, 舗装工学等の講義資料作成のためのデータ収集

研究・調査：フィリピン版道路構造令等作成の基礎資料収集

訓練：データ収集操作・解析技術等の習得

### ⑥ 供与時期 平成4年度

## B-3 大気汚染移動測定システム

### ① 必要機能

特に都市部で急増する自動車保有, 自動車利用が車両の整備不良, 道路整備の遅れなどとあいまって, 途上国においても道路起源の大気汚染は深刻の度合を深めており, 今後益々深刻さを増加させると予想される。幹線道路の交通量・交通状況と近傍の大気汚染状況の関係性を明確に把握し, 沿線住民の心理的評価・経済評価との関連性を踏まえた道路網計画案策定方法, 交通規制策策定方法が必要である。本来的には, 道路起源の大気汚染測定は固定局による連続測定が望ましいが, 経費・実施性を考慮すると車載システムが有利である。測定対象ガスは,  $\text{SO}_x$ ,  $\text{NO}_x$ ,  $\text{CO}$ ,  $\text{CO}_2$ ,  $\text{O}_3$ ,  $\text{HC}$ ,  $\text{SPM}$ であり, この他に気象条件測定, オンライン処理用のPCが車載される。

### ② システム構成

- ・車両 大型バン (大型トラックを改造)
- ・ガス測定装置( $\text{CO}$ ,  $\text{CO}_2$ ,  $\text{NO}_x$ ,  $\text{SO}_x$ ,  $\text{HC}$ ,  $\text{SPM}$ )
- ・気象状況測定, サンプル収集装置
- ・データ収集・記録・整理システム

③ 対応する活動

- ・大学院教育：道路工学，交通環境・エネルギー，道路アメニティ等についての教材作成，研究
- ・調査・研究：環境に配慮した街路設計，道路網計画策定のための調査・研究
- ・訓練：環境影響評価に必要な各種データの測定・収集・解析手法の習得

④ 供与時期 平成4年度

B-4 騒音測定システム

① 模型実験システム

・機能

地形・沿道建物・道路付属構造物等も道路騒音に大きな影響を与える要因であるが，これらを解析的に定量評価することは困難である。環境に十分配慮した道路設計や騒音現象の解明のために模型実験装置が使用される。本システムは，線的音源・組み立て式防音チャンバー・騒音測定装置・オンライン処理PC・記録装置から構成されている。

② 移動式騒音・振動レベル計測システム

・機能

実際の道路交通条件の下での道路騒音・振動の計測・記録システム。機動性確保のために車載が必要である。地形効果・構造物の効果・減衰効果等の把握・分析のためには，2セットによる同時測定が必要である。

・システム構成

車両（ワゴン車）	1台
騒音計	20台
データ記録装置	2セット

③ 対応する活動

- ・大学院教育：道路工学，交通環境・エネルギー，道路アメニティ等についての教材作成・研究
- ・調査・研究：環境に配慮した街路設計，道路網計画策定のための調査・研究
- ・訓練：環境影響評価に必要な各種データの測定・収集・解析手法の習得

④ 供与時期 平成4年度

B-5 測量機器

① 必要機能と数量

交差点改良，幹線道路路線選定等のための地形データ収集。

角測量・水準測量・距離測量等と測量結果の自動調整計算・作図のためのシステム  
1セット

② 対応する活動

大学院講義：道路工学，舗装工学等の講義資料作成のためのデータ収集

研究・調査：フィリピン版道路構造令等作成の基礎資料収集

訓練：測量データ収集・操作・解析技術等の習得

③ 供与時期 平成5年度

C. 視聴覚関係機材

C-1 AVシステムに関する基本的認識

① NCTSに高度な計算機システムが導入され，講義や研修は多様・多岐化され，内容の拡大・充実が実施される。このため，AV機器を駆使した講義・研修方式が要請され，わかりやすく，効率的な講義・研修形式を現在までの蓄積及び今後の研究成果を活用した形で構築することが，NCTSの目的達成のために基本的に重要であると考えられる。

② 現在TTCが保有しているAV機器は，オーバーヘッドプロジェクター(OHP)2台，スライドプロジェクター1台，ビデオデッキ1台程度であり，NCTSの講義・研修活動に比して数量的に不十分であり，いずれも相当程度老朽化している。AV機器の重要性を勘案すると新しい機器の導入が必要である。

③ 主要な使用方法

- ・先進システム等の紹介，啓蒙：他国の交通状況，交通システム，交通管理等を知ることが，研修・講義における基礎的情報として重要である。ビデオシステムによる表示は，実例をリアリティをもって伝達する手段として最適である。
- ・計算機との接続：訓練用パソコンシステムの操作方法，パソコンによる各種手法を短期間に効率的に習得させるためには，パソコンの画面の大型プロジェクターへの出力を通じての説明が重要である。大学院講義での高度技術・高度理論の習得のためにもより一層重要である。また，CADをはじめ各種の映像情報や映像システムを活用したマン・マシンシステムによる手法開発も今後の研究の重要な一分野である。
- ・フィールド調査での活用：人や車両の挙動を促えることが重要な交通調査の分野では，ビデオ機器とこれに接続できる計算機システム（ビデオ情報の解析）が重要である。これを，AV機器に接続することにより多人数での議論が活性化され，研修・調査活動のより一層の深化が可能となる。

- ・短期トレーニングでの活用：第3国研修(ASCOTT)などでは、通常研修に比べ、より高度な研修をより短期間で実施することが要請されている。AVシステムの活用が重要である。

## C-2 多目的会議・集会室用AVシステム

### ① 機能

NCTSにおける各種活動（講義，研修，第3国研修，研究調査活動の発表，等）を支えるための多目的会議・集会用AVシステムである。音響設備，映像情報設備を整備し，多目的ルームとしての機能を持たせる。NCTSがアセアン地域の交通分野の行政・調査・研究の中心核として，学会，シンポジウム，セミナー等を活発に展開するためにも必要とされる。

### ② システム構成と数量

会議システム：マイク，オートミキサー，スピーカー，出力制御器

セミナーシステム：OHP，スライド，計算機出力映像，等

大型映像システム：VTR，大型モニター，ミキサー，スピーカー，等

数量 1セット

### ③ 設置場所 現AVルームに設置可

### ④ 供与時期 平成3年度

## C-3 研修用移動型AVシステム

### ① 機能

OHP，スライド，VTR等の視聴覚機器を活用した効率的教育。

視聴覚教育を実施できるよう映像機器，音響機器を総合的に整備。

VTR，ビデオディスク，印刷資料，スライドなどの映像教材の映写システム。

計算機出力のビデオ情報表示。

移動用ワゴンに収納し，持回り使用を可能にし，数量削減を図る。

### ② システム構成と必要数量

スライドプロジェクタ，カセットデッキ，OHP，計算機出力の映像表示システム，ワゴン式提示卓

数量 2セット

### ③ 供与時期 平成3年度

## C-4 講義室用AVシステム

### ① 機能

OHP, スライド, VTR等の視聴覚機器を活用した効率的教育。

視聴覚教育を実施できるよう映像機器, 音響機器を総合的に整備。

VTR, ビデオディスク, 印刷資料, スライドなどの映像教材の映写システム。

計算機出力の映像表示システム。

② システム構成と必要数量

コントロール用パソコン, タッチパネル, 大型モニタ, マイク, スピーカ, ビデオデッキ

数量 1セット

③ 供与時期 平成3年度

C-5 教材作成・編集室システム

① 機能 大学院, 研修用視聴覚教材作成のためのVTR編集等のシステム

② システム構成と数量

編集用VTR, コントローラー, モニタ, 時間ベース調整器, 等

数量 1セット

③ 設置場所 AVルーム内に設置可

④ 供与時期 平成3年度

—— 注 ——

教室・研究室の確保 (図5-1のTTC平面図中の番号参照)

・現 状

研修室 30, 31, 32の3室

スタッフ室 37

パソコン研修室 14

・将来必要な (望ましい) スペース

\*大学院講義室 (10~15) 2

\*研修室 (15~20) 3

\*パソコン研修室 1 (20台のパソコン及び周辺機器, 大型ビデオプロジェクタが収納できるスペースが必要)

\*スタッフ室 2 (リーダー, アドミニストレータの部屋は?)

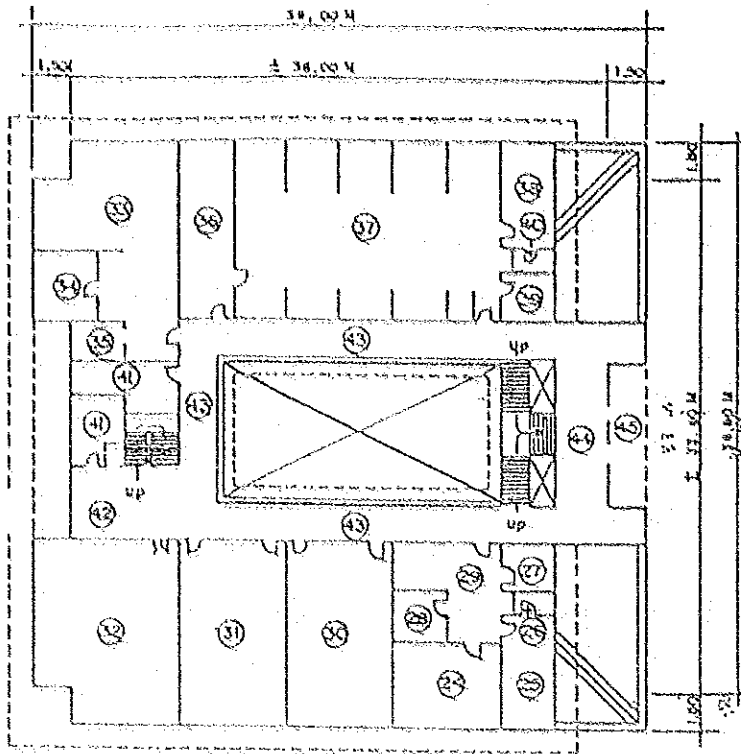
\*教官研究室 2

学生研究室 2

\*は絶対必要なスペースを示す。



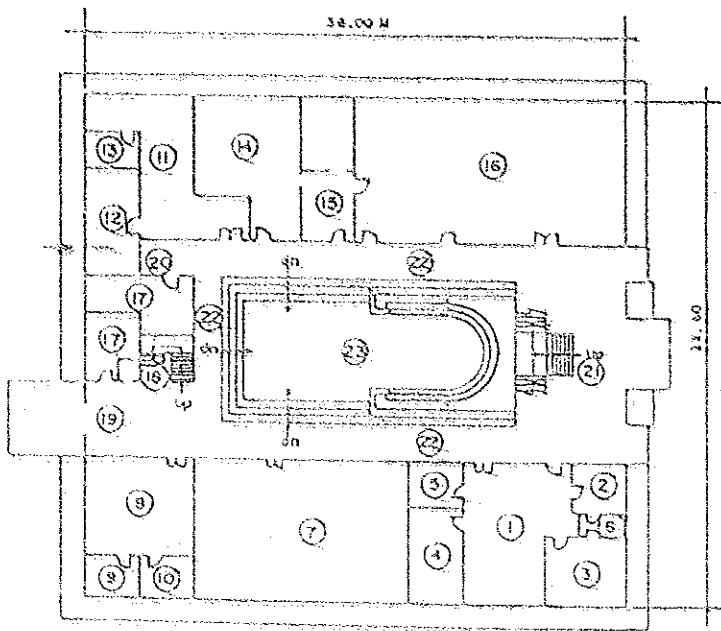
# TRANSPORT TRAINING CENTER



SECOND FLOOR PLAN  
SCALE 1:400 M.

