Energy in Humanitarian Response:
A Case Study on Humanitarian Actors’ Perceptions of Energy during Typhoon Haiyan

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COVER: Members of the women’s group Sulong Suluan install solar street lights in their island of Suluan, Guiuan, Eastern Samar in partnership with ICSC. © ICSC/Arturo Tahup
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Summary

Energy plays an important role in humanitarian response. In disaster-hit areas, energy becomes a rare commodity, along with water, food and shelter. The unavailability of this service hinders the development and resilience-building efforts of entire communities in post-disaster situations. However, the value of energy is often overlooked in the humanitarian response system.

To understand how energy needs were met during typhoon Haiyan, this case study solicited information regarding different energy needs and energy-related strategies employed by several international humanitarian organizations through surveys. Using follow-up semi-structured interviews, perceptions on energy in humanitarian response and renewable energy were also gathered.

Results show the high-energy requirements of humanitarian organizations to run field operations and implement humanitarian actions in disaster-affected communities. These organizations have been unable to implement an efficient energy-enabled strategy in their Haiyan response. Upon further analysis of relevant articles and materials, the study finds that this lapse in disaster response initiatives can be attributed to limited information on and systemized structure of energy that is often anchored in the global humanitarian scheme.

Data from the study show that effective energy strategies are not incorporated into humanitarian response and that renewable energy systems are seldom used by humanitarian actors.

Based on the findings of the case study, we recommend stakeholders to:

- Create a well-resourced working group or identify a specific cluster within the humanitarian cluster system which will ensure that the energy needs of humanitarian actors and disaster-affected communities are adequately and efficiently addressed, and with which the private sector energy providers can closely coordinate and collaborate;
- Develop a clear operational framework that guides humanitarian actors to integrate energy needs in disaster preparedness and response plans, and that is consistent with the UNHCR Handbook for Emergencies and the Global Strategy for Safe Access to Fuel and Energy (SAFE);
- Develop guidelines, protocols and useful tools that will enable humanitarian actors to integrate energy needs assessments and promote good practices of integrating energy efficiency and renewable energy solutions in response interventions; and
- Explore collaborative arrangements that will ensure that the energy needs of responding humanitarian actors are prioritized and met during the onset of emergency response. For instance, emergency responders can facilitate agreements with logistics and transport sectors to fly in solar-powered generators and batteries.
Solar Scholars from Tacloban City participate in a simulation of their barangay emergency response on July 24, 2016 using an earlier version of the TekPak, ICSC’s portable solar kit which can provide light and energy.
INTRODUCTION

In November 2013, Typhoon Haiyan (Yolanda) made its landfall in the Philippines and ultimately caused thousands of deaths and the loss of millions worth of properties in different areas of the country, especially in the Visayas region. The immense devastation encouraged numerous humanitarian organizations from all over the globe to provide aid and assistance in the affected communities. Said to be the strongest typhoon ever recorded in recent history, Haiyan caused damage that brought the field of disaster response under a new light, benchmarking the “new normal” in both disaster impacts and disaster response.

Energy plays a valuable role in humanitarian response and development. Similar to the humanitarian response to the devastation brought about by Typhoons Ketsana, Parma, Bopha, and Washi, the humanitarian services in response to Typhoon Haiyan were herculean and heroic. Nevertheless, the situation revealed the fact that responses remain traditional, given the deployment of tested tools that deliver outcomes that are limited by the lack of integration of energy-enabled strategies.

When disaster strikes, electric power is usually the first to become unavailable. From a humanitarian context, the effects of power loss can be devastating, as it hampers the speed of delivery of life-saving interventions. When conducting activities early into the response phase, teams and organizations require a stable and reliable source of electric power for the initiation of their humanitarian efforts. Without electricity for homes, business centers, hospitals and government offices, several disaster response and recovery services cannot be provided. Communities lose access to fuel for cooking and boiling water, ample lighting and even useful electronic devices, such as radios and mobile phones.

With energy being an essential resource in the recovery efforts after disasters, the integration of sound energy strategies in humanitarian response allows vulnerable communities to become resilient during crisis events. In this way, energy strategies help humanitarian actors deliver effective and reliable services.

