

ネパール・トリブバン大学医学部プロジェクト
事前調査チーム報告書

昭和55年2月

国際協力事業団

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は し が き

ネパールにおける医学教育は、インド、ソ連等への留学生派遣による外国依存の形をとって来たが、国民の保健医療水準の積極的向上には、従来の教育形態を脱して、自国内で医療分野の人的資源の開発を急ぐ必要があるとし、昭和53年5月、ビレンドラ国王が国賓としてわが国を訪問した際に、医療要員養成の Technical Institute の設立に対してわが国の協力を要請された。

右要請の内容および協力の方式等の整理に当っては、多少の紆余曲折があったが、唯一の医学教育機関であるトリブバン大学医学部を対象として人材養成のための技術協力と教育病院設置のための無償資金協力をとを組合わせた形で協力することが望しいとの一応の結論を得るに至った。

ネパールの医学教育は、いわば草創期にあり、同医学部に Diploma コースが開設されてから、ようやく2年目を迎えたばかりである。

教育基盤が未整備の状況の下では、先ず技術協力より着手し、人材養成および教育機材の充実を図って教育体制の整備を行い、これに無償資金協力による教育病院の建設をリンクさせることを前向きに検討すべしとの対処方針が打出されたため、第一段階として技術協力の面での協力の可能性を見極めるべく、昭和54年11月27日より約2週間に亘って事前調査チームを派遣した。

以下は、同チームの調査報告である。

こゝに同チームの各位並びに同チーム派遣に御協力賜った関係諸機関の各位に深甚なる感謝の意を表する次第である。

国際協力事業団

理事 長谷川 正 男

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I 要請の背景及びこれまでの経緯

1. 要請の背景

昭和53年5月、ビレンドラ国王が国賓としてわが国を訪問の際、福田総理大臣との会談で、医療分野の人的資源開発のための Technical Institute を設立したいので日本の協力を期待したいと発言、これに対し総理大臣より出来る限り協力したいと返答した。また、国王に随行中のバンディ大蔵次官より外務省経済協力局長に同様の要請があり、専門家を派遣して検討することとなった。

2. これまでの経緯

- (1) 昭和53年10月、ネパール外務省より口上書を以てトリブバン大学医学部建設に関する協力方要請越した。
- (2) 同年12月、外務省技術協力第二課榎首席事務官がネパールに出張し、外務次官、トリブバン大学理事長、同大学医学部長と協議すると共に調査を行った結果、(イ)先方のプライオリティは医学部付属病院建設にあるが、医学部自体の教授スタッフすら十分でない現状においては、今直に取上げることは困難であり、先ず技術協力から始め、人材養成および教育機材の充実化に努力し、教育体制を整備した上で無償資金協力による病院建設へと進むのが望ましい旨提言した。
- (3) 昭和54年3月、ネパール側の要請内容の明確化とわが方協力の可能性およびその方途を検討するため、大儀ミッションを同国に派遣した。その結果、(イ)病院建設のみをわが国に要請したい。管理、運営、教育はネパール側で行う。(ロ)医学部に対しソ連が機材を供与する計画がある。(ハ)政府全体の統一方針が不明であること等が判明した。
- (4) 同年4月、在ネパール大使を通じ、ネパール政府の基本方針を打診したところ、同6月、ネパール外務省より口上書を以て、(イ)技術協力と教育病院建設の双方をパッケージにしたプロジェクト協力としたい。(ロ)教育病院は300～500床とし、Kathumandu Valley に建設する。(ハ)トリブバン大学および保健省より2名を日本に派遣したい旨申し越した。
- (5) 同年8月、トリブバン大学医学部長より、(イ)ソ連を含め第三国より援助は求めない。(ロ)技術協力について細かい打合せをしたいので訪日したい。(ハ)技術協力の詳細は日本の事情を見せてもらって帰国した後、大学で委員会を作り討議し、調査団の来ネに備えたい。(ニ)教育病院建設用地については、医学部隣接地に取得方決定した旨通報越した。
- (6) 同年9月、医学部長が来日し、(イ)研修員の受入れ、(ロ)医学部に対する機材供与、(ハ)教育病院建設への無償資金援助から成るネパール側協力原案(資料1)を提示した。
- (7) 同年10月、在ネパール大使を通じ、本件協力は技術協力と無償資金協力による教育病院の建設を有機的に組合せたパッケージ方式の協力で対処方検討する旨および技術協力事前調査団の派遣を通報し、11月事前調査団の受入れ確認を取付けた。

上述の如き経緯を進るも、協力の方向、形態等が整理されてきたこと、本件は国王自身のイニシアティブによるプロジェクトであり、プライオリティが高いこと、特に医師の養成はインド、ソ連等に頼ってきたところ、親日的と云われる国王のイニシアティブでわが国に要請してきた点に留意する必要があること、また、本件協力はネパールにおける事実上の医学部創設協力であり、長期的に見た場合その意義は極めて大きく、更に同国が欧米流の医学教育を志向せず、敢て同国の現状を踏まえてCommunity Physicians というプライマリーヘルス・ケアを中心とする農村医師の養成を理念にかゝっている点は高く評価すべきであることから、同年11月事前調査団を派遣する運びとなった。

II 調査チームの編成

- 団長 大儀敏雄
日本国際医療団理事
- 団員 依藤 進
兵庫医科大学第1内科教授
- ” 伊藤信義
兵庫医科大学第2外科教授
- ” 武井秀雄
国際協力事業団医療協力部医療第一課長
- ” 三輪 猛
厚生省医務局整備課技官

III 調査実施要領及び調査日程

1. 調査実施要領

ネパールの保健医療政策・計画，保健医療状況，保健医療教育等本件プロジェクトをとりまく諸条件を見究め，かつⅣの調査報告要旨で述べる協力のための前提条件が満たされることの能否を明らかにして，技術協力実施の可能性の有無を明らかにするため，概ねⅤの調査報告の項目に沿って，関係省庁，施設等を視察，調査する。

2. 調査日程

11月28日(水)	11:00～	カトマンズ着
	14:00～	保健省保健局長表敬
29日(木)	9:30～	Kanti Hospital 視察
	10:00～	トリブバン大学医学部視察
	11:00～	文部次官表敬
	12:00～	Royal Drug Ltd. 視察
	14:00～	Bhaktapur Hospital 視察
	19:00～	結核関係者と懇談

11月30日(金)	10:00～	Teaching Hospital Committee と討議
	12:00～	トリブバン大学副学長表敬
	14:00～	トリブバン大学工学部視察
	15:00～	保健次官表敬
	15:30～	Infections Diseases Hospital 視察
	20:00～	日本国大使に中間報告
12月 1日(土)	10:00～	トリブバン大学医学教職員と懇談
	19:00～	トリブバン大学工学部長他と懇談
2日(日)	18:00～	トリブバン大学主催夕食会
3日(月)	9:30～	Maternity Hospital 視察
	10:30～	National Planning Commission 副委員長表敬
	11:00～	Economic Commission 委員長表敬
	13:30～	Teaching Hospital Committee と討議
4日(火)	9:30～	Bir Hospital 視察
	10:30～	Nursing Campus 視察
	11:00～	Teaching Hospital Committee と討議
	14:30～	同上
	19:00～	本調査チーム団長主催夕食会
5日(水)	10:00～	Teaching Hospital Committee と討議
	14:30～	総理大臣表敬
	15:00～	Teaching Hospital Committee と討議
6日(木)	9:00～	Dhapakhel Health Post 視察
	11:00～	大蔵省外国援助局長表敬
	12:00～	外務次官表敬
	17:00～	日本国大使館に報告
7日(金)		カトマンズ発

IV 調査報告要旨

本件プロジェクトは、プロジェクト方式による技術協力と無償資金協力による教育病院建設援助を有機的に組合せたパッケージ方式の協力で対処するという一応の方向が打出されているものであるが、かかる協力を実施するためには主として下記の要件が満たされることが前提条件とされている。

1. 本件プロジェクトに対するネパール政府の統一方針が確立されていること。
2. わが国に対する援助要請案件の中で、本件プロジェクトのプライオリティーが高いこと。
3. わが国が協力を実施する場合、第3国の協力との競合がないこと。
4. 協力要請の規模が適正であること。
5. 熱心かつ影響力を行使しうる本件プロジェクトの推進者が存在すること。
6. 協力の受入態勢としてトリブバン大学に委員会等の推進機関が組織されること。
7. ネパール側の所要人員が確保されること。
8. その他本件プロジェクトを円滑に推進する要件が満たされること。

これらの諸点が明らかにされ、協力の可能性が大ならば、技術協力については昭和55年度より開始することとし、無償資金協力による教育病院建設については、技術協力による人材養成の進展状況等を見極めつつ、56年度案件として前向きに検討することが、基本的な方針として本調査団出発に際し確認された。

このことを念頭におき、かつネパール側に対しては本調査団はあくまでも技術協力実施の可能性を調査する事前調査団であることの立場、目的、使命を明確にしつつ、用意した調査実施要領の線に沿って調査を行った。

本件調査結果の主要点は以下のとおりである。

1. 一般的事項

1) 本件プロジェクトに対するネパール政府の方針

総理大臣を始め、大蔵、外務、文部、厚生 of 各省、国家計画委員会等関係機関の幹部に確認したところ、政府の統一方針として本件プロジェクトを National Project とし、かつ高い優先順位を付していることが判明した。

但し、ネ側は技術協力と無償資金協力は不可分の Package Programme とすることを絶対条件としており、今回の調査団の立場、目的等を理解するも、教育病院の建設について協力を要請すると同時に、同病院の機能に関しては、教育と地域住民に対する診療の双方に役立たせたいとの意向を表明している。

2) 本件プロジェクトの推進機関の設置について

関係各省が構成するハイ・レベルの調整機関として、文部次官を議長とする委員会が設置されており、その下部機関として、Teaching Hospital Committee の名の下に厚生省派遣の

技官(トリブバン大学医学部教授併任)を委員長に4名構成の委員会も設置され、既に本プロジェクトのための準備作業が進められている。

3) 用地について

医学部に隣接する用地162 Ropani(1 Ropani=5,476 sqft)が確保済みである。

4) 本プロジェクトに対するネ側の財政措置について

文部、厚生、大蔵省及び国家計画委員会との協議を通じ、可能な限りの予算手当がなされることが確認されており、財政上深刻な問題はないとしている。

5) 第3国との関係について

第3国の協力は求めず、日ネ両国政府の共同事業とするが、学位取得のための研修が日本において困難な場合は、インド等の協力は必要としている。

2. 技術協力

1) 背景

医学部は1972年に開設され、以来医療従事者の養成を行って来ているが、医師養成のDiplomaコースが設置されたのは、1978年である。現在の同コースの収容人員は22名であるが、これを3年以降には50名に拡大することが予定されている。

1990年における医師の必要人数は、1150名を予測しているが、現在ネパールに在住している医師は400名に過ぎず、1990年までに医学部で310名を、また併行して国外で220名を養成するとしても、なお220名が不足することになる。因みに医師1人当り人口は36,450人(1974年)で、日本のそれは868人(1973年)であるので、単純比較では1:42となっている。

Diplomaコースの学生数を50名とする場合の教員数は、看護を除いて220名を必要としているが、現員数は99名に過ぎない。内訳は、専任教員51名、採用手続中の者19名、厚生省派遣教員16名、外国人教員13名である。不足数は121名にも及ぶことから、これが養成確保は焦眉の急となっている。

現在の医療施設としては、病院数73、ベット数2,667、ヘルスセンター24、ヘルスポスト533、Ayurvedic Dispensary 85があるが、保健医療のサービス体系としては、技術、財政、マンパワー、地理的条件等々から極めて未整備の状況におかれている。

かかる状態に鑑み、特に医療従事者の養成が保健医療施設の充実と並んで、1980年7月に始まる第6次5カ年計画においても重要施策として取上げられている。

2) 本プロジェクトの目的

ネ側は、本プロジェクトの目的を、下記においている。

- ① 国が必要とする医師並びにパラメディカルの要員を現地の病院（日本の協力によって建設される医学部教育病院）において訓練する。
- ② 全国の referral center として機能するためにも専門医のサービス提供を含めて診療技術水準を向上させる。
- ③ 医学教育，診断治療及び community health の分野で調査研究を行う。

3) 技術協力要請案

研修員受入れ，専門家派遣，機材供与の組合せ方式による技術協力を要望している。各々の概要は下記の通りである。

① 研修員受入れ

わが国においては，学位取得のための研修が困難であることから，主として教授技術並びに調査研究方法をテーマに，教育スタッフを対象に，3～12ヶ月の短期研修に重点をおきたいとしている。

無償資金協力が供与されることを前提に1980～83年を第1期，84～85年を第2期に区分し，前期において non clinical の科目を，後期に clinical の科目についての研修を希望している。

医学教科に加えて，病院管理，Medical Record Dietician, Librarian 並びに医療機器の維持管理の技術者研修をも必要としている。

研修員としては，学位取得研修が困難というわが国の事情に照らして，senior level の教員を選ぶ考えを持っている。

研修員受入れ（要望）の内訳は下表の通りである。

	科 目	5 5	5 6	5 7	5 8	5 9	計
1	解 剖 学			1		1	2
2	麻 酔 学		1			1	2
3	公 衆 衛 生	1	1	1		1	4
4	歯 科 外 科			1			1
5	皮 膚 学			1			1
6	E . N . T		1				1
7	法 医 学					1	1
8	内 科	1	1		1		3
9	産科学，婦人病		1				1
10	眼 科 学		1				1
11	病 理 学	1		1		1	3

	科 目	5 5	5 6	5 7	5 8	5 9	計
1 2	薬 理 学		1			1	2
1 3	生 理 学				1		1
1 4	精 神 病 学			1			1
1 5	放 射 線 診 断			1	1		2
1 6	外 科	1	1		1		3
1 7	整 形 外 科		1				1
1 8	小 児 病 学	1		1			2
1 9	看 護 (病 院)			1	1		2
1 0	医 療 機 器			1	1		2
2 1	病 院 管 理				1		1
2 2	医 療 記 録				1		1
2 3	栄 養 士				1		1
2 4	司 書				1		1
	計	人 5	人 9	人 10	人 10	人 6	人 40

備考：

1. 研修員の資格 Post Graduate の資格を有するもの
2. 研修期間 3ヶ月～1年を希望。但し、薬理学、解剖学、生理学については、教授スタッフとして責任あるポジションにつかしめるため、長期の基礎研修を希望。
3. 研修員の数 ネパールの研修員の割当枠の増大により全員の受入れを希望。
4. 学部研修 Post Graduate の資格取得のための学部研修について、日本国政府の国費留学制度の活用を検討を希望。

② 専門家派遣

専門家派遣の要望の内訳は下表の通りである。

生理学、薬理学については、ネ国内で確保することはできないので、1980年6月より各々1名2年間の派遣を希望し、第2期の段階で内科、外科、微生物学、医療機器工学、放射線科の専門家を各1名2年間の派遣を希望している。更に機器取扱い、維持保善の専門家の1ヶ月程度の派遣、またセミナー、会議、ワーク・ショップのための専門家、延1人/年の派遣を希望している。

科 目	人数	派 遣 時 期	期 間
病 院 建 設	1	昭和55年～	5年間※
生 理 学	1	昭和55年6月～	2年間
薬 理 学	1	"	"
解 剖 学	1	"	"
病 理 学	1	"	"
内 科	1	昭和58年～	2年間
外 科	1	"	"
微 生 物 学	1	"	"
医 療 機 器	1	"	"
放 射 線 科	1	"	"
診断機器, 実験機器取扱	1	昭和58年～	1ヶ月未満
" " 修理技術	1	"	"
セ ミ ナ ー	1	昭和58年	1ヶ月未満
ワ ー ク シ ョ ッ プ	1	"	"
コ ン フ ェ レ ン ス	1	"	"

※無償資金協力による建設技師

③ 機材供与

機材については、基礎医学を中心としたものが大部分を占めており、規模としては約1.5億円程度である。

内訳は86頁を参照。

概略は以上の通りであるが、要すれば本プロジェクトは、①ネ国の実情を踏まえた緊要なニーズに基づく国王案件であり、②無償案件の中での優先順位付けは必ずしも明確に整理されていない模様ではあるが保健医療水準向上の担手である community physician の養成と、診療並びに調査研究のための中枢機関の早期具現を願って総理大臣を始め文部、保健他関係各省とも多大な熱意をもって取組んでいること、③調整委員会他本プロジェクトの推進機関が既に設置され、

わが国に対する技術協力要請の中味もかなりつめられていて、それに沿った準備計画も進められつつあること、④要望の規模も、概して中程度であること、⑤財政措置についてもある程度の見通しがたてられていること等々、冒頭の協力のための諸条件も相当整理されてきていると云い得よう。

調査団としては、ネ側の本件プロジェクト実施の必要性、関係者の熱意、実施準備体制等々から、わが国の協力の受入れ能力は高く、協力の効果も大なるものが期待できると判断するが、特に注意すべき主要な点としては、①本件プロジェクトを総合病院建設の方向に走らず、敢くまでも当初の目的、すなわち community physician の養成を通じて、国全体の保健水準の向上を地道に進めること、②そのために本事業の実質的中核をなす教授スタッフ、わが国の技術協力の被移転者(カウンター パート)の確保を誤らないこと、③一方、わが方においてはわが国の協力の体制、特に派遣専門家の確保について、十分な見通しを持つこと等があげられよう。

ネ側は、任期満了による外国人教授の引揚げに伴って、これの肩代りとして、わが方専門家の派遣を要望している節がうかがえるが、云ってみれば、労務提供型の協力はわが国の協力のあり方からして問題があるため、この点彼等の共通の理解を持つことが重要である。本件プロジェクトの長期専門家派遣は容易でないことのわが方の事情を一般論として説明したところ、ネ側は十分な理解を示しつつも、2年程度の派遣希望を捨て切っていない。この点に関しては、長期専門家の Job description を含め、詳細をつめた上で相互の合意を見出す必要がある。

研修員の受入れについては、カウンター パート養成の重要性に鑑み、受入れ枠の増大と、学位取得のための長期受入れをも可能ならしめる特段の配慮をわが方に要望している。

ネ側は、これまでの経緯からして、本件プロジェクトは無償資金協力和技術協力が package となったものとして、必ず、わが国の協力が得られると云う前提条件の上に立って、実質的に既に行動をおこなっている。技術協力については上述の如き注意すべき点はあるも、専門家の派遣、研修員の受入れ、機材の供与を、わが方並びにネ側の実情に合わせつつ合理的な連携を構築して行くなれば、協力の可能性は高く、その効果は大なるものが期待出来よう。

なお、本件調査団とネ側とが整理した討議内容の Summary は以下の通りである。

MAHARAJGUNJ
Kathmandu, Nepal
Dated 7 December 1979

Subject:-

Summary of Discussion
on
The Teaching Hospital Project
of
The Institute of Medicine, Tribhuvan University
Between the Japanese Preliminary Survey Team led by:

Prof. Toshio Oiso
and
the Nepalese Team led by:

Dr. Hemang Dixit, Dean
Institute of Medicine

from 28th November 1979 to 7th December 1979.

The two teams after a series of discussions reached the following understanding.

1. His Majesty's Government of Nepal has taken up the 'Teaching Hospital Project' of the Institute of Medicine, Tribhuvan University as a National Project.
2. The 'Teaching Hospital Project' will be a joint venture of His Majesty's Government of Nepal and the Government of Japan. For this purpose a Japanese Government implementation team will visit Nepal in March 1980. His Majesty's Government of Nepal strongly expresses desires to have a 'Construction Survey' Team in Nepal so that construction would begin in fiscal year 1981 and be completed at the latest by fiscal year 1982.
3. The proposed project shall consist of Technical and Financial Co-operation in the form of a package deal, which His Majesty's Government

of Nepal wishes. The construction work will be on a turnkey basis. His Majesty's Government of Nepal's request for a 500 bedded teaching hospital was considered justified in view of the increasing demand for the future. However, the size of the package deal will have to be confirmed by the Government of Japan after necessary discussions through its normal channels.