## LEGEND:

- 1 ADMINISTRATIVE STAFF AREA
- 2 ADMINISTRATIVE OFFICE
- 3 CONFERENCE ROOM
- 4 ADMINISTRATIVE CHIEF
- 5 STORE ROOM
- 6 TOILET
- 7 AUDIO-VISUAL ROOM
- 8 PROPERTY ROOM
- 9 PRINTING ROOM
- 10 SUPPLY ROOM
- 11 WORKSHOP
- 12 EQUIPMENT STORAGE
- 13 DARKROOM
- 14 MICRO ROOM
- 15 KEYFUNCHER / USER'S ROOM
- 16 COMPUTER CENTER
- 17 TOILET & BATH/STORAGE
- 18 STAIRWAY / STORAGE
- 19 LOBBY (rear entrance)
- 20 HALL (drinking fountain)
- 21 LOBBY (main) / STAIRWAY
- 22 3 CORRIDORS
- 23 OPEN COURT
- 24 DIRECTOR'S ROOM
- 25 CONFERENCE ROOM
- 26 TOILET
- 27 JAPANESE CONSULTANT
- 28 DEPUTY'S CUBICLE
- 29 STAFF AREA
- 30 SEMINAR ROOM (A)
- 31 SEMINAR ROOM (B)
- 32 SEMINAR ROOM (C)
- 33 LIBRARY STUDY AREA
- 34 LIBRARIAN'S CUBICLE
- 35 STORAGE AREA
- 36 DRAFTING ROOM
- 37 TRAINING STAFF AREA
- 38 TRAINING CHIEF'S ROOM
- 39 ST. TRAINING ASST'S ROOM
- 40 TOILET
- 41 TOILET / BATH / STORAGE
- 42 LOUNGING AREA
- 43 3 CORRIDORS
- 44 LOUNGE (main)
- 45 BALCONY



FIRST FLOOR PLAN  
SCALE 1:400 M.

図5-1 現TTCビルの平面図

- ・この他にも、各種供与機材の保管場所等が必要になり、現TTCビルだけでは相当のスペース不足が生じる。したがって、現在の使用形態の変更（例 事務室（1, 2, 3, 4, 5）、倉庫（11, 12, 36）等の有効活用）は当然のこととして、プロジェクト基盤整備費によるスペースの確保が不可欠である。また、一時的には工学部（COE : College of Engineering）やNEC（National Engineering Center）への間借りというような方策が必要となるかも知れない。

#### D. 図書館用機材

- ・専門雑誌のバックナンバー

下記のような専門雑誌のバックナンバーは早い時期から供与する。

TRANSPORTATION RESEARCH RECORD, TRANSPORTATION, TRANSPORTATION RESEARCH, ENVIRONMENT & PLANNING, JOURNAL OF TRANSPORT ECONOMICS & POLICY, PLANNER

- ・世銀, OECD, 国連, TRBのスペシャルレポート等も早い時期から供与する。
- ・道路構造令, 交差点設計マニュアル（交通工学研究会編）等の日本の標準を述べた法令・資料集の英訳版
- ・マイクロフィッシュリーダー／プリンター  
開架式書架, 地図用キャビネット

#### E. 車両

- ・車両としてのニーズ

実験測定者移動・見学移動用	コースター（20人乗り）	1
業務・事務連絡用	乗用車	2
業務連絡及び細街路調査用	オートバイ	2
野外調査用	ランドクルーザー	1

- ・実験観測装置搭載用としてのニーズ

移動騒音測定システム	ワゴン	1
移動大気汚染測定システム	トラック	1
旅行速度・燃費測定システム		1
荷重車	トラック	1

- ・現ガレージへの収納は可

#### F. その他機材

研究・大学院教育・調査・研修など、多岐にわたるNCTSの機能を果たすためには、

下記のような様々な事務機器・教材作成機器が必要である。

・ソーター付コピー機	3台
・カラーコピー機	1台
・印刷機（リソグラフ）	1台
・ソーター（大容量）	1台
・製本機	1台
・製本用裁断機	1台
・ファクシミリ	1台
・パソコン台	20台
・製図台，製図用具	5組
・カメラセット	3組
・電子式タイプライタ	5台
・大型冷蔵庫（フィルム，標準ガス保存用）	
・技術科学計算用電卓	10台

#### 5-5-4 供与機材リスト及び供与年次計画

以上のグループ別の供与機材リストと供与の年次計画を以下に示す（表5-4，5-5）。

表5-4 NCTS 機材供与案

機材名及び内容等	金額 (万円)	供与 年次
<p>A. コンピュータシステム</p> <p>*A-1 メインフレームコンピュータシステム</p> <ul style="list-style-type: none"> <li>・メインフレームコンピュータ (主記憶容量32MB以上、チャンネル数6以上、OSはUNIX及びIBMコンパチの2種、中～大型汎用コンピュータ)</li> <li>・ワークステーション 4台</li> <li>・パソコン 15台</li> <li>・上記をつなぐLAN</li> <li>・5GB以上のディスク、ラインプリンタ2台、磁気テープ装置2台 コンソール、等</li> <li>・ワークステーションの1台に接続するデジタイザ、プロッタ</li> <li>・無停電電源装置、発電機、安定化電源、空調、等</li> </ul> <p>A-2 CADシステム(ソフト含む)</p> <ul style="list-style-type: none"> <li>・専用ワークステーション、パソコン、スキャナ、モニタ等からなるCAD専用システム</li> </ul> <p>*A-3 パソコン(スタンドアローン)</p> <ul style="list-style-type: none"> <li>・訓練用 20台(40人対応)</li> <li>・管理事務、図書館業務等 5台</li> </ul> <p>*A-4 ソフトウェア</p> <ul style="list-style-type: none"> <li>・Fortran、PASCAL、C言語ソフト</li> <li>・統計計算、表計算、データベース等の基本ソフト</li> <li>・交通計画、土地利用計画等の応用ソフト</li> <li>・オペレーティングシステム</li> </ul>	<p>23,300</p> <p>5,100</p> <p>1,000</p> <p>5,000</p>	<p>H3</p> <p>H4</p> <p>H3</p> <p>H3</p>
<p>小 計</p>	<p>34,400</p>	
<p>B. 研究用機材</p> <p>B-1 交通流・車両関係</p> <ul style="list-style-type: none"> <li>・旅行速度・燃費測定車</li> <li>・加速度計</li> <li>・ビデオカメラ、モニタ、ビデオポジションアナライザ、等</li> <li>・アイマークレコーダ</li> <li>・レーダースピードメータ</li> <li>・汎用データ収集・変換・処理装置、等</li> </ul> <p>B-2 舗装・路面関係</p> <ul style="list-style-type: none"> <li>・荷重車</li> <li>・路面粗さ測定器、スキッドテスター、凹凸計、等</li> <li>・車両重量計、平板載荷試験器、等</li> </ul>	<p>2,000</p> <p>5,000</p>	<p>H4</p> <p>H4</p>

機 材 名 及 び 内 容 等	金 額 (万円)	供与 年次
<ul style="list-style-type: none"> <li>・フォーリングウェイトデフレクトメータ</li> <li>・ベンケルマンビームたわみ測定器</li> <li>・室内試験用各種装置、等</li> </ul>	4,000	H 4
B-3 大気汚染関係 <ul style="list-style-type: none"> <li>・大気汚染測定車</li> <li>・各種測定器具、データ処理装置、等</li> </ul>	4,500	H 4
B-4 騒音・振動関係 <ul style="list-style-type: none"> <li>・騒音・振動測定車（騒音計、データレコーダを搭載）</li> <li>・騒音測定模型実験用機材、等</li> </ul>	2,000	H 5
B-5 測量関係 <ul style="list-style-type: none"> <li>・セオドライト等測量及び関連データ処理機器</li> </ul>		
小 計	17,500	
C. 視聴覚関係機材		
C-1 多目的会議・集会用AVシステム <ul style="list-style-type: none"> <li>・セミナー用ビデオプロジェクター、スピーカ、等</li> <li>・会議用マイク、スピーカ、ミキサー、等</li> <li>・大型映像用モニター、ミキサー、スピーカ、等</li> </ul>	1,300	H 3
C-2 研修用移動型AVシステム 2セット <ul style="list-style-type: none"> <li>・スライドプロジェクタ、カセットデッキ、マイク、スピーカ、ワゴン式提示卓、等</li> </ul>	800	H 3
C-3 講義室用AVシステム <ul style="list-style-type: none"> <li>・コントロール用パソコン、タッチパネル、大型モニタ、マイク、スピーカ、ビデオデッキ、等</li> </ul>	600	H 3
C-4 教材作成・編集室システム <ul style="list-style-type: none"> <li>・編集用VTR、コントローラ、モニタ、時間ベース調整器、リモコン機器、等</li> </ul>	700	H 3
小 計	3,400	
D. 図書館用機材		
<ul style="list-style-type: none"> <li>・書籍、主要雑誌バックナンバー、NTISマイクロフィッシュ等</li> <li>・マイクロフィッシュリーダー/プリンタ</li> <li>・カタログカードデュプリケータ</li> <li>・開閉式書架、地図用キャビネット、等</li> </ul>	900	H 3
* E. 車両		
<ul style="list-style-type: none"> <li>・視察野外調査用コースター（20人乗り） 1台</li> <li>・野外調査用ランドクルーザ 1台</li> <li>・スタッフサービス用乗用車 2台</li> <li>・業務連絡・細街路調査用オートバイ 2台</li> </ul>	1,600	H 3

機 材 名 及 び 内 容 等	金 額 (万円)	供与 年次
* F. その他機材 ・ ソーター付きコピー機 3台 ・ カラーコピー機 ・ FAX ・ パソコン台 20 ・ 製図台、製図用具 5セット ・ カメラセット 3 ・ 製本用具 ・ タイプライタ 5 ・ 大型冷蔵庫（フィルム保管用） ・ 科学計算用電卓 10、等	1,500	H 3
合 計	59,300	

注) \*印は現地調達予定

表5-5 NCTS年次別機材供与案

年次	機 材 名	金 額 (万円)
平成 3年度	A-1 メインフレームコンピュータシステム	23,300
	A-3 パソコン(スタンドアローン) 25台、等	1,000
	A-4 ソフトウェア	5,000
	C-1 多目的会議・集会室用AVシステム	1,300
	C-2 研修室用移動型AVシステム 2セット	800
	C-3 講義室用AVシステム	600
	C-4 教材作成・編集システム	700
	D 図書館用機材	900
	E 車両	1,600
	F その他機材	1,500
	小 計	36,700
平成 4年度	A-2 CADシステム	5,100
	B-1 交通流・車両関係研究用機材	2,000
	B-2 舗装・路面関係研究用機材	5,000
	B-3 大気汚染関係研究用機材	4,000
	B-4 騒音・振動関係研究用機材	4,500
	小 計	20,600
平成 5年度	B-5 測量関係研究用機材	2,000
	小 計	2,000
	合 計	59,300

## 第 6 章 実施上の課題

- 6-1 学生の確保
- 6-2 教育・研究・訓練スペースの確保
- 6-3 留学生受け入れ体制
- 6-4 電子計算機の運用方針
- 6-5 講座の開設
- 6-6 第3国研修
- 6-7 機材の維持
- 6-8 訓練生の確保
- 6-9 定期刊行物の整備
- 6-10 研究支援体制の確立





## 第6章 実施上の課題

### 6-1 学生の確保

コースの開設には原則として最低5名/年の学生が必要である。CE/COEに交通工学、SURPに交通計画の講座を開設すると、少なくとも5名/年×2コース×2年=20名の学生が存在することとなる。

第1次事前調査の時点でのNECの構想では次のごとく考えられていた。

- |                  |    |
|------------------|----|
| 1) DOTC等からの国内留学生 | 5名 |
| 2) NCTSの研究補助員    | 5名 |
| 3) 私的な基金等による奨学生  | 5名 |
| 4) 私費            | 5名 |

この場合、国内留学生の確保と奨学金の手当とが必要となる。国内留学生については、DOTCやDPWH等の政府機関から職員を大学院生として派遣してもらうという約束を取り付けることが必要である。また、奨学制度については、現在のJICAの援助スキームでは不可能であるが、奨学金の確保が優秀な学生の確保には不可欠であることを考慮すると、フィリピン国内のみならず日本国内において民間企業等の協力を得て奨学金給付に必要な基金を確立すること、さらにはJICAの援助スキームとして確立できる可能性を検討すべきである。

なお、第1次事前調査の段階では、大学院生1人あたり約13万ペソ/2年(約80万円/2年)が必要と見積られている。

内訳：

1) 給与	p	3,500/月	×24ヵ月
2) 授業料	p	10,000/年	×2年
3) 書籍	p	1,000/学期	×4学期
4) 論文補助	p	20,000	
合計	p	128,000	

奨学金については、研究生とする場合と単なる学資補助とを区別して、必要金額をさらに詰める必要がある。

### 6-2 教育・研究・訓練スペースの確保

現在のTTCは、鉄筋コンクリート2階建てである。訓練用のスペースとしては、1階のAVルームと2階のセミナールーム3室とがあるが、NCTSの構想に従うと、新たに講義

室、学生研究室、教授室等が必要となる。TTC自体が3階建てを前提として建築された経緯もあり、3階部分にこれらの必要スペースを確保することが必要である。プロジェクト基盤整備の中で対応することが望まれる。