Objectives

This case study seeks to review and analyze how humanitarian organizations perceived energy in their emergency response and recovery work, and how they employed energy-enabled strategies in the aftermath of Typhoon Haiyan. Specific questions include:

a. What energy-related strategies were used by humanitarian organizations in their Haiyan emergency response activities?

b. What were the energy needs and what were the power sources that humanitarian organizations used at the height of the power outage during the emergency response phase?

c. What were the energy needs and what were the power sources that humanitarian organizations used in implementing their projects and running their field offices during the recovery phase?

d. What were the costs incurred by humanitarian organizations in addressing their identified energy needs?

e. In relation to their respective humanitarian response, what are the views of international humanitarian organizations on renewable energy (RE) technologies?
Methodology

The case study utilized purposive sampling method to survey and interview several international humanitarian organizations (Table 1) who were both active during the immediate response and recovery stage. These organizations set up field offices in typhoon-hit areas and conducted various relief and recovery programs in disaster-affected communities.

A structured survey questionnaire was used to collect information from the participating organizations via e-mail. The researcher ascertained that the respondents who completed the questionnaire still held positions that could represent the views of their respective organizations. The following topics were covered in the interviews:

- Organizational profile
- Respondent profile
- Involvement in Typhoon Haiyan humanitarian response (project duration, cluster involvement, areas of intervention)
- Energy needs and energy sources in humanitarian response activities and projects
- Energy strategies implemented
- Costs incurred by field offices in using determined energy sources
- Attitudes and perceptions of renewable energy
TABLE 1. Profile of humanitarian organizations who participated in the case study.

<table>
<thead>
<tr>
<th>ORGANIZATION</th>
<th>PROJECT DURATION</th>
<th>AREAS PRESENT</th>
<th>PROJECT / CLUSTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cordaid</td>
<td>May 2013 to Dec 2016</td>
<td>Guiuan, Eastern Samar; Coron, Palawan</td>
<td>Shelter, Livelihood, Water sanitation and hygiene (WASH)</td>
</tr>
<tr>
<td>Catholic Relief Services (CRS)</td>
<td>November to present</td>
<td>Eastern Samar</td>
<td>Livelihood, Transitional shelter, WASH, Emergency Relief (ER), Cash for work</td>
</tr>
<tr>
<td>Lutheran World Relief</td>
<td>November to present</td>
<td>Bantayan Island;Ormoc City, Leyte</td>
<td>Livelihood, WASH, ER</td>
</tr>
<tr>
<td>REACH Philippines</td>
<td>2014 to 2017</td>
<td>Antique</td>
<td>Shelter, Livelihood, WASH, Protection</td>
</tr>
<tr>
<td>Relief International</td>
<td>2014 to 2016</td>
<td>Leyte</td>
<td>WASH</td>
</tr>
<tr>
<td>Action Against Hunger</td>
<td>November 2013 to Dec 2016</td>
<td>Leyte, Panay, Samar</td>
<td>Food, Livelihood, WASH</td>
</tr>
<tr>
<td>Christian Aid</td>
<td>November 2013 to Dec 2016</td>
<td>Leyte, Iloilo, Samar</td>
<td></td>
</tr>
<tr>
<td>Islamic World Relief</td>
<td>November 2013 to present</td>
<td>Leyte, Cebu</td>
<td>Shelter, Livelihood, WASH</td>
</tr>
<tr>
<td>Action Aid</td>
<td>November 2013 to present</td>
<td>Iloilo</td>
<td>Livelihood, WASH, ER</td>
</tr>
</tbody>
</table>
ENERGY IN HUMANITARIAN SYSTEMS ARCHITECTURE

There are international and national frameworks developed that guide different humanitarian actors in implementing responses. There are only a handful of frameworks available that guide humanitarian organizations on how energy needs of affected communities.

INTERNATIONAL FRAMEWORKS

The United Nations High Commission on Refugees’ (UNHCR) Handbook for Emergencies

The UNHCR Handbook for Emergencies situates meeting energy needs and protecting the immediate environment as critical cross-cutting issues. Addressing access to energy of refugees is situated within protection objectives. Among the key steps outlined by the handbook include distribution of solar lamps, stove and fuel to address all domestic energy needs of refugees, with an aim to meet the energy needs through renewable sources.

Global Strategy for Safe Access to Fuel and Energy (SAFE)

In 2014, the UNHCR published its first Global Strategy for Safe Access to Fuel and Energy (SAFE) 2014 -2018. The strategy envisions meeting energy needs of all refugees, in a safe and sustainable manner to ensure their protection and well-being.