4. The technical cooperation will start during fiscal year 1980 and the financial cooperation is requested by His Majesty's Government of Nepal to start by fiscal year 1981.

5. The technical cooperation shall consist of:

- 5.1. Training of Nepalese experts in Japan.
- 5.2. Dispatch of Japanese experts to Nepal.
- 5.3. Supplies of equipments for the Institute of Medicine.

5.1. Training of Nepalese Experts in Japan

5.1.1. Fellowships will be awarded to Nepalese personnel in possession of post graduate qualification according to the plan submitted.

5.1.2. In subjects like pharmacology, anatomy and physiology, the possibility of training basic medical graduates to enable them to take up responsible positions will be explored by the Government of Japan.

5.1.3. The number of awards suggested is considered reasonable. This would be, for the time being within the allocation from Government of Japan to His Majesty's Government of Nepal. However, in view of fact that the help to the Institute of Medicine is a new undertaking, it is requested that the Japanese Government consider further allocation to meet increased requirements.

5.1.4. Possibility of training leading to a postgraduate qualification may be explored through Ministry of Education, Government of Japan.

5.1.5. The training programme is scheduled to be completed within five years from start of fiscal year 1980. To this effect the Institute of Medicine will reschedule its earlier programme.

5.2. Dispatch of Japanese experts to Nepal

5.2.1. Long term experts (upto 2 years) will come from Japan in areas of Anatomy, Physiology and Pharmacology where there is need for immediate cooperation, in view of strong need of the Institute of Medicine. Such experts will be involved in organizing the department, training junior level teachers and also teaching the students. This, however, will need further study by the Japanese Government.

5.2.2. Short term experts (few weeks) will be provided by the Government of Japan for installation of equipments and providing technical know how for maintenance and operation.

5.2.3. Japanese experts will also be made available for organizing Seminars and Workshops.

5.2.4. In clinical areas experts will be dispatched after completion of the hospital.

5.3. Supplies of Equipments

5.3.1. Equipments have been categorised as those urgently needed and those needed at a later stage. The lists of urgently needed equipments has been made available to the Japanese Preliminary Survey Team.

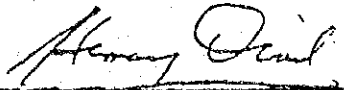
5.3.2. The Institute of Medicine will prepare a yearly programme for dispatch of machineries to be received at a later date.

6. Project Administration

For smooth implementation of the project a high level committee

from concerned Ministries (Education, Tribhuvan University, Health)
shall be formed to advise His Majesty's Government.

Signed:



Hemang Dixit
Hemang Dixit
Dean, Institute of Medicine
Kathmandu, Nepal



Toshio Oiso
Toshio Oiso
Team Leader
Japanese Preliminary
Survey Team

Dated: 7th. December 1979

V 調査報告

1. 保健医療政策と本件協力との関係

1) 保健医療政策

ネパール国は、1975年から1990年に亘る長期保健医療政策をたて、いる。政策の目標は以下のとおりに掲げている。

- ① 保健医療分野の長期計画の目標は、治療、予防、健康増進を含む保健医療サービスの拡大において、これは国民の身心並びに社会の健全な向上に全国民を包括する社会正義の理念に立脚したものである。
- ② 保健サービスの拡充により、疾病の制圧、死亡率の低下を図って寿命を延伸する。
- ③ 最大多数の国民に少なくとも最少限度必要とする保健サービスを提供することによって、地域的な調和を保持する。
- ④ 人口増加の抑制により、国の経済的社会的開発を促進する。
- ⑤ 予防医学活動を活発に行って、マラリア、天然痘、結核、らい等の伝染性疾病の制圧を行なう。

2) 長期保健医療計画(1975~1990)

長期保健医療計画は以下のとおり。

- ① 村落単位に治療・予防を含む基本的保健サービスの提供を可能ならしめる。
- ② 国の総合的な開発に照らして、人口増加をチェックする。
- ③ 治療サービスを提供するため、第6次開発計画の最終年度までに各地域毎に15床の病院を建設する。
- ④ 第6次開発計画最終年度までに現存の各種保健医療プロジェクトを逐次基本的保健医療サービス体系へ統合する。
- ⑤ 予防医学並びに家族計画活動(サービス)を推進するため、Ayurvedicの薬剤の有効性を研究し、これら薬剤の増産をすると共に、Ayurvedic診療機能を組織する。
- ⑥ 保健医療技術者の国内養成を逐次推進する。特別手当の支給等魅力あるincentivesを与え、これら技術者の適正有効活用を図る。
- ⑦ 保健医療サービスの改善を行うため、組織機構の変革を実施する。
- ⑧ 保健医療サービスの拡充活動に国民の参加を促進する。このため、Hospital Development and Managing Boardを各病院に設置し、広く参加代表者を参画させる。
- ⑨ 環境衛生、栄養、家族保健等々の分野で、国民の間に保健衛生思想を啓発し、保健衛生教育活動を展開する。
- ⑩ 医薬品の自給自足を逐次押し進める。

- ⑪ 現行の政府保健医療サービスは殆んど無料であるが、段階的に有料システムに移行させる。

上記計画の各種事業の優先順位は以下のとおりに設定している。

- ① 広く国民一般に保健医療サービスを行き届らせることを目標として、特に辺境の農村地域及び後進地域を対象に基本的保健医療サービスの拡充を図る。
- ② 人口の急激な増加を抑制するため、家族計画の普及並びに母子保健の向上を図る。
- ③ 保健医療に従事する技術要員の国内生産を順次拡大する。
- ④ マラリヤ、天然痘、らい、結核等の流行性疾患の撲滅を図る。
- ⑤ 保健、栄養、環境衛生等の教育の普及を図る。
- ⑥ 病院サービスの改善を図る。

現行の保健医療計画(1975~80)は、第5次に当たっているが、計画の目標、実行計画等は、上述の長期政策に導かれているものであり、本件プロジェクトの基本的背景も、この中に含まれている。既に述べた報告の要旨、或は後述の疾病状況、保健衛生状況、保健医療サービス体系の現状等々の報告にあるように、疾病の蔓延、保健医療サービス体系の未整備・低水準、更に加えて地域格差の存在、医療従事者の絶対的不足等々の実態を踏まえて、長期政策が策定され、この中で優先度の高い具体的施策として、保健医療技術要員の国内養成の実施、保健衛生教育の普及を図る等特に中核機関たらしめるべく本件プロジェクトの促進が要請されている。

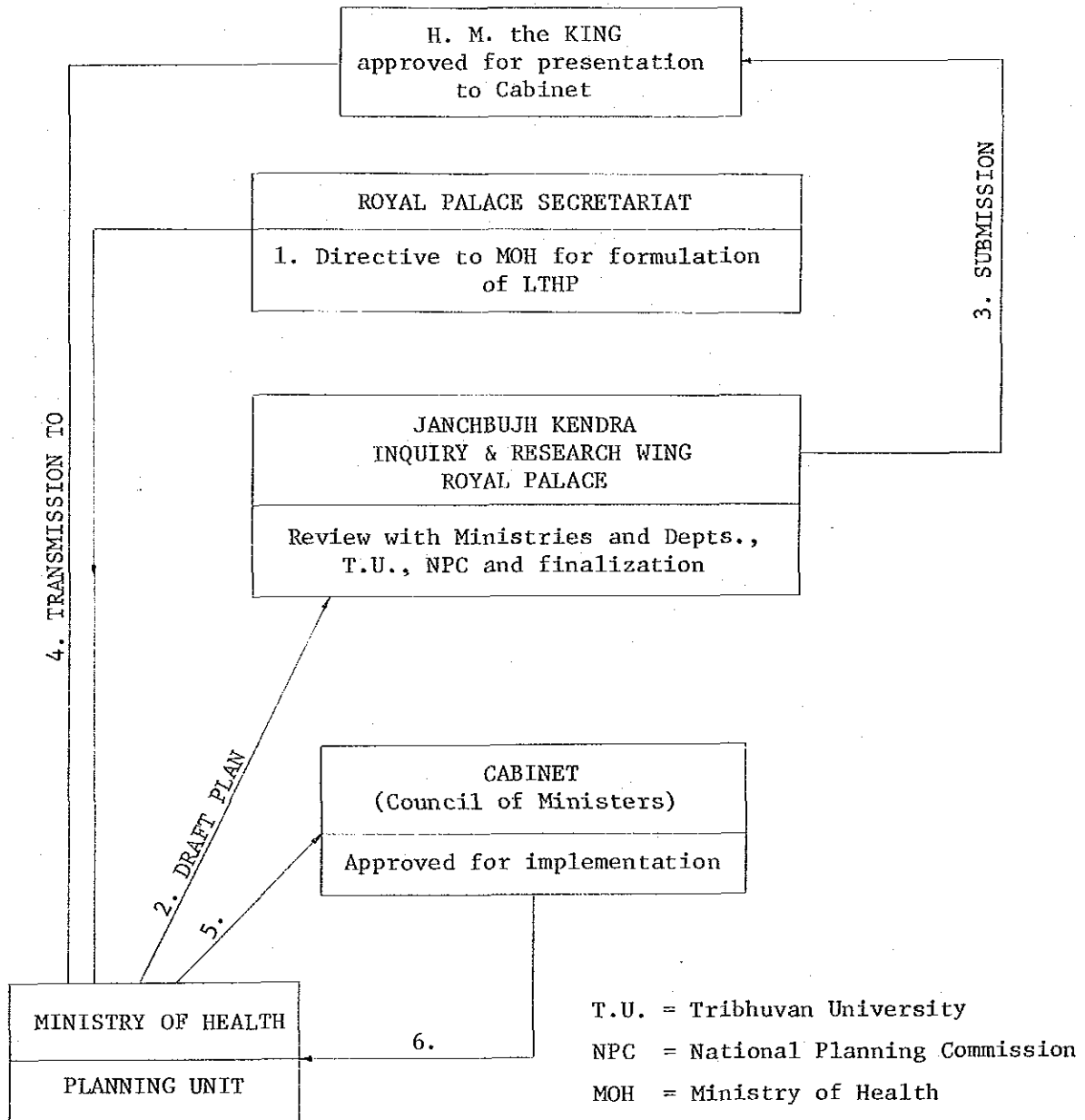
3) 保健医療政策、計画策定とトリブバン大学

保健医療政策並びにそれに基づく計画の策定は、保健医療の諸事業を実施するための根幹をなすものであり、極めて重要である。トリブバン大学は、この策定作業に参画し、重にして大なる役割を果している。策定手続は下図に示すプロセスを経て行われるが、Royal Palace Secretariat の指針に基づいて、保健省が作成する長期保健医療計画の草案を、国家開発計画委員会(National Planning Commission)を含む関係省庁と共に、トリブバン大学が検討し成案に仕上げる任に当たっている。

Long-Term Health Plan (1975-1990) (LTHP)

FLOW CHART

The Ministry of Health is the only one which has formulated a long-term plan. The Planning Commission and the Ministry of Finance were members of the drafting committee.



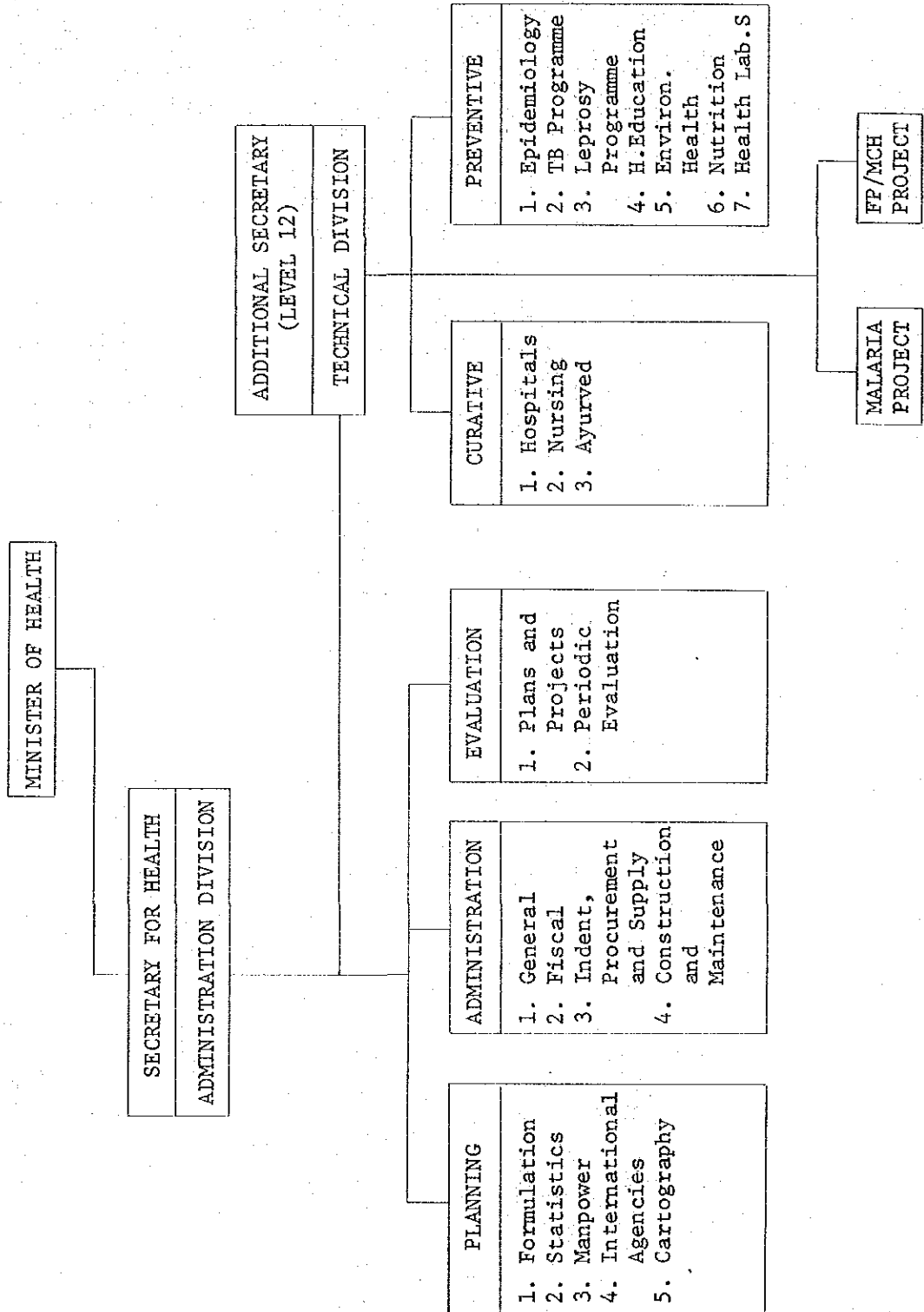
2. 一般的保健医療状況

1) 保健医療行政の組織及び機構

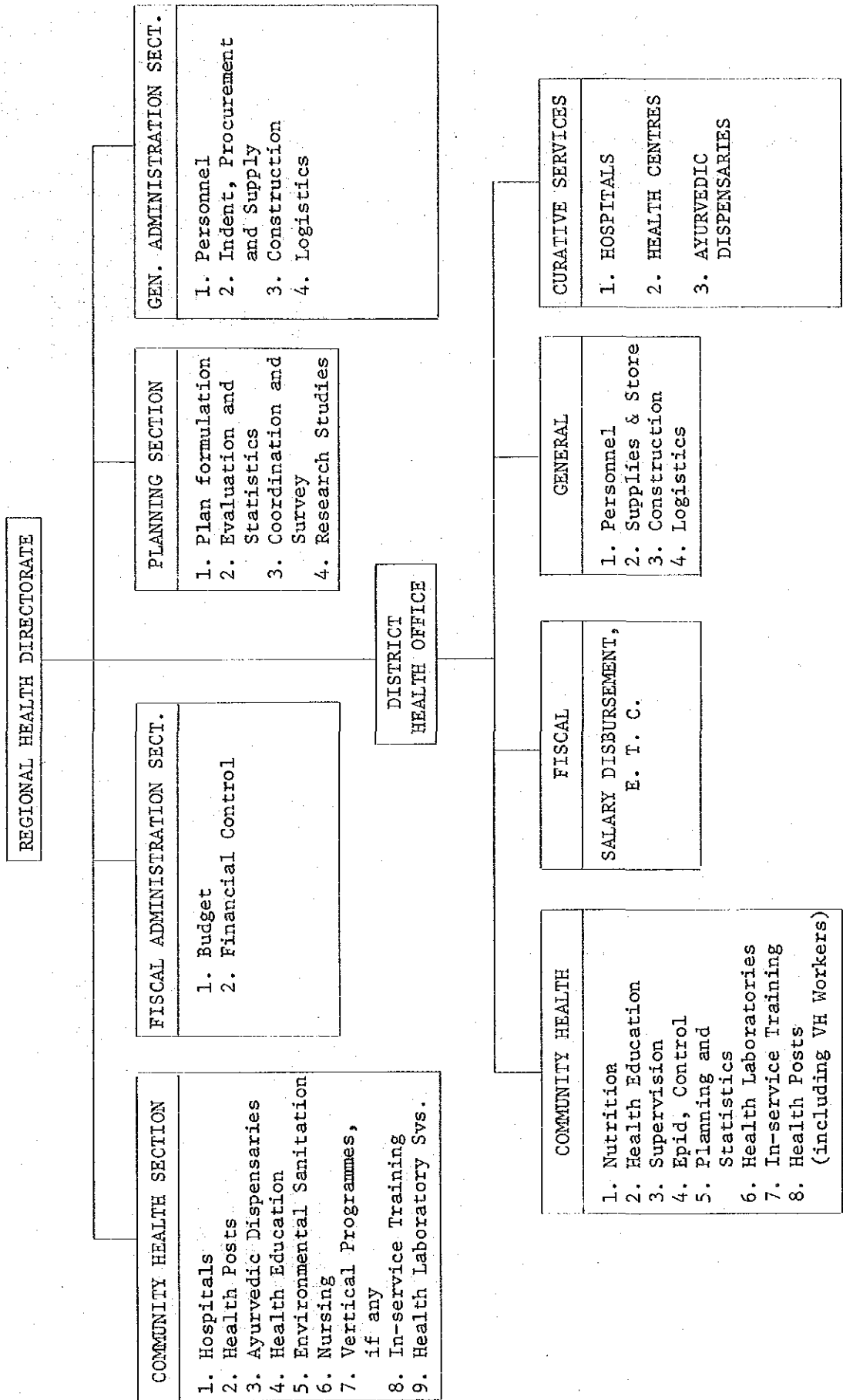
保健医療政策の最大目標は、保健医療サービスの機会の均等を図ることにある。この基本理念に基づいて、地域保健の向上に意を注いでおり、保健医療行政の組織改革の中で、特に地域保健（Regional 及び District Health）の行政部門の強化拡充が目立っている。

保健医療行政の組織、機構（改革案）は下図のとおりである。

RE-ORGANIZATION OF THE HEALTH MINISTRY
(After the establishment of Regional Directorates)



ORGANIZATION OF REGIONAL HEALTH DIRECTORATE AND DISTRICT HEALTH OFFICE
(PROPOSED)