### 6-3 留学生受け入れ体制

フィリピンでは交通工学、交通計画に携わる教官が少なく、今後この分野での教育・研究者の養成が急務となっている。このため、フィリピン側では海外留学生の受け入れと援助を強く要望している。これは、NCTSのスタッフとしての人材確保の面からも重要である。日本以外への留学奨助も希望しているが、まずは日本での受け入れ体制を整備することと、どの程度の受け入れが可能かなどの状況をフィリピン側に明確に伝える必要がある。文部省及びJICAで受け入れる留学生（カウンターパート研修、国費留学生、第3国研修等）の受け入れ体制の明確化と将来の拡充方策とについて、関係機関で協議することが望まれる。

### 6-4 電子計算機の運用方針

電子計算機の維持管理のための費用をいかに確保するかが問題である。消耗品や交換部品等はあらかじめ購入しておくことが必要であり、できる限りメーカー補償期間を長く取る方策を考える必要がある。空き時間に他機関による計算機利用を図り、電算機利用基金などをつくって維持費を捻出する工夫がほしい。この方式をプロジェクト期間中から準備し、プロジェクト終了後はそのまま計算機を維持できる体制にしておくことが望ましい。そのためにも、他の機関（例えばNEC）の計算機の状況や計算需要の動向を調査することが必要である。

### 6-5 講座の開設

CE/COEとSURPとにそれぞれ交通工学、交通計画の講座を開設するためには、教授陣と教育・研究のための必要経費とを確保する必要がある。UPは予算面で現在苦しい状況にあるので、寄付講座の開設や研究委託の確保についても検討する必要がある。

### 6-6 第3国研修

プロジェクト技術協力と直接関係は無いが、従来からTTCにおいて第3国研修(ASCOTT)を実施しており、この制度を引続きNCTSにおいても存続させることが望ましい。また、東南アジア諸国の技術レベルが年々向上していることから、NCTSにおいて訓練部門を強化し、第3国研修のレベルアップを図ることも重要である。

#### 6-7 教材の維持

電子計算機以外にも多くの試験機やAV機器等が供与されることとなるが、これらの機器の維持管理をいかにするかが今後の重要な課題となる。

#### 6-8 訓練生の確保

訓練については、TTCにおいて定期的に実施され、制度的に確立されているので特別な問題はないと考えられるが、新たなコースの開設や大学院奨学生の国内留学制度などとの兼ね合いで、派遣予定機関と訓練の対象者、訓練人数等について事前によく打ち合せをする必要がある。

#### 6-9 定期刊行物の整備

交通に関する技術の進歩と交通を取りまく社会状況の変化を的確に把握するためにも、専門誌等を中心に定期刊行物を購入・整備する必要がある。プロジェクト技術協力期間中は、専門家派遣にともなって整備することも可能であるが、協力期間終了後に途絶えてしまうことになり兼ねない。企業からの研究委託の中で必要経費を確保するなどの工夫が必要である。

#### 6-10 研究支援体制の確立

交通に関する高度な研究・教育・訓練を自律的に遂行できる能力をNCTSスタッフが習得するためには、講義室内での講義も重要であるが、それ以上に、実際の問題・研究テーマに取り組み、問題の発見、研究フレームの構築、調査の計画・設計・実施、分析手法の開発、調査結果の整理・分析・解析、考察と課題の抽出、といった一連の研究・調査プロセスにおける実際の体験・経験が重要である。これは、大学院修士課程の修士論文作成や交通にかかわる種々の調査等における日本人スタッフの指導等により獲得できる。

効果発揮までに長時間を要するという教育の、特に高度教育の特性を考慮すると、研究・調査の実施体制（指導者、研究テーマ、研究データの蓄積、等）の継続性の確保が何よりも重要である。しかし、1人の専門家を長期間にわたって派遣し続けることは国内事情からみて非常に困難であり、帰国専門家、派遣中専門家、派遣前専門家（専門家には短期専門家も含む）及び国内支援グループ間の情報伝達、データの受渡し、指導上の注意事項の引継等や情報交換をスムーズに行える研究支援体制を国内に確立し、研究指導、調査指導の継続性を確保することが不可欠である。



## 付 属 資 料

1. 大統領教書 428号 (英文) .....109
2. 大統領教書1,080号 (英文) .....111
3. NCTSの要請内容<比側プロポーザル> (英文) .....115
4. 予備調査 議事概要 (英文) .....163
5. 第1回事前調査 ミニッツ (英文) .....171



1. 大統領教書428号 (英文)

MALACANANG  
MANILA

LETTER OF INSTRUCTIONS NO. 428

TO: The Secretary of Public Highways

The President, University of the Philippines System

The Director-General, National Economic and  
Development Authority

The Secretary of Public Works, Transportation  
and Communications

The Commander, Constabulary Highway Patrol Group

WHEREAS, the present accelerated development program of the country coupled with rapid urbanization growth due to migration and population increase, has further aggravated the already complex traffic problems;

WHEREAS, there is an urgent need for trained personnel with adequate background and skill in transport planning, more specifically in the fields of traffic engineering and management;

WHEREAS, such need cannot be fully met by limited programs for technical training here and abroad;

WHEREAS, a Transport Training Center geared to provide intensive and practical training in the fields of traffic engineering, planning and management can provide the means for upgrading the capability and potential of a significant number of personnel in government agencies concerned with transportation; and

WHEREAS, the Japan International Cooperation Agency (JICA) has offered to donate equipment needed for such training and to provide, for a period of three (3) years, several experts who shall, together with local instructors, conduct the training course;

NOW, THEREFORE, I, FERDINAND E. MARCOS, President of the Philippines, in order to establish an efficient

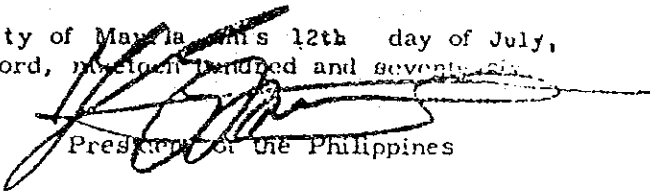




transport system that will provide a fast, safe and convenient movement of people and goods on all streets and highways do hereby direct:

1. The Secretary of the Department of Public Highways and the President of the University of the Philippines System to jointly establish, manage and operate a Transport Training Center within the campus of the University of the Philippines System;
2. The Secretary of the Department of Public Highways to include in its budget the yearly operational and expenses of the Transport Training Center, starting from Calendar Year 1976, and for the succeeding years;
3. The Secretary of the Department of Public Works, Transportation and Communications to include in its budget (C.Y. 1976) an amount to cover the construction of the Transport Training Center building at UP;
4. The Director-General of the National Economic and Development Authority to create a Steering Committee to be chaired by the representative from the Department of Public Highways, being the lead agency, and to draw one member each from all the concerned agencies. This Committee shall promulgate rules and regulations as guide to management, and such other policies deemed necessary for the effective and successful operation of the Training Center;
5. That all agencies concerned shall assist in every way possible, and to closely coordinate and take such measures as maybe necessary or appropriate to carry out the purpose and intent of these instructions.

Done in the City of Manila, this 12th day of July, in the year of Our Lord, nineteen hundred and seventy-six.

  
President of the Philippines

2. 大統領教書1080号 (英文)

MALACANANG  
MANILA

LETTER OF INSTRUCTIONS NO. 1080

TO : The Minister of Transportation and  
Communications  
The Minister of Public Highways  
The Minister of Public Works  
The Director-General, National Economic  
and Development Authority  
The President, University of the Philippines  
System  
The Commander, Constabulary Highway Patrol  
Group

WHEREAS, the continuing accelerated development program of the country and the rapid urbanization growth continue to aggravate the already complex transportation problems;

WHEREAS, there is the continuing urgent need for trained personnel and professionals in transportation and traffic planning, management and engineering;

WHEREAS, there is further need to strengthen the role of the Transport Training Center, created by virtue of Letter of Instructions No. 428, dated 12 July 1976, to effect the development of transportation and traffic academic and research expertise, and to train Filipino transportation and traffic professionals and experts; and

WHEREAS, the Ministry of Transportation and Communications, by Executive Order No. 546, dated 23 July 1979, is the primary policy-making, planning, administrative, coordinating, implementing, and regulating agency of the government, in the development and regulation of a dependable and coordinated network of transportation;

NOW, THEREFORE, I, FERDINAND E. MARCOS, President of the Republic of the Philippines, by virtue of the powers vested in me by the Constitution, do hereby order and direct as follows:

1. The Minister of Transportation and Communications, by virtue of his functions with respect to transportation development, and the President of the University of the Philippines System, shall continue to jointly manage, operate and develop the Transport Training Center within the campus of the University of the Philippines System, with the long term view of upgrading the academic and research capabilities of the Transport Training Center.

2. The Ministry of Transportation and Communications shall include in its budget, the yearly operational expenses of the Transport Training Center, commencing for the Calendar Year 1982. The Center, under present institutional and financial arrangements, shall continue to operate as a special unit of the University of the Philippines System, with its operational expenses, for the Calendar Year 1981, to come from the budgetary outlays of the Ministry of Public Highways;

3. An Advisory Committee of the Transport Training Center shall replace the Steering Committee, created under Presidential Letter of Instructions No. 428, to be chaired by the Minister of Transportations and Communications; and to draw six (6) additional members, one member each from the following agencies:

Ministry of Transportation and Communications  
Ministry of Public Highways  
Ministry of Public Works  
National Economic and Development Authority  
University of the Philippines System  
Constabulary Highway Patrol Group

The Advisory Committee shall continue to promulgate rules and regulations as guidance to management, shall enunciate such other policies deemed necessary for the effective and successful operation of the Training Center, and shall plan the development of the Training Center into a regular unit of the University of the Philippines System; and

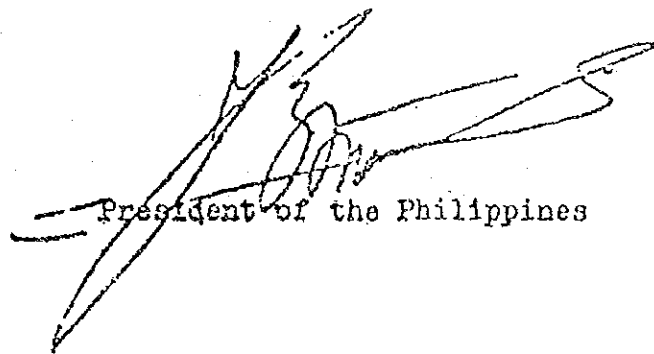
4. All agencies concerned shall continue to assist, in every way possible, and shall closely coordinate and take such measures as may be necessary or appropriate to carry out the purposes and intent of these instructions.

Presidential Letter of Instructions No. 423 dated 12 July 1976 is hereby superseded. All Executive Orders,

Letters of Instruction and Rules and Regulations or parts thereof, which are inconsistent with the provisions herein, are hereby also deemed superseded and/or modified accordingly.

This Letter of Instructions shall take effect immediately.

Done in the City of Manila, this 11th day of November, in the year of Our Lord, nineteen hundred and eighty.



President of the Philippines



### 3. NCTSの要請内容<比側プロポーザル> (英文)

#### PROPOSAL FOR PACKAGE TYPE JICA (JAPAN INTERNATIONAL COOPERATION AGENCY) ASSISTANCE TO THE NATIONAL CENTER FOR TRANSPORTATION STUDIES

##### I. INTRODUCTION

This is a proposal for the conversion of the Transport Training Center (TTC) into the National Center for Transportation Studies (NCTS) which shall be based at the University of the Philippines in Diliman.

The proposed NCTS, as the lead agency, and in cooperation with other UP academic units such as the College of Engineering (COE), the School of Urban and Regional Planning (SURP), etc., and various government agencies such as Department of Transportation and Communications (DTC), Department of Public Works and Highways (DPWH), National Economic and Development Authority (NEDA), etc. shall perform, among others, the following activities:

##### Functions of the NCTS

- a) Assist and cooperate in the conduct of academic programs on transportation, with appropriate existing academic units of the University of the Philippines.
- b) Conduct of non-degree training programs on transportation, which may either be held on regular or non-regular basis.
- c) conduct of basic and applied researches on transportation, in cooperation with other academic units of the University.
- d) conduct of extension services to various government and private agencies.

- e) conduct of non-degree programs for third countries, such as those ASEAN and Southern Pacific Region.

## II. SIGNIFICANCE OF THE ESTABLISHMENT OF THE NCTS

The Philippines is presently on a state of economic recovery. Various programs are being implemented nationwide, both in the urban areas and in the countryside, aimed to speed-up and sustain economic growth.

In support of the economic recovery programs, there is a need to improve the country's transportation system.

