MOVE UP | MOVING URBAN POOR COMMUNITIES TOWARDS RESILIENCE

Funded by
European Union
Civil Protection
and Humanitarian Aid

ALTERNATIVE TEMPORARY SHELTER SYSTEM

PLAN INTERNATIONAL · ACTION AGAINST HUNGER · care · ACCORD

The Urban Context

According to "World Urbanization Prospects," a report published by the United Nations in 2014, the global urban population density will continually rise and could exceed 6 billion by 2040.

In the Philippines, increasing urbanization has resulted in the lack of appropriate and sufficient shelter. Most urban poor, particularly the so-called "informal settlers," reside along creeks, riverside, and coastal areas exposed to natural hazards, ecosystem degradation, climate change, and other shocks and stresses.

In addition, limited access to basic social services and high population density in these areas further aggravate these vulnerabilities, and even multiplied exponentially when disasters strike.

Even with the poor condition of their shelters, many community members refuse to leave their houses during hazard events because of the difficult situation in evacuation sites. Usual sites such as schools, church, and public buildings have very limited space and lack the provisions for basic facilities required for dignified evacuation. The lack of safe spaces and shelters during displacement is a major gap in resilience-building among urban poor communities.

Alternative Temporary Shelter (ATS) System Strategy

Alternative Temporary Shelter System is a range of substitute solutions that immediately addresses the shelter needs of affected populations in the initial stages of disasters to guarantee human dignity and sustain family and community life.

As the core programming principle of Moving Urban Poor Communities towards Resilience (MOVE UP) project, the ATS System upholds the rights to dignified space through helping meet the survival needs of the disaster-affected population, provide security and personal safety, protection from the climate, and resistance to ill health and disease. To ensure this, the ATS System implementation utilizes four important inputs: hazard information, engineering and technologies, participatory needs analysis, and localized shelter capacities.

The first critical step in setting up an ATS system is to include current shelter conditions as part of community risk assessments. Aside from identifying hazards the communities experience, an inventory of required and used spaces for evacuation is conducted. These assessments are participatory and complement local experience with scientific methodology in identifying shelter needs.

Aside from risk-mapping, professional/technical partners conduct ocular visits and interact with community members to identify safe spaces/structures. The collaboration with technical/professional groups ensures that technical standards are met and designs are suitable to the context of a specific community.

After coming up with a menu of options, local government unit (LGU) and community members, with partners who have technical expertise evaluate the ATS designs and explore possible adjustments or modifications.

ALTERNATIVE TEMPORARY SHELTER PROCESS MAP

IDENTIFY ATS NEEDS

DESIGN AND TEST ATS MODELS AND SYSTEMS

INTEGRATE ATS IN PLANS AND FACILITATE ROLL OUT

PUBLIC AWARENESS AND ADVOCACY

Design Criteria

ROBUSTNESS

Instead of disposable solutions, design must be robust enough to be re-used; thus, minimizes wastage. However, the units must allow for sanitation to ensure hygiene with each deployment.

AFFORDABILITY

To lower production cost, design should be fabricated using locally available materials, and if possible, incorporate re-used/recycled materials, or utilized rented/leased/sub-contracted materials.

SCALABILITY

The design should be modular to facilitate ease of deployment and versatile in terms of application and configuration. It should also be gender-sensitive and follows the universal design to provide access to persons with disabilities.

RANGE OF APPLICATION

ATS should be designed for safe spaces, which could include, but not limited to outdoor open space, covered court, multipurpose halls, warehouse, multi-level parking building, classrooms, and church/chapels.

SPEED OF CONSTRUCTION

Designs should be easy to construct or fabricate, with connections that are easy to understand and be made using simple tools. Simply put, it can be easily assembled and dismantled.

Alternative Temporary Shelter Models

designed by United Architects of the Philippines–Emergency Architects (UAP-EA , the socio-civic disaster response arm of the United Architects of the Philippines. It aims to help rebuild lives and support communities in the Philippines affected by disasters.)

FOR OUTDOORS

Single Storey Slotted Steel

The Single-storey Slotted Steel model is composed of materials that are easy to find and readily available in the local market, making it a good option in times of emergency. Its 2.4-by-2.4-meter space per unit can fit 4 to 5 people, while the ingress/egress and a window provide much-needed ventilation and comfort.

Slotted steel is a versatile, cost-effective, and durable material and using it for most of the framing makes the model affordable, easy, and fast to set up. The material could also be given a galvanized finish to make it corrosion-free, increasing the lifespan of the entire unit.

For the exterior wall, other materials such as marine plywood, fiber cement board, or ribbon-grain plywood could be used. There should be a sloped metal roofing if the unit will be dispatched outdoors. Other materials that could be used include perforated steel and jalousie windows for ventilation.

Though initially designed for open spaces, another location could be covered courts, in which the sloped roofing could be replaced by marine plywood (flat roof).

Two-Storey Slotted Steel Shelter

The Two-storey Slotted Steel model attempts primarily to provide extended shelter capacity for indoor and outdoor evacuation sites.

