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Application for the Technical Cooperation (Development Study) by the Government of Japan

1. Project Digest

(1) Project Title

A Study for Earthquake Disaster Impact Reduction and Improvement of Emergency Response Capabilities in the Kathmandu Valley, The Kingdom of Nepal

(2) Location

Kathmandu Valley

(3) Implementing Agency

Disaster Relief Section of the Home Ministry of HMG of Nepal will be the leading implementing agency in which a separate unit shall be established to take care of all the activities of the project. A joint operation and management committee will be formed for the implementation of the project. A steering committee will be formed with the participation of different disaster management related ministries, departments and universities. Home ministry will coordinate the activities with the active participation of the Ministry of Housing and Physical Planning, Ministry of Science and Technology, Department of Mines and Geology, and National Planning Commission. Besides, the Chief District Officers (CDO) of three districts in the Kathmandu Valley, and the Mayors of five municipalities of the valley will also participate in this committee.

(4) Justification of the Study

Present Conditions of the Sector

Kathmandu, the capital of Nepal is located almost in the middle part of the country in a Valley amidst the mountains of average elevation of 2100 m. The roughly elliptical outline is interrupted by rock spurs, which encroach into the Valley from the surrounding mountains. Its width is typically 25 km from east to west, and 20 km from north to south, and it has an average base elevation of about 1300 m. The drainage area of Kathmandu Valley is about 585 sq km, and the valley floor area and surrounding terraces are about 400 sq km.

Three of the 75 administrative districts of the country (i.e., Kathmandu, Lalitpur and Bhaktapur) are located inside the Valley. The district administrative centers are the three cities, which go by the same names respectively. In total, there are five municipalities in the Kathmandu valley, viz., Kathmandu, Kirtipur, Lalitpur, Bhaktapur, and Madhayapur.

Nepal has a long history of destructive earthquakes. In this century alone over 11,000 people have lost their lives in four major earthquakes. A 1934 earthquake produced an intensity of IX-X on the Modified Mercalli Intensity (MMI) scale in Kathmandu Valley, and destroyed 20% and damaged 40% of the valley's building stock. In Kathmandu itself, one quarter of all homes were destroyed. Many of the temples in Bhaktapur were destroyed as well. The seismic record of the region suggests a return period of about 25 years, indicating that a devastating earthquake is inevitable in the long run and likely in the near future.

A large earthquake near the Kathmandu Valley today would cause significantly greater human loss, physical damage, and economic crisis than caused by the past earthquakes. With the Valley's burgeoning population of almost 1 1/2 million people, uncontrolled development, and due to haphazard construction the Valley is becoming increasingly vulnerable to earthquakes. The preliminary estimate shows that a possible repeat of intensity IX on the MMI scale will result in the death of more than 40,000 people, serious injuries to more than 100,000 people with more than 60% of the existing building stock being damaged beyond repair. This contrasts well with the generally very weak existing capabilities of the emergency response system, including that of hospitals, fire brigade, and municipalities etc. Recovery from the devastating earthquake would be a long-term process, and the country's economy will be pushed back by several decades as Kathmandu is not only the capital of the country but also its economic center.

Sectorial development Policy of the National Government

Government activities until 1980s were mainly directed towards post-disaster activities viz., rescue, relief and rehabilitation. The National Calamity (Relief) Act came into existence in1982, which was amended twice enunciating the significance of the pre-disaster and post-disaster activities. It made provisions for the Disaster Relief Committees at the central, regional, district and local levels. However, in recent days, there are growing consensus for the pre-disaster mitigation activities. Under the United Nations General Assembly Resolution in 1989, the 1990s has been declared as the International Decade of Natural Disaster Reduction (IDNDR). Nepal has also constituted the IDNDR National Committee, under the chairmanship of the Home Minister.

The Central Disaster Relief Committee (CDRC) and District Disaster Relief Committees (DDRC) are the functional bodies at the central and district levels. CDRC is chaired by the Home Minister, and is the main committee, which is responsible for formulating policies and plans regarding overall aspects of disaster management in coordination with other disaster management related agencies. The Disaster Relief Section of the Home Ministry looks after the disaster management activities, and as well as works as the secretariat to the CDRC. DDRC is mainly responsible for the post disaster activities. Thus, the CDRC provides immediate relief assistance to the disaster victims through the DDRC. The rescue operations and relief assistance are being carried out and provided basically by the DDRC in close cooperation and coordination with other disaster management related agencies and various other actors in the district.

The Central Committee may constitute Relief and Treatment Sub-Committee (RTSC) and Supply, Shelter and Rehabilitation Sub-Committee (SSRSC) which provide necessary advice and suggestions to the Central Committee, help to execute policies and directives of the Central Committee and operate effectively the rescue, relief and rehabilitation work during very serious natural disasters.

The Central Natural Disaster Relief Committee and the District Natural Disaster Relief Committee also mobilize the army and the police personnel as and when necessary in rescue operations.

Problems to be Solved in the Sector

Rapid population growth and increasing concentration in the urban areas, and lack of public awareness regarding the earthquake risk significantly contributes to the seismic vulnerability in the Kathmandu Valley. With an annual population growth rate of 2.4%, the population of Nepal will double by the year 2019. The consequences for Kathmandu Valley are even more severe: rural exodus drives urban growth at an even faster rate, resulting in an urban growth rate of 6.5% and one of the highest urban densities in the world.

The technical information about the earthquake impact reduction in Kathmandu Valley is inadequate, scattered among several governmental agencies, and has not been presented in a form that the public and government officials can use it for implementation. Therefore, a detailed study to reduce the earthquake disaster impact and to improve the emergency response capabilities in the Kathmandu Valley is urgently needed.

The Project's Priority in the National Development Plan

In the 9th 5 year plan (1997-2002) of the government, special emphasis has been given on the disaster issues. A significant shift from the post-disaster relief activities to pre-disaster mitigation activities has been observed. The need to improve the information technology, implementation of building codes, reconstruction of schools in 1988 earthquakes has been mentioned. Therefore, this project is in accordance with the priority areas of the national development plan.

Outline of the Project

The project will first grasp the present condition of the Kathmandu valley by studying and evaluating existing data and information, field reconnaissance and field survey. An information system consisting of a database and a geographic information system (GIS) will be designed, developed and established in order to visualize the disaster and resources, and to utilize it for disaster management planning.

Hazards caused by earthquakes will be analyzed, and the results will be presented in the visual forms by using GIS. Risk assessment statement, and hazard and risk zoning maps will be prepared. Through the analysis of the present condition, and

with the help of the information system, the recommendations for the earthquake impact reduction plans will be proposed. Special emphasis will be given on three main aspects: emergency services operational guideline, specifications for retrofit of emergency services facilities, and specifications for emergency operation center.

Workshops and seminar will be organised for technical transfer and capacity building program, and to raise awareness and reach consensus among different stakeholders.

Purpose (Short-Term Objective) of the Project

The main objectives of the project are:

(i) To establish an inventory and database related to the earthquake disaster in the Kathmandu Valley

(ii) To identify the seismic hazard of the valley

(iii) To prepare specifications for retrofit of critical structures

(iv) To prepare specifications for an Emergency Operation Center, Warehouse and Information Center

(v) To assess structural and functional vulnerability of the emergency services critical facilities

(vi) To prepare programs for technical transfer and capacity building

(vii) To prepare an operational guideline for the emergency services

Goal (Long-Term Objective) of the Project

The main goal of the Project will be:

(i) To reduce the impact of earthquake disaster in the Kathmandu Valley by :-

- establishing an Emergency Operation Center at the Ministy of Home Affairs
- establishing an information center at the Ministy of Home Affairs for the common people
- improving emergency decision making and response capabilities of the disaster management related agencies
- creating a command structure on what to do after an earthquake
- improving post disaster relief and rescue capabilities
- establishing a warehouse to store the relief and rescue materials under the control of the Ministy of Home Affairs

(ii) To reduce the earthquake impacts of other municipalities and disaster prone areas in Nepal by applying the methodologies, techniques, experiences and lessons from the study for the Kathmandu Valley.