The proposed National Center for Transportation Studies shall take the lead in the human resource development and in the conduct of researches on improving our transport system.

The need for NCTS can be justified by the following:

- a) There is still a dearth of qualified transport professionals who will plan, design, and manage the country's transport system.
- b) The level of transportation research in the Philippines has remained low and few in number such that foreign developed technology and standards are still being applied in local transport planning, engineering and management.

## III. THRUST OF THE NCTS

The main thrust of the NCTS is the offering of master's program on Transportation Engineering, and Transportation Planning in cooperation

with appropriate academic units in the university.

High level basic and applied researches which will be responsive to the needs of the country will also be given emphasis in the NCTS.

The NCTS shall also continue to conduct TTC initiated activities, such as the conduct of short term training programs, perform extension services to various government and private agencies, and conduct of non-degree training programs for transportation professionals from ASEAN and neighboring regions.

IV. TRANSPORT TRAINING CENTER AS THE CORE OF NATIONAL CENTER FOR TRANSPORTATION STUDIES

The Transport Training Center shall be renamed National Center for Transportation Studies with all of TTC's manpower, facilities and programs to be absorbed by the NCTS.

The activities and programs of NCTS will be conducted in cooperation with various academic units such as UP College of Engineering, School of Urban and Regional Planning, etc.; and various government agencies related to transportation such as Department of Transportation and Communications, Department of Public Works and Highways, National Economic and Development Authority, Constabulary Highway Patrol Group, and others.

The establishment of NCTS with TTC as the core or nucleus unit has many advantages, as follows:

1. The TTC has a wide range of experience in transportation education, having offered training programs on Transportation Planning, Traffic Engineering, Traffic Management, Traffic



Law Enforcement, Public Transportation Planning, etc. since 1978. In fact, TTC is the only institution in the Philippines which offers transportation training programs on a regular basis.

The number of participants for each of the training programs offered by the TTC is shown in Annex 1.

2. The TTC has been actively involved in various transportation researches, projects and studies. The researches were either done in-house, or as extension services for government agencies and private companies involved in transportation. (Refer to Annex 2).
  3. The TTC has already established its position as the premier transportation education center in the Philippines. Participants in TTC's training programs are not only from Manila but from various regions and local cities/municipalities as well. Government agencies rely on TTC to meet their training needs on transportation technology. Some of these agencies are: DTC (Department of Transportation and Communications), DPWH (Department of Public Works and Highways), NEDA (National Economic and Development Authority), CHPG (Constabulary Highway Patrol Group), DLG (Department of Local Government), DND-INP (Department of National Defense-Integrated National Police), MMC (Metro Manila Commission), TCC (Traffic Control Center), etc.
- Further, short term regional seminars were conducted (see Annex 3) which made TTC known to local government officials.

4. TTC has the basic research equipment on transportation, which only needs some upgrading. Though some research equipment must be replaced, it would not be difficult for TTC staff to operate the same considering TTC's vast experience on transport research.
5. TTC has a corps of able transportation technologists, who can effectively handle transportation education programs and researches. Technical personnel are very capable in handling transportation courses, and in the use of research equipment, and are also well exposed to computer usage and applications. The lecturers in the different TTC training programs have shown their capability and maturity after years of service to TTC. They have gained credible reputations not only because of advanced degrees on transportation earned, but also because of their accomplishments and experience.  
Aside from transportation technologists who can be easily tapped from the private sector and/or be detailed from other cooperating agencies, TTC has available in-house personnel capability in conducting advanced programs. Six (6) full time technical personnel have already earned graduate degrees in transportation from well known international transport schools; and four (4) are presently working for the completion of their graduate works. These technical personnel are not only academically qualified, but are also actively involved in transportation education and research; and are familiar in transportation systems here and abroad. With this capable manpower support, advanced level programs can be initiated and sustained.

6. TTC has strong linkage with transportation related agencies. This not only assures the continuous participation of their personnel in our programs; but also through their cooperation and coordination, TTC's education programs and research are efficiently carried out.
7. TTC has already established a name in ASEAN and other neighboring countries in terms of transportation education. Through the Third Country Training Program, TTC has trained a significant number of foreign technologists (see Annex 4).

V. PROGRAMS/ACTIVITIES OF NCTS

NCTS shall be involved in the following programs/ activities:

1. offering of academic programs on transportation
2. conduct of training programs
3. conduct of research
4. providing extension services to other government agencies

A. ACADEMIC PROGRAMS

The NCTS shall coordinate and cooperate with academic units of the University in offering graduate and undergraduate programs in transportation. Due to the multi-disciplinary nature of transportation, several degree programs of the University may be expanded to allow for specialization in transportation. Initially, the NCTS shall work with the College of Engineering (COE) and the School of Urban and Regional Planning (SURP) to modify and strengthen existing programs with emphasis on transportation.

Curricular expansion in other units (such as the School of Economics and the College of Business Administration) will be considered at a later stage.

A.1. Mechanics

Due to existing University policy which discourages the institution of new degree granting units, the degrees proposed herewith are to be granted by existing academic units (e.g. COE, SURP). Administration of the programs will be handled by the degree-granting unit in coordination/cooperation with the NCTS. Faculty members will come from the NCTS and the degree-granting unit as well as from various transport agencies. Courses will be offered by the different units but classes will be held at the NCTS. Computer/laboratory work will be done at the NCTS which will offer its computer, equipment and library and office and classroom facilities for the use of the students in transportation.

A.2. Target Groups

The NCTS aims to attract graduates of the TTC regular training programs in transportation planning and traffic engineering; and other qualified bachelor degree holders who wish to pursue further studies in these fields. To date, the TTC has graduated 202 in the Transportation Planning Course and 215 in the Traffic Engineering Course.

Technical staff of various transport agencies of the government (such as the MOTC, MPWH, NEDA, etc.) who are presently involved in transport functions are also expected

targeted as students in the proposed programs.

Furthermore, there are technical staff of private firms engaged in transportation who may enroll in the proposed programs. This group has not been tapped by the TTC in its regular training programs which is primarily offered to government personnel.

A number of graduates from TTC's Third Country Training Program (ASCOTT) may also be interested in the proposed programs. To date, there are a total of 144 participants in this program, coming from Singapore, Thailand, Sri Lanka, Indonesia, Malaysia, Bangladesh, Papua New Guinea, Brunei, Fiji, Western Samoa and the Philippines.

The proposed graduate programs are also aimed to attract graduates from the universities who may want to embark on a career in transportation.

### A.3. Proposed Programs

#### 3.1 Graduate Programs

##### 3.1.1 Masters in Transportation Engineering

##### 3.1.1.1 Existing Program

The College of Engineering offers graduate degree programs of Master of Science (with or without thesis) in Civil Engineering with possible specialization in Transportation. The requirements for the program are:

	Plan A	Plan B
Major	15 units	21 units
Applied Math	6 units	6 units

Electives	3 units	9 units
Thesis	6 units	0 units
Total	<u>30 units</u>	<u>36 units</u>

There are 3 existing graduate courses in transportation being offered by the CE department. These are:

CE 241 Airport Engineering  
CE 242 Traffic Engineering and Management  
CE 243 Highway Engineering

The following courses are ready to be instituted:

CE 244 Port and Harbor Engineering  
CE 245 Mass Transit Engineering  
CE 297 Special Topics

The CE department, however, does not presently have a full time faculty member to handle these graduate courses.

Furthermore, very few students have taken the transportation option. While this could be due to the general popularity of the structural option, it may have been compounded by the following factors which forms a vicious cycle: lack of transportation courses, lack of full time faculty and very few students enrolling in the courses leading to their dissolution.

#### 3.1.1.2 Proposed Program

It is therefore proposed that the transportation option be strengthened by offering more courses and pooling a number of transportation professionals to compose the faculty of the transport group.

#### 3.1.1.2.1 Proposed Curriculum

The curriculum for the proposed program is designed to allow the student to be knowledgeable in the fundamental concepts, theories and techniques required in transportation practice, and at the same time allow the student to design the program of courses to fit his professional/career needs.

The following courses are proposed to be offered in this program:

##### Major Subjects

Transportation Technology

Transportation Systems  
Analysis

Transportation and Traffic  
Surveys

Traffic Flow Theory

Transportation Engineering  
Economics

Applied Math

Computers & Programming

Probabilistic and Statistical  
Analysis

Optimization Techniques

Elective Subjects

Highway Engineering

Airport Engineering

Port and Harbour Engg.

Pavement Design

Traffic Engineering and  
Management

Public/Mass Transit  
Engineering

Urban Transportation  
Planning

The major subjects are designed to cover the necessary materials for advanced graduate work and to be applicable to any mode of transportation in which the student may specialize in.

The elective subjects are designed to cover the major modes of transportation.



These courses together with approximately selected courses in other branches of civil engineering (e.g. structural, water resources, etc.) may be taken to fit the students' interest and needs for a more specialized course of study.

#### 3.1.1.2.2 Proposed Faculty

To handle these proposed courses, faculty members from various departments of the College of Engineering and qualified technical staff of NCTS who shall be given faculty appointments shall constitute the core group of the program's faculty. Qualified staff of government and private agencies shall be invited also as lecturers.

To date, six (6) TTC technical staff have master's degrees in transportation and related fields. They have remained in TTC for a period

of five to nine years and are expected to remain with NCTS for the duration of the program implementation. With this manpower complement, together with the faculty of the College of Engineering, the proposed mater's program will be ably supported. .pa

### 3.1.2 Masters in Transportation Planning

#### 3.1.2.1 Existing Program

The School of Urban and Regional Planning (SURP) offers courses leading to the degree of Master of Arts (Urban and Regional Planning).

The program includes two study options, a thesis and a non-thesis option, on four alternative areas of specialization, namely: urban planning, regional planning, estate planning and development, and public works planning and development.

The thesis program requires completion of 27 units of formal course work and 6 units of thesis, as indicated below:

Required Core Courses	12 units
Required Specialized Courses	15 units
Master's Thesis	6 units

Total 33 units

The non-thesis program requires the completion of 39 units of course work and comprehensive examinations as follows:

Required Core Courses	12 units
Required Specialized Courses	15 units
Special Problems	6 units
Electives	6 units
Total	39 units

While existing courses have general applicability in different areas of planning, only one course is explicitly transport oriented:

Planning 212: Urban Transportation Planning

#### 3.1.2.2 Proposed Program

It is proposed to offer Transportation Planning as a fifth area of specialization in the graduate program. A number of transport-oriented courses are proposed to be instituted as new specialized courses:

Introduction to Transportation Planning  
Transportation Planning Workshop  
Transportation Systems Analysis  
Transport and Traffic Surveys  
Transportation Plan Evaluation

The following courses are proposed to

be instituted as elective subjects:

National/Regional Transportation  
Planning  
Urban Transportation Planning  
Local Area Transportation  
Planning  
Public Transport Planning  
Road Network Planning  
Planning of Facilities  
Transportation System Management

The specialized courses are designed to cover the necessary materials for advanced work in the field and to be sufficiently broad enough to be applicable to different levels of planning.

The elective subjects designed to allow the student to design his study plan to fit the particular planning area he envisions himself working in.

#### 3.1.2.2.2 Proposed Faculty

To handle the proposed courses, technical staff of the NCTS together with the faculty members of the SURP shall form the core group of teaching staff while qualified staff of government/private agencies may be tapped as part-time staff members.

### 3.2 Undergraduate Program

### 3.2.1 Existing Courses

There are two undergraduate courses in transportation which are required to be taken by all undergraduate students in Civil Engineering, namely:

CE 141 Transportation Engineering I	3 units
CE 142 Transportation Engineering II	3 units
	-----
	6 units

### 3.2.2 Proposed Courses

It is proposed that a third course be offered as an elective in the undergraduate curriculum for students who wish to specialize in transportation. Qualified undergraduate students may select from among the departmental and/or elective subjects being proposed to be offered in the graduate program.

A third course - CE 143 Transportation Engineering III (3 units) will be offered.

The content of the aforementioned courses are amended as follows:

CE 141 TRANSPORTATION ENGINEERING I. - Highway planning. Geometric design of roads and intersections. Traffic control fundamentals. Earthwork calculations. Pavement design, drainage, road construction and maintenance. Airport engineering fundamentals.

CE 142 TRANSPORTATION ENGINEERING II. - Characterization and analysis of transportation systems and various modes of transportation. Transport and traffic surveys. Traffic flow fundamentals. Planning of transportation projects.

CE 143 TRANSPORTATION ENGINEERING III. - Urban

transport planning and design using statistical techniques, computer methods, modelling and optimization. Policy formulation. Case studies.