2) 人口動態, 疾病の状況

(1) 人口動態について

- ① ネパールは東西5~6百マイル, 南北90~160マイル, 総面積14万8百平方マイルで, その人口は現在およそ1,300万人と推定されている。
- ② ネパールは北より山岳部(ヒマラヤ部), 丘陵部, 平原部(ジャングル)の3つに分けることが出来るが, その面積比はおよそ1.5:6:2で, 人口比は1:3:2である。
- ③ ネパール人の平均寿命は41才と云われ, 全人口の40%は15才以下の子供が占めている。又50才以上の人間は少ない。
- ④ 乳児死亡率は極めて高い(5人に1人は死亡すると云われている)。

(註) 1977年の報告によると

総人口	11,555,983人
死亡率	22.80
乳児死亡率	172.20
人口増加率	2.07%
平均寿命	40.6才

(2) 疾病の状況

若干の統計資料を後で述べるが, 統計は統計の方法, 統計をとる人の能力, 母集団のかたよりによってかなりのゆがみを示すので, 我々が中枢病院, 地方病院, 伝染病院等を訪問したときの観察と数名の医師との対話によって得た印象から先づ述べることとする。

内科領域

- ① 最も多い疾患は下痢を主体とする消化器系伝染病である。此等は胃腸炎と称されている。
- ② 肺炎, 慢性気管支炎など呼吸器疾患もかなりの頻度を占めている。
- ③ 肝炎も可なりあるようであるが, 我国のような検査が行なわれていないので, 正確な数は分らない。
- ④ 寄生虫疾患が極めて多い。
- ⑤ 慢性疾患として最も多いのは結核で, 入院しているのは排菌者又は発熱患者である。
- ⑥ 慢性疾患として結核の次にはレプラがある。
- ⑦ マラリアは目下減少傾向にある。
- ⑧ 地域の特性として, 山岳地帯にはヨード不足による甲状腺腫(クレチン病)が多く, これによる知能低下, 聴力障害が多い。又平原地帯(ジャングル)にはマラリア, コレラ等が多い。

外科領域

- ① 地方病院においては外傷と化膿性疾患が多い。

② 結石による疾患が多く、小児においても多数の膀胱結石があり、又上流階級に多いと思われる胆石が中枢病院の手術の主要な部分を占めている。

注 現女王, Dixit 医学部長夫人も胆石の手術を受けている。

婦人科領域

産褥熱による死亡が可なり高い(家庭で友人や家族の援助下で出産するものが多いようである)。勿論子宮癌などもあるが頻度についてはよく分らない。

眼科領域の疾病は可なり多いようであるが、医師にかかっているものが多いらしい。

統計資料

① Moin shah 博士の Rural Health needs にある死亡統計

下痢及び消化器疾患による死亡	39.6%
呼吸器疾患による死亡	11.6%
出産に関係する死亡	11.6%
事故死	9.3%

② 1978~1979年の13病院(540床)からの報告による主要疾病

胃腸炎	1,785件	脳炎	280件
コレラ	1543	肝炎	111
赤痢	620	ジフテリア	89
腸チフス	601	ポリオ	6

3) 保健衛生状況

(1) 上水道, 下水道がないのみならず, 便所, 井戸が完備していないので, これらが消化器系伝染病の重要な原因となっていると思われる。

注 飲料水, 下水の処理が行われれば消化器疾患の80%は予防出来ると思われる。

(2) 水質の問題

飲料水として井戸水, 泉, 河川の水が利用されているが, それらが伝染性胃腸炎の原因となるほかに, 水質が悪いため(恐らくは雲母, 珪酸が多いため)膀胱結石の原因になるのではないかと思われる。

(3) 栄養状況

一般に栄養状態が悪く, 特に下層階級において著しい。これが結核のような慢性疾患蔓延の一目となっていると思われる。栄養不足の原因としては所得の低さ(平均1人1年に800ルピー, 即ち1万6,000円とのことである), 蛋白摂取の少ないこと(主な蛋白源は牛乳, 山羊, 鶏肉である)などが挙げられるかと思う。

(4) 住居の問題

a) 家屋は主としてレンガで出来ているが採光, 保温などは不十分である。

b) 人口の90%は農民であるが, 彼等は牛, 山羊と同居している。即ち階下は牛, 山羊

二階は人間と云った具合で、衛生的ではない。

e) 寺院、王宮跡を中心として集落が出来ているが、これらは江戸時代の日本の共同の屋根下の長屋のようなもので、人家が密集し、採光、換気が悪く、更に共通の井戸が不潔で、便所の設備が悪く、おそらくは伝染病、結核の温床をなしていると思われる。

(5) 衛生思想の欠如

一般に衛生思想は欠如していると思われる。文盲率の高いこと(86.7%は文盲と云われる)、保健衛生に関する人力の不足、道路の不備、交通機関の不足によるコミュニケーションの不足が原因とも考えられる。

4) 保健医療施設の整備状況

(1) 全般的なこと(住民に対する病院などの充足の程度)

ネパールでは、疾病、廃疾の率は高く、治療を要する患者は多いが、医療施設の数が少ないので、Moins,shah博士のRural Health needsの報告によると、治療を必要とするものの3%に与えられているに過ぎないとのことである。

我々が訪問した地方病院では、多数の患者が病室に入れず、廊下で寝ている現状であった。

(2) 保健医療施設の整備状況

a) 中枢病院(Bir病院)

病床数300床、内科、外科、耳鼻科、眼科、ICU、CCU、などの専門化が行われ、検査室などはかなり整備されているが、レントゲンなどは作動していないものも多い。アイソトープ、コバルトのような設備はない。医師の数は18名程度で不十分ではあるが、医師の教育は印度、英国、ソ連などで受けたものであり、その技術の程度はかなり高く評価してよいと思われる。

b) 婦人病院

病床数200床、比較的整備されているが、レ線などは作動しないものがあり、又放射線診療などは不十分であった。

c) 病床数150の予定、目下50床、ソ連の援助で目下建設中で、未だ充分整備していない。

d) 地方病院(district hospital)

医師は専門に分化することなく、General physician(G.p)として働いている。設備は貧弱で、検査室は狭く、充分の器具を持っていない。胸部レ線を撮るのがやっとなのである。

e) 保健所(health post)

簡単な建物、机、椅子、ベッド、簡単な薬剤(ズルフオンアミドのような化学療法剤、抗結核薬、ペニシリン、産児制限用のピル、血清予防注射用のワクチン)しか置いてない状況である。

f) 製薬関係

現在王立の製薬所が全ネパールで1ヶ所あるのみで、これも目下建設中である。此処では目下外国よりバルクを輸入し、錠剤を作るのが主な仕事のようなのである。

g) 薬の輸入は主として印度からなされている。主な薬剤はズルフオンアミド剤、鎮痛剤である。

地域別による病院、ヘルス・センター、ヘルス・ポスト、アユルヴェディックの診療所の設置状況は下表のとおりである。

ZONE-WISE DISTRIBUTION OF HOSPITAL,
HEALTH CENTER, HEALTH POSTS AND AYURVEDIC DISPENSARIES
F/Y 2035/36

Anchal (Zone)	Dept. of Health Services		F/Y 2035/2036				
	Hosp.	Beds.	Other		Health Center	Health Posts	Ayurve- dic
			Hosp.	Beds.			
Mechi Anchal	4	95	-	-	1	29	7
Koshi Anchal	8	215	2	56	1	49	5
Sagarmatha An.	3	80	2	26	2	50	6
Janakpur Anchal	5	130	-	-	2	44	7
Bagmati Anchal	7	515	9	653	3	56	12
	+2	+56					
Narayani An.	5	165	-	-	1	47	4
Gandaki Anchal	3	80	2	65	2	53	11
Dhaulagiri An.	2	30	-	-	1	23	5
Lumbini Anchal	6	135	2	106	3	36	7
Rapti Anchal	1	15	-	-	2	34	5
Karnali Anchal	1	15	-	-	2	23	4
Bheri Anchal	3	130	1	6	2	32	3
Seti Anchal	3	80	-	-	2	32	7
Mahakali Anchal	4	70	-	-	-	25	2
TOTAL	55	1,755	16	912	24	533	85
	+2	+56					

Note: + Include two hospitals: Ayurvedic Chikitshalaya and Homeo-Chikitshalaya both under Department of Health Service. Data exclude Khokana Leprosarium and Malunga Leprosarium - both under Department of Health Services and also one leprosy Hospital (Mission), in Pokhara, Beds strength of Hospitals, then those under Department of Health Services, may be changed upon information any that may be received from the concerned to that effect.

5) 保健医療従事者の充足状況

医師1人当りの人口をわが国のそれと単純に比較してみれば、1:42〔日本1:868(1973), ネパール1:36,450(1974)〕で、わが国の水準には極端に遠い。1975～80年の第5次開発計画に照らした保健医療従事者の充足状況は、下表のとおりであるが、医者等の充足率は67.8%、パラメディカル要員等は81.0%、医療補助員等については62.5%と、ネパールの実情を踏まえたであろう計画数に対比しても、1980年が計画期間の最終年度であるだけに、また医師の養成には相当の年数を必要とすることからも、低率と云わざるを得ず、保健医療従事者の養成確保は、依然として深刻な問題となっている。

保健医療従事者充足状況

分 類	必要人数	現 員 数	過不足人数	充足率%
High Level—Medical Graduates	789	535	△254	67.8
Middle Level—Paramedical & Allied	1,735	1,406	△329	81.0
Basic Level—Junior Health Workers	5,021	3,136	△1,885	62.5

既に述べたように、1990年における医師の必要人数は1,150名を予想しているが、現在ネパールに在住している医師は400名に過ぎず(上掲のMedical Graduatesの現員数535名との相違の理由は不明)、1990年までにトリブバン大学医学部で310名を、また併行して国外で220名を養成するにしても、なお220名が不足することとなる。

トリブバン大学のISHWAR B. SHRESTHA氏が取組んだネパールにおける保健医療要員の訓練状況は以下のとおりである。

HEALTH PERSONNEL TRAINING IN NEPAL*

- ISHWAR B. SHRESTHA**

1. INTRODUCTION: This paper attempts to present the records and statistics of all health workers that have so far been trained in Nepal. For clearer presentation this paper is divided into two major sections a) Ayurved education and b) Paramedical education and training. In both sections there are various programmes in the field of education and training of the health personnel. A short description of the programme is followed by a table which show the number of students graduated in a particular year and the name of the training institution.

Both Ayurved education and other paramedical education and training are dealt in two sub-sections, viz. pre-IOM period, that is before the health training institutions came under the Tribhuvan University, Institute of Medicine (IOM) and the IOM period, that is, after all the health training institutions came under the Tribhuvan University to the present day.

2. AYURVED EDUCATION:

a) Pre-IOM period: The history of Ayurved education in Nepal can be traced back to early 1990 B.S. (1933-34 A.D.). The Nepal trained manpower in the Ayurved was produced by the Nepal Rajakiya Ayurved Vidyalaya, which is now called the Ayurved Campus. Initially this institute started the course of Baidya Vinod, and later extended it to Baidya Bhushan and Baidya Ratna. From that time the education in Ayurved was given various names such as Upa Baidya, Ayurvedic Madhyama, Ayurvedacharya, etc. The outputs of this institution over the years is given in the table overleaf (Table 1):

* An earlier version of this paper had appeared in a monograph edition of the *Health Manpower Index 2035 (1978)* under the title 'History of Education and Training for the Health Sector in Nepal.' This has been rearranged, updated and revised with the inclusion of latest results.

** Mr. Shrestha holds a degree in Statistics, and is associated with Tribhuvan University, Institute of Medicine.

Table: 1

COURSE: AYURVED (DIFFERENT LEVELS)
FROM - NEPAL RAJAKIYA AYURVED VIDYALAYA, NARADEVI.

Graduation Year	Number graduated in				
	Baidya Vinod	Baidya Bhushan		Baidya Ratna	
1990	4	1		0	
1991	2	0		0	
1992	1	2		0	
1993	3	3		0	
1994	6	0		2	
1995	3	3		2	
1996	5	5		0	
1997	2	1		0	
1998	2	1		4	
1999	3	0		1	
2000	1	2		0	
2001	2	1		1	
2002	4	3		2	
2003	3	2		0	
2004	3	0		1	
2005	3	3		0	
2006	0	0		0	
2007	2	1		1	
2008	1	2		1	
2009	0	1		2	
	Upa Baidya	Baidya Bhushan	Ay Shastri	Shastri	Baidya Ratna
2010	1	2	0	1	0
2011	3	0	1	0	0
2012	0	0	0	0	1
2013	0	1	5	0	1
2014	2	0	4	0	0
2015	0	0	3	0	0
2016	0	0	1	0	0
	Upa Baidya	Ay Madhyama	Ay Shastri	Shastri	Ayurvedacharya
2017	5	0	1	0	2
2018	0	5	0	1	1
	Ayurvedic Madhyama		Ayurvedic Shastri		Ayurvedacharya
2019	9		2		0
2020	7		3		1
2021	4		0		1
2022	2		1		3
2023	3		3		0
2024	2		4		1
2025	1		5		1
2026	2		4		0
2027	3		3		5
2028	1		8		4
Total	222				

Most of these health manpower are employed by the Department of Health Services, and the personnel work in the Ayurvedic Hospitals/ Dispensaries in the post of Kabirajs and Baidyas. There are also fifty health workers who have received Ayurvedic education and training in India.

- b) IOM period: With the implementation of New Education System Plan (NESP) this Ayurvedic Vidyalaya came under the Tribhuvan University, Institute of Medicine in 2029 which continued the same old courses for the students already enrolled. The number of students trained by the Institute in the old syllabi are as follows:

Table: 2

COURSE: AYURVED (DIFFERENT LEVELS)
FROM - AYURVED CAMPUS, MARADEVI.

Graduation Year	Number graduated in		
	Madhyama	Shastri	Acharya
2029-30	4	7	4
2030-31	5	12	4
2031-32	0	20	2
Total	9	39	10

The different levels of Ayurvedic health manpower trained in Nepal and their number from 1990 to 2031-32 grouped under three categories is given in Table 3.

Table: 3 (Table 1 and 2 arranged according to different levels)

COURSE: AYURVED (DIFFERENT LEVELS)

Category	Ayurved Course	Total number graduated from 1990 to 2031-32
I	Baidya Vinod	50
	Upa Baidya	11
	Ay Madhyama	39
	Madhyama	9
	Total	109
II	Baidya Bhushan	34
	Ay Shastri	48
	Shastri	41
	Total	123
III	Baidya Ratna	19
	Ayurvedacharya	19
	Acharya	10
	Total	48
Grand Total		280

The different courses under different categories may be considered approximately of the same level.

After the takeover of the Ayurved Vidyalaya by the Tribhuvan University, the Institute then thought necessary to remodel the old programmes and syllabi of Ayurved; thereby discontinued all the outstanding old courses of Ayurvedacharya etc. It started a new course in Ayurved by adding the Science and Community Medicine subjects to its curricula called the Certificate in Medical Science; Ayurved.

i. Certificate in Medical Science; Ayurved:

To enter this programme the minimum requirement is School Leaving Certificate (S.L.C.) and a student has to study three years to obtain a degree of Certificate in Medical Science; Ayurved. This will enable him to work as an Assistant Ayurved Physician in the District Ayurved Dispensary/Health Post. Table 4 shows the number of health personnel trained in this course from the Institute of Medicine.

Table: 4

COURSE: CERTIFICATE IN MEDICAL SCIENCE: AYURVED

Institution	Graduation year	Number graduated
Ayurved Campus, Naradevi	2033-34	4
" "	2034-35	9
" "	2035-36	11
Total		24

Also the Institute made an arrangement of recommending the students for the post of Non-Gazetted Second Class (Baidyas) for the students who complete only the specified courses of the Certificate Level courses (3 semesters). The number of such graduates in 2035 is 5.

Courses leading to the Diploma in Medical Science; Ayurved are under due consideration.

3. PARA-MEDICAL EDUCATION AND TRAINING:

a) Pre-IOM period:

i. Civil Medical School: The training of manpower in para-medical sector can be said to have been started with the establishment of the Civil Medical School in the 1990 B.S. (1933-34A.D.). Because compounders and dressers are indispensable helping hands to the qualified doctors and clinicians, it started their training. Table 5 provides the number of compounders and dressers trained by the Civil Medical School. The number of compounders and dressers trained in the different years from 1992 to 2020 is shown in the Figure 1. It clearly shows that the School produced the dressers from 1998 only, eight years after the establishment of the Civil Medical School. The graph also shows that there is correlation between the compounders and dressers trained in the same year but the number trained in the different years have an irregular trend.

Table: 5

COURSE: COMPOUNDERS AND DRESSERS

Institution	Course for	Total number trained
HMG, Civil Medical School	Compounders	238
"	Dressers	213

After 2020, the training of Compounders and Dressers was stopped.

ii. Health Assistant Training School: In 2013 B.S. (1956A.D.), the Health Assistant Training School had been opened and started training Health Assistants. Table 6 provides the number of students graduated from this school.

Table: 6

COURSE: HEALTH ASSISTANT

Institution	Graduation Year	Number graduated
HMG, HA Training School	2014	15
"	2015	14
"	2016	16
"	2017	20
Total		65

iii. Auxiliary Health Workers School: In the year 2018 B.S. (1961-62 A.D.), the Civil Medical School and the Health Assistant Training School were amalgamated to form the Auxiliary Health Workers School and continued training Health Assistants. After 2019 B.S., the production of Health Assistant was stopped and emphasis was laid on the production of Auxiliary Health Workers.

Table: 6A

COURSE: HEALTH ASSISTANT

Institution	Graduation Year	Number graduated
HMG, Auxiliary Health Workers School	2018	20
"	2019	23
Total		43

Table: 6B (Table 6 and 6A combined)

COURSE: HEALTH ASSISTANT

Institution	Total Number graduated
HMG, HA Training School	65
HMG, A. H. W. School	43
Total	108

Those who had 10 years of schooling were given a two years training to qualify them as Auxiliary Health Workers for the post of A.H.W. Table 7 shows the number of AHWs trained from 2021 B.S. to 2028 B.S.

Table: 7

COURSE: AUXILIARY HEALTH WORKER (A.H.W.)

Institution	Graduation Year	Number graduated
HMG, A.H.W. School	2021	27
"	2022	34
"	2023	20
"	2024	54
"	2025	72
"	2026	39
"	2027	39
"	2028	56
Total		341

Besides this the A.H.W. School also gave (i) 3-months training to the Compounders (ii) 4-months training to the Dressers and (iii) a year training to the Malaria Workers to upgrade them as Auxiliary Health Workers during the years 2026 B.S. to 2029 B.S.

Table: 7A

COURSE: UPGRADING COURSE FOR THE POST OF AHW

Institution	Upgrading training for	Number trained
HMG, A.H.W. School	Compounders	84
"	Dressers	25
"	Malaria Workers	43
Total		152

Table: 7B (Table 7 and 7A combined)

COURSE: AUXILIARY HEALTH WORKER

Institution	Course type	Number graduated
HMG, A.H.W. School	Regular AHW Course	341
"	Upgrading AHW Course	152
Total		493

The A.H.W. School also organized a training called the Health Specialists given to the Compounders, to whom later again given a few months more training to qualify them to work as Senior Auxiliary Health Workers. The number of Senior A.H.W. produced by this School in the year 2022 B.S. is 16.

iv. A.N.M. Training Centres: The Department of Health Services was also running the A.N.M. Training Centres at different parts of the country viz. Bharatpur, Biratnagar and Nepalganj. The centres conducted the training of A.N.M. Generally the girls with 8 years of schooling had to study a further two years in this programme. For sometime the course became of one and half years which again became of two years. The Bharatpur Training Centre also organized a special condensed course which are shown in Table 8. The number of ANMs trained by the different training centres over the years is shown in the Table 8A.

Table: 8

COURSE: A.N.M. (Condensed course)

Institution	Graduation Year	Number graduated
ANM Training Centre, Bharatpur	2021	6
"	2022	10
"	2023	4
Total		20

Table: 8A

COURSE: A.N.M.