Prospective Beneficiaries

Prospective beneficiaries are:

- All citizens of Kathmandu Valley, especially identified vulnerable groups
- Districts and municipalities of Kathmandu Valley, especially disaster management and relief related departments
- Central Government, especially disaster management and relief department
- Emergency response agencies
- NGOs working in the area of disaster management and response

(6) Desirable or Scheduled time of the commencement of the project

April, 2000 A.D.

(7) Expected funding source and/or assistance (including external origin)

Japan International Cooperation Agency (JICA)

(8) Other relevant projects, if any

None

2. Terms of Reference of the Project Study

(1) Necessity / Justification of the Study

Kathmandu, the capital of Nepal is located almost in the middle part of the country in a Valley amidst the mountains of average elevation of 2100 m. The roughly elliptical outline is interrupted by rock spurs, which encroach into the Valley from the surrounding mountains. Its width is typically 25 km from east to west, and 20 km from north to south, and it has an average base elevation of about 1300 m. The drainage area of Kathmandu Valley is about 585 sq. km, and the valley floor area and surrounding terraces are about 400 sq. km.

Three of the 75 administrative districts of the country (i.e., Kathmandu, Lalitpur and Bhaktapur) are located inside the Valley. The district administrative centers are

the three cities, which go by the same names respectively. In total, there are five municipalities in the Kathmandu valley, viz., Kathmandu, Kirtipur, Lalitpur, Bhaktapur, and Madhayapur.

Nepal has a long history of destructive earthquakes. In this century alone over 11,000 people have lost their lives in four major earthquakes. A 1934 earthquake produced an intensity of IX-X on the Modified Mercalli Intensity (MMI) scale in Kathmandu Valley, and destroyed 20% and damaged 40% of the valley's building stock. In Kathmandu itself, one quarter of all homes was destroyed. Many of the temples in Bhaktapur were destroyed as well. The seismic record of the region suggests a return period of about 25 years, indicating that a devastating earthquake is inevitable in the long run and likely in the near future.

A large earthquake near the Kathmandu Valley today would cause significantly greater human loss, physical damage, and economic crisis than caused by the past earthquakes. With the Valley's burgeoning population of almost 1 1/2 million people, uncontrolled development, and a construction practice that has actually degraded over this century, the Valley becomes increasingly vulnerable to earthquakes with each passing year. The preliminary estimate shows that a possible repeat of intensity IX on the MMI scale will result in the death of more than 40,000 people, serious injuries to more than 100,000 people with more than 60% of the existing building stock being damaged beyond repair. This contrasts well with the generally very weak existing capabilities of the emergency response system, including that of hospitals, fire brigade, and municipalities etc. Recovery from the devastating earthquake would be a long-term process, and the country's economy will be pushed back by several decades as Kathmandu is not only the capital of the country but also its economic center.

The technical information about the earthquake impact reduction in Kathmandu Valley is incomplete, scattered among several governmental agencies, and has not been presented in a form that the public and government officials can use it for implementation. Therefore, a detailed study to reduce the earthquake disaster impact and to improve the emergency response capabilities in the Kathmandu Valley is urgently needed.

(2) Necessity / Justification of the Japanese Technical Cooperation

Japan has experienced serious earthquake damages in the past. The recent Kobe Earthquake (The Hyogo-Ken Nanbu Earthquake) of 1995 killed more than 6,400 people, injured more than 43,000 people, and affected more than 480,000 people. The event caused economic losses of more than 10 trillion Japanese Yen or 100 billion US$.

Enormous efforts have been exercised, and experiences have been accumulated to reduce and mitigate impacts of earthquakes in the stages of emergency response, relief, rehabilitation, reconstruction, mitigation and preparedness. Numerous studies have been carried out and various technologies have been developed for these purposes. Public awareness of earthquake impacts have been risen through public education and exercise programs.

Transfer of these experiences, lessons, know-how and technologies of Japan through the Technical Cooperation Scheme will be beneficial to reduce the earthquake impacts for Kathmandu Valley.

(3) Objectives of the Study

The main objectives of the project are:

(i) To establish an inventory and database related to the earthquake disaster in the Kathmandu Valley

(ii) To identify the seismic hazard of the valley

(iii) To prepare specifications for retrofit of critical structures

(iv) To prepare specifications for an Emergency Operation Center, Warehouse and Information Center

(v) To assess structural and functional vulnerability of the emergency services critical facilities

(vi) To prepare programs for technical transfer and capacity building

(vii) To prepare an operational guideline for the emergency services

(4) Area to be covered by the Study

Kathmandu Valley

(5) Scope of the Study

The scope of work of the Project will include the followings:

1. Planning of the Study

A project plan will be formulated. After consultation with concerned agencies and organizations, a set of principles and framework of the Study will be generated and adopted.

2. Data Collection and Analysis

Existing data and information related to the Study will be collected, and data source, available format, area covered, last update, availability etc will be confirmed. These data and information include:

(a) Basic maps,
(b) Aerial photographs / satellite photographs,
(b) Historic Earthquakes,

(c) Natural conditions,
(d) Social and cultural conditions,
(e) Economic conditions,
(f) Infrastructures,
(g) Land use / vegetation,
(h) Emergency services,
(i) Database / GIS / information system,
(j) Disaster management plans,
(k) Related development plan,
(l) Institutional and legal aspects and
(m) Others as required.

Existing data and information required for the Study will be collected, and analyzed.

3. Field Reconnaissance

Field reconnaissance will be conducted to supplement the data collection. This will include reconnaissance survey, interview, questionnaire and inspection of facilities.

4. Analysis of Existing Earthquake Impact Reduction Plans

A detailed analysis will be made on the existing earthquake impact reduction plans, and the major outputs from the plans will be incorporated.

5. Formation of Committees and Working Group

Steering Committees and Working Groups will be formed involving a wide ranges of government departments and organizations, universities, emergency service units, NGOs and related stakeholders which are involved in disaster management..

6. Establishment of Information System

An information system consisting of a database, a geographical information system (GIS), its utilization system will be designed, developed and established at the Ministry of Home Affairs. Required hardware and basic software of the information system will be determined, procured and installed.

7. Field Investigation

Field investigation will include geological survey, boring, geophysical survey, aerial photographing, social survey and inspection of infrastructures.

8. Analysis of Emergency Services

Functional analysis of emergency services will be carried out. A detailed analysis is needed for the logistic, capacity (both physical and human resources) and operation (skill and ability) in case of emergency. This will be done through reconnaissance survey, interview through questionnaire, and inspection of the facilities by qualified professional.

9. Establishment of Inventory and Database

An inventory of collected data and information will be prepared and a data base will be established. Necessary basic maps will be prepared.

10. Study of Earthquake Impact Reduction Plans

Earthquake scenarios (Task 12), earthquake impact reduction plans (Task 13), programs for technical transfer and capacity buildings (Task 14), and emergency response plan (Task 15) will be discussed to build consensus among disaster management related agencies and organizations.

11. Evaluation of Hazard

Scenario of earthquakes will be determined and hazards caused by these will be estimated. The following hazard maps will be prepared and shown in visual forms by using GIS:

- seismic intensity distribution map
- liquefaction potential map
- slope failure potential map
- others

12. Evaluation of Damages and Preparation of Scenario

Damages to key infrastructures will be estimated, including buildings, transportation system and lifelines. Casualties, human impacts and social impacts will be evaluated. The results will be shown in visual forms by using GIS. Based on the output from Tasks 4, 8, 10, 11, and 12, scenarios for the anticipated earthquakes will be formulated.

13. Preparation of Recommendations for Earthquake Impact Reduction Plans

From the study discussion, ideas and conclusions of the working committee and the working group in Task 6, recommendations for earthquake impact reduction plans for the emergency response and relief phase, rehabilitation and reconstruction phase, and mitigation and preparedness phase will be prepared. The recommendations include public awareness, retrofit of existing infrastructures, integration of the earthquake impact reduction plan into city and regional planning and

establishment of an emergency operation center.

14. Preparation of Programs for Technical Transfer and Capacity Building

A program for technical transfer through and after the project will be prepared. Institutional and human resource development will be instituted to utilize, maintain and enhance the information system by the concerned agencies and organizations.