Through the SAFE strategy, the refugee agency and its partners aim to:
1. Integrate energy into emergency preparedness and response;
2. Develop and implement country-level energy strategies;
3. Improve access to household fuel and lighting using appropriate technologies and renewable energy;
4. Increase access to energy for schools, health centers and other institutions; and
5. Establish and manage woodlots for fuel provision and environmental protection (UNHCR, 2015).

NATIONAL FRAMEWORKS

National Disaster Response Plan for Hydro-Meteorological Hazards

In 2014, the Philippines released a revised National Disaster Response and Management Plan that covers guidelines and protocols, as well as the stated roles and responsibilities of different stakeholders when conducting disaster response activities. In this plan, energy is perceived through the lens of national agencies dedicated to the disaster response and recovery process after hydro-meteorological such as typhoons.

A complete review of the plan shows little detail about the concept of energy in DRR (disaster risk reduction) and response. Energy is depicted in the form of emergency power and fuel which are to be managed by the Logistics Cluster under the Office of Civil Defense (OCD). The Logistics Cluster is responsible for providing an efficient and effective logistics coordinating structure that will harmonize the activities of all clusters and encourage regular information sharing among all stakeholders and other partners.

Through coordination, monitoring, identification and deployment, the Logistics Cluster covers the following:

a. Transportation (emergency road network, land, sea, and air);
b. Road clearing and provision of equipment and machines (and the required fuel) to offer the needed access and mobility for all cluster operations;
The plan also mentions energy as a responsibility of the Protection Camp Coordination and Management (PCCM) cluster under the Department of Social Welfare and Development. The cluster is tasked to “ensure that energy source and communication facilities are in place” (OCD, 2014, p.12).

Clearly, energy plays a crucial role in DRR, but it is not defined enough in this national plan.


Considered as the bible of the National Disaster Risk Reduction Management Council in disaster response, this lengthy guidebook indicates a complex series of disaster risk reduction management (DRRM) protocols and guidelines that government agencies, private partners and international organizations must adhere to in their delivery of efficient relief and humanitarian aid. However, a complete scan of the document shows limited information on how to meet energy requirements before, during and after response.

Similar to the aforementioned National Plan, the Operations Manual sees energy as emergency power and fuel stations which are placed under the Logistics Cluster.

Likewise, the Manual tasks the Information and Communication Technology Service (ICTS) under the Emergency Telecommunications Cluster to produce situation maps for communications data and logistics—which spans telecommunications, seaports and airports and power restoration—during emergency conditions (OCD, 2015).

The Manual does not provide further details on these tasks of the logistics cluster and ICTS.

LGUs Disaster Preparedness Manual for the Municipal Local Government Operations Officers (MLGOOs), Chief of Police (COPs), and Fire Marshalls (FMs)

This manual serves as the definitive guide developed by the Department of Interior and Local Government (DILG) for local government units (LGUs) on disaster responses and was developed as a learning tool after Haiyan. The propositioning of equipment, including the task of securing power, water and communications, and preventive measures such as cutting-off power, electric and water supply lines before the typhoon, and subsequently restoring power, water supply and communications are designated under Cluster 1 or the Security, Lifeline, Search, Rescue and Retrieval (SRR) cluster. Cluster 1 is composed of the Philippine National Police, the Bureau of Fire Protection and the Engineering and Public Safety Office of the respective LGUs.

The manual further specified energy-related resources among the checklist of items that should be provided by concerned agencies to the SRR cluster, including preparation of gasoline, extra batteries, portable generators, solar-powered generators and flashlights during the disaster response phase (LGA, 2015).
ENERGY NEEDS AND ENERGY SOURCES OF HUMANITARIAN ACTORS DURING TYPHOON HAIYAN RESPONSE

Responses from the survey involving nine (9) humanitarian organizations suggest high energy needs during the emergency response phase, and that during the midst of the power outage, fuel-powered generators were the default and main source of power to address this energy needs.

Table 2 illustrates the various energy-dependent tools and equipment used by organizations in their respective field offices during the emergency response phase.

