JAMNALAL BAJAJ FOUNDATION

MRS. RUPAL DESAI & MR. RAJENDRA DESAI

Recipients of the Award for Application of Science and Technology for Rural Development – 2018

Born: Mrs. Rupal Desai: August 12, 1946, Mr. Rajendra Desai: May 12, 1949

Mrs. Rupal Desai, an architect and Mr. Rajendra Desai, a structural engineer, shifted from their career in corporate world, modern steel and timber architecture and petrochemical plants in the USA to voluntary sector in India in 1984. Their concern for environment preservation and sustainability grew on the advent of US energy crisis in 1973. They started living a simple life and eventually decided to work for rural India with two resolutions, first to put to use their technical background for the betterment of the people and community in rural India and the second was to work not to earn their living.

After returning to India, the couple evolved understanding about the socio-technical side of rural housing and sanitation, and their relationship with local economy and livelihood in line with Gandhian economics of Gram Swaraj, while they spent time in Wardha. They recognized the need for applying modern science and technology to rural housing to meet the challenges of the changing local context in a sustainable manner. While working for tribal housing in South Gujarat they learnt about peoples' dimension in "technology" and concentrated on options being simple to learn and execute, having higher local economy component and livelihood potential, but with lower embodied energy.

In 1993 Post-earthquake damage assessment mission to Latur in Maharashtra, changed their entire course of life. They spent next six years with the focus on building local capacity to ensure future earthquake risk reduction by improving the vernacular house building technology of stone, earth and timber which needed to be preserved, since it was culturally suitable, most sustainable, and having 'Near Zero Carbon Footprint'. There they worked on training of over 1,000 artisans and 550 government engineers, and educating people through posters, brochures, and manuals like "Earthquake and Our House" and "Repair & Retrofitting of Marathwada Houses" (English & Marathi) along with street plays, exhibitions, meetings and rallies to create awareness. For the first time Shock Table demonstrations were conducted for rebuilding peoples' confidence in local building technologies and cost efficient "seismic retrofitting" of existing stone earth rural houses was carried out to bring safety against future earthquake to 150 houses.

In year 2000, the couple set up National Centre for Peoples' Action in Disaster Preparedness (NCPDP), a platform working towards capacity building of communities in disaster risk reduction through the application of science and technology to rural housing.

The first major challenge came in the form of Gujarat earthquake of January 2001. Next few years saw them undertake major capacity building programs for the government and the community, also support NGOs in rebuilding villages. This phase resulted in training of over 8,000 building artisans, 1,400 government engineers, capacity building of the communities in 478 most severely affected villages, rebuilding of 4 villages, and seismic retrofitting of over 400 existing small rural public buildings, plus 16 large existing high schools. They prepared all the awareness materials including videos required in Gujarati.

The years that followed took them to mountainous regions of Chamoli and Kedarnath in Uttarakhand, Kashmir, and Nepal in the aftermath of earthquakes and floods. Here they shifted their focus to improving vernacular technology with emphasis on sustainable up-gradation of buildings and disaster risk reduction. They evolved viable technology packages and built prototypes while conducting training. They have developed simple and most viable improvements in earthquake-resistant stone-mud buildings called "Containment Reinforcement" which was approved by the Government of Nepal and jointly launched with UNDP Nepal.

They have also strived to save more than 750 existing traditional masonry buildings from the catastrophe when hit by an earthquake through retrofitting, coupled with the training of local building artisans, and government and private engineers through on-site sessions. They have produced Field Guides for

engineers for retrofitting of local buildings for Kashmir (UNESCO), Uttarakhand (Government of India-GoI) and Nepal (UNDP).

The principles adopted by them are:

• Use of ecologically sound and culturally suitable appropriate technology with minimal carbon footprints for rural housing

• Use of local materials, local artisans and improved local vernacular technology

Since 2004 under the couple's guidance their organization has been conducting an on-going, short duration skill up-gradation program for building artisans in the rural areas of Gujarat, in order to bring learning to their doorstep. The candidates are practicing masons and bar benders. It covers the most fundamental, but critical aspects of building construction with scientific principles, through classroom instructions and hands-on training on local construction practices, supplemented by artisan's assessment and certification of the successful ones. This has resulted in delivery of longer lasting disaster resistant construction. Till now, over 4000 artisans have been up-graded in this program.

Between 2010 and 2014, the couple with its team was involved in evolving a Building Artisan Certification System for the Ministry of Housing, GoI and have produced detailed guidebooks for the artisans for five different modules in Hindi, Gujarati and English languages.

Among a numerous publications to their credit the most noteworthy are the "Manual for Hazard Resistant Construction in India – For Non-Engineered Buildings" and the "Trainer's Guide" linked to that manual prepared for UNDP and GoI in 2008.

Although, both work closely as equal partners of a team having closely matching values and intensity, and are involved in training programs in different parts of India, Mrs. Rupal Desai focuses more on documentation, compilation of data, records and information, making and publishing of manuals, booklets, posters, pamphlets, videos including translations and is involved in designing of cost efficient disaster resilient buildings.

Mr. Rajendra Desai works mainly on conceptualisation, evolving and finalization of technology, policy interventions, and deals with national and international agencies. He edits and fine tunes all the publications.

Mrs. Rupal and Mr. Rajendra Desai have led a path of search and research. They firmly believe that building local capacity in the use of traditional building technologies with the infusion of modern science and technology in line with the Gandhian principles of simplicity and self-reliance only can bring longer lasting, affordable, disaster resistant houses that would help restore peoples' pride in them, and spread the safety net with minimal contribution to global warming to ensure sustainability for coming generations.

Awards

2000: A. S. Arya - University of Roorkee Disaster Prevention Award

2012: Distinguished Alumnus Award of Indian Institute of Technology (IIT), Bombay to Mr. Rajendra Desai

2013, 2014, 2015, 2016: HUDCO Design Awards

Contact details:

Mrs. Rupal Desai & Mr. Rajendra Desai

Hon. Joint Directors

National Centre for People's Action in Disaster Preparedness

103 Antariksh Building, Panajarapol Crossroads, Ahmedabad - 380 015 Gujarat

M: +919427317942, +919408709482 T: +91-79-2630 8843

E: rajrupal@gmail.com W: www.ncpdpindia.org