### 3.2.3 Proposed Faculty

Technical staff of the NCTS will be tapped as lecturers to handle the proposed undergraduate course.

### 3.3 Target Enrollment for the Graduate Programs

A target of 10 students per year are expected to enroll in each of the proposed graduate programs. Assuming 5 students - enrolling full time and finishing in 3 semesters, and 5 students enrolling part time and finishing in about 5 semesters, a peak number of 25 students are expected to be enrolled beginning the 5th semester after start of implementation. (This assumes admission during the first semester only).

It is also expected that after 5 years of implementation, about 40 students shall have finished the program. The target of 5 full time students enrolling per school year was made on the assumption that NCTS can provide/solicit scholarships for 5 students.

### A.4. Scholarship Opportunities

In order to attract a sufficiently large number of graduate and undergraduate students to pursue courses in transportation, scholarships shall be awarded to qualified and deserving students. The NCTS shall also coordinate with other government transport agencies to provide financial assistance

to their staff who wish to pursue graduate degrees in transportation, especially if the thesis topics are relevant to their present job. The NCTS shall further solicit assistance from private firms.

Another prospect for scholarship which NCTS shall explore is the possible scholarship thru the assistance of JICA to former ASCOTT participants and TTC trainees.

A.5. Accreditation of TTC Training Courses

Presently, the TTC is offering regular training courses in Traffic Engineering and Management and Transportation Planning. Originally of 15-week duration, these courses are now being conducted for an 18-week duration, equivalent to a one-semester period. Subjects in these courses are graded following the University grading system, and different types of certificates are awarded to trainees with different levels of achievement.

The NCTS shall coordinate with the COE and SURP the possible accreditation of some, if not all, of the subjects being offered in the regular training program, for trainees who wish to pursue graduate studies in transportation in both degree-granting units.

A.6. Diploma Program in Transportation

The NCTS shall coordinate with the COE and SURP the possible offering of diploma programs in transportation for those who wish to obtain formal degree without going into a master's

program. It shall also work out with these institutions the possible elevation of the TTC regular training program into a diploma program.

However this plan will be considered later, after the institution of master's programs.



B. TRAINING PROGRAMS

B.1. Regular Training Program in Transportation Planning (TP);  
and Traffic Engineering and Management (TEM).

Each of the two courses has a duration of 18 weeks - 6 weeks for core course to be taken by all participants which introduce fundamental concepts and techniques, and 10 weeks of specialized course in two options: Transportation Planning; and Traffic Engineering and Management. The courses shall be completed with class project which shall involve application of the concepts and techniques acquired in the core and specialized courses.

A third course in the Regular Training Program is the Traffic Management for Law Enforcers (TLE), attended mostly by police and other enforcement officers, is also offered. However, only a few may proceed to master's program from this group.

Target Group: Government personnel involved in transportation projects, training program is designed for at least 40 people - 10 for TP and 10 for TEM, and 20 for TLE.

Qualifications:

\* Traffic Engineering and Management - BS degree in Civil Engineering, or BS degree in other fields of Engineering + at least 1 year relevant work experience or equivalent; or other BS degree or AB degree + at least 2 years relevant work experience or equivalent; with sound background in Mathematics.

- \* Transportation Planning - BS degree in Civil Engineering, Industrial Engineering, Statistics, Economics, Geography, Mathematics, Architecture, or other BS degree + at least 1 year relevant work experience or equivalent; or other AB degree + at least 2 years relevant work experience or equivalent.
- \* Traffic Management for Law Enforcers - College graduate, two years work experience in traffic management, at least a rank of lieutenant.

B.2. Seminar-Workshop on Public Transport Planning

This is a one (1) month course on the preparation of public transport forecast, routing and rerouting plans.

Target Group : Personnel of DTC, LTC, DLGCD, Municipal and Provincial Governments, and other agencies involved in the design of transport routes; 20 participants shall be accepted in this course.

Qualification: College degree, must be working with the aforementioned agencies.

B.3. Traffic Management Course for Traffic Law Enforcers

This is an 18 week course specifically designed for personnel of Philippine Constabulary-Integrated National Police, Metropolitan Police Force, Constabulary Highway Patrol Group and other law enforcement agencies. This course is designed for 15-20 participants.

Target Group : Senior and Mid-level Officers of Traffic Law

Enforcement Agencies

Qualification: College degree; for MPF and other INP units, must have rank of, or between Police Lieutenants and Police Major; for CHPG and other PC units, must have a rank of, or between 2nd Lieutenants and Major; for other traffic law enforcement agencies, must be occupying supervisory/mid-level management position.

B.4. Traffic Law Enforcement Course for Supervisors

This is a 1 month course for police supervisors regarding traffic law enforcement principles and techniques. Twenty (20) participants shall be accepted in this course.

Target Group: Junior officers of PC-INP and other military units; and personnel with supervisory positions from other traffic law enforcement agencies.

Qualification: Present work assignment should be with units involved in traffic law enforcement or are geared for traffic law enforcement assignments; at least with units equivalent to two years in college and with at least two years work experience.

B.5. Short Course in Traffic Engineering

This is a one week to one month course on specialized subjects in Traffic Engineering such as highway capacity,

geometric design of roads and intersection, traffic signals, etc. This is intended for government personnel who can not attend the regular training program on Traffic Engineering and Management.

Qualification: Civil Engineering graduates

B.6. Other Special Courses on any of the following topics:

- a. Bus Operation, Planning and Management
- b. Transport Project Evaluation
- c. Pavement Design
- d. Forecasting Techniques
- e. Environmental Assessment
- f. Transportation Economics and Finance
- g. Transportation Feasibility Study

B.7. Third Country Training Program

This training program in Transportation Planning, and Traffic Engineering and Management is open to participants from ASEAN-Pacific Region. Twenty participants will be invited to this course.

Target Group : Transportation technologists of developing countries

Qualification: Technical personnel working with agencies involved in traffic planning, engineering and management.

C. RESEARCH PROGRAM AND PROJECTS

The NCTS shall continually conduct research and development, and extension activities. These activities shall be conducted in

cooperation with faculty members of the University. Some of the researches to be undertaken, are as follows:

C.1. Research in Transportation Planning

1. Development of a Data Base on Transportation and Socio-economic Activities
2. Research on Transportation and Socio-economic Activities
  - 2.1 Passenger and Freight Movement and Regional Socio-economic Activities
  - 2.2 Mutual Relationship Between Urbanization, Motorization and Economic Development
  - 2.3 Impact Study of Highways on Regional Development
  - 2.4 Transportation Cost in the National Economy
3. Research on Transportation Systems
  - 3.1 Nationwide Transportation Network Provision
  - 3.2 Urban Transportation Network Provision
  - 3.3 Adaptability of Public Utility Vehicles

- 3.4 Analysis of Modal Split Characteristics
- 4. Environmental Research on Transportation
  - 4.1 Environmental Impact Study of Highways
- 5. Research on Systems for Implementation
  - 5.1 Study on Systems to Promote Implementation of Transport Projects
    - \* Land Readjustment System
    - \* Redevelopment System in Built-up Areas
    - \* Tax System for Urban Development and Support of Transportation Systems
  - 5.2 Feasibility Studies on Transportation Projects
    - \* Collaborative Research Actual Projects with concerned agencies
- 6. Development of Technology on Transportation Systems
  - 6.1 Development of Comprehensive Transport Planning Standards
  - 6.2 Development of an Advanced Travel Demand Forecasting Model
  - 6.3 Study on Transportation Fare System
  - 6.4 Study on Less-Energy Consumption Techniques
  - 6.5 Development of A Feasibility Study Manual on Transport Facility (Collaborative work with Engineering)

C.2. Research in Traffic Engineering

1. Philippine Highway Capacity Manual
  - 1.1 Volume Characteristics
  - 1.2 Speed Characteristics
  - 1.3 Spacing and Headway Characteristics
  - 1.4 Relationship of Traffic Speed, Flow and Density
  - 1.5 Weaving Characteristics
  - 1.6 Capacity and Level of Service
  - 1.7 Characteristics of Traffic Flow of Intersection and Rotary
  - 1.8 Jeepney Characteristics
2. Design Standard of Road
  - 2.1 Traffic Volume Design
  - 2.2 Geometric Design
  - 2.3 Intersection Design
  - 2.4 Road Facilities
3. Driver Behavior
4. Traffic Accidents and Road Facilities
5. Road Environment
  - 5.1 Air Pollution
  - 5.2 Noise
  - 5.3 Vibration

C.3. Research in Traffic Management

1. Accident Analysis
  - 1.1 Causes of traffic accidents
  - 1.2 Types of traffic accidents  
(vehicle-vehicle, vehicle-pedestrian, vehicle only)
  - 1.3 Features of traffic accidents

- a. driver - sex, age, experience, etc.
  - b. victim - sex, age, etc.
  - c. vehicle - type, defect
  - d. road - width, pavement, shape  
(straight, curve, intersection, etc.)
- 2. Conflict Analysis
  - 3. Standards
    - 3.1 Vehicle standards
    - 3.2 Traffic control standards
      - a. hardware- design of signal, sign, safety facilities, etc.
      - b. software- implementation of signal, sign, safety facilities, etc.
    - 3.3 Safety devices standards
      - seat belt, helmet, etc.
  - 4. Education
    - 4.1 Methods of driver education
    - 4.2 Supervisory Method of Educating Professional drivers for safety
    - 4.3 Comparative Study of Traffic Laws of various countries.

VI. PROPOSED ASSISTANCE FROM JICA

For the establishment of the National Center for Transportation Studies (NCTS), packaged-type assistance is requested, which will include the following:

- \* equipment donation for academic, training and research programs
- \* personnel upgrading assistance
  - scholarships for Ph. D. and Master's degrees



- technical training and observation trips abroad
- \* Scholarships for students
- \* exchange program of researchers
- \* detail of JICA transportation researchers and professors to NCTS
- \* library materials and equipment donation
- \* research funds
- \* new computers and support equipment, and softwares
- \* construction of third floor of existing TTC building
- \* construction of 30 to 50 bed dormitory

A. EQUIPMENT

A.1. Academic and Training Programs

- \* Equipment for Slide Type Presentation/Production (for big and small Audio-Visual Rooms)
  - \* slide projector (8)
    - front projection projector/screen with zoom lens (6)
    - rear projection system (projector and screen) (2)
    - monitor-type slide projector
  - \* sound-slide synchronizer (8)
  - \* fade away units (2)
  - \* audio-taping equipment
    - quality type recorder (8)
    - mixer (8)
    - synthesizer (for background music) (2)
  - \* photographic equipment
    - camera (NIKON) (2)
    - macro lens
    - slide copying units (2)

- \* slide viewer/organizer (8)
- \* Two (2) portable video cameras and recorders
- \* Two (2) sets of big screen monitor such as 27" Profeel Sony Monitor or Sony Jumbotron, multimode (NTSC, PAL, SECAM, etc.) Betamax recorder/player, and VHS machines. (These shall be used at the big and small Audio-Visual Rooms)
- \* 6 sets of 20" Sony TV Monitor + Betamax machine + VHS machines (for lecture rooms)
- \* 2 sets sound system equipment (for small and big AVR's)
- \* 4 8mm/16mm projectors
- \* 25 microphones
- \* 5 wireless microphones
- \* 8 overhead slide projectors
- \* 8 opaque projectors
- \* intercommunication/paging system
- \* 2 heavy duty copiers (with enlargement and reduction capability)
- \* 2 trace tables
- \* 5 drawing boards
- \* 25 sets drawing and lettering equipment
- \* 25 sets planimeter/pantograph
- \* 50 sets scientific calculators
- \* 20 programmable calculators
- \* 30 16-bit microcomputer system to be linked to the mainframe (please see description on a separate text on the Annex).
- \* 1 main frame computer system host to 16-bit personal

- computer (including disc drives, tape readers, etc.)
- \* printers (letter quality)
- \* laser printers
- \* color printers
- \* color plotters
- \* automatic voltage regulator
- \* 2 graphic terminals
- \* uninterruptible power supply generator
- \* 4 steel cabinets for computer manuals and disc
- \* softwares
- \* disc drives
- \* one 50-seater bus
- \* two 12-20 seater vans
- \* two (2) test cars
- \* two (2) 4WD field vehicles
- \* 4 electronic typewriters
- \* 2 drawing tables
- \* binding tools and equipment
- \* 2 refrigerators

A.2. RESEARCH

- \* 2 laboratory 16-bit microcomputer equipment - link to mainframe (storage devices, 2 disk drives, hard disk (30 MB), printer, plotter
- \* 4 test cars
- \* 2 4WD survey vehicles
- \* on board data acquisition system
  - data logging system capable of measuring and storing

