

DESIGN AND TECHNOLOGY FOR DISASTER-RESILIENT, ENVIRONMENTALLY RESPONSIBLE AND BUILDINGS IN MOUNTAIN REGIONS

Habitat Package

PLANK & JOIST ROOFING SYSTEM
Developed and Coordinated by: [Name]

STABILISED COMPRESSED EARTH BLOCKS (SCEB) WALLING SYSTEM
Producer and Co-ordinator: [Name]

PRE-CAST STONE AND WINDOW FRAMES RETRACTION SYSTEM
Producer and Co-ordinator: [Name]

TIMBER ROOF MOUNTAINOUS
[Name]

WATER FILTRATION SYSTEM AND TALLATION, MAINTENANCE AND MANAGEMENT MANUAL
[Name]

GREEN ROOFING AND CONSTRUCTION OF RAIN WATER HARVESTING TECHNOLOGICAL WEATHERING DESIGN CONSTRUCTION
[Name]

CONCRETE BLOCK CELL WALLING SYSTEM
[Name]

ENTERPRISE DEVELOPMENT
[Name]

Government of India
Department of Science & Technology
Ministry of Science & Technology

Visit Development Alternatives Group-<https://www.devalt.org/>
Visit Wildlife Institute of India-<https://wii.gov.in/dst-time-learn-introduction-background>

Development Alternatives

Webinar: Sustainable Construction in Mountain Regions – Towards Atma Nirbhar Uttarakhand

A webinar on ‘Sustainable construction in mountain regions – a question of resources, livelihoods and climate change – towards Atma Nirbhar Uttarakhand’ was conducted on 21 August 2020 under the project Delivery Model for Eco-Friendly Multi Hazard Resistant Construction Technologies and Habitat Solutions in Mountain States in Uttarkashi. This is implemented by DA under the Department of Science and Technology (DST) Technology Intervention for Mountain Ecosystem: Livelihood Enhancement through Action Research & Networking (TIME-LEARN) programme.

This programme focuses on sustainable development in mountains and provides some answers to the problems of the Mountain region and the potential to capture the opportunities today. It introduced environmental friendly building materials and hazard resistant construction systems in the region. It established a local delivery system for these products and services through group and individual enterprises. The solutions offered by the project included Stabilised Compressed Earth Blocks (SCEB) using local soil, Concrete blocks, improved stone masonry with vertical reinforcement for ductility, precast roofing elements for improved and safer RCC-based practice, and Timber shingle based roofing.

Delivery systems for these technologies have been created through building capacity of the local community – women groups for SCEB, local carpenters for improved timber roofing, and individual micro enterprises for the pre-fabricated construction products. The materials were introduced in the project through intensive community and market discussions. These have been assessed by an independent group of professionals (mason’s ink) as having a high “localisation” component thus providing evidence of high local economic development and local resilience potential if disseminated widely and mainstreamed in public and private construction projects.

Through this webinar, it was intended to bring together government officials and experts from various national and international organisations to a common platform to discuss an opportunity to strengthen local construction systems and skills and enable self-reliance – *Atma Nirbharta* in the region and its people. Self-reliance through the promotion of the right skills and technology that suited to the needs and specific conditions of mountain habitat especially from the perspective of disaster resistance, response to climate change, and livelihood creation. A complete Technology Package with Options for Eco-Friendly Disaster Resistant Construction was also shared at this platform.

The key speakers were invited from varied areas of expertise – Dr Sunil K. Agarwal, Scientist “E” from SEED Division of Department of Science and Technology gave the opening remarks, which was followed by the presentation and opening remarks by Dr Debapriya Dutta, Head, and Advisor, Scientist “G” from SEED Division of Department of Science and Technology. From the Government of Uttarakhand, Dr Piyush Rautela, Executive Director of Disaster Mitigation and Management Centre provided his views on the potential of disaster resilient housing in mountain ecosystems and their scope in the state government schemes. Dr Anil Kumar Gupta, Head of Environment and Disaster Risk Mitigation (DRM) Division at the National Institute of Disaster Management added on the strategies to integrate components of local economy generation and environmental response in Uttarakhand state disaster safe management action plan.

Pankaj Gupta, President of Industries Association of Uttarakhand provided his views on the scope of developing and strengthening the supply chain of eco-friendly job-creating building materials in Uttarakhand – through a micro-enterprise delivery model to enable local availability of building materials. Nitesh Kumar, Chief of Party of USAID–GGGI India Project, and Mustafa Khan, Team Leader of IHCAP PMU at Swiss Agency for Development and Cooperation contributed their views on resilient housing, National climate change and disaster resilience commitments in the construction sector through government schemes and programs. Dr Ruchi Badola, Scientist-G from Wildlife Institute of India gave the closing remarks of the session.

The ‘Local-level capacity building’ aspect was emphasised by all the speakers through the development of technology packages in local languages and making it accessible online for the use of local government bodies and communities. Development of technology packages in simpler and local language would also allow it to be integrated into district and Taluka level planning processes for development. Apart from this the concept of ‘Build Back Better’ was discussed to include climate mitigation plans, recycling, and sustainable building processes in the construction sector and by providing support to local entrepreneurship and involvement of government officials in such green technology development processes.