Graduation Year	Number graduated from ANM Training Centre at			Total
	Bharatpur	Biratnagar	Nepalganj	
2021	18	0	0	18
2022	13	0	0	13
2023	16	0	0	16
2024	18	0	0	18
2025	10	13	0	23
2026	16	17	0	33
2027	21	17	10	48
2028	25	14	13	52
Total	137	61	23	221

v. Nurses Training School: On the Nursing side the Department of Health Services was running a Nurses Training School and the United Mission to Nepal was running a School of Nursing. Table 9 shows the number of students who have graduated from these schools. Girls with S.L.C. had to study for three and half years to become Staff Nurses of the hospital.

Table: 9

COURSE: STAFF NURSE

Graduation Year	Number graduated from	
	HMG, Nurses Training School	UMN, School of Nursing
2017	13	3
2018	10	0
2019	11	2
2020	14	0
2021	4	7
2022	10	6
2023	14	2
2024	10	7
2025	14	4
2026	14	0
2027	15	5
2028	33	13
Total	162	49
Grand Total	211	

vi. Junior Paramedical Training Programmes: Apart from these, various vertical programmes under HMG, such as MCH/FP Centre, TB Control Project, Smallpox Eradication Project, etc. had been giving some months training to literate Nepalese citizens to train them for the post of Junior Auxiliary Health Worker, Junior and Senior Vaccinator, Health Aide, Family Aide, etc. They were very large in number and the training programmes were conducted as and when needed, so they are irregular and have not been accounted here.

- b) IOM period: In 1971 A.D. the New Education System Plan (NESP) was introduced in Nepal with one of its objective being to meet the manpower requirements of development through the spread of scientific and technical education. Tribhuvan University, Institute of Medicine is responsible for providing the required number of middle and low level manpower in the field of health and they all have to be trained in Nepal.

Of the six regular programmes for the Certificate Level in Medicine the various disciplines offered are General Medicine, Pharmacy, Radiography, Health Laboratory, Nursing and Ayurved. The minimum requirement to enter in any of these programmes is S.L.C., and the student has to study for two and half years (5 semesters) in General Medicine, Pharmacy, Radiography and Health Lab. where as those joining the Nursing and Ayurved have to study for three years (6 semesters). The Certificate in Medical Science: Ayurved has already been dealt with and we will discuss the remaining five programmes in the following paragraphs.

1. Certificate in Medical Science; General Medicine: This is a revised course on the old Health Assistant course. Those students completing the course of the Certificate in Medical Science: General Medicine are entitled to work as Health Assistants. They will work as Incharge of the Health Post. Table 10 gives the number of students who have graduated in this course.

Table: 10

COURSE: CERTIFICATE IN MEDICAL SCIENCE; GENERAL MEDICINE

Institution	Graduation Year	Number graduated
IOM, Maharajganj Campus	2032-33	50
"	2033-34	75
"	2034-35	81
IOM, Central Campus, Maharajganj	2035-36	133
Total		339

ii. Certificate in Medical Science; Pharmacy: The Certificate in Medical Science; Pharmacy course is conducted to train the students so that they will be able to manage a dispensary and medical store of a District Hospital or District Health Office.

Table: 11

COURSE: CERTIFICATE IN MEDICAL SCIENCE; PHARMACY

Institution	Graduation Year	Number graduated
IOM, Maharajganj Campus	2034-35	6
IOM, Central Campus, Maharajganj	2035-36	9
Total		15

iii. Certificate in Medical Science: Radiography: The Certificate in Medical Science; Radiography course is conducted to train the students so that they will be able to run a small radiography unit of a District Hospital.

Table: 12

COURSE: CERTIFICATE IN MEDICAL SCIENCE; RADIOGRAPHY

Institution	Graduation Year	Number graduated
IOM, Maharajganj Campus	2033-34	3
"	2034-35	3
IOM, Central Campus, Maharajganj	2035-36	3
Total		9

iv. Certificate in Medical Science; Health Lab.: The course of Certificate in Medical Science; Health Lab. is for the post of a Health Lab. Technician in a Hospital or Laboratory. Before the formation of IOM, HMG conducted a Laboratory Assistant Training Programme. This new course on Health Laboratory is an improved course of the Laboratory Assistant.

Table: 13

COURSE: CERTIFICATE IN MEDICAL SCIENCE; HEALTH LAB.

Institution	Graduation Year	Number graduated
IOM, Maharajganj Campus	2032-33	6
"	2033-34	2
"	2034-35	6
IOM, Central Campus, Maharajganj	2035-36	13
Total		27

IOM also conducted a condensed course of one year (2 semesters) to upgrade the Laboratory Assistants.

Table: 14

COURSE: HEALTH LAB. (condensed course)

Institution	Graduation Year	Number graduated
IOM, Maharajganj Campus	2032-33	2
"	2033-34	2
"	2034-35	-
IOM, Central Campus, Maharajganj	2035-36	1
Total		5

v. Laboratory Assistant Training Program: The Department of Health Services started a Laboratory Assistant Training Programme at the Bir Hospital to prepare Laboratory Assistant/Technician which was later carried by the Institute of Medicine. The programme is of 2 years duration. This programme was now replaced by the Institute's Certificate in Medical Science; Health Lab. programme.

Table: 15

COURSE: LABORATORY ASSISTANT

Institution	Graduation Year	Number graduated
Laboratory Assistant Training Program	2029-30	11
"	2030-31	9
Total		20

vi. Certificate in Medical Science; Nursing: The old programme of Nursing for the post of Staff Nurse has been converted to a course of Certificate in Medical Science; Nursing by the T.U., Institute of Medicine. The training programme is held at the two places - Mahabouddha and Shanta Bhavan. Students graduated in the old courses from the Institute is given in the Table 16.

Table: 16

COURSE: STAFF NURSE (Duration 3.1/2 years)

Graduation Year	Number graduated from		Total
	Mahabouddha Campus	Shanta Bhavan Campus	
2029-30	31	10	41
2030-31	22	9	31
2031-32	28	14	42
2032-33	32	18	50
2033-34	1	-	1
Total	114	51	165

The new course Certificate in Medical Science; Nursing has been reduced to three years instead of original three and half years duration. The two campuses have been combined to form a new campus called the Nurses Campus - Mahabouddha Program and the Shanta Bhavan Program though the training is still being given at the separate places.

Table: 17

COURSE: CERTIFICATE IN MEDICAL SCIENCE; NURSING (Duration 3 years)

Institution	Graduation Year	Number graduated
T.U., Nurses Campus (Mahabouddha and Shanta Bhavan Programme)	2033-34	54
"	2034-35	53
"	2035-36	67
Total		174

vii. Nursing Diploma in Medical Science: Of the proposed programme of post basic speciality in nursing, T.U. Nursing Diploma in Medical Science ("B.Sc. or B.S. Nursing) with the specialities in Midwifery or Community Nursing or Medical-Surgical Nursing or ANM Tutor the Institute trained 8 nurses in First Part Nursing Diploma in Medical Science on Post Basic Elective Midwifery in the year 2035-36.

The well known extension programmes are Auxiliary Health Worker (A.H.W.) programme, Senior Auxiliary Health Worker Programme (Sr. A.H.W.), and Auxiliary Nursing Midwifery (A.N.M.) programme. All these programmes were previously run by the Department of Health Services.

viii. Auxiliary Health Worker Training Programme: The A.H.W. programmes are meant for those with 8 years of schooling and is of 2 years duration. Previously only those with 10 years of schooling were admitted in this programme. After completion of training, they will be eligible to work at the post of A.H.W. The following table gives the number of A.H.Ws trained.

Table: 18

COURSE: AUXILIARY HEALTH WORKER (A.H.W.)

Institution	Graduation Year	Number graduated
Maharajganj Campus	2029-30	78
"	2030-31	73
"	2031-32	-
Lazimpat Extension Campus	2032-33	99
"	2033-34	120
"	2034-35	61
"	2035-36	5
Total		436

ix. Community Medicine Auxiliary-Programme: A very similar to A.H.W. course called the Community Medicine Auxiliary (CMA) training previously also called the General Medicine Auxiliary, has been started at Birganj from 2032-33. This training will also enable the students to work at the post of AHWs. The difference between this training and the AHW training is that in the AHW programme the students with 8 years of schooling have to study for two years whereas in this programme the students after S.L.C. will be given only a years' training. This training is also available at Dharan, Tansen and Surkhet nowadays. With the introduction of CMA course the AHW course is discontinued.

Table: 19

COURSE: COMMUNITY MEDICINE AUXILIARY (C.M.A.)

Graduation Year	Number graduated from			Total
	Birganj Campus	Tansen Campus	Dharan Campus	
2033-34	40	0	0	40
2034-35	53	37	0	90
2035-36	80	62	30	172
Total	173	99	30	302

x. Senior Auxiliary Health Worker Training Programme: A.H.W.s who had 10 years of schooling will be given a 3 months In-service training to work for the post of Senior Auxiliary Health Worker (Sr. AHW). They work as the Incharge of the Health Post. That is they will be equivalent to the Health Assistants in status.

Table: 20

COURSE: SENIOR AUXILIARY HEALTH WORKER
(Upgrading Course for the A.H.W.)

Institution	Graduation Year	Number graduated
IOM, Maharajganj Campus	2030-31	43
"	2031-32	117
"	2032-33	94
"	2033-34	37
IOM, Lazimpat Extension Campus	2034-35	97
IOM, Birganj Campus	2035-36	31
Total		419

xi. Auxiliary Nursing Midwifery Programme: Auxiliary Nursing Midwifery courses are conducted to qualify the students to work for the post of A.N.M. The programme is of two years duration for the girls who have 8 years of schooling. This training is given at Biratnager, Bharatpur and Nepalganj, the old A.N.M. Training Centres. Also the training is now available at Tansen and Chhetrapati, Kathmandu. The following table shows the number of ANMs trained by the different campuses:

Table: 21

COURSE: AUXILIARY NURSING MIDWIFERY

Graduation Year	Number graduated from T.U., IOM					Total
	Bharatpur Campus	Biratnager Campus	Nepalganj Campus	Tansen Campus	Chhetrapati Campus	
2029-30	27	25	27	-	-	79
2030-31	23	37	12	-	-	72
2031-32	16	32	16	13	-	77
2032-33	30	19	18	37	-	104
2033-34	21	31	45	9	19	125
2034-35	33	51	22	33	64	203
2035-36	47	31	40	45	29	192
Total	197	226	180	137	112	852

Like the Community Medicine Auxiliary Programme for the AHW, the new Community Nursing Auxiliary Programme will soon replace the ANM programme. Instead of two years training given to the 8th grade students, one year training to the SLC graduates will be given to qualify the students to work as ANMs. Also to upgrade the ANMs the course in Senior Auxiliary Nursing Midwifery is soon to take place in Nepalganj. A 3-months refresher in-service training will be given to the ANMs like the Senior Auxiliary Health Worker training given to the AHW.

xii. Other Junior Paramedical Training Programmes: The IOM also took an interest in the six months training of Health Aides conducted by the British Gorkha Ex-Servicemen Reintegration Training Scheme at Dharan under the British Overseas Development Agency. The health institutions and agencies under HMG and others do conduct their own training programmes. Most of these are informal and of short period, for example, the Village Health Worker (VHW) training given in Pathlaiya Training Centre, a 3-months training for the B.C.C. Vaccinator by the T.B. Control Project, Health and Family Aide training conducted by Family Planning Centres, etc. Similarly the military and police force have their own health cadres training programmes. All these programmes are conducted to meet their own needs.

4. SOURCES OF DATA: All the data and facts used in this paper have been taken from the Research Division and Examination Division of the Institute of Medicine, Dean's Office. No data have been specially collected for the purpose of writing this paper but have been prepared with the materials available in the Divisions.
5. LIMITATION OF THE PAPER: The difficulty that arose in the preparation of this paper was the demarcation time period. The outputs of the various programmes in the cadres of health are included in this paper. And it has been felt very difficult to trace out the old records specially of the pre-IOM period. So whatever is available is presented as it is. In all the tables the graduation year are in Bikram Sambat. So in some cases the conversion of English year/month into the Nepali year may not tally. Some conduct examinations in certain years and publishes the results in the following year. Sometimes the results of the students are withheld and publish them the following year. This happens too frequently when the examination is held at the year-ending month. So to classify their correct graduation year is difficult. Therefore some figures in the specified year may not tally, but the total should be correct. In the IOM period, the graduation year 2029-30, etc. means the results published in between 2029 Shrawan to 2030 Asadh. Results published upto 2036 Jestha have been accounted here.

The data available with the different units differed in many cases. This is an acute problem for all of us who compile statistics in almost every sphere. This is due to the reason that there is still no uniform system of keeping records from which to draw information and data. Under such circumstances, the statistics presented in this paper are as accurate as is possible. Some are figures copied from the displayed charts, and some are figures copied from the files of different offices. Attempts have been made to compile these scattered data. I therefore invite comments, suggestions and corrections of the data and facts presented here, if any of them are inaccurate.

6. CONCLUSION: The preceeding discussion of the production of health workers from the very beginning tries to sketch a brief history of education and training for the health sector in Nepal, which I hope will provide a data-base to all the planners in the field of health and others interested in Nepal's health field and IOM-programmed.

Now to conclude, let us give a quick look on the figures laid down in the Fifth Plan on Health manpower situation.

Demand and Supply of the Technical Manpower in the Fifth Plan (1975-80), only the health sector is considered.

Classification	Demand	Supply	Surplus (+) Deficit (-)
High Level - Medical Graduates	789	535	254 (-) 67.8
Middle Level - Paramedical and Allied	1735	1406	329 (-) 81.0
Basic Level - Junior Health Workers	5021	3136	1885 (-) 62.5

With these deficit Health Manpower in the country, we have got no alternative rather than to produce more number of health workers. The production of doctors and paramedical staff, both middle and basic levels, have to be increased considerably. For the supply of high level manpower, Nepal has to rely largely upon India and foreign countries. The number of health personnel who have gone abroad for higher studies in the previous years but had not returned is also significant in proportion to the number of doctors presently working in Nepal. So firstly we have to create a conducive atmosphere for their return, after completion of their study; say better job opportunities and other facilities. We have to produce our own medical graduates so that we don't have to rely on foreign countries for the years to come. The opening of the Diploma Programme in Medicine is the landmark in the history of medical education in Nepal. Similarly the T.U. Nursing Diploma in Medical Science is the outstanding achievement. For fulfilling the other levels of manpower we have to run and expand the training centres. We have to raise the intake capacity of the existing training centres together with the establishment of new campuses in the different parts of the country. Since the attrition rate of these trained manpower is very high, only the production of health manpower will not solve our problem. We have to train and motivate more number of such health Workers who are eager to work in rural and backward areas and who love their profession.

7. ACKNOWLEDGEMENTS: My sincere debt of gratitude are due to all those who have gone through the initial edition of this paper and made very helpful comments and corrections; and specially to Dr. Hemang Dixit, Dean, Institute of Medicine for his interest and constant encouragement to write this paper. Also my thanks goes to the authors and publishers of the different publications given in the references which I have consulted freely while writing this paper.

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ANNEX I

Health Services and Health Manpower Situation in Nepal*

A. Health Services:

1. Total Number of Hospitals	70
a. Public Sector	50
b. Private Sector	20
2. Total Hospital Beds including of the Health Centres and Ayurvedic Dispensaries	2262
3. Total Number of Health Centres	29
4. Total Number of Health Posts	483
5. Total Number of Ayurvedic Dispensaries	82

B. Health Manpower: (employed under Ministry of Health, Department of Health Services)

1. Total Number of Doctors	468
a. Specialists	40
b. Dental Surgeons	15
c. Others	413
2. Total Number engaged in Nursing Business	1049
a. Matrons	2
b. Sisters	26
c. Nurses	239
d. A.N.Ms.	782
3. Total Number of Paramedical Workers	1063
a. Health Assistants	207
b. Senior Auxiliary Health Workers	251
c. Auxiliary Health Workers	605

* Source: The Rising Nepal, Kathmandu, March 29, 1978.

ANNEX II

Health Training Institutions under T.U., Institute of Medicine

Name of the Campus & Address	Level & Programme of Teaching
1. Central Campus Maharajganj, Kathmandu	Certificate in Medical Science: General Medicine, Pharmacy, Health Lab., Radiography and Diploma of Doctor of General and Community Medicine
2. Nurse Campus a. Mahabouddha Programme Mahabouddha, Kathmandu. b. Shanta Bhavan Programme Shanta Bhavan, Lalitpur.	Certificate in Medical Science: Nursing and Nursing Diploma in Medical Science Certificate in Medical Science: Nursing
3. Ayurved Campus Naradevi, Kathmandu.	Certificate in Medical Science: Ayurved
4. Birganj Campus, Birganj.	Community Medicine Auxiliary Senior AHW
5. Dharan Campus Dharan.	Certificate in Medical Science: General Medicine and Community Medicine Auxiliary
6. Chhetrapati Extension Campus Chhetrapati, Kathmandu.	Auxiliary Nursing Midwifery
7. Community Medicine Auxiliary Programme, Tansen, Palpa.	Community Medicine Auxiliary
8. Nepalganj Extension Campus Nepalganj.	Auxiliary Nursing Midwifery
9. Tansen Extension Campus Tansen, Palpa	Auxiliary Nursing Midwifery
10. Bharatpur Extension Campus Bharatpur.	Auxiliary Nursing Midwifery
11. Biratnagar Extension Campus Biratnagar	Auxiliary Nursing Midwifery
12. Surkhet Campus Surkhet.	Community Medicine Auxiliary

(2036 Jestha)

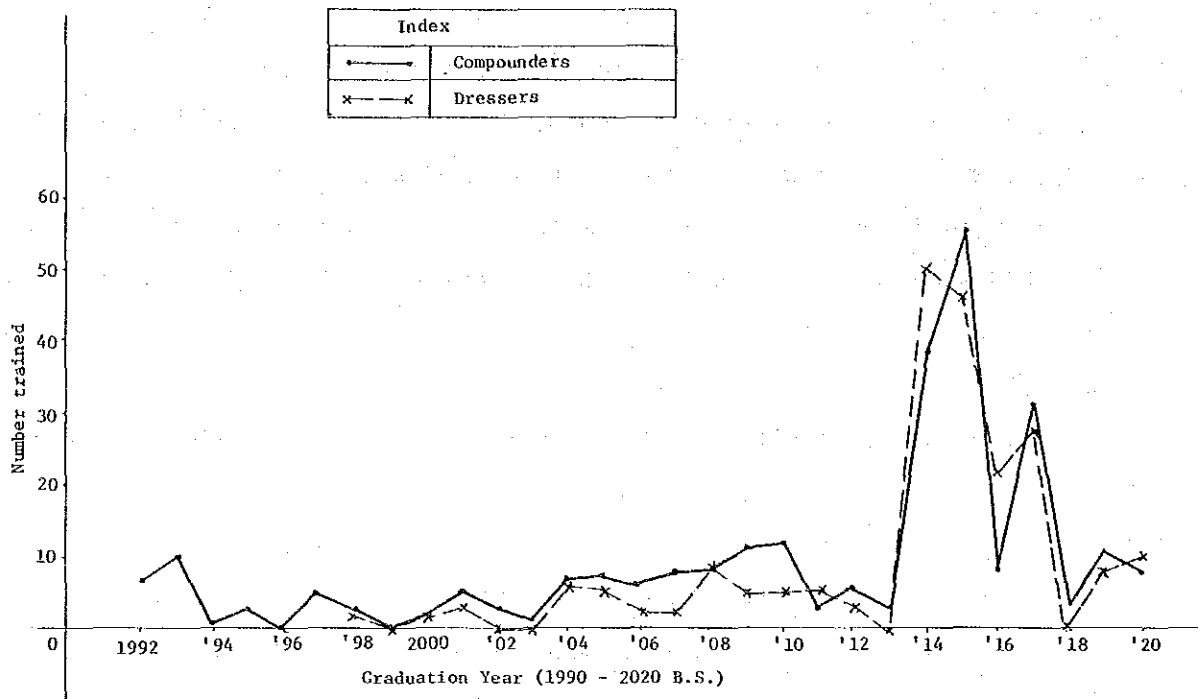


Figure 1 Graph showing the number of compounders and dressers trained in different years

