



# The Project for Promotion of Nepal National Building Code Compliance for Safer Building Construction (NBCC)

Newsletter Volume-3, June 2023

## [Project Introduction]

In Nepal, there are Building Codes and By-Laws. If you build a house in compliance with them, the house will be earthquake-resistant. When you build a house, you have to submit drawings and other necessary documents to the municipality and get a building permit. The municipality carefully checks whether the drawings comply with the Building Codes and By-Laws or not. Therefore, if you build a house according to the approved drawings, your house meets the Building Codes and By-Laws and is earthquake-resistant house.

However, we can see some houses are constructed without following the approved drawings while some building owners build their houses without getting a building permit from the municipality. Buildings that are not constructed as per the approved design & drawings can be more damaged during an earthquake and may endanger the neighbors' houses.

To improve this situation, MoUD started the NBCC Project with the support of JICA (Organization of the Japanese government). The NBCC Project aims to increase the construction of earthquake-resistant houses by improving the procedure for applying for construction permits to municipalities

## [Contents of the Newsletter No. 3]

1. Introduction of Training
2. Recent Project Events
3. Introduction of the Project Members

### 1. Introduction of Training

As part of the NBCC Project outputs, the procedure for applying for construction permits in municipalities is improved. This procedure is called BCWP (Building Construction Working Procedure). The NBCC project provides training to people concerned so that the improvements made in the new BCWP can be implemented smoothly. In this newsletter, the kind of training provided by the NBCC Project is described.

#### 1-1. Output 3(\*) and Activities (\*) About Outputs of the Project, please see the next page

Among the 5 outputs of the NBCC project, output 3 focused in Training. The major output is establishing training mechanisms for stakeholders involved in building construction. The activities are as follows:

- To develop programs and training textbooks for the Training of Trainers (TOT) utilizing materials of Output 2
- To conduct Master TOT
- To conduct training at different levels mobilizing master trainers
- To conduct on-the-job training in pilot municipalities
- To develop an inventory system of training human resources
- To conduct training by the Nepalese side

#### 1-2. Objectives of the Training and Orientation

Overall objective of the training:

- To enhance the capacity of technical persons (engineers and sub-engineers) who are directly and indirectly involved in building construction.

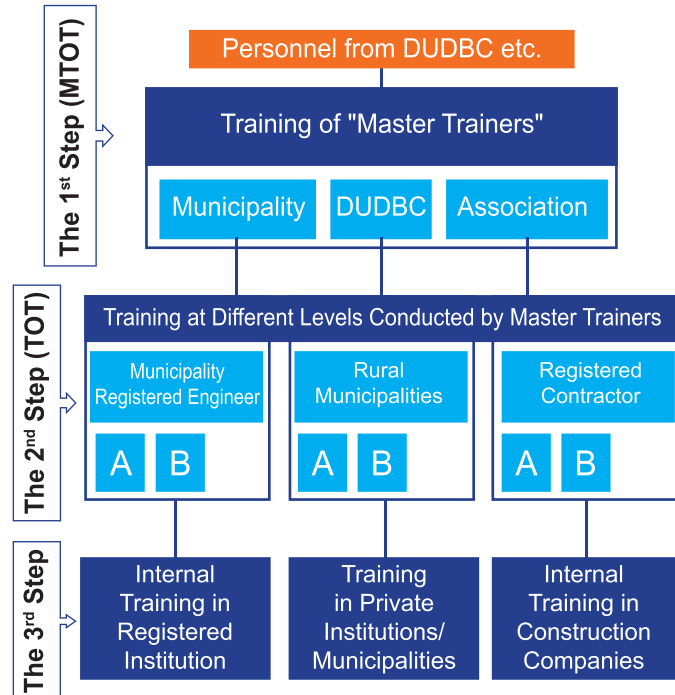
Specific objective of the training:

- To capacitate engineers and sub-engineers on the updated BCWP
- To enhance the knowledge, understanding, and skills of e-BPS
- To develop the Master Trainers

### 1-3. Structure of the training

Implementation of training is done step by step.