15. Preparation of Emergency Response Plans and Emergency Services Operational Guideline

The Emergency Response Plans and Emergency Services Operational Guideline will be prepared. The guideline will include emergency organizations, line of succession, vital roles, relationship with the local and central government, phases of emergency management, and finally specification on who to do what in case of disaster.

16. Preparation of Specifications for Retrofit of Emergency Services Facilities

Specifications for retrofit of emergency services related facilities will be prepared.

17. Preparation of Specifications of Emergency Operation Center

Specifications, including functions, organization and facilities of the emergency operation center will be studied and determined.

18. Workshops and Seminars

As the means to disseminate information and to monitor the progress of the project, three seminars, the first at the start, the second at the middle and the third at the end of the Project will be conducted. One workshop will also be held during the course of the Project.

19. Reports

An inception report at the start of the project, periodical progress reports, a mid-term interim report, a draft final report and a final report will be prepared.

(6) Study Schedule

The Project is scheduled to begin in April 2000 and is expected to continue for two years.

The first year of the study will include the following:

1. Planning of Study
2. Data Collection and Analysis
3. Field Reconnaissance
4. Analysis of Existing Earthquake Impact Reduction Plans
5. Formation of Committee and Working Group
6. Establishment of Inventory and Database
7. Field Study
8. Analysis of Emergency Services
9. Establishment of Inventory and Database
10. Study for Earthquake Reduction Plans
11. Workshop and Seminar
12. Reports

The second year of the study will include the following:

1. Study for Earthquake Reduction Plans
2. Evaluation of Hazard
3. Evaluation of Damages and Preparation of Scenario
4. Preparation of Recommendations for Earthquake Impact Reduction Plans
5. Preparation of Programs for Technical Transfer and Capacity Building
6. Preparation of Emergency Response Plans and Emergency Services Operational Guideline
7. Preparation of Specifications for Retrofit of Emergency Service Facilities
8. Preparation of Specifications of Emergency Operation Center
9. Workshop and Seminar
10. Reports

(7) Expected Major Output of the Study

The expected major outputs of the Study are:

(i) Earthquake Hazard Maps of Kathmandu Valley
(ii) Damage distribution maps of Kathmandu Valley
(iii) Earthquake Scenarios for Kathmandu Valley
(iv) GIS based Information System, Inventory and Database
(v) Recommendation for Earthquake Impact Reduction Plans
(vi) Programs for Technical Transfer and Capacity Building
(vii) Emergency Services Operational Guidelines
(viii) Specifications for Retrofit of Emergency Service Facilities
(ix) Establishment of an Emergency Operation Center at the Ministry Home Affairs

(x) Construction of a Warehouse and the Information Center at the Ministry Home Affairs

(8) Request of the Study to Other Donor Agency, if Any

None

(9) Other Relevant Information, if Any

None

3. Facilities and Information for the Study

(1) Assignment of the Counterpart Personnel of the Implementing Agency for the Study

Technical and support staff (for secretarial work) will be provided by the Home Ministry in coordination with other related ministries, as per the requirements. Specialists and technical personnel from the related fields will be assigned from different related departments and institutions.

(2) Available Data, Information, Documents, Maps etc. Related to the Study

Following data, map and information are available with different departments and organizations.

Earthquake Catalogue-
Seismicity Maps
Topography Map
Geological Map
Buildings and Infrastructure
Data on life lines

(3) Information on the Security Conditions of the Study Area

Good (no problem)

4. Global Issues (Environment, Women in Development, Poverty etc.)

(1) Environment Components (Such as Pollution Control, Water Supply, Sewage, Environment Management, Forestry, Bio-diversity) of the Project, if Any

Following several components are involved: Disaster Management, Disaster Impact Reduction, Poverty alleviation, Human Rights, Improved health, Emergency services, Safety and Security and Environment Management

(2) Anticipated Environmental Impacts (both Natural and Social) by the Project, if Any

Pronounced positive impacts will be expected. Implementation of the earthquake disaster impact reduction plans and emergency response plans will reduce impacts caused by the anticipated earthquakes to all citizens of Kathmandu Valley and the regional economy of the Nepal.

(3) Women as Main Beneficiaries or Not

Yes

(4) Project Components which Requires Special Considerations for Women (Such as Gender Difference, Woman Specific Role, Women's Participation), if Any

Major player for public awareness and education program for earthquake disaster impact reduction and mitigation must be woman. Especially in the urban poor, living in the slum areas, women play a very important role in family education and capacity building within the communities at the local level.

(5) Anticipated Impacts on Women Caused by the Project, if Any

In case of earthquake, women staying indoors, engaged in household activities are the worst affected. The project will give special consideration on this to improve the awareness among women community for disaster mitigation.

(6) Poverty Alleviation Components of the Project, if Any

The poor and the nearly poor including squatters and slum dwellers are considered highly vulnerable to the earthquake disasters. The Study will be especially beneficial to them.

(7) Any Constraints against the Low-income People Caused by the Project

Not applicable

5. Undertakings of the Government of Kingdom of Nepal

In order to facilitate the smooth and efficient conduct of the Study, the Government of Kingdom of Nepal shall take necessary measures:

(1) to secure the safety of the Study Team,
(2) to permit the members of the Study Team to enter, leave and sojourn in Nepal in connection with their assignment therein, and exempt them from foreign registration requirements and consular fees,
(3) to exempt the Study Team from taxes, duties and any other charges on

equipment, machinery and other materials brought into and out of Nepal for the conduct of the Study,

(4) to exempt the Study Team from income taxes, duties and any charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Study Team for their services in connection with the implementation of the Study,

(5) to provide necessary facilities to the Study Team for remittance as well as utilization of the funds introduced in Nepal from Japan in connection with the implementation of the Study,

(6) to secure permission for entry into private properties or restricted areas for the conduct of the Study,

(7) to secure permission for the Study Team to take all data, documents and necessary materials related to the Study out of Nepal to Japan, and

(8) to provide medical services as needed. Expenses for the medical services shall be charged to members of the Study Team.

6. The Government of Kingdom of Nepal shall bear claims, if any arise against member(s) of the Japanese Study Team resulting from, occurring in the course of or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the member of the Study Team.

7. Disaster Relief Section of the Home Ministry of HMG of Nepal shall act as the leading counterpart agency to the Japanese Study Team and also as coordinating body in relation with other governmental and non-governmental organizations concerned for the smooth implementation of the Study.

The Government of Kingdom of Nepal assures that the matters referred to in this form will be ensured for the smooth conduct of the Development Study by the Japanese Study Team.