6) 保健医療対策並びにサービス体系の現状

① ネパール国の医療区分

ネパールはヒマラヤ山脈から流れる河（東はサプタコン河，中央はガンダキ河，西はカルナク河）によって4つの region に分けられている。橋がないため，特に雨期においては印度を通過して行く以外に相互の交通は不可能になっている。

各 region は更に幾つかの zone (zone の数は14) に分けられ， zone は更に5～8の district に分けられ， district は更に7つの area に分けられている。area の住民数は1～2万である。

② 医療体系

a) カトマンドウに中枢病院を置き高度の医療を行っている。現在の中枢病院はBir 病院で，病床数300床である。その他に小児病院(150床)，婦人病院(200床)があり，ネパールの中枢病院の働きをしている。

b) 各 region に一つの regional hospital を置く。

これが各 region の専門治療を行う最上級の病院になる筈であるが，恐らくは未だ建設されていないが，将来 district Hospital か zonal hospital が昇格するのではないかと思われる。

c) 各々の zone には1つの zonal hospital を置く。zonal hospital は比較的高度の治療を行うもので，各々の専門に分化している。病床数は50～300と云っている。但し，これも未だ建設予定であるが，district hospital が昇格するのではないかと思われる。

d) 各々の district には district hospital を置いている。その病床数は凡そ50で，医師の数は2～3名 (senior doctor 1, general doctor 3 の予定) で，専門分野に分かれることなく，G. P. (general physician) として治療している。主な治療の対象は消化器疾患，結核，外傷である。

e) 各々の area には health post を置いている。health post には正規の医師はいなくて，Health assistant, auxiliary nurse midwife, auxiliary health worker (衛生技士，準看護婦)，Institute of medicine で certificate course を終えたものが働いている。health post の役割は主として公衆衛生面の指導，簡単な治療，家族計画の指導である。

f) 以上の外に，公衆衛生の指導，予防医学充実のために Health center が置かれている。

③ 医療サービス従事者の数，医療機関の数

医師数	415 (430)
歯科医	18
正看護婦	362 (500)
準看護婦	995 (1100)
衛生技士	558

準衛生技士 860

病院の教 75(4.8)

総ベッド数 2667

Health center 24

Health post 583(5.32)

注) 以上の数字は書面によったものである。discussion中の数字は違っているので()
で示した。

3. 保健医療教育

1) 医学教育の変化

- a) 1933年以来、民間医療 (traditional medicine) の教育がなされて来たが、(約222名の卒業生がいる)、科学、技術の進歩に伴い、新しい教育の必要に迫られ、1972年から Institute of Medicine で教育又は再教育がなされるようになった(約58名が卒業)
- b) 新しい教育体系は certificate in medical science course(2年半)と Diploma course から成り立っている。
- c) certificate course を終えたものは health post か district hospital に合格すれば Diploma course に進むことが出来る。
- d) certificate course of general medicine には現在24名の学生がいる。
- e) Diploma course は未だ出来ていなくて、日本の援助で教育病院が出来るとともに完成するものである。

2) 教育施設の現状

- a) 現在保健医療教育がなされているのはカトマンドウの Institute of medicine と Nursing school (看護大学)のみである。
- b) 現在の所、医学教育では certificate course があるのみで、これを卒業したものは主として公衆衛生、予防医学、簡単な治療に人力として使われている。
- c) 看護大学のコースは可なり充実していて、制度としては日本よりも進んでいる。
- d) パラメディカル、薬剤士の教育も Institute of medicine で行われている。
- e) 設備、備品は何れの場所においても極めて貧弱で、教材の不足、蔵書の不足、教育者の不足が目立っている。

3) 教育水準

- a) 現在働いている医者は印度、英国、ソ連などで教育を受けたもので、その知識の程度は可なり高く評価してよいと思われるし、又中枢病院で働いている医師の技術も可なりのものであると思われる。しかし外国文献を入手することが困難であること、設備が貧弱であること、チームワークをするだけの人力がないことのために充分の力が発揮出来ない現状である。
- b) ナース、パラメディカルの能力については充分の評価はできなかったが、或る程度の能力は持っているようであった。但し我国のように種々の器械を操作する必要がないので、極めて基本的な段階に止っている。
- c) Institute of medicine の教育水準を判定する適当な尺度がないので、断言することは

できないが、教育は極めて基本的な所に重点が置かれていて（日本の旧制中学，旧制工業学校程度か），ネパール国の公衆衛生面での入力になり得るものではないかと思われる。但し前述したように設備，教材の不足のために充分の力を発揮出来ない現状でないかと推定される。

4. トリブバン大学医学部の現状

トリブバン大学は，1959年に設立されたネパール国唯一の大学である。1971年のトリブバン大学設置改正法に基づき，国王が組織する国家教育委員会によって作られる政策，規則，指針に従って運営されている。同大学は自治体である。

国王が総長（Chancellor），文部大臣が副総長（Pro-Chancellor）を務め，行政担当者としては，Vice-chancellor，Rector，Registrar及び各学部長が任命されている。学部数は10である。

医学部は人材養成機関であり，保健省が卒業生の雇傭者となっている。

1) 教育目標

教育目標は，以下のように掲げられている。

- ① 地域社会の保健医療問題に学生の目を開かせ（community Oriented），学生自身が地域社会の一員であることの認識の下に，教育初年度より公衆衛生学に重点をおき，地域保健医療問題の対応に必要な知識，態度，技術を一貫して修得せしめる。
- ② 上述の基本目標に合わせて，教育の集中的実施要領が確立されており，その要点は，
 - a. 疾病の予防，保健水準の向上に重点をおいて，臨床医学を含めた公衆衛生教育，
 - b. 臨床医学並びに公衆衛生学の双方に亘る基礎医学教育の実施を行う。
- ③ 前記目標の線に沿って，学生の自己研鑽意欲の向上に重点をおく。
- ④ ①～③に基づく教育を行い，ネパールの各地域の保健医療サービスのために medical officer として働く Community physician を養成する。

教育の直接的な目的は，以下のように設定され，卒業生は医者として，この目的のために活動するよう要請されている。

- ① 地域病院（district hospitals）の組織を通じて，人命の救助，保健の向上，リハビリテーション等のための医療業務を行う。
- ② 地域保健所（district health office）において，疾病予防等の業務を行う。
- ③ 地域病院，地域保健所において企画，予算，監督を含めた管理業務を効率的に行う。
- ④ ネパールの法律に基づく医療行政責任を全うする。

医学部の教科等の概略は以下のとおりである。

Semesters

The general outline of eight semester Diploma Programme is as follows:

Semester 1

The first semester programme will consist mainly of community medicine. The general topics that will be taken up during this semester will be:

1. Epidemiology: This course will be introduced in the first semester with a view to give indepth knowledge and understanding of the subject to the student. The epidemiological tools will be utilised later for the study of control and prevention of communicable diseases in subsequent semesters.
2. Biostatistics: This is an elementary and introductory course on General Biostatistics and Medical Statistics designed to meet the needs of student with emphasis on community and family health problems.
3. Medical Sociology: This course is designed to give the student some insight of the composition, ethnic groups and social practices which influence the health of the community. This course of study includes the following subjects: Anthropology, Psychology, Sociology.
4. Environmental Health: Health of a community depends to a large extent on the environment, he lives in. The course is designed to give impetus to the student to attempt to improve the environment thereby lessening the incidence of food, water and air borne diseases.
5. Nutrition: Substantial proportion of child population of this country suffer from malnutrition. This being one of the major causes of mortality and morbidity, it is essential that the Diplomate should be qualified to educate the community on the nutrition value and advantages of the locally available foods.
6. Health Education: Prevention of the disease is a rational and cheap form of health suited to a developing country such as ours. Mass communication ensures that basic precautions will go a long way to preventing many of the common ailments.

Objective of this semester is to prepare the student for the study and identification of community health problems and to acquire the necessary skill for this purpose.

It is proposed that the student will gain some basic theoretical background in the classroom initially followed by actual work in the assigned community field (to be identified later) for the purpose of study and identification of health problems. He will continue to receive guidance and help from the supervisor and teachers during this period.

The student will perform K.A.P. Survey, epemiological survey, learn about the community problems and needs maintain good rapport with the community. He will be assigned certain households in the community for the rest of his study period during which he is expected to keep a very close contact with family and keep record of all health related events in the family. The student will continue to receive theoretical and practical guidance from the teachers and supervisors throughout this period. The technique of patient history taking or interview will be incorporated with community medicine during this semester.

Semester 2 and 3

These two semesters will be devoted to the study of the basic sciences of clinical Medicine. The subjects that will be taken up during these two semesters block are:

Anatomy
Physiology
Pathology

The student will learn these subjects in systems units. For the purpose of facilitating the learning, these subjects are arbitrarily divided into seven systems:

1. Respiratory
2. Cardiovascular/Haematology
3. Gastrointestinal
4. Renal/Electrolyte
5. Musculo-skeletal
6. Reproductive
7. Neuro/Sensory (Eye/ENT).

The first four systems will be taken up in 2nd semester and the remaining three systems will be taken up in the 3rd semester.

An attempt has been made to integrate the different subjects as far as possible. In each "system" unit, Anatomy, Physiology, Pathology and Pharmacology will be taught in conjunction with the goal of relating these topics with actual clinical situations. For this purpose, team teaching will be practised as often as possible.

Class room and Laboratory Study will be supplemented by the presentation of clinical materials related to the particular system covered in basic science. During this period the student will learn a systemic method of general physical examination and try to correlate basic science with actual clinical condition by learning surface and radiological anatomy.

The student will continue to learn the application of biomedical data to analyse the clinical profiles relating to the patients. It is expected that the students link with the assigned community will continue. He will undertake a periodical visit to his field and upgrade the data.

The overall goal of these two semesters study of basic science is to prepare the student for semester 4, 5 and 6.

Semester 4-6

This phase consists of three semesters. During this period the student will be placed under various teachers in the hospital, where he will study the components of hospital medicine and therapeutics. General area of Medicine that will be taken up during this period will be as follows:

Semester 4

Gen. Medicine including
Dermatology
Eye
ENT
Dental Surgery

Semester 5

Gen. Medicine,
including Psychiatry
Gynae/Obstetrics
Child Health
Gen. Surgery

Semester 6

Forensic Medicine
Gynae/Obstetrics
Child Health
Gen. Surgery

It is suggested that the student should take up four major subjects in each semester. In the fourth semester the student will be introduced to general medicine including Dermatology, Eye and ENT and some aspect of Dental Surgery. The student is expected to be actively engaged in the patient care system and not to only to work in clerking the patients but to also to acquire some skills. Fifth semester programme will include continuation of General Medicine and inclusion of Gynae/Obs., Child Health and General Surgery. In all these four areas of medical science, he is expected to acquire certain defined competencies. These competencies are defined elsewhere.

During the sixth semester, Forensic Medicine will be introduced and this subject will be completed at the end of the semester. The student will continue to learn more about gynaecology/obstetrics, child health and general surgery and will be able to achieve some of the defined competencies. The student will continue to maintain link with the community, and study their problems and upgrade the data concerning assigned households. Epidemiological studies of diseases will be conducted during this period.

MCH and Family Planning aspect of the community medicine will be integrated with gynaecology/obstetrics and child health. Biomedical data from the hospital records and community field studies will be utilised extensively as an exercise for learning to identify the common health problems both in community and hospital settings.

Semester 7-8

This phase of the programme will be conducted partly in the main teaching hospitals and partly in other hospitals where District Health Office is also located. The duration of training in District Health Office will be of approximately 8 weeks, consisting of theory and practical work (details to be worked out). Objective of taking the student to the District Health Office situations for training purposes are:

1. to give him some understanding of the type of work, he is expected to perform in smaller hospitals outside the perimeter of large teaching hospitals in the valley;
2. to acquire the necessary knowledge and skill of administrative management and supervisory skills while working as a team member of the district health office;*
3. participate as a team member in the promotive and preventive services available in the districts.

* Number and type of hospitals with District Health Office needed for the purpose will have to be identified.

The student should be given a catalogue of jobs, he will have to perform as part of training. A carefully worked out work schedule needs to be prepared beforehand.

Some part of his stay in the district hospital will be utilised in improving/developing certain clinical skills. In addition, the student will participate in the preventive promotive activity of the district health services. He is expected to maintain a record of activity of learning experience. A supervisory help will be provided to the student throughout this period.

The remaining period of approximately 7 weeks of the 7th semester along with the whole of the 8th semester will be utilised for further development of student's skill in the major areas of clinical medicine, namely surgery, medicine, gynaecology/obstetrics and Child Health in the teaching hospitals. The student is expected to acquire all the competencies detailed in the programme for Medicine, Surgery, Gynaecology/Obstetrics, Child Health along with Community Medicine and Administrative Management by the end of the programme.

1. Location of Training: This will be conducted at the Central Campus Maharajgunj. The Field Practise areas for Community Medicine will be selected from nearby villages namely Mahankal and/or adjoining Village Panchavats.
2. Second and third semesters: The programme will be conducted in the Central Campus, Valley Hospitals and Field Areas.
3. Fourth, fifth and sixth semesters: The programme will be conducted in the valley hospitals and campus premises. Some contact will however be maintained with field areas of Community Medicine with which the student was associated initially.
4. Seventh and eighth semesters: The programme will be conducted at two places:
 - (a) Hospitals with District Health Office.
 - (b) Kathmandu Hospitals.

Note: Until such time as the I.O.M. has its own teaching hospital, suitably equipped with all teaching facilities, the present Kathmandu hospitals will be utilised for teaching.

Post Qualification House Job: A rotating House Job of at least one year in Medicine, Surgery and Obstetrics and Gynaecology, Child Health must be done in recognised hospitals. The training at such hospitals must ensure that the graduate learns to be competent enough to handle the common emergencies as laid out in the terminal competencies. A system of assessment to ascertain the achievement of the competencies by the Diploma holder will have to be evolved before the candidate is recommended for registration.

The I.O.N. will draw a list of recognised hospitals where such training can be done.

Subjective Summary of Credits

A. <u>General Medicine Course (including aspects of Community Medicine)</u>	...	107
- General Medicine including clinical communicable diseases of Community Medicine	...	21
- General Surgery including Orthopaedics & Trauma	...	21
- Gynae/Obstetrics including Community Obstetrics and aspects of community medicine	...	22
- Child Health which includes community medicine	...	16
- Eye	...	7
- E.N.T.	...	7
- Forensic Medicine	...	4
- Dermatology	...	3
- Psychiatry	...	3
- Dental	...	3

Anaesthesia and Radiology credits have not been included.

B. <u>Basic Science of General and Community Medicine and Other Courses in Community Medicine</u>	...	79
Anatomy	...	14
Physiology	...	10
Pathology	...	14
Pharmacology	...	8
Biostatics	...	4
Epidemiology	...	5
Nutrition	...	2
Medical Sociology	...	4
Health Education	...	3
Environmental Health	...	5
Administrative Management and Field Study	...	10

Total credits - 196

The General outline of Curriculum, was prepared initially by the 'task force' consisting of: Dr. B.R. Prasai (Coordinator)
 Mr. Larry Hulbert Member (WHO short term Consult)
 Dr. D.P. Upadhyaya
 Dr. Hemang Dixit
 Dr. G.P. Acharya

This was presented by Dr. Moin Shah, Dean, to the faculty board and after minor alteration was approved by the Faculty Board.

2) 保健医療サービスの中での医学部の位置づけ

ネパール王国には日本の医学部、医科大学に相当するものがなく、医学教育は専ら外国への留学（主として印度）に依存していたが、今後日本の医学部に相当する Diploma course を新設しようとしているのであるから、将来これがネパール王国の医療の中心的役割を果たすものと考えられる。少くともネパール国の唯一の医師供給源になることは確かである。又医療において指導的役割を果たすか、どうかは将来の教授陣の質と、病院の設備の充実度にかかっていると思われる。

3) 施設の現状

Institute of medicine は、教課内容からいくと、日本の基礎医学と医学進学課程を一緒にしたようなもので、10年の普通教育を受けたものが入学し、凡そ2年半の教育をうける。その中のコースは5つあり、次の通りである。

- a) medical science certificate course (医者コース)
- b) health Lab. " " (検査室技士コース)
- c) pharmacy " " (薬剤士 ")
- d) radiography " " (レ線技士 ")
- e) nursing " " (看護婦 ")

カリキュラムは medical science certificate course のものを挙げると

英語、ネパール語、生物学、物理化学、応用数学、生化学、細菌学、寄生虫学、病理学、公衆衛生学、薬理学、内科、外科、産婆学である。

主たる目的が health post に行き、公衆衛生的なサービスと簡単な治療を行うことであるから、極めて基本的な知識が与えられている。

これら教育を行う施設は建物はあるが、その中に入れる備品、教材、蔵書が不足している。ちなみに Institute of medicine の図書室の蔵書の数は 5,000 冊で、そのうち 2,000 冊が参考文献である。学生は自分の本を持たないのが普通で、3,000 冊の蔵書から借り出して勉強している。

いわゆる独自の教育病院はなく臨床教育は、前述の Bir 病院を中心として、保健省との契約により何ベットの施設と患者の提供を受けているに過ぎない。

4) 教育水準

判定が困難であるが、基本的な事柄は理解していると思われる。日本の旧制中学程度のものに教課内容だけを変えたものと考えてもよいかと思う。

5) 教育要員の充足状況と配属計画

施設もさることながら、教育要員の質並びに数の充足の程度が最も肝要な点である。トリブバン大学は、医学部の教育要員の拡充計画を一応たてているが、充足の程度は極めて低く、これが計画期間内に如何程充足率が高められ得るのか、技術協力を進めて行く上で特に注意を要しよう。

現在の各科の教員配属状況並びに1983年までの配属計画表は後掲の表のとおりである。この表でみると、内訳数と集計数が合致せず一部誤りがあるものと思われるが、そのまゝの数をを使うならば、現存のポスト114人に対して在籍ポストは54人で、充足率は47.4%、計画ポスト213人に対する在籍ポストの割合は25.4%と余りにもギャップが大きく、ネパールの現状に照らし、これを埋めることは容易なことではないと思われる。しかも、在籍ポスト54人の内訳は、専属教員61.1%(33人)、保健所からの出向教員33.3%(18人)、契約ベースの外国人教員3人(5.6%)と、構成上問題なしとはしない現況にある。

教員配属現況並びに配属計画

総 表

現存ポスト	在籍ポスト	1983年度 所要ポスト	1980年度 追加ポスト	1981年度 追加ポスト	1982年度 追加ポスト	1983年度 追加ポスト
114人	54人	313人	41人	32人	35人	75人

(1) 在籍ポストの内訳

契約ベースの教員 (WHOからの外国要員) 3人(5.6%)
 保健省からの出向教員 18人(33.3%)
 専 属 教 員 33人(61.1%)
 計 54人(100%)