The model is a cluster of eight shelter units, each with a sleeping shell and a dining/living room on a building footprint of 11.9 square meters for a family with 6 to 7 members.

The construction uses two main materials: 3-by-50-by-50-millimeter slotted angles and 18-millimeter-thick standard marine boards, fastened by Tek screws. The structure synthesizes a composite system of balloon framed walls that could take significant vertical load and lateral force. This framing could take a second-floor load, or a solution that doubles the shelter occupancy of roofed sports facilities or open area evacuation spaces.

A regular basketball court can hold a capacity of up to 48 families, or a maximum of 336 persons, while occupying only 85 percent of

the total area. The attached clustering, made up of 8 units, in effect increases its capacity to take in and resist lateral load through easily adaptable building procedures.

Street Model

The Street model is 17 square meters and 2.4-meter high per unit designed to shelter a family of 5 to 7 members. The model puts privacy, security, hygiene, and comfort as prime concerns. It can accommodate two bunk beds, a table, and a holding area for children. The model is designed to be located at any terrain, but more particularly along non-busy streets.

The structure is made out of lightweight panel-block reinforced by wire mesh, with assembly of cylindrical cardboard roll core infill, which acts as a spacer and insulation for hot, cold, and wet weather. It can also withstand high wind and earthquake, and fire retardant.

Panel block is also used for roofing, which gives comfort from heat and lessens noise during a storm or rain. The shelter is framed with scaffolding pipes, or 6-inch-diameter PVC pipes that could support wall panels of 4-by-8-foot in size. Duct tape seals joints, this also allows easy dismantling.

Container Van

This design uses a container van divided into two capsules. The opening on its long side is fitted with lightweight metal panels that allows for operability. When opened, this can serve as the front roof for the lanai that is accessible by a ladder. The dividing panel uses recycled pallet wood slotted into metal frames, the same one which can be fitted with a shelving system. However, if there is a need to utilize the full length of the van, the partition can be removed.

Each capsule has two levels that can each fit 3 to 4 sleeping mats. Checked plate set into metal frames form the second sleeping level of the capsule and slides into place through angle bars at the three sides of the cabin. By simply removing the flooring, one can use the capsule's full height for other purposes.

For ventilation, louvered windows were set onto the walls of the container van. Sliding panels made of recycled wood frames will be used to secure the capsules. The louvered lower panel and translucent PVC upper panel fitted into these frames allow air to pass through and daylight to enter. Without the roof, the ATS' capacity

could be doubled if the schemes are stacked and bolted. The raised roof provides better ventilation and uses salvaged pallet wood. The access stairs also double as a sitting area.

Complementing this system is a series of pallet wood furniture and individual sleeping mats that can be fabricated by the community through an industry incubator model.

Kuhol Tent

The Kuhol Tent Model (snail in English) uses easy-to-find materials assembled and shaped to keep the interior dry and cool in harsh weather conditions. It has two sections: an exposed floor anteroom that can remain open to allow air through, and an inner sleeping quarter.

With an area of 3.5-by-3.5-meter and a height of 1.6 to 1.9 meters, the space can provide space for up to seven people. The floor is laid with a blanket or tarpaulin folded to sides providing a good flexible side flashing that makes it watertight.

Basic assembly consists of cutting tarp to dimensions and taping its edges on PVC pipe arches anchored to the ground with smaller PVC pegs and usual tee fittings. The pipe assembly is held together

with nylon cables that are also anchored on the PVC pipe pegs. This combination of anchors and ground pegs give the structure its strength to withstand strong winds.

Assembling the model only requires common hand skills and can possibly be constructed between 8 to 10 hours. It is intended as a solution for short-span evacuation, or as a transitory shelter provision.

Barrel Vault Tent

The design is inspired by the bow that has flexibility and strong resistance to tension. The problem is that rigid steel conduit (RSC) pipes could reach its breaking point from too much pressure even though it is flexible. The solution is to add vertical member and beams, making the barrel vault tent subscribe to post and lintel construction method.

The curved surface allows the air current to slide across, which lessens the tension as opposed to a flat surface that has a tendency to be bashed by the wind. The result is a sturdy construction that could withstand wind and downward forces, with a spacious interior.

The 3-by-3-meter model can accommodate about 3 to 7 people (or one family), with ample space for a table.

The tent can be assembled in less than 10 minutes and can be disassembled in 5 minutes, making it easy to put up after a disaster and easy to store after use.

FOR INDOOR OR SEMI-INDOOR (CLASSROOMS, COVERED COURT, AND CHURCH)

Bunk Beds

This temporary shelter model is a scalable planning system of ready-made compact modules comprised of built-in hinged wall and door panels that unfold and join together with other modules to form private lockable units with beds.

The system allows for a single-sided configuration of 2 to 3 bunk beds, while a double-sided has 4 to 6 bunk beds. These beds are hinged to the main carriage and could be released and unfolded into place. Lockable caster wheels and adjustable leveling feet provide greater stability on uneven floor surfaces, ease manual transportation, and allow room for accurate placement in the evacuation site.

