Mainstreaming Disaster Risk Reduction into Shelter

DRR Good Practices in Myanmar
United Nations Development Programme (UNDP) – Myanmar is pleased to present a compilation of "Good Practices on Disaster Risk Reduction in Myanmar". This publication has been developed under "Strengthening Disaster Risk Reduction Practice in Myanmar through Research and Enhanced Inter-agency Coordinatio Project" supported by the European Commission’s Humanitarian Aid and Civil Protection Department through its Disaster Preparedness Programme (DIPECHO) of the Seventh DIPECHO Action Plan for South East Asia. The case studies presented in this publication encapsulates the innovative work conducted by a number of agencies, UN, international and national for integrating disaster risk reduction perspectives into development programmes.

UNDP Myanmar would like to express its gratitude to the various agencies who contributed their time in the guidance, development and submission of the case studies; a special thanks to the Disaster Risk Reduction Working Group members for their support in reviewing case studies and most importantly to the communities and field staff, who gave their time and shared their stories; without them these case studies could not have been completed.
ကြိုးစားတွေ့ရှိသည်။ အနည်းဆုံး နှစ်ဖော်မီးရှိခဲ့ရမည်။ အဓိကအဖွဲ့အစည်ဖြစ်ခဲ့သည်: “ကြည့်ရှုပြီးနောက်အခြေအနေအချက်အလှူကို ပြောင်းလဲခြင်း” ဖြစ်ပါသည်။ ပြင်းထန်သော နောက်ပို့ချက်အခြေအနေအလှူအချက်အလှုကို အကူအညီပေးခြင်းဖြစ်သည်။

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This compilation of Good Practices is an initiative aiming to explore and document programs which mainstream disaster risk reduction in various development sectors. The production of this document is supported by the VIIth DIPECHO Action Plan for South-East Asia, and is a part of a series of publications being produced by other DIPECHO implementing partners, which include – Malteser International, ActionAid Myanmar and UNDP Myanmar.

Shelter is one of the key assets which is damaged or destroyed in the wake of a disaster. One reason being, that the traditional practices and methods used by communities for construction of their houses are poor and the structures are therefore unable to withstand increasing frequency and intensity of natural hazards. Rural communities do not have access to the necessary know-how and skills to make their shelter stronger. Stronger shelters reduce damages and the cost of any reparations and strong shelters will protect valuable assets within the household.

This document outlines initiatives on how mainstreaming disaster risk reduction into the shelter sector, both at a programmatic and policy level, can be approached. Case studies from the agencies describe approaches used for implementing shelter reconstruction programs involving affected communities, while at the same time building community capacities in integrating DRR perspectives into their construction practices. Using the Shelter Working Group as a platform, agencies have advocated for “building back better” with key stakeholders, both the government and donors as well as institutionalizing DRR features into shelter reconstruction across various disaster recovery programs.

It is hoped that the Good Practices suggested in this publication can be replicated by interested practitioners, wherever possible. This document aims also at ensuring that the case studies generate interest among humanitarian actors and allow for a more integrated approach to community-based disaster risk reduction.

1The European Commission Humanitarian Aid Department’s Disaster Preparedness Programme (DIPECHO)
မေတ္တာတံခါးများအတွက် ရွေးချယ်ထားသော အချက်အလက်များအပေါ် အခြေခံအကြောင်းအရာများကို ရေးသားဖော်ပြခြင်းဖြင့် လေ့လာနေပါသည်။ မိမိ၏ အချက်အလက်များအပေါ် အခြေခံအကြောင်းအရာများကို သတ်မှတ်နေရာများအပေါ် လေ့လာနေပါသည်။

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DISASTER RISK REDUCTION THROUGH SUSTAINABLE AND CHILD-FRIENDLY SCHOOL CONSTRUCTION

SWISS AGENCY FOR DEVELOPMENT AND COOPERATION (SDC)
INTRODUCTION

The Swiss Agency for Development and Cooperation (SDC) is active in Myanmar since 1999 and supports various initiatives across the country through their partners, having a program office at Yangon. On 2nd and 3rd May 2008, large parts of the Ayeyarwaddy were destroyed and damaged due to cyclone Nargis. It was reported that in the Delta region, 95% of the houses were affected by a storm surge up to 3.6 meters. The Post Nargis Joint Assessment (PONJA) reported that 50% - 60% of public schools including monastic schools were either damaged or destroyed. After the emergency and early recovery phase, a needs assessment was carried out by SDC. The huge loss of life coupled with the destruction of over 1200 schools illustrated the need for better disaster preparedness and improved basic education facilities to withstand disasters. Subsequently, a project was launched whereby multi-purpose buildings were created by providing child-friendly schools that double-up as cyclone shelters. They are used for schools and community meeting places and when a cyclone strikes, they provide a safe haven for the entire village population. This intervention reaches far beyond school and shelter construction.

THE INITIATIVE

SDC developed a draft architectural design of the school which incorporated disaster risk reduction features in the structural framework. This draft was later presented to the village community to get their suggestions on the site selection and construction. This consultative process would also help to elicit their participation, build awareness among the community on the features of the school and create ownership among the community. Once suggestions from the community were incorporated into the design such as positioning of facilities within the school premises, it was presented to the Ministry of Education for approval. Following the approval, SDC contracted local
construction companies for building the schools.

The school building has been able to incorporate climate responsive construction which requires low levels of maintenance. To ensure that the building was flood resilient, the floor level was constructed at 11 feet above the ground based on the local knowledge of flood levels from the community. The schools are also constructed to withstand earthquake to a maximum magnitude of 6 on the Richter scale as the Ayeyarwaddy is located in the Zone II\(^1\). In terms of climate responsive construction, artificial cooling and lighting was avoided through the design of the window shutters and shadings which was not built using glass. The school roof was designed such that rainwater collection is also done. The rain water flows into a pond/rainwater collection tank for the school and community.