- traffic parameters simultaneously, such as time,  
distance, etc. (preferably 10 channels)
- \* portable gas/diesel exhaust/emission, measuring equipment
  - \* laboratory equipment for pavement material performance
  - \* 2 video/recorders
  - \* 2 video cameras
  - \* 2 Profeel monitors
  - \* equipment to test driver behavior, reaction, etc.
  - \* light meters
  - \* stereo cameras
  - \* 10 on board radio transceivers
  - \* 20 hand held radio transceivers
  - \* 1 driving simulator
  - \* 5 speed guns
  - \* 5 speed radar set
  - \* 50 tally counters
  - \* alcohol detector - meter
  - \* fume-detector-meter
  - \* 20 stop watches
  - \* 2 noise meter-vibration meter, complete with data logging  
system that can be interfaced with micro-computer for  
processing
  - \* 10 portable noise meters
  - \* 20 event oscillographs
  - \* thru-band analyzer
  - \* 1 Nikon camera and accessories
  - \* photo developing and printing equipment and supplies
  - \* 2 video machines with editor

- \* 10 portable generators
- \* drawing table
- \* drawing equipment
- \* battery chargers
- \* AC-DC converters
- \* 2 Refrigerators
- \* transformers
- \* 2 cassette tape recorders/players
- \* 15 portable cassette-tape recorders

A.3. LIBRARY

- \* 1 word processor/table top publisher
- \* laser printer
- \* 1 on-line microcomputer
- \* 2 microfische reader-printer
- \* 3M readers and accessories
- \* catalog card duplicator
- \* map cabinets
- \* books
- \* journals (TRRL, OECD, TRB, ARRB, etc.)
- \* NTIS microfische, dissertation, films
- \* slide monitor/reviewer
- \* cassette players

A.4. ADMINISTRATIVE AND SUPPORT SERVICES

- \* 2 service cars
- \* 2 motorcycles
- \* 2 multi-purpose service/hauling vehicles
- \* 2 word processors

- \* 1 mini copier
- \* 5 electronic typewriters
- \* transparency reproducing machines
- \* printing equipment
- \* binding equipment
- \* 2 cassette disks
- \* small machine shop
- \* small wood shop
- \* small metal working shop
- \* refrigerator

B. STAFF DEVELOPMENT

The TTC Technical Staff comprises of 25 persons, 7 of whom have master's degrees from international universities.

To be assured of continuous effectiveness of transportation education, the program for overseas education as a tool for staff development should continue and be enhanced. Personnel upgrading maybe done thru the JICA Assistance being requested.

This staff development program however, will not be limited to NCTS staff but shall also be open to other UP faculty members who will be involved in NCTS' programs and activities.

1. Scholarship for PHD Programs

Scholarships for technical staff, particularly those with master's degrees, are requested in order for them to pursue doctoral degrees from reputable universities abroad where transport education is well established. Notable transport schools are found in the following countries: Japan, USA, UK, Australia and other Western European

countries.

2. Scholarship for Master's Program

These scholarships will be for NCTS technical staff, and other UP faculty involved in NCTS programs and activities, who have potential to proceed to formal advanced programs. They shall be tapped as NCTS lecturers upon return to the country.

3. Technical Training and Observation Tour

This is designed to continually upgrade the NCTS staff's technical capability, and knowledge of latest development on transportation technology. Other UP faculty involved in the NCTS program and outstanding graduates of NCTS who have potential to teach shall be included in this program.

The duration of this program is for 1-3 months.

C. DETAIL OF TRANSPORTATION PROFESSORS/RESEARCH PROFESSORS AND EXPERTS TO NCTS

To effectively transfer transportation technology knowhow to NCTS staff, transportation professors/research professors shall be detailed to the NCTS. The requirement of NCTS on any given time for the six year assistance are as follows:

<u>Personnel</u>	<u>Desirable Minimum Tenure Per Person</u>
1 Chief Adviser	two (2) years
2 Coordinators (academic; training/ research)	two (2) years
2 Transportation/Research Professor (Transportation Planning)	one to two (1-2) years
2 Transportation/Research Professor	one to two (1-2) years

(Traffic Engineering and Management)

- |   |                          |
|---|--------------------------|
| 1 Computer Expert   | one to two(1-2) years    |
| 6 Transport Training Experts on the following fields:                           | two to three (2-3) years |
| 6 - Pavement and Drainage Design  |                          |
| 4 - Design of interchange   |                          |
| 5 - Traffic Law Enforcement<br>(Including Safety and Traffic Accident Analysis) |                          |
| 1 - Public Transportation Operation   |                          |
| 2 - Land Use Planning<br>(Including Land Readjustment)                          |                          |
| 8 - Transport Economic and Finance  |                          |
| 10 Special Lecturers/Researchers  | 2 weeks - 1 month        |
| - <u>Exchange Program of Researchers</u> (2 slots per year)                     |                          |

NCTS researchers shall be sent to research institutes and other related agencies in Japan, to observe, participate or conduct transport related researches and studies. In exchange, Japanese researchers shall be dispatched to NCTS to work in NCTS sponsored researches.

Duration of detail will be from 6 months to 1 year.

D. DONATION OF LIBRARY MATERIALS

In support of NCTS activities, library materials such as books, microfische, dissertations, research reports, journals, magazines, and films on transportation are requested.

Thru JICA, it is desired that NCTS shall have regular subscription of transportation journals published by various international transportation organization such as TRRL, TRB, ITE, ADB, World Bank, etc.



E. RESEARCH FUNDS

The NCTS will be conducting major researches/studies jointly with the Japanese experts to be detailed at the NCTS. Funds to conduct two major studies amounting to P500,000 to P1,000,000 each per year are therefore requested for possible assistance from the Government of Japan.

F. CONSTRUCTION OF A DORMITORY

As experienced by the TTC, most of the participants in the training programs come from Metro Manila and nearby localities which are a commuting distance away from the training center. People from outer regions are discouraged to attend training programs in Manila because of housing problems. A significant number of those who attended the course complained that they spend considerable amount of time everyday just on commuting. By providing a dormitory, these participants can perform better in their course work. This same problems maybe encountered by the master's students.

JICA's assistance is therefore requested to provide funds for the construction of 30-50 bed dormitory, or for construction of a new wing on existing University dormitories which shall be exclusively used by NCTS graduate students, trainees and guest researchers/lecturers.

Further, programs of NCTS can attract more participants, particularly those coming from areas outside Metro Manila.

G. CONSTRUCTION OF 3RD FLOOR OF THE EXISTING TTC BUILDING

With the institution of graduate academic programs and the

enhancement of training and research activities, the existing TTC building needs to be expanded in capacity by constructing a third floor. The third floor shall house additional lecture rooms, research room and expanded library.

Funding from JICA is requested for the said construction.

## Annex 1-a

## I. Regular Training Program in Transportation Planning, Traffic Engineering and Traffic Management (18 weeks per course, held twice a year)\*

Year	Batch No.	Transportation Planning	Traffic Engineering	Traffic Management	TOTAL
1978	1	15	11	18	44
	2	9	14	24	47
1979	3	9	8	19	36
	4	9	10	15	34
1980	5	7	6	17	30
	6	8	11	20	39
1981	7	9	9	19	37
	8	10	4	20	34
1982	9	12	11	21	44
	10	16	16	15	47
1983	11	14	9	19	42
	12	11	11	22	44
1984	13	14	12	18	44
1985	14	9	22	16	31
1986	15	9	7	9	25
1987	16	10	14	12	36
	17	11	11	7	29
1988	18	8	18	21	47
	19	12	11	21	44
		202	215	333	750

(\*starting 1985, Traffic Engineering and Traffic Management were merged into a single course Traffic Engineering and Management, a separate "Traffic Management Course for Traffic Law Enforcers" was opened).

## II. Short Term Seminars for Specialized Subjects

<u>Year</u>	<u>Title</u>	<u>Co-Sponsor(s)</u>	<u>Date</u>	<u>Participants</u>
1980	Seminar on Introduction to Road Traffic Safety and Control Devices	MPWH	Feb 8	
	Special Training Program in Driver Education and Examination	BLT	June 23-25	35
1981	Traffic Management Seminar for Senior Police Officers	MPF/ CHPG	May- June	
1982	Seminar on Pavement and Drainage	MPWH/ TEAM	March 25	21
	Maritime Transport Seminar	UPERDFI	March - April 17	41
	Motor Vehicle Inspection Trainer Course	BLT	March 25-26	45
	Public Transport Network Planning Course	MOTC/BOT/ UP	July 1-30	22
	Seminar on Traffic Safety Education	TTC	Oct. 5	54
1983	Public Transport Network Planning Course	MOTC/BOT/ BLT/MLG	Sept. 1-30	25
	Traffic Supervision Seminar	METROCOM	Apr. 11-15	70
	Seminar on Traffic Law Enforcement	CHPG	Apr. 18-29	37
1984	Public Transport Network Planning Course	BOT/MLG	Sept. 3-28	18
	Seminar on Traffic Law Enforcement	PC/ MECTROCOM	Aug. 13-25	74
	Seminar on Traffic Law Enforcement	PC/ METROCOM	Nov. 12-23	47

<u>Year</u>	<u>Title</u>	<u>Co-Sponsor(s)</u>	<u>Date</u>	<u>Participants</u>
1985	Seminar Workshop on Public Transport Planning	LTC, MLG	Nov. 4-29	17
	Basic Course for Traffic Law Enforcers	INP/MPF	Oct. 21- Nov. 15	45
	Basic Course for Traffic Law Enforcers	INP/MPF	Aug. 20- Sept. 6	53
	Traffic Management Course for Traffic Law Enforcement Officers	INP/MPF	Sept. 16- Dec. 13	16

## III. Short Term Computer Courses

1983

<u>Program Title</u>	<u>Number of Participants</u>	<u>Covered</u>
1. FORTRAN PROGRAMMING (optional course for participants in Regular Training Program)	20	

1984

1. BASIC PROGRAMMING (optional course for participants in 12th Regular Training Program)	23(12/13)	(May 2 - May 15) (Aug 13- Oct 9)
2. EDP Fundamentals and General Purpose Software for the Microcomputer (for personnel of the University of the Philippines)	37	(Aug 2 - Sept 4)
3. General Purpose Software for the Microcomputer (for MOTC Bureaus and attached Agencies)	28	(Sept 3 - Sept 20)
4. General Purpose Software for the Microcomputer (for MOTC proper)	19	(Nov 5 - Dec 7)
5. EDP Fundamentals, FORTRAN Programming (for Research Institute for Tropical Medicine)	23	(May 3 - May 22)
6. JUMSUT 2 Seminar Series on Microcomputer	30	(various dates Oct - Dec)
* EDP Fundamentals		
* Use of the SUPERCALC Spreadsheet Software		
* BASIC programming		

1985

1.	EDP Fundamentals and General Purpose Software for the Micro (for UP-HRDO)	15	-
2.	General Purpose Software for Microcomputers (for FNR)	20	-
3.	General Purpose Software for Microcomputers (for MOTC)	17	-
4.	General Purpose Software for Microcomputers (for MPWH)	10	-

1986

1.	BASIC PROGRAMMING (Optional course for participants in the Regular Training Program)	11	(Aug-Nov)
2.	dBASE II (for personnel of the University of the Phil)	6	(May-Jun)
3.	dBASE II & SuperCalc (optional course for participants in the Regular Training Program)	8	(Aug-Sep)
4.	WordStar (for personnel of the University of the Phil)	7	(Jan 20-30)