(2) 在籍ポストの現存ポストに対する割合(現在の充足率) 47.4%

(3) 在籍ポストの1983年度計画ポストに対する割合(現在の充足率) 25.4%

注：① 表の数字は教授，助教授，講師，助手等の総数

② 表の数字はネ側の明細表を未訂正のまま集計したもの。

Proposed Teaching Staff

	Existing		To be filled in				
	Post (1)	Post by 1983 (2)	1983 (3)	1980 (4)	1981 (5)	1982 (6)	1983 (7)
1. <u>Anatomy</u>							
Professor	1	1(a)	1	0	0	0	1
Reader	1	0	1	0	0	0	1
Lectures	1	1	2	0	1	0	0
Asst. Lecturer	1	1	2	1	0	0	0
Instructor	1	0	1	0	1	0	0
Dep. Instructor	0	0	2	0	1	1	0
2. <u>Anesthesiology</u>							
Professor	0	1(b)	1	0	0	0	1
Reader	0	0	3	0	0	0	3
Lecturer	0	0	3	0	0	1	2
Asst. Lecturer	0	0	3	0	0	1	2
3. <u>Casualty</u> (Emergency Service)							
Lecturer	0	0	2	0	0	0	2
Asst. Lecturer	0	0	3	0	0	0	3
4. <u>Community Medicine</u>							
Professor	1	3(b)	2	1	1	0	0
Reader	2	1	6	2	2	1	0
Lecturer	17	7	17	3	3	2	2
Asst. Lecturer	17	3	17	4	4	2	3
Instructor	5	0	5	2	2	1	0
Deputy Instr.	1	0	1	1	0	0	0
Asst. Instr.	0	0	0	0	0	0	0
Sub-total:	48	18	68	14	15	9	20

* (a) Contract

(b) on deputation from Health Ministry

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>5. Dental Surgery</u>							
Professor	0	1(b)	1	0	0	0	1
Reader	0	0	1	0	0	0	1
Lecturer	0	0	1	0	0	0	1
Asst. Lecturer	0	0	2	0	0	1	1
Asst. Instructor	3	0	3	0	0	1	2
<u>6. Dermatology & V.D.</u>							
Professor	0	1(b)	1	0	0	0	1
Reader	1	0	1	0	0	0	1
Lecturer	0	0	1	0	0	0	1
Asst. Lecturer	0	0	1	0	0	1	0
<u>7. E N T</u>							
Professor	0	1(b)	1	0	0	0	1
Reader	1	0	1	0	0	0	1
Lecturer	1	0	2	0	0	0	1
Asst. Lecturer	0	0	2	0	0	1	1
<u>8. Forensic Medicine</u>							
Reader	1	0	1	1(a)	0	0	1
Lecturer	0	0	1	1	0	0	0
<u>9. Internal Medicine</u>							
Professor	1	2(b)	1	1	0	0	0
Reader	1	1	2	0	0	0	1
Lecturer	2	1	3	0	1	1	0
Asst. Lecturer							
<u>10. Obs. & Gync.</u>							
Professor	1	2(b)	1	1	0	0	0
Reader	1	0	1	1	0	0	0
Lecturer	1	1	2	0	0	0	1
Asst. Lecturer	0	0	4	0	1	1	2
Sub-total:	14	10	34	5	2	6	18

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
11. <u>Ophthalmology</u>							
Professor	0	1(b)	1	0	1	0	0
Reader	1	1	1	0	0	0	0
Lecturer	1	0	2	1	0	0	1
Asst. Lect.	0	0	2	0	0	1	1
12. <u>Pathology</u>							
Professor	1	0	1	1	0	0	0
Reader	2	1	3	1	1	0	0
Lecturer	3	0	6	2	2	2	0
Asst. Lect.	1	0	3	1	1	1	0
Instructor	1	0	2	1	1	0	0
Dep. Instr.	2	0	4	1	1	1	1
Asst. Inst.	15	5	15	1	0	0	10
13. <u>Pharmacology</u>							
Professor	1	1(a)	1	0	1	0	0
Reader	0	0	1	0	0	1	0
Lecturer	2	1	4	1	1	1	0
Asst. Lecturer	1	0	4	1	1	1	1
Instructor	1	0	1	1	0	0	0
Dep. Inst.	1	0	1	1	0	0	0
Asst. Instr.	5	0	5	2	1	1	1
14. <u>Physiology</u>							
Professor	0	1(a)	1	0	0	0	1
Reader	0	0	1	1	0	0	0
Lecturer	1	0	2	1	0	1	0
Asst. Lect.	0	0	2	1	1	0	0
Instructor	0	0	1	0	0	0	0
Dep. Inst.	0	0	1	0	1	0	0
Asst. Inst.	2	0	2	0	1	1	0
15. <u>Psychiatry</u>							
Professor	0	1(b)	1	0	0	0	1
Reader	0	0	1	0	0	0	1
Lecturer	0	0	1	0	0	0	1
Asst. Lect.	0	0	1	0	0	0	1
Sub-total:	40	12	71	18	14	11	20

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
16. <u>Radiodiagnosis</u>							
Professor	0	1(b)	1	0	0	0	1
Reader	1	0	2	1	0	0	1
Lecturer	0	0	2	0	0	1	1
Asst. Lect.	0	0	2	1	0	0	1
Instructor	1	1	2	0	0	0	1
Dep. Instr.	1	0	3	1	0	1	1
Asst. Inst.	4	4	4	0	0	0	0
17. <u>Surgery</u>							
Professor	1	2(b)	1	1	0	0	0
Reader	0	0	2	0	0	1	1
Lecturer	1	1	3	0	0	1	1
Asst. Lect.	0	0	3	0	0	1	2
18. <u>Orthopedics</u>							
Professor	0	1(b)	1	0	0	0	1
Reader	0	0	1	0	0	0	1
Lecturer	0	0	2	0	0	1	1
Asst. Lect.	0	0	2	0	0	1	1
19. <u>Paediatrics</u>							
Professor	0	1(b)	1	0	0	0	1
Reader	2	2	2	0	0	0	0
Lecturer	1	1	3	0	0	1	1
Asst. Lect.	0	0	3	0	1	1	1
Sub-total:	12	14	40	4	1	9	17
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Existing Post	Filled Post	1983	1980	1981	1982	1983
Total:	114	54	213	41	32	35	75

Comment on Proposed Teaching Staff

Posts required by 1983 excluding Nursing	- 220
Posts already sanctioned	- 115
Existing Staff	- 99
In Regular service	- 51
In the process of being recruited	- 19
Deputed by Health Ministry	- 16
In contract service	- 13
W.H.O.	- 2
United Mission	- 4
India	- 2
British Council (VSO)	- 2
Dooley Foundation	- 2
SATA	- 1

When the Teaching Hospital is approved, more will be recruited according to the need in a phased manner. Until the posts are filled by the nationals or from the donor country (Japan), the posts can be filled on contract Basis.

Technical assistance from Japan - Teachers in Various Subjects.
Details have already been given.

Tribhuvan University Institute of Medicine

TEACHING HOSPITAL PROJECT

Introduction

The Institute of Medicine (IOM) was established in 1972 and has been training various cadres of health workers. The Diploma course in Medicine was introduced in 1978 and the annual number of admissions to this course which is at present 22 is expected to reach 50 in 3 or years when the facilities become available for this number. The students are being trained in the existing hospitals of Kathmandu Valley.

Project Justification

There is a big shortage of medical manpower in the country. In spite of the increase in the number of admissions to the diploma course in Medicine, there will still be a shortage of 220 doctors by 1990. Details are as follows:

Requirement of doctors by 1990		
For Health Ministry		1,000
For IOM		150
Total		1,150
Existing number of doctors (in service and in Nepal)		
400		
Supply of doctors by		
Production by IOM	310	
Training in other countries	220	
Total		530
Overall deficit		220

This clearly shows the need for increasing the target of production of the IOM and that too as early as possible.

The present training in the existing hospitals is handicapped by many drawbacks. Because of their limited number and bed strength, they have to function mainly as emergency hospitals, and do not serve as good teaching hospitals. When the number of admissions to the diploma course will reach 50, the beds available for teaching these students will not be adequate and due to lack of space there is no scope for their expansion. Moreover there are very little facilities for research.

There is a big demand on the existing hospitals for their services and they are unable to meet this demand. There is a big attendance in the Out-patient department which averages about 700 per day and it is very difficult

to give due attention to this number of patients. The wards are not only fully occupied but frequently there are extra beds, many of them on the floor. There is a long waiting period for elective surgery and radiological investigations. All these point to the need for another hospital in the capital.

There is hardly any noteworthy research in the medical field in the country. Medical research particularly oriented to the country has yet to be developed.

Specialist units do not exist in the hospitals with the result that patients have to go abroad for treatment in such units.

It is clear from the above that there is a need for a teaching hospital for producing medical manpower, for coping with the increasing demand of medical services particularly for serving as a national referral center especially for specialist units and for medical research.

Project Objectives

The objectives of the project are:

1. to produce medical manpower, both doctors and paramedical, needed for the country by providing teaching in the hospital
2. to develop a high degree of medical care and diagnosis including the services of the specialist units so as to serve as national referral center
3. to carry out research in the field of medical education, medical diagnosis and care and community health.

Project Location

The Project will be located in Maharajganj, Kathmandu, in the recent IOM complex and in the adjoining area north of the complex.

Project Description

The Project will consist of:

1. Construction of
 - 1.1 Hospital Building including all services for 500 beds
 - 1.2 Academic Block including teaching departments, library, auditorium, conference hall, etc.
 - 1.3 Residence for staff and students
2. Equipment for
 - 2.1 Hospital and its services
 - 2.2 Academic Block

2.3 Residence

3. Training of manpower for the development of the faculty and services.
4. Provision of experts for construction, and for training of the various staffs of the I.O.M.
5. Supply of vehicles

Project Cost

The cost of the Project for the above mentioned activities will be (in US \$).

	<u>Phase I</u>	<u>Phase II</u>	<u>Total</u>
Local Cost	4,000,000	3,000,000	7,000,000
Foreign Exchange Cost	6,000,000	3,000,000	9,000,000
Total	10,000,000	6,000,000	16,000,000

His Majesty's Government of Nepal will make the land and manpower available and will meet the recurring expenditure after the project is completed. External assistance is being sought for construction, equipments, training, experts, and vehicles.

Project Benefits

1. Medical manpower, both doctors, nurses and paramedical, which is acutely needed for the delivery of health services in the country will be produced.
2. Kathmandu which is already facing acute shortage of medical services will be served by one more hospital which will go a long way in meeting the demands of the city regarding the medical services.
3. The proposed hospital will serve as a national referral hospital particularly for specialist services and the patients will not have to go abroad for treatment, resulting into a national saving.
4. The standard of medical teaching and of medical care and diagnosis will be improved to a considerable extent.
5. Research particularly oriented to this country will leading to the improvement in the delivery of health services in the country.

Project Status

The Project is in a preparatory stage. A four member committee constituted by the Dean of the IOM has already submitted a preliminary report on the selection of the site. The size of the proposed hospital, the degree

of sophistication of the hospital and dates of construction. It is now working on the details and has prepared the Master Plan, cost estimate, lists of equipments for the nonclinical departments, manpower requirement and training and the estimate of recurring expenditure and the resources to meet the expenditure.

The Japanese Government has shown interest in providing assistance for the Project and is sending a survey team in November 1979. Two such teams had earlier visited Nepal, the first in November 1978 and the second in May 1979. The Dean of the IOM had also visited Japan in October 1979 for discussions with the Japanese officials. The survey team which includes an architect will discuss the details of officials. The survey team which includes an architect will discuss the details of the Project with the concerned Nepalese officials.

Project Management

The Project will be managed by the IOM.

Project Implementation

The Project is proposed to be implemented during the Sixth Five Year Plan beginning in July 1980. It will be implemented in two phases. During the first phase, 300 hospital beds, 60% of the site development will be completed by 1983. The remaining will be completed during the second phase by 1985. Most of the equipments will be made available during the first phase and during the second phase equipments necessary for additional 200 beds and additional services will be supplied. Manpower training for the non-clinical departments will be provided during the first phase and for the clinical department during both phases.

Proposed Teaching Staff for Central Campus, Institute of Medicine
(including Teaching Hospital)

Department	Professor	Reader	Lecturer	Asst. Lect.	Instructor	Dep. Instr.	Asst. Instr.	Total	Remarks
1. Anatomy	1	1	2	2	1	2	-	9	
2. Anesthesiology	1	3	3	3	-	-	-	10	
3. Casualty	-	-	2	3	-	-	-	5	
4. Community Medicine	(2)	(6)	(17)	(17)	(5)	(1)	-	(48)	
4.1 Biostatistics	-	1	2	2	-	-	-	5	
4.2 Demography	-	1	2	2	-	-	-	5	
4.3 Environmental Health	1	-	3	3	2	1	-	10	
4.4 Epidemiology	1	1	3	3	-	-	-	8	
4.5 Health Education	-	1	3	3	3	-	-	10	
4.6 Nutrition	-	1	2	2	-	-	-	5	
4.7 Sociology	-	1	2	2	-	-	-	5	
5. Dental Surgery	1	1	1	2	-	-	3	8	
6. Dermatology & V.D.	1	1	1	1	-	-	-	4	
7. ENT	1	1	2	2	-	-	-	6	
8. Forensic Medicine	-	1	1	-	-	-	-	2	
9. Medicine	1	2	3	3	-	-	-	9	
10. Obstetrics & Gynecology	1	1	2	4	-	-	-	8	
11. Ophthalmology	1	1	2	2	-	-	-	6	

Department	Professor	Reader	Lecturer	Asst. Lect.	Instructor	Dep. Instr.	Asst. Instr.	Total	Remarks
12. Pathology	1	3	6	3	2	4	15	34	
12.1 Bacteriology									
12.2 Biochemistry									
12.3 Haematology									
12.4 Histopathology									
13. Pharmacology	(1)	(1)	(4)	(4)	(1)	(1)	(5)	(17)	
13.1 Pharmacology	1	1	2	2	1	1	1	9	
13.2 Pharmacy	-	-	2	2	-	-	4	8	
14. Physiology	1	1	2	2	1	1	2	10	
15. Psychiatry	1	1	1	1	-	-	-	4	
16. Radiodiagnosis	1	2	2	2	2	3	4	16	
17. Surgery (General)	1	2	3	3	-	-	-	9	
18. Orthopedic Surgery	1	1	2	2	-	-	-	6	
19. Pediatrics	1	2	3	3	-	-	-	-	
20. Nursing	1	4	10	10	22	-	-	47	
Total:	19	35	69	69	34	12	29	267	

Comments on Proposed Teaching Staff

1. This list consists mainly of the teaching staff in various departments of the IOM, although some of the staff meant exclusively, for services have also been included - Lab. Technician, Radiographers. Many of the staff, particularly in the clinical departments will, of course, provide services too.
2. The staff required for the Basic Science subjects like Physics, Chemistry, Botany, etc. and subjects like English and Nepal have not been included in the list. Their list should be prepared in coordination with or preferably by the concerned Institute so that the question of career development may be taken care of.
3. The post of Asst. Lecturer is meant for a fresh graduate and so will be equivalent to House Officer in Clinical subjects.
4. The list has been prepared for the Teaching Hospital of 300 beds.
5. Comments on some departments are given below.
 - 5.1 Anesthesiology: The number of staff required for this department has been calculated from the Need of various surgical departments. Therefore a major portion of the staff is meant for services.
 - 5.2 Community Medicine
 - 5.2.1 There will be 2 posts of Professor in this department and the number will be increased later, when the need arise. Based on the work load and priority, these two posts will be in Epidemiology and Environmental Health.
 - 5.2.2 There will be a post of Reader in each of the remaining sections. Because of the higher work load, the Epidemiology Section will have a post of Reader, too.
 - 5.2.3 For the remaining posts, here will be no addition to the already sanctional posts. The number of posts has been rearranged Section wise on the basis of equitable distribution.
 - 5.3 Dental Surgery includes Oral Surgery and Operative Dentistry.
 - 5.4 ENT - For services, an Audiometrist and a Speech Therapist will be required in addition.

- 5.5 Medicine - Includes the unit of Tropical Medicine and Infections Disease.
- 5.6 Obstetrics and Gynaecology - More Asst. Lecturers have been provided to take care of the busy obstetrics services.
- 5.7 Ophthalmology - An orthoptist will be required in addition.
- 5.8 Pathology
- 5.8.1 Pathology Dept. has been divided into 4 main sections each of which will be headed by a Consultant. Among the four consultants, one will be a Professor and three Readers. Which section will be headed by the Professor will depend on the availability of the staff.
- 5.8.2 Technicians necessary for service have also been included.
- 5.9 Radio diagnosis
- 5.9.1 For the first stage, only Radio diagnosis has been considered. Radio therapy will be considered in the next stage.
- 5.9.2 Radiographers have been included in the list.
- 5.10 Pediatrics: There will not be pediatrics beds in the proposed Teaching Hospital. Kanti Hospital will be utilised for this service. It is proposed that 60 beds will be made available to the IOM when Kanti Hospital will have a proposed strength of 150 beds.
6. Out of 220 posts required, 115 have already been sanctioned. The manpower requirement may be met by
- a) Existing Staff
 - b) Recruitment in University Cadre
 - c) Deputation from Ministry of Health and other agencies.
 - d) Contract Service
 - e) Technical assistance from donor agencies.
7. Medical Secretaries and other clinical staff should also be provided for all the departments of the faculty.

Administration Staff of Teaching Hospital

1.	Hospital Director	1
2.	Assistant Hospital Director	1
3.	Personnel Department	10
3.1	Hospital Administrator	1
3.2	Asst. Hospital Administrator	1
3.3	Head Assistant	4
3.4	Peons	2
3.5	Typist	2
4.	Finance Department	12
4.1	Hospital Administrator	1
4.2	Asst. Hospital Administrator	1
4.3	Accountants	2
4.4	Cashier	4
4.5	Typist	2
4.6	Peons	2
5.	General Administration	112
5.1	Kitchen	48
5.1.1	Incharge	1
5.1.2	Asst. Incharge	1
5.1.3	Head Cook	1
5.1.4	Cook	15
5.1.5	Cook Asst.	30
5.2	Laundry	19
5.2.1	Supervisor	1
5.2.2	Asst. Supervisor	3
5.2.3	Launderers	15
5.3	Transport and Communication	16
5.3.1	Operations	6
5.3.2	Drivers.	10
5.4	Store (Medicine, Gas, Linen, Furnitures)	
5.4.1	Pharmacy	11
5.4.1.1	Pharmacist	1
5.4.1.2	Asst. Pharmacist	4
5.4.1.3	Peon	4
5.4.1.4	Head Assistant	1
5.4.1.5	Typist	1

5.4.2	Linen	11
5.4.2.1	House Keeper	1
5.4.2.2	Asst. House Keeper	3
5.4.2.3	Tailors	3
5.4.2.4	Peons.	3
5.4.2.5	Head Assistant	1
5.4.3	General Store	7
5.4.3.1	Incharge	1
5.4.3.2	Assistant	3
5.4.3.3	Peon	2
5.4.3.4	Head Assistant	1
6.	Maintenance Department	29
6.1	Engineers	2
6.1.1	Hospital Engineer	1
6.1.2	Hospital Electronic Engineer	1
6.2	Assistant Engineer	3
6.3	Technicians	6
6.4	Plumbers	4
6.5	Electricians	6
6.6	Carpenters	2
6.7	Mason	1
6.8	Painter	1
6.9	Typist	1
6.10	Peon	2
6.11	Sweeper	1
7.	Procurement and Supply	6
7.1	Incharge	1
7.2	Head Assistant	2
7.3	Typist	2
7.4	Peon	1
8.	Medical Record (Under Supervision of Biostatistics)	16
8.1	Medical Recorders	4
8.2	Typist	2
8.3	Peon	4
8.4	Reception Secretaries	6
	Total	187

Other Personnel

1.	C.S.S.D.	10
1.1	Sister Incharge (included in Sisters list)	0
1.2	Staff Nurse	4
1.3	Peons	6
2.	Dicteries	4
2.1	Dictecian (G3)	1
2.2	Asst. Dictecian (NG1)	2
2.3	Peon	1
3.	Library	11
3.1	Incharge (G3)	1
3.2	Librarians (NG1)	3
3.3	Typist (NG2)	2
3.4	Helpers	4
3.5	Peon	1
4.	Pharmacy (Sales Division)	11
4.1	Pharmacist Incharge (G3)	1
4.2	Pharmacists (NG1)	6
4.3	Peons	4
5.	E.E.G.	4
5.1	Technicians (NG1)	2
5.2	Helpers	2
6.	E.C.G.	6
6.1	Technician (NG1)	3
6.2	Helpers	3
7.	Orthoptic	4
7.1	Orthoptists (NG1)	2
7.2	Helpers	2
8.	Audiometry	3
8.1	Audiometrist (NG1)	2
8.2	Helper	2

9.	Physiotherapy	8
9.1	Senior Physiotherapist (G3)	1
9.2	Physiotherapist (NG1)	5
9.3	Peons	2
10.	Mortuary Keepers	4
	(Including incemenrator handling)	
11.	Hospital Cleaners	74
12.	Social Services (Almoneys) Voluntary organisation	
13.	Audiovisual Section	17
13.1	Photographers (G3)	2
13.2	Artists (NG1)	2
13.3	Cartographers (GIII)	1
13.4	Asst. Cartographer (NG1)	2
13.5	Developers	2
13.6	Projectionists (NG1)	4
13.7	Modellors (NG1)	2
13.8	Peons	2
	Total	156
14.	Nursing Personnel	96
14.1	Matron	1
14.2	Asst. Matron	1
14.3	Nursing Supervisor	3
14.4	Sister	10
14.5	Staff Nurses	81
15.	Secretarial Services for different department	20

Manpower Training

1. Teaching Hospital Committee

In order to develop the competence necessary for the formulation of the detailed plan of the Teaching Hospital, the members of the Teaching Hospital Committee should have an opportunity to study the teaching hospitals in other countries. A month's observation tour may be arranged - 2 weeks in Japan and 2 weeks in 2 or 3 developing countries like India, Sri Lanka and Thailand.