Each module has a ladder, guardrails, and collapsible storage boxes that can be quickly assembled into place to increase user comfort and safety. There are also fixed tie points where a cord for hanging up curtains could be attached to; thus, providing privacy. Other devices such as lights and electrical outlets can be built in as needed.

Temporary Classroom Partition

The design approach is to create partitions that replicate a modular system that can be used individually, or as components of a bigger ATS unit. The Temporary Classroom Partition (TCP) can be adapted depending on the spatial and social requirements of the evacuees. It addresses common issues encountered in classrooms being used as evacuation during disasters.

The design aims to provide privacy, security, and personal space in tight spaces; ensures easy and fast assembly/disassembly; flexibility in unit sizes to accommodate evacuee needs, or for other uses; ease in maintenance, handling, and storage; and reusability for multiple periods and purpose.

Fabricating in bulk is easy because of TCP's simple concept and design modularity. This means fabrication cost could be lower, which benefits the local government. The specified materials are readily available commercially, and the method of construction is basic, making the TCP a highly viable option as an ATS for classrooms.

Although the design is intended as an ATS in classrooms, the TCP may be used in other enclosed evacuation centers such as covered courts, multipurpose halls, and barangay halls.

In May 2018, more than one thousand families lost their houses from a fire incident in Malabon City. This is the scenario before the Temporay Classroom Partition was deployed.

Based on the assessment, CARE, ACCORD, UAP-EA, and local leaders selected the TCP as the appropriate temporary shelter solution. Prior to deployment, the design was modified to fit the available space and needs of evacuees.

The city governments of Malabon, Valenzuela, and Quezon have deliberated and selected which designs cater best to the needs of their communities. The designs are integrated in their camp management plans as part of their contingency plans. These are then embedded in the Disaster Risk Reduction and Management plans which are budgeted for adoption. Capacity-building activities of community members are done to train them on setting up, deployment, and dismantling of ATS. Public awareness is also done to orient the high-risk population on the ATS services available to them.

From the beginning of the project, advocacy work on mainstreaming ATS system into their contingency plans and local development plans has been done to ensure community ownership of the ATS system. Moreover, doing so will secure that ATS Systems will be funded and sustained beyond the project duration.

MOVE UP PROJECT

The Moving Urban Poor Communities in the Philippines toward Resilience (MOVE UP) is a European Civil Protection and Humanitarian Aid Operations (ECHO)-funded project currently implemented by Action Against Hunger, Plan International, CARE, and local implementing partner Assistance and Cooperation for Community Resilience and Development (ACCORD). MOVE UP aims to institutionalize urban resilience and disaster preparedness mechanisms of local government units and communities in select cities by demonstrating Alternative Temporary Shelter (ATS) Systems and resilient livelihoods.

Currently in its third phase, MOVE UP targets to increase the resilience against natural disasters of 138,000 individuals in 10 cities from all over the Philippines.

ABOUT ECHO

The European Union and its Member States are the world's leading donor of humanitarian aid. Relief assistance is an expression of European solidarity with people in need all around the world. It aims to save lives, prevent and alleviate human suffering, and safeguard the integrity and human dignity of populations affected by natural disasters and man-made crises. The European Commission ensures rapid and effective delivery of EU relief assistance through its two main instruments: civil protection and humanitarian aid. Through its civil protection and humanitarian aid operations department (ECHO), the European Commission helps over 120 million victims of conflict and disasters every year. With headquarters in Brussels and a global network of field offices, the Commission's civil protection and humanitarian aid operations department provides assistance to the most vulnerable people on the basis of humanitarian needs. For more information, please visit the European Commission's website.

ABOUT THE MOVE UP CONSORTIUM

CARE

CARE is an international humanitarian agency committed to defending dignity and fighting poverty by empowering women and girls. Known for unshakeable commitment to the dignity of people, CARE puts women and girls in the center because overcoming poverty, saving lives, and achieving social justice is only possible when everyone has equal rights and opportunities.

ACCORD

ACCORD works on strengthening local capacities for managing poverty reduction and human development programs that have lasting results. Together with poor communities, civil society organisations, and the government, it focuses on innovative projects on Integrated Risk Management, food security and emergency response. ACCORD is a local implementing partner of CARE.

Action Against Hunger

Action Against Hunger saves the lives of undernourished children. It is at the forefront of innovation and effectiveness in combatting undernutrition and providing support to communities hard hit by humanitarian crises around the world. In 2015, Action Against Hunger assisted a total of 14.9 million people worldwide.

Plan International

Plan International has been working in the Philippines since 1961 with a focus on helping marginalized Filipino children in more than 400 communities across the country access their rights to education, health, protection, and participation. Plan International's vision is a world in which all children realize their full potential in societies that respect people's rights and dignity.

Scan me

Funded by
European Union
Civil Protection
and Humanitarian Aid

IN PARTNERSHIP WITH

01 JULY 2018