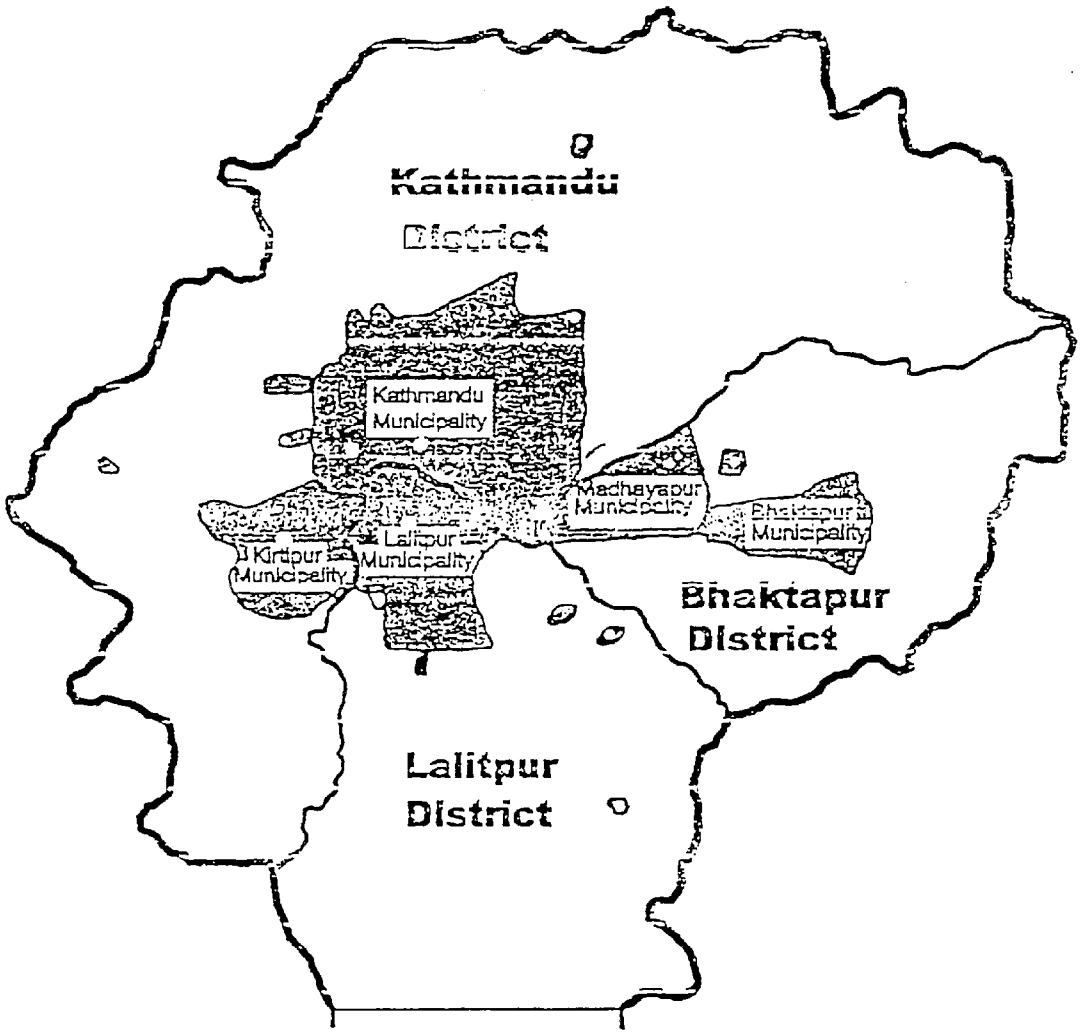
Signed : _____

Titled :

On behalf of the Government of
The Kingdom of Nepal

Date : , 1999

Kathmandu Valley



Legends

- District Boundary
- KVERM Project Boundary
- Municipal Boundary
- Road Network
- Urbanized Area
- Village Dev. Committee

2 0 2 4 6 8 10 Km

SCOPE OF WORK

FOR

THE STUDY

ON

THE EARTHQUAKE DISASTER MITIGATION

IN THE KATHMANDU VALLEY, KINGDOM OF NEPAL

AGREED UPON BETWEEN

MINISTRY OF HOME AFFAIRS

AND

JAPAN INTERNATIONAL COOPERATION AGENCY

Kathmandu, August 31, 2000

Mr. PADAM PRASAD POKHAREL

HOME SECRETARY,
MINISTRY OF HOME AFFAIRS

Mr. KENJI OKAZAKI

LEADER,
PREPARATORY STUDY TEAM,
JAPAN INTERNATIONAL
COOPERATION AGENCY (JICA)

I. INTRODUCTION

In response to the request of His Majesty's Government of Nepal (hereinafter referred to as "HMG/N"), the Government of Japan has decided to conduct the Study on the Earthquake Disaster Mitigation in the Kathmandu Valley, Kingdom of Nepal (hereinafter referred to as "the Study") in accordance with the relevant laws and regulations in force in Japan.

Accordingly, Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programs of the Government of Japan, will undertake the Study in close cooperation with the authorities concerned of HMG/N in accordance with the relevant laws and regulations in force both in Nepal and Japan, except for the cases stipulated in VII and VIII of this document.

This document sets forth the scope of work for the Study as following.

II. OBJECTIVES OF THE STUDY

The objectives of the Study are:

(1) To formulate the plan for the earthquake disaster mitigation, and;

(2) To carry out the technology transfer to Nepalese counterpart personnel in course of the Study.

III. STUDY AREA

The study area shall cover the Kathmandu Valley (Refer to Annex 1).

IV. SCOPE OF THE STUDY

In order to achieve the objectives mentioned above, the Study shall cover the following items.

Phase 1: Data collection

(1) Data Collection (topographical map, hazard map, geological features, seismic activities, demography, infrastructure / lifeline facilities, history of earthquake damage, disaster prevention plan, urban planning, building codes and other relevant documents)

(2) Field Reconnaissance (geophysical conditions, infrastructure, and buildings)

(3) Analysis of Existing Earthquake Disaster Mitigation Plans

(4) Information about the activities of the other donors, international organizations, and NGOs (Non- governmental organizations)

Phase 2: Data Analysis

(1) Data Analysis (establishment of the database system)

(2) Evaluation of Hazard and Damage (scenario earthquake, ground motion, landslide, fire, liquefaction, buildings, infrastructure / lifeline facilities, human, socio-economic, and environmental impact, and review of the existing scenario)

Phase 3: Formulation of the Earthquake Disaster Mitigation Plan

(1) The Disaster Prevention Plan (buildings and infrastructure / lifeline facilities, building codes for earthquake resistance, and monitoring system)

(2) The Emergency Response Plan (production of emergency manuals)

(3) Suggestions for Rehabilitation and Reconstruction

(4) The Plan for Capacity Building of the Concerned Government Personnel

(5) Disaster Awareness and Formulation of Proper Strategies

(6) Evaluation of Social, Environmental, and Economic Impacts

(7) Cost Estimation

(8) Formulation of the Implementation Plan

V. STUDY SCHEDULE

The Study shall be carried out in accordance with the attached tentative schedule in approximately fifteen (15) months (Refer to Annex 2).

VI . REPORTS

JICA shall prepare the following reports:

(1) Inception Report (IC/R)

JICA shall submit thirty (30) copies of IC/R at the commencement of the Study to HMG/N.

(2) Interim Report (IT/R)

JICA shall submit thirty (30) copies of IT/R at the beginning of Phase 2 to HMG/N.

(3) Draft Final Report (DF/R)

JICA shall submit fifty (50) copies of DF/R about two (2) months before the end of Phase 3. HMG/N will provide the comments on the report within one (1) month after the receipt.

(4) Final Report (F/R)

Having received the comments from HMG/N, one hundred (100) copies of the F/R shall be submitted to HMG/N within one (1) month.

VII. UNDERTAKING OF HMG/N

(1) To facilitate smooth conduct of the Study, HMG/N shall take the following necessary measures:

1) To secure the safety of the Japanese Study Team (hereinafter referred to as "the Team");

2) To permit the members of the Team to enter, leave and sojourn in Nepal for the duration of their assignment therein, and exempt them from alien registration requirements and consular fees;

3) To exempt the members of the Team from taxes, duties and other charges on equipment, machinery, and other materials brought into and out of Nepal for the conduct of the Study;

4) To exempt the members of the Team from income tax and charges of any kind imposed on or in connection with any emoluments or allowance paid to the member of the Team for their services in connection with the implementation of the Study;

5) To provide necessary facilities to the Team for the remittance as well as utilization of the funds introduced into Nepal from Japan in connection with the implementation of the Study;

6) To secure permission for entry into private properties or restricted areas for the conduct of the Study after having necessary consent from the concerned authorities and individuals;

7) To secure permission for the Team to take all data and documents (including maps and photographs) related to the Study out of Nepal to Japan as per the Nepalese law; and

8) To provide medical services as needed. However, those expenses will be chargeable to the member of the Team.

(2) HMG/N shall bear claims, if any arises against the members of the Team resulting from, occurring in the course of, or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the members of the Team.

(3) Ministry of Home Affairs (hereafter referred to as "MOHA") shall act as the counterpart agency to the Team and also as a coordinating body in relations with other governmental and non-governmental organizations concerned for the smooth implementation of the Study. Upon the establishment of the Department of Narcotics Drugs Control and Disaster Management (hereafter referred to as "DNDCDM"), it will take over the role of MOHA as the counterpart and coordinating body.

(4) MOHA or DNDCDM shall at its expense provide the Team with the following in cooperation with other related organizations concerned:

1) Available data and information related to the Study;

2) Counterpart personnel;

3) Suitable office space in Kathmandu; and,

4) Credentials and identification cards.