TRD RESEARCHES AND PROJECTS

1. Funded Researches and Projects
  - 1.1 Transportation Data Bank System
  - 1.2 A Study to Determine the Value of Travel Time for Filipino Commuters
  - 1.3 Philippine Highway Capacity Manual
  - 1.4 A Study to Quantify the Cost of Accident
  - 1.5 Development of a Research Strategy for Philippine Transportation
  - 1.6 Development of a Planning/Monitoring Model for Public Transportation
  - 1.7 TTC Training Manuals
  - 1.8 Expressway Traffic Accident Study
  - 1.9 LRT Fare Structure Study
  - 1.10 Value of Travel Time of Filipino Commuters
  - 1.11 Driver Behavior at intersection
  - 1.12 Expressway Feasibility and Traffic Studies
  - 1.13 National Transport Planning Project IV (Region I & III)
  - 1.14 Metro Manila Elasticity Study
2. Non-Funded Researches and Projects
  - 2.1 Development of a Practical Tool for Determining Optimum Signal Timing for an Isolated Intersection
  - 2.2 Metro-Manila Transit Analysis Project
  - 2.3 Training Evaluation and Development
  - 2.4 TRD Manuals
  - 2.5 Minor Staff Researches
    - 2.5.1. Instructional tool for computer-aided scheduling vehicles and crews
    - 2.5.2. Computer program for spot speed survey analysis
    - 2.5.3. Computer program for economic evaluation and sensitivity analysis
    - 2.5.4. Computer program for rigid pavement design
    - 2.5.5. Analysis of pre-training and post-training GPDM
    - 2.5.6. Analysis of survey day on traffic accidents
    - 2.5.7. Compilation of case studies on the economic evaluation of land transport projects
    - 2.5.8. Cost-efficient reproduction schemes
    - 2.5.9. Intersection analysis program
    - 2.5.10. Determining the relationship of licensed motor vehicles to personal savings and government expenditure on highways
    - 2.5.11. Analysis of bus fare structure
    - 2.5.12. Instructional routing program for TTC trainees
    - 2.5.13. Analysis of UP Traffic Signals
    - 2.5.14. Analysis of Quezon Avenue Data Using TPSS Program (Transportation Planning System Program)



OUT-OF-TOWN SEMINARS

	<u>Cities</u>	<u>Date</u>	<u>No. of Participants</u>
1.	Cagayan de Oro City	December 1979	50
2.	Davao City	December 1979	50
3.	Iloilo City	December 1979	50
4.	Bacolod City	December 1979	40
5.	Legaspi City	December 1980	76
6.	Zamboanga City	December 1980	58
7.	Baguio City	August 1981	38
8.	Cebu City	July 1981	42
9.	Tacloban City	August 1981	58
10.	San Fernando, Pampanga	July 1982	58
11.	Lucena City	June 1982	75
12.	Lucena City	June 1983	36
13.	Tuguegarao	July 1983	85
			<u>716</u>

## THIRD COUNTRY TRAINING PROGRAM

		BANGLADESH	BRUNEI	INDONESIA	MALAYSIA	PAPUA NEW GUINEA	SINGAPORE	SRI LANKA	THAILAND	PHILIPPINES	FIJI	WESTERN SAMOA	TOTAL
	<u>Title</u>												
	<u>Date</u>												
1.	Seminar on Road Transport in Asian Countries (SORTAC)	March 7 - 20, 1982	-	-	3	2	-	1	3	3	11	-	23
2.	A Senior Course on Trans- port Technology I (ASCOTT)	Nov. 8 - Dec. 17, 1982	-	-	2	-	-	5	2	1	10	-	20
3.	ASCOTT II	Nov. 5 - Dec. 16, 1983	-	-	1	-	-	2	2	2	10	-	17
4.	ASCOTT III	Nov. 5 - Dec. 14, 1984	-	1	3	1	-	4	5	4	3	-	21
5.	ASCOTT IV	Nov. 11 - Dec. 20, 1985	1	-	3	2	2	3	3	4	3	-	21
6.	ASCOTT V	Nov. 9 - Dec. 19, 1986	1	-	5	3	-	5	3	4	3	1	26
7.	ASCOTT VI	Nov. 9 - Dec. 18, 1987	0	0	4	3	1	2	4	3	5	0	22
8.	ASCOTT VII	Nov. 7 -	2	0	3	3	1	2	1	4	3	0	19
	TOTAL		4	1	24	14	4	24	23	25	48	1	169

Total Foreign Participants (to date) = 121

COMPUTER SYSTEMS

## List of Requested Equipment and Supplies

1. Mainframe Computer (1 Unit)  
Medium-Scale general purpose computer, host system to a network of personal computers. Specifications shown in Table 1.
2. Micro-Computer System (30 Units)  
16-bit personal desk-top computer linked to a mainframe host. Specifications shown in Table 2.
3. Automatic Voltage Regulator
4. Uninterruptible Power Supply
5. Steel Cabinets for Computer Manuals (4 Units)
6. Software in Transportation
7. Diskettes
8. Polaroid Palette Computer Image Recorder
9. Data/Map Reader/Digitizer

SPECIFICATIONS FOR THE MAINFRAME

MAIN STORAGE	16 MB
OPERATING SYSTEM	Must have networking capability (host to 30 microcomputer / or 30 intelligent work stations)

## PERIPHERALS

Two Line Printers	About 1000 lpm print speed, 62-character set
One Graphic Printer	
One Laser Printer	
Two Graphic Terminals	
Four Magnetic Tape Drives	6250 bpi, 2400 feet
Four Magnetic Disk Drives	1 GB
One Plotter - Transparencies	Complete set with accessories
One Digitizer	Complete set with accessories

## SOFTWARE

Programming Languages  
 Simulation  
 Mathematical Programming  
 Project Management  
 Statistics/Forecasting  
 Data Management  
 Management Planning  
 General Purpose Softwares

## DOCUMENTATION

Must be in English; should include Operations Guide and Hardware Reference Manual, with hardware diagram

SPECIFICATIONS FOR PERSONAL COMPUTERS

## BASIC SET (30 Units)

Processor	16 bit
Memory	1 MB RAM
Monitor	14" color; 80 characters by 25 lines 640 x 200 color graphics
Keyboard	Detachable IBM-PC type, ergonomically designed, 101 keys tactile
Operating System	MS-DOS and CP/M 86; Must have the capability to communicate with a network of IBM PC's

## PERIPHERALS

Disk Drives for 25 Microcomputer Units	Two 5.25 inch Floppy Disk Drives per unit, double sided, double density
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for 5 Microcomputers	Hard disk drives, 30 MB
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Printer (25 Units)	Dot-Matrix printer; 80 cps (letter quality), 1660 cps (corresponding quality), 240 cps (draft quality) printing at 10 char./in. 136 columns
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(5 Units)	Color printer / plotter
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## SOFTWARE

Language, Application  
Programs on Data Base  
Management. Statistical  
Analysis, etc., General  
Purpose

## DOCUMENTATION

Must be in English,  
should include Operations  
Guide and Hardware  
Reference Manual, with  
hardware diagram

#### 4. 予備調査 議事概要 (英文)

MINUTES OF THE DISCUSSION BETWEEN THE NCTS CONTACT MISSION AND THE REPRESENTATIVES FROM COLLEGE OF ENGINEERING AND THE TRANSPORT TRAINING CENTER OF THE UNIVERSITY OF THE PHILIPPINES

DATE : MARCH 15, 1989

TIME : 10:00 AM-12 Noon

PLACE : Conference Room

Director's Office, Transport Training Center

Persons Present:

NCTS Contact Mission:

Dr. Eng. Takeshi Kurokawa (Team Leader)	Professor Tsukuba University
Mr. Kojiro Hayashi (Member)	Adviser to the Director Urban Research Division City Bureau, Ministry of Construction
Mr. Hidetoshi Tanaka (Member)	Deputy Director International Affairs Division, Economic Affairs Bureau, Ministry of Construction
Mr. Fukuo Sasaki (Member)	Deputy Head Overseas Centers Division, Social Development Department, Japan International Cooperation Agency (JICA)

UP College of Engineering:

Dr. Ruben A. Garcia	Dean
Prof. Alfredo B. Juinio	Chairman Civil Engineering Dep't.

UP Transport Training Center:

Dr. Leopoldo V. Abis	Officer-in-Charge
Mr. Esteban Q. Cases, Jr.	Deputy Director

Others:

Dr. Yogi Kawakami	JICA Consultant for TTC
Mr. Katsuro Saito	Assistant Resident Representative, JICA (Phil. Office)

## MATTERS DISCUSSED

1. This Contact Mission is for the possible technical Assistance (Package Type) for the Establishment of the National Center for Transportation Studies (NCTS). As package type, according to Dr. Kawakami, it would be difficult to expect infrastructure items listed in the original proposal, as follows:
  - a) construction of the third floor of the TTC building
  - b) construction of dormitory
  - c) construction of an integrated road test/pavement test laboratory and children's safety park

However, JICA would find ways for their implementation once the Package Type Assistance is implemented.

It was also mentioned that the construction of an integrated road test/pavement test laboratory can be treated as a separate project.

2. With regards to the Mission's concern regarding TTC's integration in the UP System as a regular unit, Dr. Leopoldo V. Abis informed the Mission that efforts are being exerted to regularize TTC. This involves the transfer of TTC's budget from DOTC's appropriation to the regular appropriation for UP. The Mission was informed that UP's only reservation is that inclusion of TTC in its budget proposal would make UP's budget appear very large compared to other state universities and colleges that getting approval for the said budget proposal maybe difficult.
3. Dr. Kurokawa mentioned that their primary concern is the assurance of the availability of the budget for NCTS.  
Dr. Leopoldo V. Abis informed the Mission that DOTC Secretary Rainerio Reyes has assured that DOTC shall continually provide the necessary budget for the operation of TTC/NCTS.
4. According to Dr. Leopoldo V. Abis, there are four (4) possible options in the organizational structure of the NCTS, as follows:
  - a) as an independent regular unit of the University
  - b) as a regular unit under the umbrella of the National Center for Transportation Studies (NCTS)
  - c) as a regular unit under the College of Engineering
  - d) as a regular unit of the Department of Transportation and Communications

According to Dean Garcia, there is a proposal to make the National Engineering Center, and therefore all units under it including TTC, a unit under the College of Engineering.

However, since the NEC was created by a Presidential decree, new

legislation or equivalent, is needed to repeal the said decree and thus effect this desired change. Similarly, according to Dean Garcia, in order to dissolve TTC and establish NCTS in its place, legislation or Executive order repealing or amending LOI 1080 is required.

Dr. L.V. Abis mentioned, however, that even with the present LOI, NCTS can be established since proposed functions of NCTS are in accordance with the mandate of TTC, that is the "development of transportation and traffic academic and research expertise and to train Filipino transportation and traffic professionals and experts"

Dr. L.V. Abis suggested that NCTS can be established internally within UP by merely changing its name from TTC to NCTS, and expand its function to include other activities which are compatible with the stated mandate in LOI 1080.

Dean Garcia mentioned that the UP is authorized to create unit within its system, and hence the NCTS can be established through the action of the UP Board of Regents.

Mr. Sasaki said that any of the options listed above are acceptable to the Japanese side. Their concerns are ① how to guarantee budget for NCTS, and ② whether NCTS is acceptable to other UP units such as College of Engineering, or NEC, or SHARP etc. As mentioned previously, Dr. L.V. Abis relayed to the Mission the assurance of budgetary support from Sec. Reyes and also mentioned DOTC's preparatory work with the Department of Budget Management in separating TTC's budget from the budget of the Office of the Secretary. Cooperation with other UP units will not be difficult once NCTS is implemented since the College of Engineering and SURP are well aware of the NCTS proposal as early as 1982. What is to be solved internally within UP is the organizational linkage of NCTS in the UP Structure. Presently, the TTC is under the umbrella of the National Engineering Center primarily because TTC's primary functions are the conduct of training and research. With the academic function of the NCTS, to be under NEC may not be appropriate anymore.

5. Dr. L.V. Abis clarified that with the proposed NCTS as a regular UP unit, NCTS/TTC shall cease to operate as an attached agency of the DOTC. However, the TTC Advisory Committee shall be retained. Its primary function is to "advise" TTC on their respective agency's thrust, training and research needs and to serve as the formal linkage between NCTS and the various transportation agencies. The Advisory Committee will not be responsible anymore in the formulation of policies in running the NCTS.



6. Dr. L.V. Abis also mentioned that in preparation for the NCTS, the TTC has requested the DBM through the DOTC for additional personnel and additional budget for 1990.
7. Dean Garcia clarified the following :
  - a) All college degree courses in engineering must be offered through the College of Engineering.
  - b) Degrees in engineering are granted by the University.  
The signatories in the certificate are the President of the University, University Secretary, and the Dean of the College of Engineering.
  - c) College of Engineering also offers Diploma Program.  
While Master's degree requires 36 academic units to complete, the Diploma program only requires 18 units. The screening process for both programs are the same.
  - d) For the master's program at the College of Engineering, the basis are the following:
    - performance in the undergraduate course (grades)
    - letter of recommendation from former teachers
    - maturity, good moral character, etc.The primary basis, however, is the applicant's performance in the undergraduate level.
  - e) At the moment, there is no accreditation of the courses taken in TTC's regular programs because the College of Engineering has no control on how the courses are conducted, and how grades are given to students. If the college is to accredit TTC courses, another way is to have validation exam.
  - f) In order to attract capable professors and students in the master's program of NCTS, professorial chair and scholarships for students must be provided.
8. Dr. Kurokawa mentioned that scholarships from JICA for master's students is not possible. However, the Japanese side would try to look for other sources, such as private companies, especially those involved in car manufacturing in the Philippines. He expressed the desire of private companies to have the scholarship foundation named after them.