The lower floor of the school was designed in such a manner that it could be used for additional classrooms or community gatherings or related events. The top floor is used as classrooms and can double up as a shelter. A three-square foot per person space was considered during planning of the layout of the school. Each school cum shelter can accommodate 700 to 1000 persons during a hazard event. Separate toilets for girls and boys with rainwater collection features

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\(^1\) Demarcated in the seismic zone map of Myanmar (2005) prepared by a team led by Dr Maung Thein; also mentioned in the Hazard Profile of Myanmar (2009)
were constructed to optimize the use of local natural resources. To ensure better and safe access to these schools, SDC also supported the construction of bridges and access roads to these schools. It also encouraged participation of communities in the selection and construction of the bridges, jetties and roads. It is expected that these new schools have a lifespan of a minimum of 30 years considering the weather conditions and maintenance practices.

SDC provided various capacity building programs for school administration, teachers and school children on disaster preparedness to enhance their participation. SDC also developed a booklet on "guidelines for school maintenance" which will stay in the community as a useful resource long after the project has ended. Workshops were conducted by SDC project staff to orient the school administration officials and teachers on maintenance using these guidelines. They have also tried to build capacities of children by organizing disaster preparedness information sessions for them. IEC materials on disaster preparedness are displayed in the classroom to inculcate a culture of preparedness. Children were also involved in planting of mangroves and other wind-breaking trees thus also teaching them the importance and benefits of the natural environment.
The project also developed and published "maintenance guidelines" for these schools. The members of the School Administration including the head of the school and teachers were oriented on these guidelines. This strategy has contributed to building the sustainability and ownership of the schools.

- The Ministry of Education was consulted in the design process and was approved by them after a series of reviews. This strategy brought in the participation of the Government into the process. Communities’ suggestions were also taken into consideration during the construction process thus creating a sense of ownership among all stakeholders.

SDC constructed 15 school-cum-storm shelters in the Townships of Pyapon and Bogale. These 15 schools provide improved and a user-friendly environment for about 2300 students and shelter places for approximately 14,600 persons. Apart from these, there are 10 more schools under construction in Pyapon and Mawlamyineegune townships, and 10 more schools will be reconstructed in 2012. Other aspects of community life are also impacted in a positive way through the construction of shelters _the infrastructure assets have improved their livelihoods by involving community members in the construction process.

GOOD PRACTICES

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**CHALLENGES**

- The architectural design was new to the local construction company so it took some time for them to translate the design into actual construction.
- The cost of construction was comparatively high but this high cost was due to other outputs such as rain water collection tank, fencing, plantations, approach roads and bridges. This added value to the school even though it added to the cost.

**SUSTAINING THE GAINS MADE AND REPLICATION**

- The project can be replicated since it has been able to work with key national stakeholders such as the Ministry of Education for approval of the design; local construction companies and locally available and produced materials.
- The multi-hazard perspectives the school design makes it possible to replicate it in various hazard prone areas across the country.
စီစဉ်မှုတော်မူရေး စိတ်ချရွေးချယ်ပြီး ကျောက်စီးချားသော အိမ်ယာန်သောအမွတ်ခွဲလိုက်ပါ။ စိတ်ချရွေးချယ်သူ: (SDC)
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တရုတ်ဗားများစွာ စိုးရိမ်လျှင် အချိန်အတွင်း ကိုယ်စားလှယ်များ မိမိတို့ကို ယူဆောင်ရွက်မှုနှင့် အပိုင်းအစိတ်အကျိုးထက် အရေးကြီးများ အုပ်စုစုပေါင်းသော ပြုလုပ်ချက်များ ပေးထားသည်။ နှစ်စဉ်အနေဖြင့် အချိန်အတွင်း အမိန့်အကျားနှစ်မျိုး စွာ စိုးရိမ်လျှင် မိမိတို့ကို ယူဆောင်ရွက်မှုနှင့် အပိုင်းအစိတ်အကျိုးထက် အရေးကြီးများ အုပ်စုစုပေါင်းသော ပြုလုပ်ချက်များ ပေးထားသည်။

လွှမ်းခြုံရေးရာ အချိန်အတွင်း စိုးရိမ်အင်အားစောင့်ရှောက်မှုများ အုပ်စုစုပေါင်းသော ပြုလုပ်ချက်များ ပေးထားသည်။ နှစ်စဉ်အနေဖြင့် (1) အချိန်အတွင်း စိုးရိမ်အင်အားစောင့်ရှောက်မှုများ အုပ်စုစုပေါင်းသော ပြုလုပ်ချက်များ ပေးထားသည်။ နှစ်စဉ်အနေဖြင့် (2) အချိန်အတွင်း စိုးရိမ်အင်အားစောင့်ရှောက်မှုများ အုပ်စုစုပေါင်းသော ပြုလုပ်ချက်များ ပေးထားသည်။
ရွေးချယ်စောင်ရွှေတောင်းမှုကို အရေးပေးသည်အစား သင့်ရဲ့အဖွဲ့အစည်းများကို သိရှိထားသည်။ သင့်ရဲ့အဖွဲ့အစည်းများကို တိုးတက်သော အခြေခံသော အဖွဲ့အစည်းသို့ ဆက်ဆံရေးထားသည်။

SDC အဖွဲ့အစည်းသည် တွေ့ရှိသည်အနေဖြင့် သင်ကြားသော စာရင်းကို ပြည့်သွင်းသည်။ သင်ရဲ့အဖွဲ့အစည်းသည် တိုးတက်သော အဖွဲ့အစည်းသို့ ဆက်ဆံရေးထားသည်။

သင်ကြားသော စာရင်းကို ပြည့်သွင်းသည်။ သင်ရဲ့အဖွဲ့အစည်းသည် တိုးတက်သော အဖွဲ့အစည်းသို့ ဆက်ဆံရေးထားသည်။
Mainstreaming Disaster Risk Reduction into Shelter

- Implementing disaster risk reduction in shelter is critical. It involves integrating preventive measures into the design and construction of shelters. This approach helps reduce the impact of disasters by minimizing vulnerability and increasing resilience.

- Adoption of standardized engineering guidelines and codes ensures that shelters are built to withstand various types of disasters. These guidelines help in designing shelters that are strong and durable, thereby protecting the occupants from the effects of disasters.