VIII. UNDERTAKING OF JICA

For the implementation of the Study, JICA shall take the following measures:

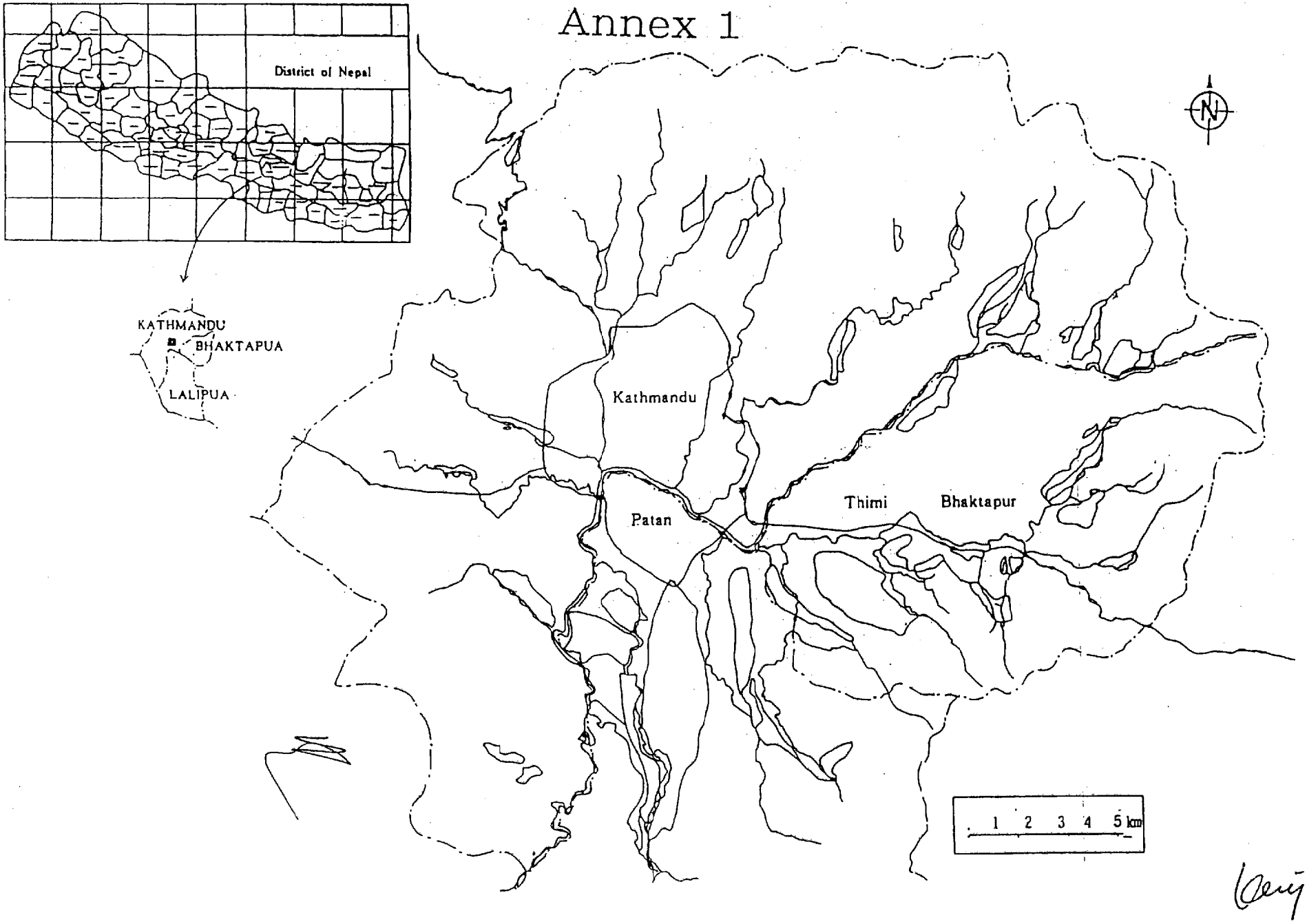
(1) To dispatch, at its own expense, the Team to Nepal; and

(2) To pursue technology transfer to the Nepalese counterpart personnel in course of the Study.

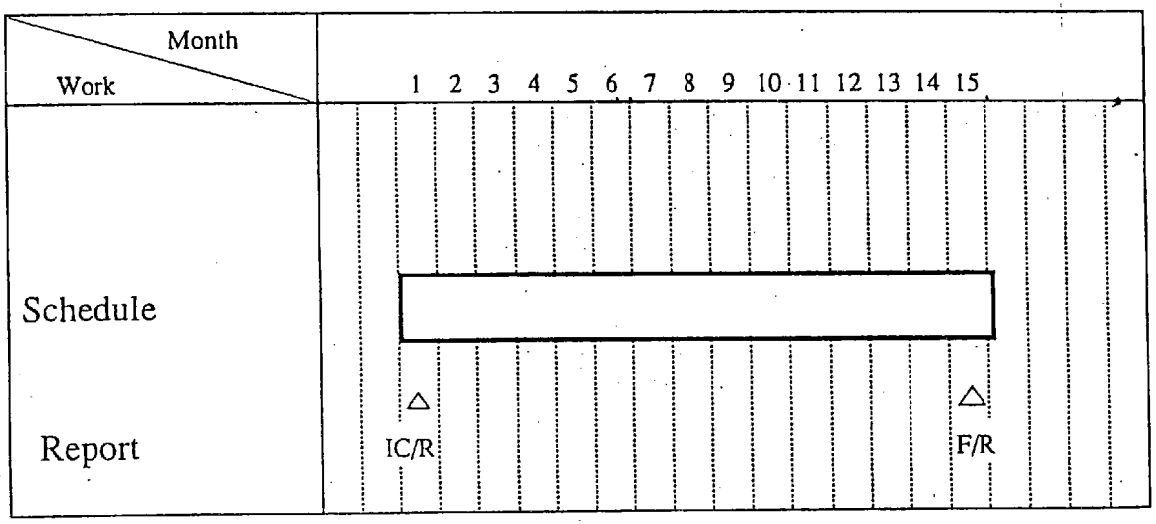
IX. CONSULTATION

MOHA / DNDCDM and JICA shall consult with each other in respect of any matters that may arise from or in connection with the Study. They can make some changes, additions, and deletions after mutual consent, if necessary. However, such changes, additions, and deletions shall not affect the objectives of the Study.

Annex 1


District of Nepal
KATHMANDU
BHAKTAPUA
LALIPUA
Kathmandu
Patan
Thimi
Bhaktapur
N
1 2 3 4 5 km

Annex 2



IC/R : Inception Report
F/R : Final Report

MINUTES OF MEETINGS

ON

SCOPE OF WORK

FOR

THE STUDY ON THE EARTHQUAKE DISASTER MITIGATION

IN THE KATHMANDU VALLEY, KINGDOM OF NEPAL

AGREED UPON BETWEEN

MINISTRY OF HOME AFFAIRS

AND

JAPAN INTERNATIONAL COOPERATION AGENCY

Kathmandu, August 31, 2000

P R Pokharel

Mr. PADAM PRASAD POKHAREL

HOME SECRETARY,
MINISTRY OF HOME AFFAIRS

岡崎健二

Mr. KENJI OKAZAKI

LEADER,
PREPARATORY STUDY TEAM,
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

In response to the request of His Majesty's Government of Nepal (hereinafter referred to as "HMG/N"), the Preparatory Study Team (hereinafter referred to as "the Team") of the Japan International Cooperation Agency (hereinafter referred to as "JICA") visited Nepal from August 27 to September 2, 2000 to discuss the Scope of Work (hereinafter referred to as "S/W") for the Study on the Earthquake Disaster Mitigation in the Kathmandu Valley, Kingdom of Nepal (hereinafter referred to as "the Study").

The Team carried out field surveys of the study area, and held a series of discussions with the officials of the Ministry of Home Affairs (hereinafter referred to as "MOHA") and the other authorities concerned. The list of attendants is attached as the Appendix.

The Minutes of Meetings (hereinafter referred to as "M/M") have been prepared for the better understanding of the S/W agreed upon between MOHA and the Team on August 31, 2000. The major issues discussed in course of the preparation of the S/W are as following.