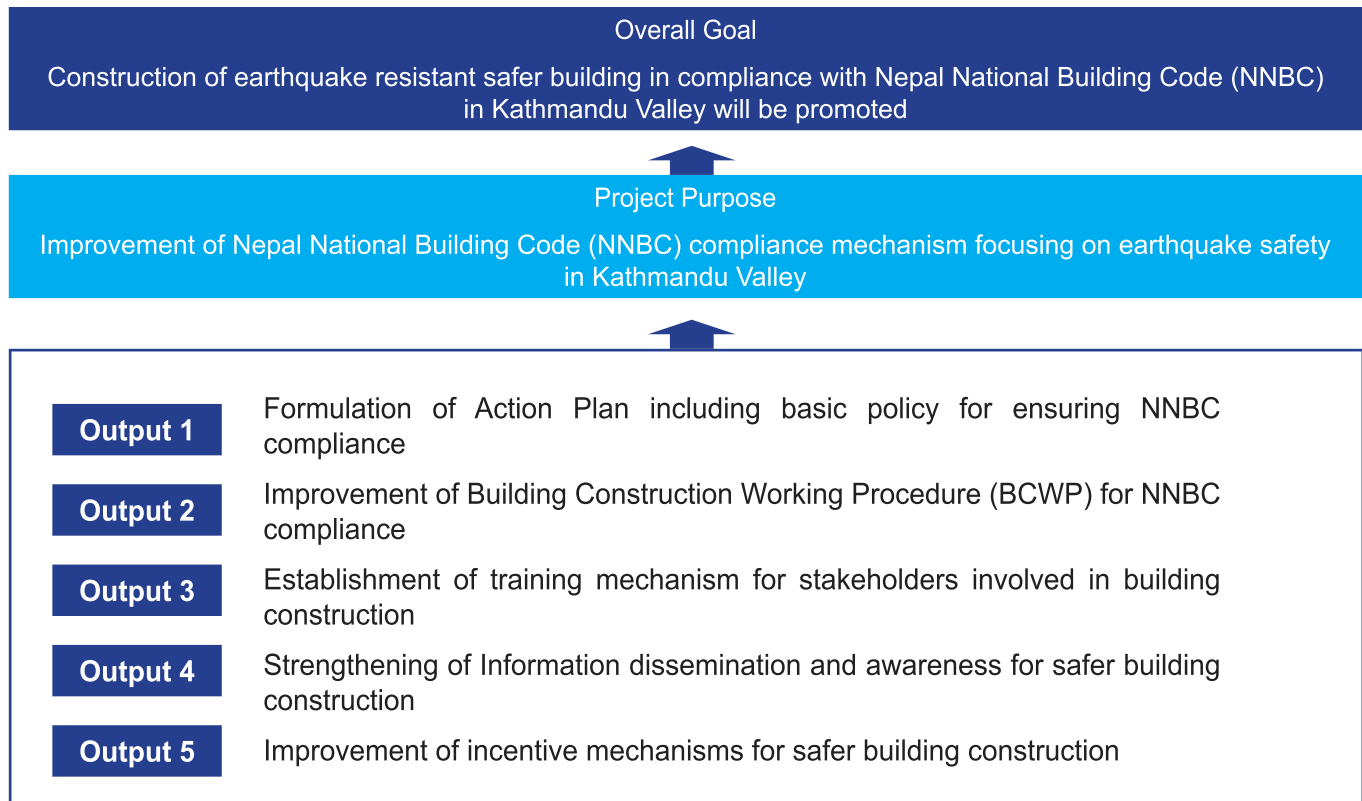
- Working group members of the Project (DUDBC staff and Japanese experts) and some experts serve as instructors and conduct Master Training of Trainers (MTOT) to develop master trainers.
- Master trainers become lecturers and conduct training of trainers (TOT) to develop trainers.
- Trainers become lecturers and conduct training for many people



*Training with application of cascade method*

### Goal of the Project

The overall goal of this NBCC project is to promote the construction of earthquake resistant safer building in compliance with Nepal National Building Code (NNBC) in Kathmandu Valley. To achieve the goal of the project, project set different 5 outputs.