- Collaboration with stakeholders, including government agencies, NGOs, and local communities, is essential. This ensures that the needs and perspectives of all stakeholders are considered in the planning and implementation of disaster risk reduction measures in shelters.
• အခြားသော ပုံမှန်များနှင့် မောင်းရှင်းချက်များ ဆန္ဒအားဖြင့် အားလုံး ဗားရက် မျှော်လင်းပွဲများ ကျင်းပသော အချက်အလက်များ
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• အကြိုက်အကြိုက်များ သိမ်းဆည်းခြင်း အချိန်မှာ စိတ်လှုပ်ရာ အချက်အလက်များ
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 အကြိုက်အကြိုက်များကို သိမ်းဆည်းခြင်း
ADVOCATING FOR RESILIENT SHELTERS

SHELTER WORKING GROUP
INTRODUCTION

On May 2\textsuperscript{nd} and 3\textsuperscript{rd} 2008, cyclone Nargis destroyed and damaged 750,000 houses in the Ayeyarwaddy delta region of Myanmar. The Cluster approach was activated to strengthen humanitarian response by the UN Humanitarian Coordinator in consultation of the Humanitarian Country Team. The International Federation of the Red Cross (IFRC) led the Emergency Shelter Cluster until 31st July 2008 when the United Nations Human Settlements Programme (UN-HABITAT), with support from DFID, took over the lead role until formal closure of the cluster, on 30th June 2009. At this time, UN Resident Coordinator, the TCG chair and agencies requested UN-HABITAT to continue leading as the shelter recovery, and agreeing guiding principles, coherent implementation modalities, complimenting and coordination with government interventions.

ADVOCATING WITH THE DONOR COMMUNITY

During the initial period of the emergency response, most donors indicated that durable shelter would not be a priority and that their focus would be in livelihoods and other sectors. This donor
approach missed the crucial issue that emergency response was fragile and needed to be quickly backed up with stronger and more durable shelters in order not to have a second wave of emergency when the monsoon rains arrived\(^1\). The proposed durable shelters incorporated the disaster risk reduction features developed by the Cluster.

Though most other sectors received minimum commitments against the appeals and assurances of consistent funding support being made available in line with the implementation timeframe of the PONREPP\(^2\), the Shelter Sector, which experienced one-third of the total damage impact as a result of Nargis, was not addressed in the same way. Of the 173.6 million USD required for Shelter Recovery from Cyclone Nargis, a grand total of 21.77 million USD was received in the years that followed. This means, even now, 149,678 households spread across the Ayeyarwaddy (of which 97,000 are considered the most vulnerable families) require urgent shelter assistance and are considered as neglected needs.

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\(^1\) Final Shelter Workshop Notes and Lessons Learnt – Shelter Coordination for Cyclone Nargis (UN-HABITAT, 2009)

Given this scenario and needs, the member agencies of the Shelter Cluster took on the efforts to advocate to the donors on the need for urgent and additional funding support to the Shelter Sector. The objective of the advocacy was to highlight to donors that durable shelter construction and coordination required funding for approximately two years after the disaster. This ensured that the good practices of mainstreaming DRR into the construction were followed and the gains made in the sector were not lost in the event of future disasters and consequently, value for money was achieved. Donors were encouraged to think ahead and provide funds for sustainable shelter support.

The Shelter Cluster and subsequently the Shelter Working Group (SWG) has played an integral role in informing the government and donors on the importance of and the need for incorporating disaster risk reduction features into shelter construction. Through members of the SWG, they have been to undertake shelter damage and needs assessments across the various disasters which affected Myanmar since Cyclone Nargis in 2008, such as Cyclone Giri in 2010 and the Shan Earthquake in 2011. These assessments have informed the government and donors on the critical shelter needs of the affected communities and provision for durable and strong shelter. Shelter sector recovery plans have also been developed through a consultative process involving all members, which indicated and advocated the needs for shelter. Shelter Cluster/Working Group also provided technical support and input to the Post Nargis Joint Assessment, the Post-Nargis Recovery and Preparedness Plan and subsequent Periodic Reviews of the Plan.
ADVOCATING WITH MEMBER AGENCIES

In the aftermath of a disaster, numerous humanitarian agencies initiated shelter reconstruction programs. Shelter designs are developed by these agencies taking into account the cost of a shelter unit, availability of materials, geographical and cultural context of the people affected. As a result, there was a diverse range of shelter structures constructed by the intervening agencies. Respecting the diversity of interventions, the Shelter Cluster advocated among their members in developing and complying with a ‘minimum technical standards’ which would see disaster risk reduction features incorporated into new shelters and to observe standards such as SPHERE. A Technical Working Group was formed within the Cluster comprising of agencies from UN, international and national NGOs, government technical agencies such as Myanmar Engineering Society, and established clear standards for a shelter of approximate 160 to 200 sq ft. Most agencies proved to be diligent in following technical standards, though budget restraints caused some to lower standards. Where evidence emerged of agencies building poorer quality shelters, this was addressed with the agencies concerned, but once again the role of the Shelter Cluster was to strongly encourage members to comply.

BUILDING CAPACITY AND RAISING AWARENESS

Capacity building of stakeholders, which included international and national NGOs, communities and government, on safer construction was also conducted for putting the ‘minimum technical standards’ into practice. Various IEC materials on disaster risk reduction construction features have been developed and disseminated to agencies working on shelter as well as in rural communities, with wide distribution coverage, upon request. The DRR construction techniques were also developed into a training module and thousands of village carpenters’ capacities were enhanced on these new and improved construction techniques.
GOOD PRACTICES

- The Shelter Cluster/Working Group has been able to involve all members to planning and implementation of various initiatives, be it policy, advocacy or assessments. This has created a strong sense of belonging amongst member agencies to the Cluster/Working Group as well as strong participation and adherence to decisions agreed in consensus.

- Even though various agencies were following different models to shelter reconstruction, they were able to come to a consensus of developing a minimum technical standard which could be applied across all agencies.

- A common statement by the Cluster/Working Group on additional funding required was able to increase the effectiveness of advocacy with donor agencies. Members were able to rise above their organizational mandate and be a part of a common objective to achieve helped in mobilizing more funds from donors. This was evident in the increased funding for shelter reconstruction under Cyclone Giri response in 2010.