1. The Study Title

Nepalese and Japanese sides agreed that the Study title should be changed from "EARTHQUAKE DISASTER IMPACT REDUCTION AND IMPROVEMENT OF EMERGENCY RESPONSE CAPABILITIES IN THE KATHMANDU VALLEY, KINGDOM OF NEPAL" to "THE STUDY ON THE EARTHQUAKE DISASTER MITIGATION IN THE KATHMANDU VALLEY, KINGDOM OF NEPAL."

2. The Counterpart Personnel

The Team requested Nepalese side to appoint counterpart personnel for the Study team. The list of the Study team members and of their expertise will be submitted to Nepalese side before the commencement of the Study. MOHA, or the Department of Narcotics Drugs Control and Disaster Management (hereafter referred to as "DNDCDM") upon its establishment, will determine the counterpart personnel based on the content of the list.

3. The Steering Committee

Nepalese side will set up the Steering Committee to help realize the effective and efficient implementation of the Study. The committee will be chaired by the Secretary of MOHA and its members will be the Senior Officials of the following ministries, departments and agencies:

a. National Planning Commission;

b. Ministry of Finance;

c. Ministry of Science and Technology;

d. Ministry of Physical Planning and Works;

e. Ministry of Health;

f. Department of Mines and Geology;

g. Chief District Officers of Kathmandu, Lalitpur, and Bhaktapur;

h. Mayors of the five (5) municipalities, namely; Kathmandu, Lalitpur, Bhaktapur, Madhyapur, and Kirtipur.

The chairman may invite other relevant ministries, departments and agencies, if necessary.

4. Seminar on Technology Transfer

Both Nepalese and Japanese sides recognized the importance of the seminar on the relevant issues to the Study, so that the smoother technology transfer would be realized. The topic, period, and scale of the seminar will be discussed and confirmed by the both sides as soon as the Study starts.

6. Counterpart Training

Nepalese side requested the Japanese side to conduct the counterpart training in Japan for smoother transfer of technology during the Study. The team promised to convey this request to the JICA headquarters for serious and favourable consideration.

7. Reports

With regard to the Final Report, Nepalese side has accepted to make it open to the public in order to achieve maximum use of the Study results.

8. Undertaking of His Majesty's Government of Nepal

Nepalese side assured the Japanese side to provide office space for the Study team, and equipment such as: a local telephone, tables, and chairs. As to the rest of necessary equipments including vehicles for the Study which could not be procured by Nepalese side due to budgetary constraints, that will be prepared by JICA.

APPENDIX

LIST OF ATTENDANTS

(Nepalese side)

Ministry of Home Affairs

Mr. Padam Prasad Pokharel	Home Secretary
Ms. Usha Nepal	Joint Secretary
Dr. Meen Bahadur Poudyal Chhetri	Under Secretary
Mr. Lekh Nath Pokharel	Section Officer

National Planning Commision

Mr. Prithvi Raj Ligal	Vice Chairman

Ministry of Finance

Dr. Bimal Koirala	Secretary

Department of Mines and Geology

Mr. Nanda R. Sthapit	Director General
Mr. Ram Sunder Hada	Under Secretary (Technician)
Mr. Madhab Raj Pandey	Senior Seismologist

Ministry of Science and Technology

Mr. Poshan Nath Nepal	Secretary

Ministry of Physical Planning and Works

Mr. Hiranya Lal Regmi	Secretary
Mr. Toshio Kimata	JICA Advisor, Department of Roads

Department of Housing and Urban Development

Mr. Shashi Bahadur Thapa	Director General
Mr. Purna Kadariya	Deputy Director General
Mr. Ram Bahadur Shrestha	Senior Engineer
Mr. Mani Ratna Tuladhar	Civil / Structure Senior Engineer
Mr. Amrit Man Tuladhar	Civil / Structure Senior Engineer

Kathmandhu Valley Town Development Committee

Mr.Surya Bhakta Sangachhe	Acting Member Secretary
Mr. Durgesh Kumar Pradhan	Account Officer

Kathmandu Metropolitan City

Mrs. H.D. Rnajitkar "Yosha"	Head, Social Welfare Department

Lalitpur Sub-Metropolitan City

Mr. Ashok Shrestha	Section Officer

Department of Water Induced Disaster Prevention

Mr. Koji Kamee	Chief Advisor

N-SET (National Society for Earthquake Technology-Nepal)

Mr. Amod M. Dixit	General Secretary
Mr. Mahesh Nakarmi	Project Manager
Mr. Jitendra Kumar Bothara	Structural Engineer
Mr. Ramesh Gusayain	Structural Engineer
Mr. Bishnu Hari Pandey	Project Manager

(Japanese Side)

Preparatory Study Team

Mr. Kenji Okazaki	Leader / Disaster Mitigation Plan
Dr. Hideo Fujitani	EarthquakeResistance Engineering
Mr. Kenji Inoue	Study Planning
Mr. Haruhiko Ando	Geology Engineering
Mr.Hideaki Kitajima	Urban Disaster Mitigation Plan

Embassy of Japan

Mr. Yoshiyuki Toyoguchi	The Second Secretary

JICA Nepal Office

Mr. Ken Hasegawa	Resident Representative
Mr. Tetsuo Yabe	Deputy Resident Representative
Mr. Kazuhisa Arai	Senior Officer
Mr. Sourab Rana	Officer

No.	Classification/Item	Description	Availability*	Relevant Agency	Material Title
1.	**Base Data Collection**				
1-1	Socio-Economic Factors	Data of the Work Force of the Country	Y	MOHA	
		Industrial Structure	Y	MOHA	
1-2	Past Earthquakes Disaster	India-Nepal Great Earthquake (1934) (Earthquake Damage Report)	Y	DMG	
		Bajhang Earthquake (1980) (Earthquake Damage Report)	Y	DMG	
		Nepal-India Earthquake (1988) (Earthquake Damage Report)	Y	DMG	
		Other Earthquakes, Floods、Wind (Damage Reports)	Y	DNG, MOHA	
1-3	Organization & Codes for Disaster Mitigation	List of Codes & Regulations in Architecture and Disaster Prevention Area	Y	DUDBC, MOHA	
		List of Official/ Nonofficial Organization for Disaster Prevention	Y	NSET-Nepal	
1-4	Infrastructure/ Traffic/ Transportation Factors	Data of Roads, Airport, Automobiles, etc.	Y	NSET-Nepal	
		Data of Energy, Waterworks, Sewer, Communication Systems, Media, etc.	Y	NSET-Nepal	
2.	**Geological & Soil Data**				
2-1	Topographical Feature	Topographical Maps (Whole Nepal, Kathmandu Valley)	Y	SD	
2-2	Active Faults Map	Location Maps (Whole Nepal, Kathmandu Valley (small scale))	Y	SD, NGS	
2-3	Soil Conditions	Stratum Composition (Kathmandu, Patan, Bhaktapur, etal)	Y	SD, NGS	
2-4	Geological Map	Cross-Section (Kathmandu Valley, Paleo-Kathmandu Lake)	Y	SD, DMG	
3.	**Observation System**				
3-1	Earthquake Observation	Seismicity Maps (Nepal, Kathmandu Valley)	Y	DMG	
		Seismological Network by the Dept. of Mines and Geology (Stations, System, Reporting)	Y	DMG	
3-2	Strong Earthquake Ground Motions Observation	Organization, Place, System, Records	N		
3-3	Other Disaster Observation	Organization, Place, System, Records	Y	MOHA	

If available, Y (Yes) and if not N (No) please.