2. Teaching Hospital Project

Before the agreement on the assistance for the Teaching Hospital is signed between HMG and the donor country, a Teaching Hospital Project should be established and a full time project Manager should be appointed. The Manager should belong to the medical profession and should have administrative experience. He should be made Member Secretary of the Teaching Hospital Committee and should also have the opportunity to study the teaching hospitals of other countries as 1 above.

3. Faculty Development

3.1 Current status: At present assistance for post-graduate training is being provided by country like U.K. and U.S.A. on bilateral beins and by international agencies like W.H.O. For clinical subjects, the dependance has been mainly on U.K., although a few have obtained qualifications in India on their own personal arrangement.

3.2 Future prospects: There are indications that the number of fellowships to be granted by U.K. will be gently curtailed, if not scrapped. So an alternature arrangement has to be made. The time required for post-graduate degree in Japan is too low and few Japan does not sum to be suitable for such a propose. Post graduate training a developping country may be desirable in our context.

3.3 Proposal for Post graduate training: It is proposal that fellowships be obtained from bilateral and international agencies is follows:

3.3.1 Japan - for a period 3 to 12 months for training in

- a) Teaching Techniques
- b) Research Methodology

3.3.2 India - for post graduate degree or diploma in clinical and pre-clinical subjects.

3.3.3 U.K. - Efforts must be made for the continuation of the fellowships, mainly in clinical subjects.

3.3.4 U.S.A. - For post graduate qualification in Community Medicine.

3.3.5 The possibility of training in other countries with English as the medium of instruction may also be explored. A few examples are Pakistan, Bangladesh, Australia, New Zealand, Canada, Singapore.

4. Training of other staff

4.1 Nursing: Basic training will be provided in Nepal. For advanced training, the senior level staff will be sent abroad in countries like Japan, U.K., U.S.A., India, etc.

4.2 Technician: For handling of the sophisticated equipments (laboratory, X-ray, ECG, EEG, etc.), training will be provided in the Teaching Hospital with collaboration from the donor country.

4.2 Medical Engineering: For maintenance and repair of the electronic and other medical equipments, the concerned engineer will be trained in the donor country. The Junior level technicians will be trained in Nepal in collaboration with the Institute of Engineering and the donor country.

4.4 Other technical personnel (like Dictician, Physiotherapist, Medical Recorder, Librarian, etc.) will be trained in other countries until such training is made available in Nepal.

Financial Resources for Teaching Hospital

One of the important question that may arise about a new project is its economic viability which can best be tested through the cost benefit analysis. But it is very difficult to undertake such an analysis in a social sector, particularly health. Whatever may the result of such analysis be, if it is over undertaken, there is no doubt about the head for a teaching hospital whose main benefits will be.

1. Teaching of the students of IOM
2. Health services vendeder to the community
3. Research and development in the field of medical education and of health services

There benefits are difficult to quantities at this stage.

On the other hand, the cost can be estimated. The establishment cost details of which are given elsewhere is expected to be borne by the donor country, as the project will be inplanted on a Turkey basis. The running cost of the hospital will be the responsibility of the IOM and details are given in a separate sheet.

Comments on Expenditure

1. Teaching staff - The expenditure includes the salary and allowances for the teaching staff. They will be required even if a teaching hospital is not built, although to a lesser extent.
2. Dean's office - The expenditure for the Dean's office which is also included in the estimate will be required whether the teaching hospital is built or not.
3. The expenditure has been estimated on the basis of the budget of Bir Hospital. It was, however, assumed that the Bir Hospital budget is too tight and inadequate in many respects and hence a higher and wore liberal estimate has made for the Teaching Hospital.
4. The IOM is already being provided with an annual budget which is Rs. 6,500,000/- for the fiscal year 1979 - 00.

Resources:

The running cost of the Teaching Hospital can be met through the following resources.

1. Teaching Hospital Charge: In conformity with the policy of HMG to make the patients pay for the services rendered to them by the hospital. The Teaching Hospital will also buy reasonable charge for the following.
 - a) Out patient registration
 - b) Paying rooms
 - c) Investigations
 - d) Surgical operations
 - e) Drugs
 - f) Diet
 - g) Therapeutics procedures

2. Grants from Ministry of Health: Ministry of Health does provide annual grants to non-governmental hospital in various amounts depending upon the size of the hospital. It has already by the Health Ministry that such a grant will be provided to the Teaching Hospital which will be one of the important institutions to deliver health service in the country.

3. Grants from Tribhuvan University: Tribhuvan University is already committed to an annual budget to the IOM and should provide additional amount for running the Teaching Hospital.

4. Grants from donor agencies: It may be expected that grants in the form of cash, commodities or technical assistance may be made available from many agencies which are interested in the development of the Teaching Hospital.

5. Research Grants: Donations of research grants to the teaching hospitals by various agencies and foundations are not uncommon in many countries. Such grants may also be expected for the Teaching Hospital.

6. Donations from the public: Donations from individuals as well as from voluntary and charitable organizations will also be helpful to meet the cost of the Teaching Hospital to some extent. This is an important method of invoking community participation.

Expenditure for Teaching Hospital

1.	<u>Services</u>		752,000/-
1.1	Electricity	25,000/- pm	300,000/-
1.2	Telephone	8,000/- pm	96,000/-
1.3	Postage & Telegraphy	3,000/-	36,000/-
1.4	Printing of Forms		200,000/-
1.5	Water Supply		100,000/-
1.6	Postage		20,000/-
2.	<u>X-ray</u>		390,000/-
2.1	Films (39,000 plate)		312,000/-
2.2	Chemicals		78,000/-
3.	<u>Dressing Materials</u>		300,000/-
3.1	Ganze		20,000/-
3.2	Bandage		100,000/-
3.3	Cotton		100,000/-
3.4	Adhesive Plaster		80,000/-
4.	<u>Soaps, Detergents and Antiseptics</u>		110,000/-
4.1	Soup Powder		10,000/-
4.2	Detergents		50,000/-
4.3	Phenyle		30,000/-
4.4	Soap Bar		20,000/-
5.	<u>Laundry (Soap Powder)</u>		25,000/-
6.	<u>Surgical Accessories</u>		440,000/-
6.1	Gloves		40,000/-
6.2	Catgut & sutures		300,000/-
6.3	Syringe, needle, drain set		100,000/-
7.	<u>Battery, Electrical goods</u>		1,100,000/-

			(2,126,000/-)

8. Diet		900,000/-
300 × 300 days × 10/-		
9. Drugs including gas		2,400,000/-
10. Linen		100,000/-
Bed Sheets, etc.		
11. Fuel		150,000/-
11.1 Vehicle	1,000,000/-	
11.2 Others (Gas)	50,000/-	
12. Maintenance		100,000/-
13. Stationery		100,000/-

		(5,876,000/-)
14. Salary including Providual Fund		5,397,804/-
15. Allowances		1,340,410/-
16. Travel and Daily Allowance		300,000/-

Grand Total: 13,414,214/-

Total Manpower and their Salary of Teaching Hospital

	<u>Title</u>	<u>Number</u>	<u>Annual Salary</u>	<u>Total</u>
1.	<u>Teaching Staff</u>			2,872,860/-
1.1	Professor	19	19,500/-	370,500/-
1.2	Reader	35	15,600/-	546,000/-
1.3	Lecturer	69	11,340/-	782,460/-
1.4	Asst. Lecturer	69	8,700/-	600,300/-
1.5	Instructor	34	8,700/-	295,800/-
1.6	Dep. Instru.	12	7,200/-	86,400/-
1.7	Asst. Instr.	29	6,600/-	191,400/-
2.	<u>Dean's Office</u>			648,540/-
2.1	Dean	1	22,560/-	22,560/-
2.2	Asst. Dean	3	16,500/-	49,500/-
2.3	Research Officer	1	15,600/-	15,600/-
2.4	Dep. Res. Officer	3	11,340/-	34,020/-
2.5	Asst. Res. Officer	1	8,700/-	8,700/-
2.6	Upa Prashasak (Asst. Registrar)	5	10,560/-	52,800/-
2.7	Sahayak Prashasak	15	7,200/-	108,000/-
2.8	Typist 'A'	4	7,200/-	28,800/-
2.9	Head Asst. Level	32	4,440/-	142,080/-
2.10	Asst. Level	28	3,060/-	85,680/-
2.11	Peon Level	56	1,800/-	100,800/-
3.	<u>Hospital Staff</u>			1,840,240/-
3.1	<u>Administration</u>			782,520/-
3.1.1	Director	1	22,560/-	22,560/-
3.1.2	Asst. Director	1	16,500/-	16,500/-
3.1.3	Upa Prashasak	6	10,560/-	63,360/-
3.1.4	Asst. Prashasak	16	7,200/-	115,200/-
3.1.5	Head Asst.	38	4,440/-	168,720/-
3.1.6	Mechanic Level	33	3,060/-	100,980/-
3.1.7	Typist	10	3,060/-	30,600/-
3.1.8	Peon	82	1,800/-	147,600/-
3.1.9	Medical Secretaries	20	7,200/-	144,000/-

	<u>Title</u>	<u>Number</u>	<u>Annual Salary</u>	<u>Total</u>
3.2	<u>Nursing</u>			619,080/-
3.2.1	Matron	1	12,540/-	12,540/-
3.2.2	Asst. Matron	1	11,340/-	11,340/-
3.2.3	Sisters	13	8,400/-	109,200/-
3.2.4	Staff Nurse	81	6,000/-	486,000/-
3.3	<u>Hospital Services</u>			438,640/-
3.3.1	Gaz. III	7	8,400/-	58,800/-
3.3.2	Non.Gaz. I	35	5,000/-	175,000/-
3.3.3	Non.Gaz. II	4	3,060/-	12,240/-
3.3.4	Peons/Ward Coolie	107	1,800/-	192,600/-

Grand Total 5,361,640/-

Salary	5,361,640/-
Provident Fund (10% of Salary)	536,164/-
Allowance 25% of Salary (50% allowance for 50% staff)	1,340,410/-
	7,238,214/-

Sources of Income of Teaching Hospital

1. <u>Room Rent</u>	average	accuracy	300 dors / bed
Single	- 50/- × 300 × 30 =		450,000
Double	- 25/- × 300 × 60 =		450,000
Quadruple	- 15/- × 300 × 90 =		405,000
		Total	Rs 1,305,000
V.I.P.	- 1,001/- × 300 × 2		60,000
			Rs 1,365,000

2. Operations

Estimated Number of operations per year

	<u>Total</u>	<u>Paying</u>	<u>Rate</u>	<u>Total</u>
Major	600	360	400/-	144,000/-
Intermediate	1200	720	200/-	144,000/-
Minor	1200	720	100/-	72,000/-
Total	3000	1800		Rs 360,000/-
	60 % of total			

3. Obstetrics

Estimated Number Payers

	<u>Total</u>	<u>Paying</u>	<u>Rate</u>	<u>Total</u>
Cesarean Section	50	30	400/-	12,000/-
Forceps Delivery	200	120	100/-	12,000/-
Normal Delivery	1600	960	50/-	48,000/-
Total	1850			Rs 72,000/-
	60 % of total			

4. ECG

	<u>Total no.</u>	<u>Paying</u>	<u>Rate</u>	<u>Total income</u>
	1000	600	50/-	Rs 30,000/-

5. <u>EEG</u>	100	60	100/-	Rs 6,000/-
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6. X-ray

		<u>Estimated Number per year</u>			<u>Total</u>
		<u>Total</u>	<u>Paying</u>	<u>Rate</u>	<u>Income</u>
Plain Xray	Small	10,000	6000	15/-	99,000/-
	Medium	10,000	6000	20/-	129,000/-
	Large	16,000	6000	25/-	150,000/-
	Total	30,000	18000	(20/-)	360,000/- (360,000/-)
Special investigations		----- approx			150,000/-
	Barium		Swallow Mere Follow Through Enserve		
	I V P				
	Rategrade Pydosrahy				
	Cholcy to graphy				
	Ansiography				
	Ventrianlography				
	Myalography				
	Brohchography				
					Rs 510,000/-

7. Pathology - - - Rs 1,000,000/-

(Bir Hospital - opd - 100,000/-)

21 beds (Payings empower) - 150,000/-

(Th - opd - 100,000/-)

180 beds in empower 900,000/-)

(1,000,000/-)

8. Dental

	<u>Rate</u>	<u>Est. No./-</u>	<u>Income</u>
Xray - -	5/-	600	3,000/-
Filling -	10/-	600	6,000/-
			Rs 9,000/-

9. Physiotherapy Services:

(a) Rs 1000/ Month	Rs 12,000/-
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10. Out Patient Registration

Daily all	400	
Average Working edr x 300 x Rs 1		Rs 120,000/-
	12,000	Rs 2,700,000/-

11. Pharmacy

OF3	
(400 × 300 × Rs 10)	120,000,000
In patient	150,000,000
(130 × 300) (a) Rs 200/pt	

7

12. Catering

130 beds × 300 days × 25/- per day = Rs 1,350,000/-

Rs 7,534,000/-

Division of Beds in Teaching Hospital

1.	General Medicine	60
2.	Tropical Medicine	29
3.	Dermatology and Venereal Disease	10
4.	Psychiatry	12
5.	General Surgery	60
6.	Orthopedic Surgery	24
7.	Ophthalmology	24
8.	E N T	16
9.	Dental	4
10.	Post Operative	8
11.	Obstetrics	30
12.	Gynecology	15
13.	Burn	4
14.	Staff Sick Room	4
Total:		300

Classification of Rooms

	<u>Type</u>	<u>No. of Beds</u>	<u>Percentage</u>	<u>Charge per day</u>
A.	Single Room Cabins	30	10	50/-
B.	Double Room "	60	20	25/-
C.	4-Bed " "	90	30	15/-
D.	General Beds	118	39	-
E.	Special V.I.P. Suit	2	1	100/-
Total		300	100	

5. 技術協力

技術協力並びに無償資金協力を含む本件プロジェクトのネパール側の全体計画は後掲のとおりである。

ネパール側は本件プロジェクトをあくまでも無償資金協力と技術協力をパッケージしたものとしており、教育病院の建設については前期(1980~83年)に300床、後期(1984~85年)200床を完成することを強く希望している。双方の協力の実施の時期のズレ或は規模の変更はあり得るにしても、協力の片方がなされないとするならば、本件プロジェクトの存在意義はないとするのが、ネパール側の基本的考え方である。

本調査チームは、無償資金協力については直接関係する立場にないので、これについての言及は避けることとし、技術協力の可能性について云えば、報告の要旨の項で述べたとおり、特にネパール側の教育要員の確保他いくつかの要注意点があるが、保健医療サービスの需要が無限に大きく、それに対応するためのいわば基盤整備の段階にある現在、本件プロジェクトに協力した場合の効果は計り知れないものがあり、また、このための協力、実施の可能性は大であると思われる。

1) 研修員受入

ネパール側の研修員受入れ要請は、既述のⅣ-2-3)のとおりである。この要請は、学位取得のための長期研修が日本においては無理であるとの認識の下に、短期受入れを中心につくられたものである。

医学部教育要員の充足状況及び配属計画はⅤ-4-5)で述べたとおり、これが現況と将来の見通しは必ずしも樂觀出来ないことに照らし、かつまた後述のように長期専門家の派遣に問題なしとしない点からも、研修員の受入れは最重点的に考慮する必要がある。受入要請人数の規模は、40人である。最少人数は初年度5人、ピーク年度で10人、年平均8名と他のプロジェクトの年平均的カウンターパート受入れ人数と比較して相当上回るものであるが、本件プロジェクトの実態並びに目的とするところに鑑み、この規模は最少限のものとして対処する必要がある。

わが国内の受入機関の関係で云うならば、この程度の規模、分野の研修員の受入れは可能と思われるので、特に研修員のネパールに対する国別割当人数枠の増大に格別な配慮が望まれる。

学位取得のための研修は、インド等において行わざるを得ないとしているが、必要性に応じ、わが国でも国費留学制度を含めて受入れ可能ならしめる方を検討する必要がある。

2) 専門家派遣

専門家の派遣要請は、Ⅳ-2-3)で述べたとおりである。長短合わせて延15人となっている。

ネパール王国においては医師、パラメディカル、看護婦は不足しているが、単に専門家を

派遣するだけでは焼石に水の感をまぬがれない。

ネパール王国に最も影響力を持つ教育病院や医学部に専門家を派遣することは適切な処置と思われる。しかし外国語（90%のネパール人はネパール語を話し、大部分の学生は英語を理解するようであるが）で講義するハンディと適当な人材を確保する所に困難がありそうである。

専門家派遣には次のようなデレンマがある。派遣される人は教育に専念する人であって、ネパールで何かを研究しようとするような人では駄目である。ネパールの現状からみて研究を主とする人は排撃されると思われる。他方教育に専念するような人は何年かして日本に帰れば、学力、研究の不足のために日本の競争社会では脱落するであろう。

長期専門家の派遣は、わが国の実情から仲々困難である。しかし、本件プロジェクトに限って言えば、専門家より技術の移転を受ける主体、すなわちカウンターパートの育成が最も重要な点であり、これなくしては文字通り肩代りの役務提供型とならざるを得ないので、先づは研修員の受入れを最優先的に実施し、技術移転の受皿が出来た時点で、専門家を派遣する手順が好しいと思われる。このやり方は、研修員がわが国の医学水準等諸般の実情になじみ、如何なる技術を如何なる水準でわが方専門家より指導を受けるべきかを双方が理解した上で行われることとなるので、無駄のない技術の移転が可能となるメリットが確保されよう。