- The Shelter Working Group is a good reference point and repository of shelter knowledge as it has been one of the few initiatives to promote and fully mainstream DRR.
perspectives into various shelter reconstruction programs across the country through its member agencies by providing technical support to agencies implementing shelter reconstruction programs in those disasters. They also have been able to increase the knowledge on disaster preparedness through the dissemination of numerous IEC materials.

**CHALLENGES**

- In the initial period, there was strong opposition from some donors who felt the Cluster was advocating for standards that were ‘too high’. However, the cluster stuck to principles on these issues and strongly argued that it is not conceivable that an USD 800 – USD 1,000 shelter can be ‘above standard’ and also that these durable shelters can withstand future storms/cyclones avoiding periodic donor interventions.

- It is not possible to impose the ‘minimum technical standards’ among its members as the role of the Shelter Cluster/Working Group is advisory and cannot be regulatory. Only the government and donors can impose and or regulate standards and through them the Shelter Cluster/Working Group can advocate these ‘minimum technical standards’.
SUSTAINING THE GAINS MADE AND REPLICATION

- Shelter Cluster/Working Group could be chaired by the government and supported by co-chairs made up of a UN Agency and a NGO (continuity ensured between UN and NGO). This also would contribute to future effectiveness of the Cluster/Working Group’s advocacy strategy.

- Compliance with ‘minimum technical standards’, agreed by the Working Group, is essential for mainstreaming DRR into the shelter sector in a comprehensive and sustainable manner. Donors have influence over their implementing partners. The Shelter Coordinator should brief donors to ensure that donors insist on compliance.
သို့မဟုတ် စုပေါင်းစည်းမှုမှာ ကျန်ရှိသည်။ သို့သော် စာကြမ်းများကို ဖော်ပြခြင်းဖြင့် ကျန်ရှိသည်။
မြန်မာနိုင်ငံတွင် နေထိုင်ချက်များ ဖော်ပြသော အရေးပါသော အချက်အလက်များကို အသေးစိတ်အပြုအစ်မှ မြန်မာအဖွဲ့အစည်းများနှင့် အတူတူ လုံးဝေးနေသော အင်္ဂလိပ်များ ဖော်ပြသည်။

(UN-HABITAT) နှင့် DFID တို့ အတူ တူတား အကြောင်း အရေးပါသော အချက်အလက်များကို ဖော်ပြသည်။

(2) Cluster Approach

မြန်မာနိုင်ငံအတွက် အခြေခံအကြောင်း အရေးပါသော အချက်အလက်များကို ဖော်ပြသည်။

(3) Emergency Shelter Cluster

မြန်မာနိုင်ငံအတွက် အခြေခံအကြောင်း အရေးပါသော အချက်အလက်များကို ဖော်ပြသည်။

(31) IFRC တို့ အတူ တူတား အကြောင်း အရေးပါသော အချက်အလက်များကို ဖော်ပြသည်။

(30) UN-HABITAT တို့ အတူ တူတား အကြောင်း အရေးပါသော အချက်အလက်များကို ဖော်ပြသည်။
Mainstreaming Disaster Risk Reduction into Shelter (Shelter Cluster)

The Shelter Working Group (Shelter Working Group) is a group of experts working on shelter issues under the umbrella of UN-Habitat. The group focuses on the integration of disaster risk reduction into shelter planning and implementation. The group is led by the Shelter Cluster UN-Habitat, which is responsible for coordinating shelter-related activities in disaster situations.

The group is comprised of representatives from various organizations, including UN-Habitat, the World Bank, and the International Federation of Red Cross and Red Crescent Societies. The group meets regularly to discuss issues related to disaster risk reduction and to develop strategies for integrating these issues into shelter planning and implementation.

The group has developed a number of tools and resources to assist in disaster risk reduction. These include a guide for shelter practitioners, a toolkit for disaster risk reduction, and a set of best practices for integrating disaster risk reduction into shelter planning.

The group is committed to working with other organizations to ensure that disaster risk reduction is integrated into all aspects of shelter planning and implementation. The group is also committed to sharing information and best practices with other organizations to ensure that disaster risk reduction is integrated into all aspects of shelter planning and implementation.
SHELTER RECOVERY: TWO YEARS AFTER CYCLONE NARGIS

Shelter Damaged and Collapsed

The damage and destruction estimate following the impact of Cyclone Nargis was 754,851. Households across the affected areas were affected. At least 762,261 shelters were destroyed and 386,405 shelters were damaged.

Shelter Recovery

- Uncertain assumptions that 421,000 households in all the townships of the region were destroyed, with the exception of Yankin-gon Township.
- An estimated 150,000 shelters were rehabilitated with minimal support.
- Overall, the number of displaced people in the affected area is estimated at around 700,000 households.

Shelter Recovery Needs

- Total: 497,000
- Boys: 17,788
- Girls: 32,212
- Children: 19,981

PCMEPP Funding

- Total Requested: US$ 651 Million
- 2009: 111.8 Million
- 2010: 150.6 Million
- 2011: 123.0 Million
- 2012: 112.7 Million

Shelter Recovery Status

- 75% of affected communities have already rebuilt temporary shelters in a precarious manner (cement, bamboo, wood and other materials) that may not be sufficient to provide adequate shelter.
- 6,325 houses were rebuilt by UNOPS and the Government; these have been completed (cost ranging from US$ 420 to US$ 950 per house) and are suitable for use in the rainy season.
- The temporary shelters that received emergency assistance in the early phase of the relief effort have now been through their complete monsoon season and the ongoing 3rd mission in May 2010. These emergency materials cannot be considered of much practical value at this time.
မြန်မာစိုက်ပျိုးရေးနှင့်ပတ်သက်သော စိုက်ရောက်ပွဲများ သော့ချင်းစွာရှိသည်။ ရေးသားချက်များကို ရရှိပြီး အချိန်ကြီးစွာ လေ့လာသည်။ အထူးသဖြင့် ရိုးရာစနစ်သို့မဟုတ် ဖျင်ဆိုခြင်းသော မျိုးများကို ကြည့်ရှုရန် အရင်ဆုံးဖြစ်သည်။ အချိန်ကြီးသော စိုက်ရောက်ပွဲများအတွက် ဖျင်သူအားလုံး အခြေခံကြည့်ရှုမှုကို လေ့လာထားရန်အတွက် အထူးသဖြင့် ကြည့်ရှုရန် အခြေခံသည်။