### 1-4. Training Program

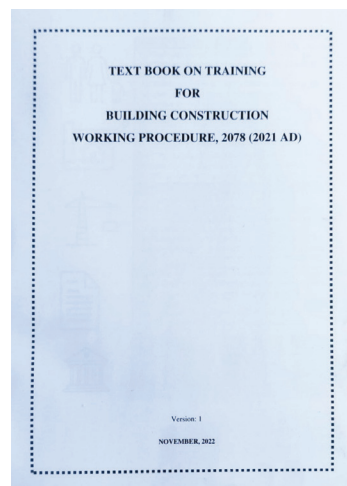
The 5 days training program was developed where Day 1 and Day 2 are focused on updated BCWP, Day 3 is for Non-destructive equipment, and likewise, Day 4 and Day 5 are for e-BPS.

| Day     | Content   |
|---------|---|
| 1st day | <p><b>&lt; Overview of Master TOT, Outline of the revised BCWP &gt;</b></p> <ul style="list-style-type: none"> <li>• Outline of Master TOT</li> <li>• Outline of the Revised BCWP</li> <li>• Introduction of NBC105 and Geo-technical Design</li> <li>• Explanation of Design Check Procedure (Architecture and Structural Design)</li> </ul>   |
| 2nd day | <p><b>&lt; BCWP &gt;</b></p> <ul style="list-style-type: none"> <li>• Explanation of Design Check Procedure (Sanitary and Electrical Design)</li> <li>• Design Approval and Permit for Building Construction</li> <li>• Construction and Supervision</li> <li>• Practical Examples of Construction in Japan</li> <li>• How to Take Inspection Photos in Construction Sites</li> </ul> |
| 3rd day | <p><b>&lt; Concrete, Its Quality and Test &gt;</b></p> <ul style="list-style-type: none"> <li>• Quality Control of Concrete</li> <li>• How to Use Non-destructive Equipment (Theory)</li> <li>• How to Use Non-destructive Equipment (Practical)</li> <li>• Introduction of e-BPS</li> </ul>  |
| 4th day | <p><b>&lt; e-BPS &gt;</b></p> <ul style="list-style-type: none"> <li>• Demo and Practice</li> </ul>   |
| 5th day | <p><b>&lt; e-BPS &gt;</b></p> <ul style="list-style-type: none"> <li>• Demo and Practice</li> <li>• Experience Sharing on e-BPS</li> </ul>  |

### 1-5. Training Materials

#### 1-5.1 Textbooks

- After the finalization of different manuals and guidelines from Output 2, textbooks about the updated BCWP including non-destructive tests and presentation materials for all the sessions of training were prepared. In addition, 9 textbooks for e-BPS with explanations of each desk (Registration Desk, Technical Desk, etc.) were also prepared
- In order to manage the presentation materials and textbooks, a website was created which can be accessed by everyone. All the textbooks and presentation slides can be downloaded from that website, whose QR and URL are as follows.



Textbook about the updated BCWP



Textbooks for e-BPS



<https://sites.google.com/view/nbcctraining/home/training?authuser=0>

### Full-Scale Model of Bar Arrangement

Full-scale model of bar arrangement was constructed in the DUDBC premises and used for inspection classes during MTOT.



*Constructed full-scale Model*



*Observation of Training Practical Session by JICA NEPAL Team*



*Participants Inspecting the full-scale model according to updated BCWP during the Training*



### Non-destructive Testing Equipment (NDT)

During the training, following Non-destructive testing equipment were used in the lab of DUDBC.

- Schmidt Hammer
- Rebar Detector
- Ultrasonic Pulse Velocity Tester



*Using of Schmidt Hammer in Lab*



*Using of Ultrasonic Pulse Velocity Tester in Lab*

**1-6. Brief report of MTOT**

The training programs on MTOT were conducted at the meeting hall of the Department of Urban Development and Building Construction (DUDBC) in 4 different events.