9. Dr. L.V. Abis informed the Mission that there is already an existing foundation, the UP Engineering Research Development Foundation, Inc. which manages the scholarships and professorial chair donations at the College of Engineering. Instead of creating separate foundations, it was suggested that donations be coursed through the UPERDFI which in turn shall manage the funds and name the professorial chair/scholarships after the donors.
  
10. The required amount to be deposited in trust in order to have earning to sponsor scholars/professorial chair are as follows:
 

<u>Scholarships:</u>	P500,000/Scholar	PSM for 10 scholars
<u>Professorial chair:</u>	(Part time)	P300,000/Chair
	(Full time)	P1,000,000/Professor
  
11. According to Dean Garcia, it is not possible to rely on UP budget for the scholarship funds.
  
12. Dr. L.V. Abis informed the group that initially, NCTS academic programs shall concentrate on the master's course; diploma course may be considered later.

## INTER-AGENCY MEETING ON THE NCTS

Date: February 15, 1989

Time: 12 Noon - 3 PM

Place: Seminar Room A

Transport Training Center

### Persons Present

- NCTS Mission: Dr. T. Kurokawa  
Mr. K. Hayashi  
Mr. H. Tanaka  
Mr. F. Sasaki
- UP College of Engineering: Dean Ruben A. Garcia
- School of Urban and Regional Planning: Acting Dean Tito Firmalino
- National Economic and Development Authority: Mr. Cezar T. Valbuene
- Department of Transportation and Communications: Mr. George Esquerra
- Transport Training Center: Dr. Leopolds V. Abis  
Mr. Esteban Q. Cases, Jr.
- Embassy of Japan: Mr. Koji Kaminage
- Others: Dr. Yoji Kawakami  
Mr. Takeuchi  
Mr. K. Saito

### Matters Discussed

1. Dr. Kurokawa informed the group that he had talked with NEDA and was informed that TTC/NCTS was included in the list for technical assistance.
2. Mr. Sasaki is concerned about the availability of budget for the maintenance of the computers being requested from JICA. In Japan, he said that maintenance is about 6% -7% of the cost of equipment. Dr. L. V. Abis said that NCTS would not request items it can not maintain. In the Philippines, maintenance cost is about 10% - 15% of the cost of equipment. If TTC/NCTS will have difficulty maintaining the requested computers, according to Dr. L.V. Abis, we may settle for smaller or less sophisticated system. However, at this stage, the NCTS/TTC would prepare for a sophisticated/advanced computers. Budget request will be based on this target. Mr. Sasaki suggested to offer the computers to other users, say with other UP units and just share the maintenance cost.

3. Mr. C. Valbuene said that in case NCTS will be approved in Japan, implementation will not be difficult since it is already included in the 5-year Medium Term Technical Assistance Program.
4. With regards to the possible structural change and budgetary source of the NCTS, the following were the views presented:

Dr. L.V. Abis:

There are many options to establish NCTS. The easiest is by its establishment by internal mechanism of UP where the Board of Regents rename TTC as NCTS with proposed additional functions to be included. The other way is by legislation or by equivalent executive order amending or repealing LOI 1080.

Transfer of funds from DOTC to UP may not be a problem. Preparatory work at DOTC is already undergoing for this scheme.

The only possible problem is whether UP would like to include NCTS budget in its appropriation. The UP authorities are concerned that such inclusion would make UP's budget looks very large compared to other state universities and college which are also requesting for bigger budget.

In 1990, and possibly later part of 1989, TTC's budget would be separated from the budget of the office of the Secretary of DOTC. This is part of the preparation of the eventual transfer of TTC/NCTS to UP.

Mr. G.D. Esquerro

By virtue of Executive Order No.125-A reorganizing the DOTC, the TTC is mentioned as an attached agency. Its budget request through the DOTC is justified by this said executive order. For separate appropriation, legislation is therefore required.

C. Valbuena

It is better to retain TTC/NCTS status of being an attached agency of DOTC, so as to allow DOTC to justify its budget request for TTC/NCTS from the DBM. At least with this set-up, TTC's appropriation is already sure.

5. Dean Firmalino informed the group that there is already a proposal at the SURP to offer a Masters of Arts on Transportation Planning. Draft course curriculum was already prepared. With regards to the proposed NCTS, the SURP fully supports the project and hope for fruitful partnership and cooperation among COE, SURP and the NCTS.

6. Dean Garcia also welcome NCTS for its graduate programs. Right now, there are already some courses on transportation at the college. Master's program on Civil Engineering (Transportation option) is already existing, but the courses need to be upgraded. More courses need to be instituted.

5. 第1回事前調査 ミニッツ (英文)

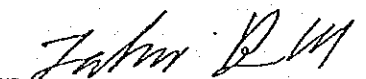
THE MINUTES OF DISCUSSION ON THE PROJECT  
FOR THE NATIONAL CENTER FOR  
TRANSPORTATION STUDIES (NCTS)  
IN THE REPUBLIC OF THE PHILIPPINES

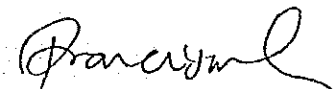
The Japanese Preliminary Study Team (hereinafter referred to as "the Team") organized by the Japan International Cooperation Agency (JICA), headed by Dr. Takeshi Kurokawa (Professor, University of Tsukuba) visited the Republic of the Philippines from March 12 to 18, 1990 for the purpose of studying the feasibility of the Japanese technical cooperation on the Project for the National Center for Transportation Studies (hereinafter referred to as "the Project").

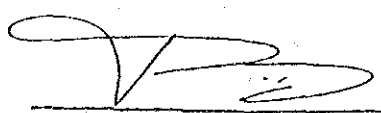
During its stay the team had a series of discussion with the authorities concerned of the Republic of the Philippines.

As a result of the discussions, both sides have agreed to recommend to their respective Government to take further steps for early implementation of technical cooperation for the Project based on a tentative framework as attached herewith.

Manila, March 16, 1990

  
DR. TAKESHI KUROKAWA  
Leader of the Japanese  
Preliminary Study Team  
J. I. C. A.

  
DR. FRANCISCO L. VIRAY  
Executive Director  
National Engineering Center  
Officer-in-Charge  
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University of the Philippines

  
Dir. Tranquilino S. Atienza  
Director, Traffic Engineering Center  
Department of Public Works and Highways  
As Secretary of TTC Advisory Committee.

ATTACHED DOCUMENT

I. OBJECTIVE OF THE PROJECT:

The Objective of the Project is to upgrade the present Transport Training Center (TTC) into the National Center for Transportation Studies (NCTS) in the University of the Philippines (U.P.) as its regular unit, which aims to provide continuing education and training to transport professionals and to cooperate with academic units of U.P. in the offering of graduate courses in transportation engineering and transportation planning as well as to provide transport traffic information, conduct research and extend consultation services to government agencies responsible for the improvement of transportation network of the Philippines.

II. OBJECTIVE OF THE JAPANESE TECHNICAL COOPERATION:

The objective of the Japanese technical cooperation is to assist and advise the Philippines counterpart personnel in NCTS and other units concerned for the successful implementation of the Project.

III. FUNCTIONS OF THE NCTS:

The National Center for Transportation Studies (NCTS) shall take the lead in human resource development and conduct of research in the field of transportation and traffic. The NCTS shall perform the following functions:

- (1) Cooperate with academic units of U.P. in the offering of graduate programs (master's courses) in transportation engineering and transportation planning.
- (2) Conduct non-degree regular and specialized short term training courses in various fields of transportation.
- (3) Conduct researches on transportation.
- (4) Provide extension services to various government agencies and private sector.

*For: [Signature]*

*[Signature]*

- (5) Provide information services on transportation.

IV. ADMINISTRATION OF NCTS:

- (1) The Director of the National Center for Transportation Studies (NCTS) will bear overall responsibility for the implementation of the Project.
- (2) The Japanese Chief Adviser to NCTS will provide necessary recommendation and advise on technical and administrative matters concerning the implementation of the Project.
- (3) The Japanese experts will give necessary technical and academic guidance and advise to their Philippine counterparts on matters pertaining to the implementation of the Project.
- (4) For the effective and successful implementation of the Project, a joint committee will be established with the function and composition as referred to below:
  - (a) The joint committee will meet at least once a year and whenever necessity arises, and will work; (i) to formulate the Annual Work Plan of the Project in line with the tentative implementation schedule, which will be determined when the Record of Discussion is signed; (ii) to review the overall progress of the technical cooperation program as well as the Work Plan; and, (iii) to review and exchange views on major issues arising from or in connection with the technical cooperation program.
  - (b) Composition  
Chairman (Representative of U.P.) designated by the President of U.P.
    - (i) Philippine Side
      - a) Executive Director of NEC
      - b) Director of NCTS
      - c) Dean of College of Engineering (COE)
      - d) Dean of School of Urban and Regional Planning (SURP)
      - e) Other members to be designated by the chairman

*Forwards.*

*JK*



- (ii) Japanese Side
  - a) Chief Adviser
  - b) Coordinator
  - c) Expert(s) designated by the Chief Adviser
  - d) Other personnel concerned to be dispatched by JICA, if necessary

Note: Resident Representative of JICA Philippines Office and Officials of the Embassy of Japan may attend the joint committee meeting as observers.

V. PROJECT SITE

The Project site will be the present TTC at Diliman Campus of U.P.. However, the Philippine side mentioned that the extension of the TTC building is necessary to cope with the Project.

VI. OUTLINE OF THE JAPANESE TECHNICAL COOPERATION

The contents of the Japanese Technical Cooperation will be specified at the time of the signing of a Record of Discussion but its outline is as follows:

- (1) The term of the technical cooperation  
The duration of the technical cooperation will be five (5) years.
- (2) Dispatch of Japanese experts
  - (a) Chief Adviser
  - (b) Coordinator
  - (c) Long-term experts to cover following areas:
    - (i) traffic education & research
    - (ii) computer science
    - (iii) traffic training
  - (d) Several short-term experts will be dispatched in accordance with the Annual Work Plan.
- (3) The training of the Philippine personnel in Japan  
The Philippine counterpart personnel will undergo technical training in Japan.
- (4) Provision of machinery and equipment  
Machinery and equipment necessary for the implementation of the Japanese technical cooperation will be provided.

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VII. MEASURES TO BE TAKEN BY EACH GOVERNMENT

(1) Measures to be taken by the Government of the Republic of the Philippines

- (a) To take care of necessary legal arrangements and its proper enforcement for the successful implementation of the Project.
- (b) To assign Philippine counterpart with sufficient knowledge and experience. The number of counterpart personnel will be decided annually by the joint committee.
- (c) To ensure at its own expense that the services of the Philippine counterpart personnel and other necessary staff available for the implementation of the Project.
- (d) To ensure that the knowledge and experience acquired by the Philippine counterpart personnel from the technical training in Japan be effectively utilized for the Project.
- (e) To make budgetary provision to meet all expenses for the running and management of the Project.
- (f) To secure expenses necessary for transportation within the Republic of the Philippines of machinery, equipment and other materials provided under the Japanese technical cooperation program as well as the installation, operation and maintenance thereof.
- (g) To exempt from customs duties, internal taxes and any other charges imposed in the Republic of the Philippines on machinery, equipment and other materials provided by the Japanese technical cooperation program.
- (h) To provide at its own expense for purchase of machinery, equipment, instrument, vehicles, tools, spare parts, and materials required for the implementation of the Project other than those supplied by the Japanese side.

*Final*

*JK*

*Forward*

- (i) To grant the Japanese experts and their families the same privileges, exemptions and benefits as those accorded to experts of the third countries and international organizations working in the Republic of the Philippines.
  - (j) To provide at its own expense the Japanese experts with transport facilities or travel allowance required for their official business trips within the Philippines.
  - (k) To undertake claims, if any arises, against a Japanese expert engaged in the Project arising from or in the course of, or otherwise connected with the discharge of his/her official functions in the Republic of the Philippines except those resulting from the willful misconduct or gross negligence of the Japanese expert concerned.
- (2) Measures to be taken by the Government of Japan
- (a) To provide at its own expense and through JICA the services of Japanese experts for the implementation of the Project.
  - (b) To accept at its own expense and through JICA Philippine counterpart personnel for technical training in Japan.
  - (c) To provide at its own expense the machinery, equipment and other materials deemed necessary for the technical cooperation.

*AR*







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