စိုက်ရောက်ပွဲများ အခြေခံကြည့်ရှုမှုကို လေ့လာထားရန်အတွက် အထူးသဖြင့် ကြည့်ရှုရန် အခြေခံသည်။

မြန်မာစိုက်ပျိုးရေးနှင့်ပတ်သက်သော စိုက်ရောက်ပွဲများ သော့ချင်းစွာရှိသည်။ ရေးသာ့ချက်များကို ရရှိပြီး အချိန်ကြီးစွာ လေ့လာသည်။ အထူးသဖြင့် ရိုးရာစနစ်သို့မဟုတ် ဖျင်ဆိုခြင်းသော မျိုးများကို ကြည့်ရှုရန် အရင်ဆုံးဖြစ်သည်။ အချိန်ကြီးသော စိုက်ရောက်ပွဲများအတွက် ဖျင်သူအားလုံး အခြေခံကြည့်ရှုမှုကို လေ့လာထားရန် အတွက် အထူးသဖြင့် ကြည့်ရှုရန် အခြေခံသည်။

စိုက်ရောက်ပွဲများ အခြေခံကြည့်ရှုမှုကို လေ့လာထားရန် အတွက် အထူးသဖြင့် ကြည့်ရှုရန် အခြေခံသည်။

မြန်မာစိုက်ပျိုးရေးနှင့်ပတ်သက်သော စိုက်ရောက်ပွဲများ သော့ချင်းစွာရှိသည်။ ရေးသာ့ချက်များကို ရရှိပြီး အချိန်ကြီးစွာ လေ့လာသည်။ အထူးသဖြင့် ရိုးရာစနစ်သို့မဟုတ် ဖျင်ဆိုခြင်းသော မျိုးများကို ကြည့်ရှုရန် အရင်ဆုံးဖြစ်သည်။ အချိန်ကြီးသော စိုက်ရောက်ပွဲများအတွက် ဖျင်သူအားလုံး အခြေခံကြည့်ရှုမှုကို လေ့လာထားရန် အတွက် အထူးသဖြင့် ကြည့်ရှုရန် အခြေခံသည်။
စိုက်ပျိုးရေးလေးဗျာ ဆောင်ရွက်ပြီး အစားအပေါ်အပြောင်းအလှူလေး စာပိုဒ်:

အများအားဖြင့် ပြုလုပ်သူများအနေဖြင့် ဖော်ပြထားသော စိုက်ပျိုးရေးလေးဗျာများကို ဖော်ပြထားပါ။ ဟုတ်ကြသော်လည်း အစိုးရများကို လူမှုရေးသမားများအား လှုပ်ရာများကို ဖော်ပြထားပါ။ စိုက်ပျိုးရေးလေးဗျာ ဖော်ပြလိုသောအခါပဲ အစိုးရများ များစွာ ဖော်ပြထားပါ။
Mainstreaming Disaster Risk Reduction into Shelter

[Image: Pictures of structures and materials used in disaster risk reduction]

[Text in Burmese]

[Translation:]

[Text in English]
ကြောင့်တို့တွင် မိသားစုအားအားများကို မိုးမိုးစွာ အရေးကြီးရေးထိုးရန် အခြေခံလေးများကို ပြုလုံးမည်။ တုံ့ပြန်မှုအများအားလုံးကို တွေးမြင်ပြီး အားသတ်မှုများကို မျှဝေပြီး အခြေခံလေးများကို ပြုလုံးမည်။

- ကြောင့်တို့ကို အရေးကြီးရေးထိုးရန် အခြေခံလေးများကို ပြုလုံးမည်။
- တုံ့ပြန်မှုအများအားလုံးကို တွေးမြင်ပြီး အားသတ်မှုများကို မျှဝေပြီး အခြေခံလေးများကို ပြုလုံးမည်။
- ကြောင့်တို့ကို အရေးကြီးရေးထိုးရန် အခြေခံလေးများကို ပြုလုံးမည်။
- တုံ့ပြန်မှုအများအားလုံးကို တွေးမြင်ပြီး အားသတ်မှုများကို မျှဝေပြီး အခြေခံလေးများကို ပြုလုံးမည်။
Mainstreaming Disaster Risk Reduction into Shelter
အပြုသဘိုးများနှင့်အတူ တိုက်ရိုက်မှုများ အဓိကအားဖော်ပြခြင်း

1. အပေါ် လူမှုပေါ်တွင် ရှိသော ၇၅၀ တိုက်ခိုက်များကို စီစဉ်ပြုသော အခေါ်အနေဖုံးများနှင့် အမျိုးသားကျစ်တင်မှုများကို စီစဉ်ပြုသော အခေါ်အနေဖုံးများ

2. အပေါ် လူမှုပေါ်တွင် ရှိသော ၇၅၀ တိုက်ခိုက်များကို စီစဉ်ပြုသော အခေါ်အနေဖုံးများနှင့် အမျိုးသားကျစ်တင်မှုများကို စီစဉ်ပြုသော အခေါ်အနေဖုံးများ

3. အပေါ် လူမှုပေါ်တွင် ရှိသော ၇၅၀ တိုက်ခိုက်များကို စီစဉ်ပြုသော အခေါ်အနေဖုံးများနှင့် အမျိုးသားကျစ်တင်မှုများကို စီစဉ်ပြုသော အခေါ်အနေဖုံးများ
COMMUNITY LED SHelter RECONSTRUCTION

UNDP MYANMAR
**INTRODUCTION**

Cyclone Giri, made landfall on the western coast of Myanmar’s Rakhine State on 22 October 2010. The townships of Kyaukphyu, Myebon, Minbya and Pauktaw were the most severely affected by the storm, which caused loss of lives, rendered people homeless, and caused severe damage to houses and infrastructure including roads and bridges. At least 20,380 houses were completely destroyed, with a total of at least 260,000 people (52,000 households) affected.