- 1st Event: 28 November -2 December 2022
- 2nd Event: 12 December - 16 December 2022
- 3rd Event: 2 January - 6 January 2023
- 4th Event: 27 February - 3 March 2023



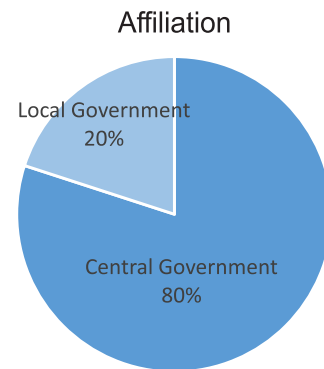
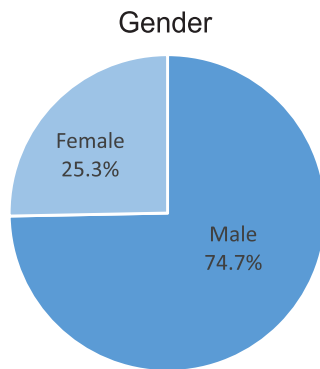
*Participants in Training Hall*

The training program was facilitated by NBCC project. Sessions were delivered by engineers of DUDBC, engineers of NBCC Project, and some consultants.

**1-6.1 Participants**

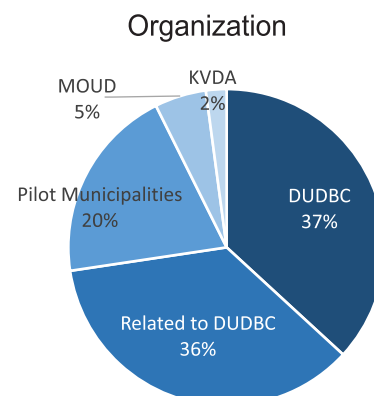
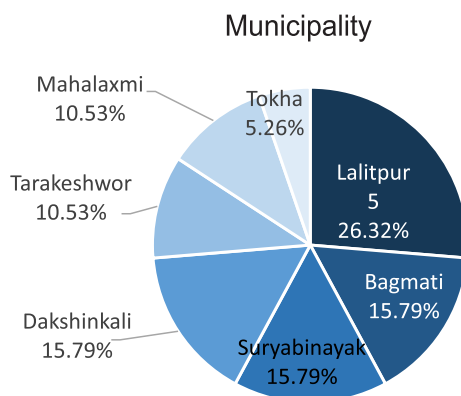
Altogether 95 engineers and sub-engineers from DUDBC and pilot municipalities were trained. In the 1st event, there were 25 participants and, in the 2nd, 3rd, and 4th events, there were 24, 22, and 24 participants respectively.

Out of 95 participants, 71 were males and 24 were females. The ratio of male and female participants is 3:1.



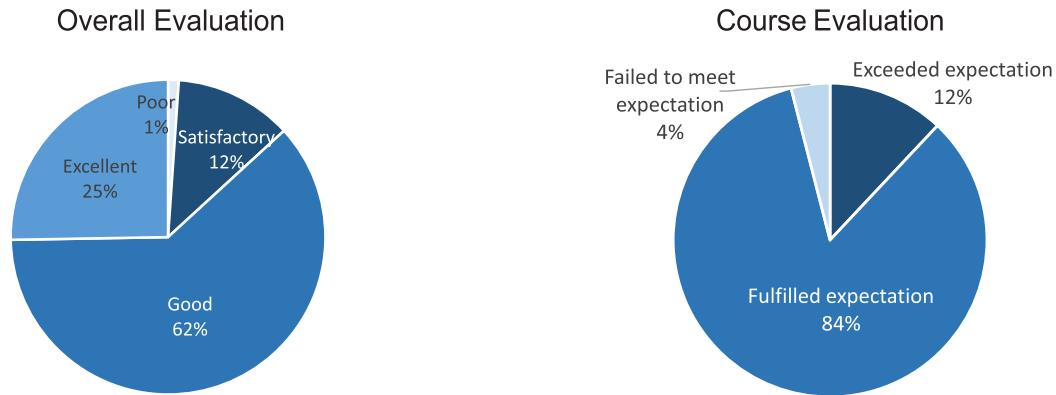
It was planned to include 70% of participants from DUDBC and its other related organizations and the rest 30% from pilot municipalities. But out of 95 participants, 76 (80%) came from DUDBC and its other related organizations and 19 (20%) participants were from 7 pilot municipalities.