DUDBC (Dept. of Urban Development and Building Construction)
NSET-Nepal (National Society for Earthquake Technology-Nepal)
KTDC (Kathmandu Town Development Committee)
OFDA (Office of U.S. Foreign Disaster Assistance)
KMC (Kathmandu Municipality)
MOHA (Ministry of Home Affairs)
DMG (Dept. of Mines and Geology)
SD (Survey Department)
NGS (Nepal Geological Society)
UNDP (United Nations Development Programme)
NRCS (Nepal Red Cross Society)

No.	Classification/Item	Description	Availability*	Relevant Agency	Material Title
4.	**Urban Planning**				
4-1	Building Data-Residential	Data of ① Structure, ②Materials, ③ Construction	N		
		Data of Traditional Technologies & Systems for Disaster Prevention	N		
		List of Expected Technologies & Equipment for Disaster Prevention	N		
4-2	Important Buildings for Refuse Bases	Data, Lists, Maps (Official, Military, Hospitals, Schools and so on)	Y	Each Municipality	
4-3	Existing Disaster Mitigation Plans	Countermeasures (Collection and Dissemination of Information,Scheme of Organization、etc) for ① Emergency Time、② Reconstruction Period, ③ Rehabilitation Period	Y	MOHA	
4-4	Rural Area	Conditions of Access Roads to Highways(Width, Pavement, Extension)	Y	NSET-Nepal	
		Refuse Sites (Data, Lists, Maps)	Y	NSET-Nepal	
		Data, Lists, Maps of (Official, Military, Hospitals, Schools and so on)	Y	KMC	
4-5	Urban Area	Data, Lists, Maps of (Official, Military, Hospitals, Schools and so on Evacuation Roads Refuse Bases)	Y	NSET-Nepal	
4-6	Land Use Plan	Land-use Plans for Kathmandu Municipality, Lalitpur Municipality, Bhaktapur Municipality, Kirtipur Municipality, Madhayapur Municipality,	Y	Each Municipality, KTDC	
5.	**Community Participated Regional Plan for Disaster Prevention**				
5-1	Regional Characteristics	List & Data of Every 5-Municipality, 3-District Peculiar Conditions	Y	Each Municipality	
		List & Data of Regional Committee in each District	Y	Each Municipality	
		Data of Needs and Consciousness of Disaster Prevention,	Y	KMC	
		Feasibility Data of Self - Help on Disaster Prevention	N		
5-2	Financial Aid Systems	Systems for Existing and Emergency, Reconstruction, Rehabilitation Periods,	Y	MOHA	
5-3	Other Community Participation Projects	Relevant Materials, Information for other Projects	Y	NRCS	

If available, Y (Yes) and if not N (No) please.

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UNDP (United Nations Development Programme)
NRCS (Nepal Red Cross Society)

No.	Classification/Item	Description	Availability*	Relevant Agency	Material Title
5-4	Present Education System (5-Municipality)	List of Primary, Secondary Schools and Colleges, Universities	N		
		The School Attendance Rate	N		
5-5	Technological Education System	Education of Relevant Technology	Y	NRCS	
		List of Official Training Organizations (Existing, Planned etc)	N		
5-6	Leader Training System	Data for Traditional/ Official Training System for Regional Leaders	Y	NRCS	
5-7	Education for Disaster Mitigation	Data for Dissemination of Knowledge of Disaster Prevention	Y	NRCS	
6.	**Disaster Mitigation Plan**				
6-1	Project Objectives	Natural Development Plan (9th-5 years)	Y	MOHA	
6-2	Damaging Earthquake Scenario	Local Destructive Earthquake,	Y	NSET-Nepal	
		Plate-Techtonics typed Great Earthquake	Y	NSET-Nepal	
6-3	Existing Plan	Governing Acts,	Y	MOHA,	
		Main & Sub Organizations,	Y	KMC	
		Activity Situation (Governmental, Local), Past Activities	Y	MOHA, KMC	
6-4	Executing System of the Plan	Emergency Management	Y	MOHA, NRCS	
		Implementing Scheme	Y	MOHA, NRCS	
7	**Related Projects by Other International Organizations**				
7-1	Investigation of Existing/ on going Plans	List of Relevant Plans of Other Donors	Y	UNDP, OFDA	
	WB、EU、UNICEF、ADB、UNDP、				
7-2	Collaboration with Other Organizations	Data/ Materials of Other plans for Linkage	Y	NRCS, NSET-Nepal	
		Data/ Materials of Other plans for Sharing	Y	NRCS, NSET-Nepal	

If available, Y (Yes) and if not N (No) please.

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MOHA (Ministry of Home Affairs)
DMG (Dept. of Mines and Geology)
SD (Survey Department)
NGS (Nepal Geological Society)
UNDP (United Nations Development Programme)
NRCS (Nepal Red Cross Society)

主要面会者リスト

＜ネパール側＞

Ministry of Home Affairs (内務省)

Mr. Padam Prasad Pokharel	Home Secretary
Ms. Usha Nepal	Joint Secretary
Dr. Meen Bahadur Poudyal Chhetri	Under Secretary
Mr. Lekh Nath Pokharel	Section Officer

National Planning Commission (国家計画委員会)

Mr. Prithvi Raj Ligal	Vice Chairman

Ministry of Finance (大蔵省)

Dr. Bimal Koirala	Secretary

Department of Mines and Geology (鉱山地質局)

Mr. Nanda R. Sthapit	Director General
Mr. Ram Sunder Hada	Under Secretary
Mr. Madhab Raj Pandey	Senior Seismologist

Nepal Geological Society (ネパール地質学会)

Mr. Ramesh Kumar Aryal	President
Mr. Uttam Bol Shrestha	General Secretary

Ministry of Science and Technology (科学技術省)

Mr. Poshan Nath Nepal	Secretary

Ministry of Physical Planning and Works (公共事業計画省)

Mr. Hiranya Lal Regmi	Secretary
Mr. Toshio Kimata	JICA Advisor (Department of Roads)

Department of Urban Development and Building Construction (都市計画建設局)
(旧称 Department of Housing and Urban Development)

Mr. Shashi Bahadur Thapa	Director General
Mr. Purna Kadariya	Deputy Director General
Mr. Ram Bahadur Shrestha	Senior Engineer
Mr. Mani Ratna Tuladhar	Senior Engineer
Mr. Amrit Man Tuladhar	Engineer
Mr. Biswombhar Man Shrestha	Engineer

Kathmandu Valley Town Development Committee (カトマンズ盆地都市開発委員会)

Mr. Surya Bhakta Sangachhe	Acting Member Secretary
Mr. Durgesh Kumar Pradhan	Account Officer

Kathmandu Metropolitan City (カトマンズ市)

Mrs. H.D. Ranjitkar "Yosha"	Departmental Head, Social Welfare Dept.
Mr. Raju Shrestha	Section Officer, Disaster Management Section Social Welfare Dept.
Mr. Padma Sunder Joshi	Member Secretary of City Planning Committee
Mr. Keshav Sthapit	Mayor

Lalitpur Sub-Metropolitan City (ラリトプール市)

Mr. Ashok Shrestha	Section Officer
Mr. Rudra Prasad Gautan	Senior Engineer
Mr. Mukunda Bista	International Relation Expert
Mr. Buddhi Raj Bajracharya	Mayor

Bhaktapur Municipality City (バクタプール市)

Mr. Prem Suwal	Mayor
Mr. Gyam Bahadur Nyachyai	Ex-Mayor
Mr. Tilak Mohan Bhandari	Assistant Manager
Mr. Om Dharananda Rajopadhyaya	Engineer
Mr. Padma Raj Neupane	Civil Engineer

Madhayapur-Thimi Municipality (マディアプール・ティミ市)

Mr. Madan Krishna Shrestha	Mayor
Mr. Mohan Bikram Prajapani	Civil Engineer
Mr. Bal Krishna T. Shrestha	Engineer

Kirtipur Municipality (キルティプール市)

Mr. Ramesh Man Maharjan	Deputy Mayor
Mr. Hira Kaji Maharjan	Mayor

Department of Water Induced Disaster Prevention (水害対策局)

Mr. Koji Kamee	Chief Advisor

UNDP (国連開発計画局)

Mr. Man B. Thapa	National Programme Officer, Disaster Management Programme

Office of U.S. Foreign Disaster Assistance (米国海外防災支援事務所)

Ms. Sabita Shrestha	Secretary

Nepal Red Cross Society (ネパール赤十字社)

Mr. Nar Bahadur Thapa	Administrative Officer
Mr. Adist Narayan Tha	Field Co-ordinator

Mr. Pusha Raj Paudel	Head of Department, Disaster Management Dept.
Mr. Rajendra Kumar Rukaha	Administrative Officer