UNDP, through its existing presence in the affected areas, responded immediately to support the affected communities through distribution of food items, tarpaulins and later conducted a rapid assessment of the four most affected townships. Based on the findings from the rapid assessment, UNDP initiated a shelter response program.

**THE INITIATIVE**

UNDP started the project on 10th December 2010 covering nine affected villages in the two townships of Myebon and Minbya using a community-based approach. Initially, the UNDP project staff visited every house in the village and ascertained the number of houses which needed complete or partial repair. Once this information was collected, it was presented to the larger community at a public meeting for validation and selection of beneficiaries through a participatory process. Members of
the village authority also participated in this process. Carpenterers were then identified and chosen by the community. These carpenters played an important role in the community-led construction process as they selected the kind and quality of construction materials to be used and monitored the reconstruction process. UNDP partnered with UN-HABITAT to build capacities of 105 carpenters on techniques of safe shelter construction. From this training, carpenters were able to learn how to integrate DRR features in new shelter constructions as well as retrofitting old houses.

Disaster Risk Reduction Management Committees (DRRMC) were formed and one of their responsibilities was to spread information and awareness on disaster preparedness among the larger community. The project staff facilitated the formation of these committees supported by UNDP’s Township Project Manager and DRR Specialist. It was ensured that women, youth and the elderly were represented in the committees. The village head was usually the Chair of the DRRMC. Roles and responsibilities of the DRRMC were formulated by the members and a community action plan. The plan had a strong focus on reconstruction of shelters but also incorporated other aspects of preparedness such as securing water points and identifying strong evacuation shelters and safe routes to access it. This plan has generated an interest in the community for more initiatives on disaster preparedness.
Assisted by the project staff and village carpenters, the DRRMC prepared a 'Micro Project Proposal (MPP)’. A MPP is a “proposal format for villages” which guides users to prepare the plan and budget of their project, with details of materials and finances required. Villages completed this format and provided information on the number of houses to be constructed and repaired, the

project staff for review and approval.

Once the MPP was approved, the budgeted amount was handed over to the DRRMC for implementing the re-construction work. The DRRMC shared the details of the Micro Project Proposal; amount of cash requested and received with beneficiaries and other community members, thus maintaining transparency and accountability among all stakeholders.

The purchase of construction materials was done by a group comprising of beneficiaries, DRRMC members and trained carpenters who checked on the quality of materials prior to purchase. This ensured that the members were accountable to other beneficiaries on the quality of materials purchased. Details of costs incurred for purchases were also shared with the beneficiaries.
The materials were then handed over to each beneficiary as per their requirements. The reconstruction was done by members of the individual household. Trained carpenters guided the households in incorporating DRR features into the new houses such as bracing and anchoring. The DRRMC members monitored the construction in the villages. A complaint mechanism where community members could raise any sort of dissatisfaction of the project process was also set up. Through this way, any beneficiary dissatisfied with the quality of materials could record a complaint with the DRRMC. Where necessary, the DRRMC would ensure the replacement of the materials from the supplier.

At the completion of the project, a total of 426 new houses were constructed and 304 houses were reconstructed in two villages of Myebon and seven villages of Minbya.

**GOOD PRACTICES**

- The participatory approach to the construction process gave the villagers confidence in their decision making abilities and made them active agents in their own reconstruction process. Villagers were able to discuss and take decisions on their own. At the same time, they were also accountable to the larger community. This promoted social cohesion and participation among the communities.

- The process also laid the foundation for disaster risk reduction program in the community. The formation of the DRRMC and development of a community action plan created a mechanism in the village whereby awareness on disaster preparedness could be generated and actions for addressing priority measures for reducing risks, implemented.
• It was essential to believe in community’s capacity for implementing the project. They were the key stakeholders in rebuilding their own lives and livelihoods and therefore had a better understanding of their realities. The UNDP project staff was conscious of this fact and thus they facilitated the communities to participate actively.

• As there was a huge demand of materials to be purchased, it was necessary to map the various suppliers in nearby township and villages. This also gave power to the community to bargain and chose from a large range of suppliers.

**CHALLENGES**

• In some case, carpenters were a bit hesitant in adopting new techniques provided at carpenter trainings. Trainers had to provide examples and success stories to convince them to adopt these practices.

• Strong facilitation skills of the project staff were critical in driving the process at the community level. However, facilitation skills among the staff were yet to be appropriate enough, leading to weaker participation from some communities. This facilitation gap was later filled by more experienced project staff.

• Selection of beneficiaries is always a contentious issue where opinions are sometimes divided even when done in a participatory manner. It was, therefore, necessary to have village heads and other officials endorse these decisions thus reducing resentment among community members.

• The lack of construction materials and access to construction tools locally were cited as key reasons for delay in carrying out the shelter reconstruction as the materials and tools had to be brought from Sittwe.
As a limited numbers of jetties were available, it was difficult to land big supply boats resulting in problems in transportation of the required materials to communities.

**SUSTAINING THE GAINS MADE AND REPICATION**

The establishment of the DRR Management Committee – their capacity building and involvement in all stages of the process has helped to develop an ownership of the process among the community members and thus ensure its sustainability. The DRRMC is a community-owned mechanism for initiating DRR as well as development activities.