The distribution of participants from pilot municipalities in the MTOT is as follows.



### 1-7. Training Evaluation

At the end of 5th day of each event, participants conducted self-evaluation and training evaluation. According to the result, the overall evaluation of the training is quite good. About 96% of participants' expectation was fulfilled by this course content



### 1-8. Problems and Issues Raised

- Frequent power cut off during the training.
- The training hall was too cold.
- The timetable was not managed according to the schedule in the 1st two days of all the events.
- Group division was not effective except for reporting.
- A short break was not followed effectively.

### 1-9. Feedback from Participants

Some of the feedbacks from the participants in all the events of MTOT are as follows:

- Time table should be followed as per the schedule.
- Training should be more focused on practical.
- The full version of e-BPS should be used for training.
- The updated part of NBC should be covered.



*Group photo after completion of 5days MTOT with Project Director and Team Leader*

### 1-10. Further steps

Based on the activities of Output 3, TOT will be done as soon as possible by mobilizing the master trainers who completed MTOT.

Before conducting TOT, DUDBC plans to provide special training to the master trainers. For designers, this MTOT may not be enough so the planned special training will be focused on the design part.

## 2. Recent Project Events

- MTOT was held.
- Promotion video on updated BCWP was produced.
- Dakshinkali Municipality, Tarakeshwor Municipality, Tokha Municipality and Bagmati Rural Municipality had approved updated BCWP from their council.
- 25th Earthquake Safety Day was celebrated on 17th January, 2023
- 3rd Joint Coordination Committee (JCC) meeting was held on 5th April, 2023.
- Team leader of the Project visited all the pilot municipalities in April, 2023.
- Workshop about implementation of BCWP was done at Suryabinayak Municipality on 19th April, 2023.
- Workshop about implementation of BCWP was done at Dakshinkali Municipality on 11th May, 2023.
- Advanced structural analysis training of building was held as a part of MTOT.



*3rd JCC meeting*



*JICA Nepal and NBCC Team Visit to pilot municipalities*



*Workshop at Suryabinayak Municipality*



*Workshop at Dakshinkali Municipality*

### 3. Introduction of the Project Member

In this newsletter, we introduce some members and staff of the project. Other members and staff will be introduced in the next volumes.

#### Mr. Madhav Katuwal

(Engineer, Building Code Section, DUDBC)

He is an engineer in the Building Code and By-laws Section of DUDBC and also working as a project coordinator of NBCC Project.



Building code compliance is the first line of defense during an earthquake.



Thanks to your efforts, the BCWP model formulation & the training are going smoothly. We sincerely hope that the new BCWP & e-BPS will be quickly introduced and implemented.

#### Mr. Kiyotaka Owada (Japanese Expert)

He is the Team leader in the NBCC and responsible for Building Administration.

#### Mr. Yasuhiro Amano (Japanese Expert)

He is responsible for Training on design and supervision.



I would like to go to Pokhara someday.



To make a safer and planned city Building codes and By-laws should be followed strictly.

#### Mr. Babu Ram KC (Project staff)

He is a civil engineer and Urban Planner. He is responsible for Training plan and coordination in this project.

#### Mr. Sachin Sapkota (Project staff)

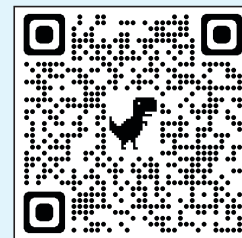
He is a civil engineer. He is responsible for social research, information dissemination and awareness for safer building construction.



Building Compliance Enhanced Through Awareness.

**Please visit the Project Website**

<https://sites.google.com/view/nbcctraining/home>



Website



Implemented by Ministry of Urban Development  
Department of Urban Development and Building Construction  
Technical cooperation Japan International Cooperation Agency  
<https://dudbc.gov.np/en/detail/domain-menu/1973?parent=1862>