NSET-Nepal (National Society for Earthquake Technology-Nepal)

Mr. Shiva B. Pradhanana	President
Mr. Amod M. Dixit	General Secretary
Mr. Mahesh Nakarmi	Project Manager
Mr. Bishnu Hari Pandey	Project Manager
Mr. Jitendra K. Bothara	Structural Engineer
Mr. Ramesh Gusayain	Structural Engineer

ローカルコンサルタント等

Mr. Deepak Man Sherchan	Chairman/Architect, Creative Builders Collaborative(P) Ltd.
Mr. Badan Lal Nyachhyon	Managing Director/Engineer MULTI Disciplinary Consultants(P) Ltd.
Mr. Yogeshwor K. Parajuli	Office Manager, TAEC Consult P. Ltd.
Mr. Keshav Kunwar	Managing Director SILT Consultants(P) Ltd.
Mr. Shanker Gin	Chairman/Geotechnical Engineer Soil Test (P) Ltd.
Mr. Rohit Gautam	Sales Executive, Nepal Branch Office, Nissaku Co., Ltd.
Mr. Prashant Malla	Civil Engineer, WELINK Consultants(P) Ltd.
Mr. Manoj Shrestha	Supervisor, Meiken Digital Technology
Mr. Binod S. Pal	Managing Director, GeoSpatial Systems Pvt. Ltd.

＜日本側＞

在ネパール日本国大使館

豊口 佳之	二等書記官

JICA ネパール事務所

長谷川 謙	所長
矢部 哲雄	次長
新井 和久	副参事
殿川 広康	副参事
Mr. Sourab Rana	Programme Officer

ローカルコンサルタントのリスト

会社名（設立年）	住所	Tel & Fax	E-mail	業務分野	備考
Architects Collaborate (Nepal) Pvt. Ltd. (1979 年)	Tripureswor, Kathmandu	Tel: 244632 Fax: 244583	acnepal@wlink.com.np	建築を中心としたコンサルタント	SCAEF の事務局を併設
Creative Builders Collaborative Pvt. Ltd. (1977 年)	Heritage Plaza, Kathmandu	Tel: 240160 Fax: 257971	deepak@cbc.wlink.com.np	建築設計・監理、地域開発計画	会社ブローシャを入手
Mr. & Mrs. M.L. Kayastha & Associates (1973 年)	MLK Bldg., Kupondol, Lalitpur	Tel: 523758 Fax: 524758	milk@ccsl.com.np	建築設計・監理	
Silt Consultants(P) Ltd. (1978 年)	Old Baneshwor, Kathmandu	Tel: 470866 Fax: 473573	silt@mos.com.np	土木総合コンサルタント	会社ブローシャ等を入手
SS Consult(P) Ltd. (1983 年)	New Baneshwor, Kathmandu	Tel: 490451 Fax: 491364	ssc@wlink.com.np	土木設計、ボーリング調査	Silt の関連会社
Soil Test(P) Ltd. (1979 年)	New Baneshwor, Kathmandu	Tel: 494946 Fax: 470551	soiltest@mas.com.np	地質・地盤調査	会社パンフレットを入手
Nepal Branch Office Nissaku Co., Ltd. (1984 年)	Pulchowk, Lalitpur	Tel: 525979 Fax: 521812	nepal@nskn.wlink.com.np	地質・地盤調査	
East Drilling Company (P) Ltd. (1995 年)	Basundhara, Kathmandu	Tel: 355737 Fax: 417894	edco@infoclub.com.np	地質・地盤調査	
TAEC Consult(P) Ltd. (1977 年)	Shankhamul, Kathmandu	Tel: 498446 Fax: 498447	taec@mas.com.np	土木・建築総合コンサルタント	会社パンフレットを入手
WELINK Consultants(P) Ltd. (1989 年)	Baneshwor, Kathmandu	Tel: 491475	welcon@wlink.com.np	GIS を含む土木・建築コンサルタント	会社ブローシャを入手
GeoSpatial Systems Pvt. Ltd. (1997 年)	Jawalakhel, Lalitpur	Tel: 531131 Fax: 531431	exch@geospatial.wlink.com.np	GIS 専業。中日本航空他との合弁会社	会社パンフレットを入手

会社名(設立年)	住所	Tel & Fax	E-mail	業務分野	備考
Meiken Digital Technology System Pvt. Ltd. (1999 年)	Ramshah Path, Kathmandu	Tel: 439013 Fax: 430413	pcc@wlink.com.np	GIS を中核業務とし、㈱メイケンとの合弁会社	会社パンフレットを入手
Multi Disciplinary Consultants(P) Ltd. (1978 年)	Kupondol, Lalitpur	Tel: 525076 Fax: 523103	mdc@mos.com.np -	土木・建築総合コンサルタント	会社ブローシャ等を入手
GEOCE Consultants(P) Ltd. (1986 年)	Sanepa, Lalitpur	Tel: 528370 Fax: 526096	geoce@wlink.com.np	土木コンサルタント	
DIP Consultancy(P) Ltd. (1985 年)	Dilibazar, Kathmandu	Tel: 418010 Fax: 421572	dip@unlimit.com.np	土木分野を中心としたコンサルタント	
East Consult(p) Ltd. (1973 年)	Lazimpat, Kathmandu	Tel: 413267 Fax: 417895	sp@east.wlink.com.np	土木分野の総合コンサルタント	土質試験、ボーリング、測量の各子会社を有する
National Society for Earthquake Technology -Nepal (NSET-Nepal)	Baneshwor, Kathmandu	Tel: 474192 Fax: 490943	nset@nset.org.np www.nset.np 他	ネパール唯一の地震防災研究機関	NPO 組織で、積極的な活動を展開中
Nepal Geological Society (1980 年)	Lainchaur, Kathmandu	Tel: 414330 Fax: 414806	ngs@wlink.com.np	ネパール地質学会	Dept. of Mines and Geology 内にある
Society of Consulting Architectural and Engineering Firms, Nepal (SCAEF)	Tripureswor, Kathmandu	Tel: 244632 Fax: 244583	acnepal@wlink.com.np	ネパール建築土木技術者協会	ブローシャを入手(1999 年度版)
Federation of Contractor's Association of Nepal (CAN)	Kalikasthan, Kathmandu	Tel: 417434 Fax: 425739	fcan@wlink.com.np	ネパール建設業連盟	会報(2000.2)を入手

収集資料リスト(1)

番号	資料の名称	版型	ページ数	オリジナルのコピーの別	部数	収集先名称又は発行機関	寄贈・購入(価格)の別	取扱区分	利用表示
	(地震)								
1.	Historical Earthquake of Nepal	A4	2	コピー	1	NGS	寄贈		
2.	Seismotectonics of the Nepal Himalaya from a local seismic network	A4	11	コピー	1	DMG	寄贈		
3.	The Distribution of Intensity of the Bihar-Nepal Earthquake of 15 January 1934 and Bounds on the Extent of the Rupture Zone	B5	23	オリジナル	1	NGS	購入		
4.	Earthquake of July 1980 in Far Western Nepal	B5	11	オリジナル	1	NGS	購入		
5.	Report on the Intensity Mapping of Udaypur Earthquake of 20 August, 1988	A4	52	コピー	1	DMG	購入		
6.	Epicenter Map of Nepal Himalaya (March 1994~Dec. 1997)	A0	1	コピー	1	DMG	寄贈		
7.	National Seismological Network Nepal	A4	8	オリジナル	1	DMG	寄贈		
8.	The Kathmandu Valley Earthquake Risk Management Action Plan	A4	44	オリジナル	1	NSET-Nepal	寄贈		
9.	Kathmandu Valley's Earthquake Scenario(英語、ネパール語)	A4	30	オリジナル	1	NSET-Nepal	寄贈		
10.	Geological Effects and Intensity Distribution of the Udaypur (Nepal) Earthquake of August 20, 1988	B5	15	オリジナル	1	NGS	購入		
11.	The Aftershock Sequence of the Udaypur (Nepal) Earthquake of August 20, 1988	B5	11	オリジナル	1	NGS	購入		
12.	Chamodi Earthquake of 29th March 1999, India	A4	90	コピー	1	OFDA	寄贈		
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