UNDP believes that the simplicity of the process and participatory approach can be possible for replication in any context.
Mainstreaming Disaster Risk Reduction into Shelter
ပၱ ကြည့်ရှု့ရန် ဘာသာ စကားလုံးကို အက်တမ်းနိုင်သည်။ စိုက်ပျိုးရေး အတွက် အသုံးပြုသူများအားလုံးသည် ကြည့်ရှု့ရန် ဖေစားသည်။ စိုက်ပျိုးရေး အတွက် အသုံးပြုသူများအားလုံးသည် ကြည့်ရှု့ရန် ဖေစားသည်။
Mainstreaming Disaster Risk Reduction into Shelter

(Disaster Risk Reduction Management Committee-DRRMC)
DRRMC အား ‘နယ်စိုက်စာရွက်အဖွဲ့ (Micro Project Proposal-MPP)’ အဖြူချိန် အစူးသားဖွင့်စာမျက်နှ့ပြီး MPP အဖြူချိန် ‘သဘာဝအိုပ်မှုမှားကွယ်အား(ရှင်းပြချက်)’ ထောက်ပံ့ပြီး နောက်ပိုင်း အဖွဲ့အစည်းအဖွဲ့အစည်းအဖွဲ့အစည်းအဖွဲ့အစည်းအဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့အဖွဲ့
Mainstreaming Disaster Risk Reduction into Shelter

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The following paragraphs discuss the integration of disaster risk reduction (DRR) into shelter planning. DRRMC has been advocating for this approach and highlights the importance of considering risk reduction during shelter design and construction.

DRRMC has been working closely with local communities to incorporate DRR principles into shelter planning. This includes conducting risk assessments, developing early warning systems, and promoting sustainable and resilient shelter solutions.

By mainstreaming DRR into shelter, communities can better prepare for future disasters and reduce the impact of these events on their lives.
• An example of good practice in DRR is the development of a comprehensive disaster risk reduction strategy. This strategy includes the identification of vulnerable communities and the development of early warning systems. It also involves the establishment of emergency response teams and the provision of training to local disaster management officials.

• Another example is the implementation of community-based disaster preparedness programs. These programs involve local residents in disaster risk reduction activities and empower them to take action in times of crisis.

• Some other good practices include the establishment of partnerships between government agencies and non-governmental organizations to improve disaster risk management. This can lead to better coordination and a more effective response to disasters. Additionally, the use of technology, such as satellite imagery and remote sensing, can improve the accuracy of disaster risk assessments and aid in the development of effective mitigation strategies.

• Finally, it is important to ensure that all stakeholders, including local communities, are involved in the planning and implementation of disaster risk reduction strategies. This can help to ensure that the strategies are effective and sustainable over the long term.
Mainstreaming Disaster Risk Reduction into Shelter

• ကလေးစားကြည့် အလိုလျင်:
မြန်မာနိုင်ငံတွင် အနောက်ပိုင်းဒေသများနှင့် မိုးမာမြို့နယ်များတွင် သင်္ဘောဝါရီးယားများ ပြန်လည်ဖွင့်လှစ်မှုကို ဆောင်ရွက်ရန် အကြောင်းသိရှိစေရန် ပြောပြပါသည်။

• ဘာဦးလိုမြောက်ခူးခြင်း သို့မဟုတ် ဆောင်ရွက်ခြင်း ရှင်းလင်းမှုကို သင်္ဘောဝါရီးယားများကို အထောက်အထားပြုရန် နောက်ဆုံးပါမည်။
• ပြန်လည်ဖွင့်လှစ်ခြင်းအတွက် သိထောင်မှု ပြုလုပ်ရန် နောက်ဆုံးပါမည်။

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Mainstreaming Disaster Risk Reduction into Shelter

• ဗုဒ္ဓငါးဖြစ်ခဲ့ကြောင်း ထိုအခါတွင် အချိန်ကို အသွေးအဖြေတစ်ခုချင်း ပြုလုပ်ရမည်။ အထောက်အပံ့မှာ အချိန်ကို အသွေးအဖြေတစ်ခုချင်း ပြုလုပ်ရမည်။

အကြောင်းကိုယ်စားလိုင်း များစွာ ပြုလုပ်ရမည်။
BUILDING CAPACITIES OF LOCAL CARPENTERS ON SAFER SHELTER CONSTRUCTION

UN-HABITAT
INTRODUCTION

The United Nations Human Settlements Program, popularly known as UN-HABITAT, is the United Nations agency for human settlements, mandated by the UN General Assembly to promote socially and environmentally sustainable towns and cities with the goal of providing adequate shelter for all. In Myanmar, UN-HABITAT has been working since the early 1990s and has pioneered the ‘People’s Process’ approach by establishing the first community-led projects in the Dry Zone, Shan State and the Delta region. The agency also designed the Human Development Initiative (HDI) for UNDP and has partnered in the implementation of HDI 1, HDI 2 and HDI 3 in Myanmar.

According to the Post-Nargis Joint Assessment, cyclone Nargis affected approximately 800,000 housing units: around 450,000 units are estimated to have been totally destroyed, while nearly 350,000 units were more lightly damaged. The total damage and losses are estimated around 686 billion Myanmar kyats. Responding to this catastrophe, UN-HABITAT played a key role in the coordination of early recovery shelter interventions. One of UN-HABITAT’s key priorities during the post-Nargis rehabilitation efforts was to improve the safety of village shelters and rural structures, in order to mitigate human casualty and damage to properties and assets from future disasters. Today, UN-HABITAT continues implementing various shelter programmes and policy interventions in the Delta and in Rakhine State partnering with government counterparts such as the Relief and Resettlement Department (RRD) and the Ministry of Construction.

REDUCING VULNERABILITIES

Given that a majority of houses in the Delta are made with locally available materials such as bamboo and wood and, construction technology is representative of traditional knowledge and skills, UN-HABITAT decided to build the capacities of
local carpenters, artisans and masons on disaster-resilient shelter construction practices and equipping them with the necessary construction tools. Through this capacity building initiative, carpenters were not only able to learn and construct disaster-resilient shelters but also maintain them. This initiative was implemented in five cyclone Nargis affected townships in the Ayeyarwaddy Division.

In the villages, UN-HABITAT set up a Village Shelter Committee (VSC) whose main objective was to facilitate and support the interventions of UN-HABITAT at the village level. Members of the VSC were selected by the community ensuring that vulnerable groups such as women and the aged were included in this committee. Usually, the village head was nominated as the chair for the VSC. The VSC was responsible for identifying and selecting carpenters for the training programme. Through larger community participation, four carpenters were selected from each village. While the VSC selected the carpenters to be trained, UN-HABITAT managed and financially supported the training program. The VSC also ensured that the interests of the
community were represented in designing sustainable disaster risk reduction practices.