生理学、薬理学については、ネパール側が担当教授を確保出来ないで、Teaching Staffとしての役割を期待して専門家の派遣要請となった背景もある。実質的には医学部の創設期であり、その基礎固めとして、わが方専門家に種々指導を仰ぐことが必要であることは理解するものであるが、適任者の不在を補う肩代りのな勞務提供協力は俄に賛成し難く、従来通り国連等わが国の協力と競合しない機関より専門家を招へいすると同時に、これと併行して一日も早くカウンターパートを配属するような自主的方途をネパール側がとることが望まれる。

長期専門家派遣は容易でないとのわが方の実情について、ネパール側は十分な理解を示している。しかし、容易でないという実情にあるにしても、プロジェクトの目標に照らし、専門家派遣の個々のケースについて、専門家の業務目標、内容、範囲等をつめた上で、特に現在医学部がおかれている状況を勘案して、必要期間派遣が可能となるようわが国の協力体制を十分に整える必要がある。

協力実施の方針が正式に決定されれば、以上についても実施協議チームの検討事項となるが、本調査チームとして提案すれば、①研修員（カウンターパート）の受入れ、②機材の供与、③専門家の派遣（point to pointの指導）の順序組合わせで行うことが好しく、また特に医学部の現況に鑑み医学教育全般に立っての技術協力総合調整とでも云うべき専門家の長期派遣も必要と思われる。

3) 機材供与

ネパール側の機材要請の内訳は下表のとおりである。

ネパール王国において医療機器、機材は極端に不足していて、教育、医療に支障を来しているので、その供与は緊急必要事項と思われる。

トリブバン大学医学部の要求している機材はむしろ控え目のものと思われる。

しかし供与に当っては、ネパールの実情に合致したものを選ぶべきであって、日本の整備状況を基準にしては失敗するおそれがある。

したがって、これは次に1つ1つについて具体的に検討する必要があるし、あるものはネパール人医師、技術者が日本で教育を受けた後選ぶ方が適当なものもあるであろう。

ネパール王国の電力は充分でなく、電圧(220ボルト)も可なり変動しており、又水源も充分とは思われないので、余り高度な設備やコンピューターを用いたものは無用の長物化する惧れがある。

List of Equipment for Community Medicine (公衆衛生機材供与)
要請リスト

<u>Equipments</u>	<u>Number required</u>	<u>Immediate requirement</u>	<u>Later requirement</u>
<u>Environmental Sanitation</u>			
Incubator with thermostat	2	(1)	(1)
Refrigerator	2	(1)	(1)
Microscopes	6	(3)	(3)
Simple water testing equipments	1 set	(1)	
Water treatment equipment	1 set	(1)	
Small incinerator	1	(1)	
<u>Diostatistics</u>			
Desk calculators (electron)	20	10	10
Pocket calculator (Scientific-electronic)	10	10	
Programmable computer (with data processing unit)	1		1
<u>Health Education</u>			
Slide projector	4	2	2
Colour films for slides	6 doz.	6 doz.	
Camera 35m.m.	3	1	2
Film strip projector	4	2	2
Screen (with stand)	3	1	2
Movie projector 16m.m.	3	1	2
Movie van	2	1	1
Video set	3	1	2
Video cassettes (Empty)	25	25	
Video cassette on (Medicine & Health Topics)	50	50	
Movie camera	3	1	2
Film for Movie camera	30 pcs.	30	
Overhead projector	3	2	1
Typewriter (Electric)	3	1	2
Tape recorder	3	1	2
Empty cassettes for Tape recorder	6 doz.	6 doz.	

Requirement for the Physiology
Department

(生理学科機材供与)
要請リスト

<u>Name of Equipment</u>	<u>Quantity</u>	<u>Urgently required</u>	<u>Required later</u>
		all	
l. Four Channel Oscillograph MD4 with following accessories	1		
a. 810-001287 FC128 rate coupler	1		
b. 810-00123-7 FC123 ECG coupler	1		
c. 810-24740-0 ECG LIMB Cable	1		
d. 810-00115-7FC115 Strain gauge coupler	1		
e. 810-00117 Strain gauge coupler	1		
f. 810-00135-7 FC135 Strain gauge coupler	1		
g. 810-00140-7FC 140 MK AC/DC input coupler	1		
h. 810-00112-7 FC112 Tidal volume coupler	1		
i. 810-00120-7 FC120 AC input coupler	1		
j. 810-00124-7 FC124 AC input coupler	1		
k. 810-00127 FC127 ECG and heart rare coupler	1		
l. 810-25900-7 T2 Isotonic transducer	1		
m. 810-50000-7 UF1 Isometric transducer 55 Grams	1		
n. 810-50010-7 UF1 Isometric transducer 110 Grams	1		
o. 810-50000-7 UF1 Isometric transducer 220 Grams	1		
p. 810-21601-7 DI Isometric transducer 50 Grams	1		
q. 810-23230-0 Half/Full-Bridge adaptor cable	1		
r. 810-50030-7 PT400 Blood pressure transducer	1		
s. 810-28440-7 PP120 Pulse plethysmograph	1		
t. 810-54041-7 RT112 Respiratory flow transducer	1		
u. 810-50170-1 Projection unit, 230V	1		
v. 811-10550-5 Universal kymograph with Stimulator 320V, 50Hz	1		
w. 811-30160-0 Cup receiver	1		
x. 811-30030-0 Student tambour	1		
y. 819-51600-0 Arm plethysmograph	1		

<u>Name of Equipment</u>	<u>Quantity required</u>	<u>Urgently required</u>	<u>Required</u>
		all	
1. 811-30070-0 Large labour	1		
2. 811-30510-0 Piston recorder	1		
3. 811-30620-0 Float recorder	1		
4. 815-50070-0 Stethograph	1		
5. 811-30070-0 Large tambour	1		
6. 811-11301-0 Glazed paper (Pack of 100)	1		
7. 811-11302-0 Glazed paper (Pack of 100)	1		
8. 811-11310-0 Glazed paper roll	1		
9. 811-12510-0 Smoking stand	1		
10. 811-12650-0 Smoking burner	1		
11. 811-40340-0 Rat manometer	1		
12. 811-40341-0 Spare kit	1		
13. 811-40362-0 Glass 8mm straight tube	1		
14. 811-40363-0 Glass 8mm 'T' tube	1		
15. 813-10000-5 Stimulator 10000	1		
16. 814-80600-0 Platinum electrode	1		
17. 814-80700-0 Bipolar electrode	1		
18. 814-80710-0 Dastre's electrode	1		
19. 814-80950-0 Phrenic nerve electrode	1		
20. 814-80980-0 Rat diaphragm electrode	1		
21. 815-54050-0 Student spirometer	1		
22. 815-50070-0 Stethograph	1		
23. 815-51190-1 Miniature ideal pump assembly 230V	1		
24. 815-60420-1 Dual/Mono bath isolated tissue, 230V with accessories	1		
a. 815-60550-0 5ml inner vessel	1		
b. 815-60560-0 5ml inner vessel	1		
c. 815-60570-0 Glass warming coil	1		
d. 815-60580-0 Oxygen tube, glass tip	1		
e. 815-60590-0 Oxygen tube, platinum tip	1		
25. 811-51000-0 Metal frontal writing point and lever (Pack of Five)	1		
26. 815-71210-0 Nerve/Muscle chamber	1		
27. 815-71211-0 Muscle lever	1		
28. 855-71260-0 Frog heart and Muscle chamber assembly	1		

<u>Name of Equipment</u>	<u>Quantity required</u>	<u>Urgently required</u>	<u>Required later</u>
29. Animal operating table	1		
30. 816-50300-1 Rat operating stand 230V	1		
31. 816-51120-0 Frog/Myograph board	1		
32. 816-51121-0 Crank lever	1		
33. 816-20370-0 Boss head, Rack work	1		
34. 816-20540-0 Swivel mount pulley	1		
35. 816-30570-0 Stainless steel rod 6.4 mm (1/4 in.) diameter	1		
36. 816-30570-0 Stainless steel rod 9.5 mm (3/4 in.) diameter	1		
37. 816-30580-0 Stainless steel rod 12.7mm (1/2 in.) diameter	1		
38. 816-30490-0 Brass rod 6-4 mm (1/4 in.) diameter	1		
39. 816-30500-0 Brass rod 9.5 mm (3/8 in.)	1		
40. 816-30510-0 Brass rod 12.7 mm (1/2 in.) diameter	1		
41. 816-60620-0 Muscle grip clamp	1		
42. 816-60660-0 'V' clamp	1		
43. 816-60670-0 Oxford clamp	1		
44. 816-60680-0 Thermometer clamp	1		
45. 819-51600-0 Arm plethysmograph	1		
N.B. This is compiled from the catalogue of Palmer Bioscience, Washington.			
46. Physiograph - for teaching and research (ref. E & M Instrument Company, Inc. Houston 21 Texas)	1		
47. PH meter	1		
48. High speed centrifuger	1		
49. Sp-ctronic 20 spectro photo- colorimeter	1		
50. Analytic high sensitive balance	1		
51. Blood gas analysis - vanislyce apparatus	1		
52. Stethoscope	30		
53. Ophthatmoscope	10		
54. Otoscope	10		
55. Reflex hammer	10		
56. Tuning forks	10		
57. DNA Model	1		

<u>Name of Equipment</u>	<u>Quantity required</u>	<u>Urgently required</u>	<u>Required later</u>
58. Chromosome Model	1		
59. Sphygmomanometer (Areroid)	12		
60. " (Mercury)	6		
61. E.C.G. Machine	1		
62. Clinical thermometer	30		

Pathology Department (病理学科機材供与)
要請リスト

The following is the lists of capital equipments needed for the Pathology Department of the Institute of Medicine. The list has been divided into two categories.

- (1) Equipments needed immediately for developing teaching laboratories (Certificate & Diploma both)
- (2) Equipments needed for new teaching hospital laboratories.

1. The nucleus of the teaching laboratories exist at present with a teaching/learning capacity of 20 to 25 students at a time in each section of the four laboratories. This needs expansion. Teaching and Service laboratories will have to be built in the new hospital complex. Some basic equipments used in bacteriology haematology, histology, bio-chemistry are available at present. These equipments are not adequate and therefore there is need for immediate reenforcement of some basic equipments. These are as follows:

Haematology

(1) Binocular microscope with viewing screen	1
(2) Binocular microscope	15
(3) Colorimeter	4
(4) Refrigerator	1
(5) Water bath adjustable	4
(6) Mechanical shaker	2
(7) Specimen rotator	2
(8) Chemical balance	2
(9) Incubator	1
(10) Digital differential counter	24

Histology

(1) Binocular microscope with view screen & microphotograph attachment	1
(2) Microtome (rotary)	1
(3) Microtome knife sharpener (automatic)	1
(4) Automatic tissue processor	1
(5) Water-bath for tissue processing	3
(6) Paraffin dispenser	1
(7) Refrigerator	1
(8) Diamond pencil	1 doz.
(9) Postmortem instrument set	2

Microbiology

(1) Water-bath	2
(2) Incubator	2
(3) Chemical balance	2
(4) Refrigerator	1
(5) Microscope binocular	15
(6) Autoclave	1
(7) Petri dishes (glass)	2 gross

Bio-Chemistry

(1) Centrifuge with automatic speed control timer and adaptors	4
(2) Hot air oven	1
(3) Incubator	2
(4) Water-bath	2
(5) Flame photometer (for Na. K. & calcium)	1 (butane gas)
(6) Digital pH meter	1
(7) Chloride meter	1
(8) Infra red drier	1

2. The following equipments will be needed when hospital is built.

Departments

A. Haematology

1. Binocular microscope	4
2. Colorimeter	2
3. Refrigerator	1
4. Water-bath adjustable	2
5. Mechanical shaker	2

6.	Specimen rotator	2
7.	Chemical balance	3
8.	Incubator	1
9.	Automatic slide staining machine	2
B. <u>Histology & Cytology</u>		
1.	Microtome rotary	2
2.	Microtome knife sharpener (automatic)	1
3.	Automatic tissue processor	1
4.	Water-bath for tissue processing	3
5.	Microscope	3
6.	Paraffin dispenser	1
7.	Refrigerator	1
8.	Diamond pencil	1 doz
9.	Cryostat	1
10.	Automatic slide staining machine for cytology	1
C. <u>Microbiology</u>		
1.	Water-bath	2
2.	Incubator	2
3.	Chemical balance	2
4.	Refrigerator	2
5.	Binocular microscope	4
6.	Autoclave	2
7.	Petri-dishes (glass)	2 gross
D. <u>Bio-chemistry</u>		
1.	Centrifuge (with automatic speed control, timer and adaptors)	2
2.	Single pan micro-balance	2
3.	Chemical balance	2
4.	Colorimeter	2
5.	Electrophoresis equipments with papers	1
6.	Chromatographic tank	2
7.	Hot Air oven	1
8.	Incubator	2
9.	Water still (all boresilicate glass 2l/h speed)	1
10.	Deioniser	1
11.	Water-bath	2
12.	Flame photometer (for Na. K. & Ca)	1 (Butane gas)

13. Blood gas analyser	1
14. Digital pH meter	1
15. Chloride meter	1
16. Freeze drier	1
17. Magnetic stirrer	1
18. Vacuum pump	1
19. Fluoremeter	1
20. Gamma counter	1
21. Infra red drier	

A separate lists of chemicals and glasswares required for service laboratories will be drawn later.

Department of Pharmacology

Institute of Medicine

(薬理学科機材供与)
要請リスト

<u>Name of equipment</u>	<u>Quantity required</u>	<u>Urgently required</u>	<u>Required later</u>
1. a. Spectro photoflorometer with recorder and accessories for estimations from microvolumes	1		
b. Flame photometer	1		
c. Analytic balance (one pan, electrical)	1		
d. Chemical balance (Sensitive and two pan)	1		
e. Gas liquid chromatograph with flame ionisation detector and electron capture detector	1		
f. Thin layer chromatography equipment	1		
g. Paper chromatography equipment	1		
h. Densitometer	1		
i. pH meter including accessories for measuring pH for small volumes	1		
j. Incubator	1		
k. Oven, Hot air	1		
l. Refrigerator	2		
m. Deep freeze	1		
n. Vacuum pump	1		
o. Electrical water bath	1		

<u>Name of equipment</u>	<u>Quantity required</u>	<u>Urgently required</u>	<u>Required later</u>
p. Electrical stirrer with regulator	1		
q. Magnetic stirrer	1		
r. Micro emulsifier assembly	1		
s. Heating mantle with regulator	1		
t. Centrifuge clinical laboratory type	1		
u. Centrifuge (High speed)	1		
v. Electronic calculator	1		
w. ECG Machine	1		
x. B.P. Measuring apparatus	1		
y. Ophthalmoscope	1		
z. Stathoscope	2		
2. a. Electrophoresis equipment	1		
b. Zero adjustable B.P. apparatus	1		
c. Atomic absorpsiometer for trace metal estimation	1		
d. Spectronic "20" spectrophotometer	1		

<u>Equipment for Experimental Pharmacology</u>	<u>Quantity required</u>	<u>Urgently required</u>	<u>Required later</u>
a. Animal activity measuring equipment	1		
b. Analgesiometer for rat tail	1		
c. Analgesiometer (Hot plate)	1		
d. Electro convulsiometer	1		
e. Rorarod with electric motor	1		
f. Polygraph (six channel) with transducers for various pressure recordings, tension recording, respiration recording, arrangement for recording ECG, Myograph, rat holding apparatus with tail cuff B.P. recording arrangement (Grass or similar)	1		
g. Animal operation table	1		
h. Respiration pump	1		
i. Miniature respiration pump	1		
j. Slow injection apparatus	1		
k. F/14 Super electronic recording drums with extension	1		
l. Square wave stimulator	1		

<u>Equipment for Experimental Pharmacology</u>	<u>Quantity required</u>	<u>Urgently required</u>	<u>Required later</u>
m. Rat dissection table	1		
n. Histamine aerosol chamber	1		
o. Small animal weighing balance	1		
p. Torsion balance	1		
q. Plathysmograph for rat foot oedema measurement	1		
r. Microscope with oil immersion	1		
s. Glass lined water distillation still	1		
t. Animal holders (various sizes)	2 each		
u. Animal cages (" ")	2 each		
v. Surgical instruments			
w. Glass wares including			
(a) Dessicator	15		
(b) Automatic burette	15		
(c) Automatic pipettes with disposable plastic microtips	15		
(d) Tuberculine and micro syringes	500		
x. Nitrogen cylinders			
y. Oxygen cylinders (B.S. Bull nose valve)			
z. Thermostatic controlled organ bath	2		
oa. Voltage stabilisers (220V, 50Hz)	12		

List of Equipments for Anatomy Dept.

Urgently Needed

(解剖学科機材供与)
要請リスト

<u>Sl. No.</u>	<u>Description</u>	<u>Quantity</u>
1.	Surgical scissors	1
2.	Various types of needle (Curved and straight)	12
3.	Drill with assorted burrs set	
4.	Bath Paraffin embedding 50°C to 60°C Thermostat accenray 1°C	1
5.	Bath vacuum embedding 37°C - 60°C 12" dia × 6" height	1
6.	Bath tissue floatation up to 60°C	1
7.	Hot air oven 0°C - 25°C	1
8.	Hot plate 37°C - 60°C	1

<u>Sl. No.</u>	<u>Description</u>	<u>Quantity</u>
9.	Glass ware dryer	1
10.	Precision rotary microtome	1
11.	Distilling water still stroke type	1
12.	Refrigerator	1
13.	Precision torsion balance	1
14.	Students microscope	10
15.	Medical and laboratory microscope	1
16.	Special honing stone	1
17.	Leather strop mounted on a fine polished wooden box	1
18.	Automatic microtome knife sharpner	1
19.	Spirit lamp	5
20.	Articulated human skeleton	5
21.	Disarticulated human skelton	5
22.	Stainless steel dissection table	12
23.	Bone drill set	2
24.	Spinal saw	2
25.	Male catheter	6
26.	Female catheter	2
27.	Brain knife	1
28.	Hack saw frame	1
29.	Hack saw blade	2
30.	Bone hammer	2
31.	File cutter	4
32.	Chisel	4
33.	Urethral sound	2
34.	Brain jar	10
35.	Forceps dissecting fine point	6
36.	Amputation knife	1
37.	Bone cutter	2
38.	Tissue forceps	4
39.	Aneresim hook	2
40.	Periostecum elevator	2
41.	Grinder manual	1
42.	Lister's bone cutting forceps	2
43.	Bone nibbling forceps	2
44.	Retractor hook	4
45.	Robe 5", 6", 8" each	6
46.	Artery forceps	6

List of Equipments for Anatomy Dept.
Which are not Urgently Needed, for Later Stage

<u>Sl. No.</u>	<u>Description</u>	<u>Quantity</u>
1.	Large microtome for greying and	1
2.	Analytical balance	1
3.	Strescopic Dissection microscope	1
4.	Binocular research microscope	1
5.	Signal timer	1
6.	Tripod stand	5
7.	Aslestus gauye	5
8.	Fish tail burner	1
9.	Glass rod kg	5
10.	Burette brush	5
11.	Glazed tiles	5
12.	Enamel funnel	2
13.	Mortal with Pastle 8"	2
14.	Stretcher (Stainless steel)	2
15.	Stretcher	2
16.	English type writer	3

6. その他

1) 生活環境

自然条件、風俗習慣、治安、交通、住宅、保健衛生等々については、国際協力サービスセンター発行の「アジアでのくらし ネパール編」を参照願いたい。

2) 参考資料

本調査チームが収集した主な資料は下記のとおりである。

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Mid Fifth Plan Period (2031 ~ 2036)
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Report of a study in the primary health care unit
(district) of D Hankuta, Nepal
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- * Courses of Instruction for Certificate Level Education,
Institute of Medicine, 2030 - 1979
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JICA