The five-day training on safer shelter construction had around 20 participants selected from about five project villages. The training was provided by trained and experienced shelter construction coordinators from UN-HABITAT. The training was a blend of theory and practical exercises and the final output was the construction of a model house by the participants. The key principles are applicable to every kind of shelter, whether constructed with timber, forest wood or bamboo. Participants learned to integrate disaster risk reduction perspectives into all aspects of shelter construction – from the anchoring of the house, to the slope of the roof to the nature of joints etc. to resist strong winds and possible earthquakes.

Carpenters also learnt about the importance of location and orientation of a shelter which could either increase or decrease its vulnerability to natural hazards. The right elevation of the shelter above flood line, direction of winds, shape of shelters and proximity to trees were also to be factored in while constructing shelters.

In order to ensure that the training program’s lessons were sustainable, UN-HABITAT provided a construction toolkit for carpenters in the training program. With the tools, they could continue practicing the newly learnt techniques and they were also encouraged to share these new skills and practices with other village carpenters. The trainees were also provided with a copy of the ‘Village guide for carpenters..."
on how to build a safer shelter’. The guide, developed by UN-HABITAT through its experiences in the country, showcases methods that are easily adaptable with locally available materials and can be replicated at the village level.

In addition to the guide mentioned above, UN-HABITAT has published three other guides on constructing safe houses which include, ‘A Guide to Households on How to Build a Shelter that is Safe against Natural Disasters’, ‘Village Shelter Committee Guide’ and ‘Guidelines on Retrofitting of Rural Houses in Myanmar’. These documents reflect UN-HABITAT’s mandate of actively engaging all stakeholders among rural communities in the rehabilitation process and providing communities with the necessary know-how to build disaster-resilient structures.

**GOOD PRACTICES**

- The carpenter trainings enhance carpenters’ skills, especially in the area of disaster resilient construction techniques. They not only apply this training to reconstruct or upgrade their shelters but also encourage them to share these new skills and information with other members in the village.
- The training creates opportunities for income generation for the trained carpenters to use their newly
acquired skills and experience.

- The training provides a methodology for shelter construction for carpenters living in any rural community which can be replicated for other rural shelters/public buildings.
- The methodology makes use of local resources and capacities, thus making the program sustainable.
- Successive trainings given by the graduates of the program allows for the sustainability of shelter construction principles and methods, at the same time promotes maintenance of shelters.

**CHALLENGES**

- It was not easy for carpenters to adopt new practices of construction over their traditional methods immediately. Explaining the benefits of the new practices
in terms of reducing damages as well as reducing expenditure on house maintenance in the long-run, convinced them to adopt the new practices.

- As the trainings could not accommodate all interested carpenters, it could limit the spread of new practices to carpenters who did not attend the training.

**SUSTAINING THE GAINS MADE AND REPPLICATION**

- The training, along with the construction guides, provides a framework for improving the safety of those living in rural communities in a sustainable manner. Rural communities can use these tools to reduce the loss of lives and damage to property due to natural disasters.
- As the methodology makes use of locally available materials and human resources, it can be replicated in other areas in the country where similar resources are available.
Mainstreaming Disaster Risk Reduction into Shelter
Mainstreaming Disaster Risk Reduction into Shelter

UN-HABITAT's People's Process (Post-Nargis Joint Assessment, PONJA) which was commissioned by the Human Development Initiative - HDI (UNDP) in 2009. The process aimed to assess the impact of the 2008 cyclone Nargis on the lives of affected communities. The assessment was conducted in the Ayeyawady Delta region, and the findings were used to inform future disaster risk reduction strategies. The process was led by UN-Habitat and involved local communities in the assessment process.

HDI 1: HDI 2: HDI 3:
မြောက်ချင်းဒီယိုပေါ်တွင် အခြေခံစိုက်ရာ အခွင့်အရေး အသုံးအနှုံး အကြောင်း

မြန်မာနိုင်ငံ၏ ဒီဇိုင်းခြောက်ချိန်များအားလုံး မိမိ၏ အခြေခံစိုက်ရာ အခွင့်အရေး အသုံးအနှုံး မရှိနိုင်။

မြန်မာနိုင်ငံ၏ ဒီဇိုင်းခြောက်ချိန်များ မိမိ၏ အခြေခံစိုက်ရာ အခွင့်အရေး အသုံးအနှုံး အကြောင်း။

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Mainstreaming Disaster Risk Reduction into Shelter

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စီစဉ်ကြည့်ရှင်းဦးစီးပွဲများ၏ အချိန်ကြည့်ပွဲများမှာ အထွေထွေသော စီစဉ်ကြည့်ရှင်းနေရာများသို့မဟုတ် စီစဉ်ကြည့်ရှင်းပွဲများသို့ ဖော်ပြထားပါသည်။

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Mainstreaming Disaster Risk Reduction into Shelter
ပြိုင်ပြောဆိုင်ရာပြုလုပ်မှုများ ငါးခုစီမြောက် အလုပ်အတွက် အလုပ်ရေးအတွက် ဖော်ပြထားပါသည်။ ထို့နောက် အလုပ်ရေးအတွက် အလုပ်ရေးအတွက် ဖော်ပြထားပါသည်။

- အလုပ်ရေးအတွက် ဖော်ပြထားပါသည်။
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တစ်ခုလုံးကို ဖော်ပြထားပါသည်။

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Mainstreaming Disaster Risk Reduction into Shelter
• စိတ်ချုပ်ချင်သော အခြေခံ ရိုးရိုင်းမှ စိတ်ချုပ်ချင်သော မြို့လိုင်း ပြောင်းလဲမှုကို ယူဆရင် ချိန်တိုင်း ဖုန်းဖက်နှိပ်ချင်သည်။

• စိတ်ချုပ်လိုင်းကို အခြေခံအာရောင်မှ စိတ်ချုပ်ချင်သော မြို့လိုင်း ပြောင်းလဲမှုကို ယူဆရင် ချိန်တိုင်း ဖုန်းဖက်နှိပ်ချင်သည်။
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• 根据灾害风险的主流化

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Strengthening Disaster Risk Reduction Practice in Myanmar through Research and Enhanced Inter-agency Coordination

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