TABLE 2. Energy needs and energy sources of nine (9) humanitarian organizations’ field offices.

| ENERGY NEEDS OF FIELD OFFICES IN THE EMERGENCY RESPONSE PERIOD OR DURING POWER OUTAGE | POWER SOURCE |  
|---|---|---|
| | Fuel-powered generators | Non-generator set |
| Lighting | 9 | 1-candle light, solar lamps, flashlights |
| Communications mobile and satellite phones | 9 | 1-power bank |
| Desktop computers, laptops, printers and scanners | 9 |  |
| Refrigerators and freezers | 9 |  |
| Water dispensers | 9 |  |
| Air conditioners | 9 |  |
| Electric fans | 9 |  |
| Medical equipment | 9 |  |
| Other electrical equipment (power tools, etc.) | 9 |  |
Residents of Brgy. Cagaut, Salcedo, Eastern Samar learn how to operate the 1.5-kWh hybrid solar system in their first-ever evacuation center. The system was installed by ICSC’s RE-Charge Pilipinas in partnership with Solar Pilipinas, Christian Aid Philippines, Oxfam sa Pilipinas and TAO-Pilipinas.
The data revealed a wide range of energy requirement used to deliver humanitarian response from the emergency to the disaster-recovery phase. Fuel generators were the default energy system used at the height of the power outage, suggesting a business-as-usual scenario. As electricity was gradually restored, humanitarian organizations’ field offices reverted to the main grid for their power source.

Table 3 illustrates that even in the actual implementation of programs and projects in communities, fossil-fuel generators were also the main source of energy. Data shows that even the lighting used in some of the projects requires the use of generator sets, which are viewed as more costly than other efficient technologies such as solar lamps.

One organization notably used solar technology in one of its projects. However, the decision to utilize renewable energy was not perceived as part of the organization’s overall energy strategy.

**TABLE 3. Energy needs and sources during implementation of response.**

<table>
<thead>
<tr>
<th>PROJECT IMPLEMENTATION</th>
<th>ENERGY NEEDS IN COMMUNITY ACTIVITIES</th>
<th>POWER SOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Grid</td>
</tr>
<tr>
<td>SHELTER</td>
<td>• Powering tools for construction</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>• Lighting</td>
<td>X</td>
</tr>
<tr>
<td>LIVELIHOOD</td>
<td>• Fish drying facility for livelihood groups</td>
<td>X (Solar)</td>
</tr>
<tr>
<td>WASH</td>
<td>• Powering tools for construction</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>• Lighting</td>
<td>X</td>
</tr>
<tr>
<td>EMERGENCY RESPONSE</td>
<td>• Powering tools and equipment</td>
<td>X</td>
</tr>
<tr>
<td>EDUCATION</td>
<td>• Sound system for activities</td>
<td>X</td>
</tr>
<tr>
<td>PROTECTION</td>
<td>• Sound system for activities</td>
<td>X</td>
</tr>
</tbody>
</table>
Operational Costs of Energy Incurred by Humanitarian Organizations

The survey and follow-up interviews likewise inquired about the monetary costs incurred in energizing field offices and in implementing humanitarian response and recovery operations. These costs include expenses for general lighting use in offices, use of computer equipment and fuel for vehicles, among others.

Responses from the interviews revealed that not all participating organizations allocated a separate budget for energy needs during Haiyan response, suggesting that costs for energy needs are lumped along other operational expenses (Table 4A).

<table>
<thead>
<tr>
<th>Questions</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did your organization specifically allocate a budget for energy needs for your Haiyan response?</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>If yes, how much per month?</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Was this amount sufficient to fund your organization’s energy needs?</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

Respondents who signified that their respective organization allocated a separate budget specifically for energy needs are not privy to the actual value, but indicated estimates. The values shown in Table 4B indicate high monthly energy needs, with the bulk of the total costs attributed to fuel-powered generators.

These numbers could accumulate especially if the humanitarian interventions become protracted or if there are multiple emergencies that humanitarian organizations need to respond to. These could be reduced if a proper energy strategy is developed and is integrated within the disaster preparedness, response and contingency plans of humanitarian organizations. The money saved could also be spent in other projects or DRRM activities.

<table>
<thead>
<tr>
<th>Energy Source Used</th>
<th>Purchase price</th>
<th>Monthly costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generator set</td>
<td>Php 25,000-500,000</td>
<td>Php 1,000-100,000</td>
</tr>
<tr>
<td>Solar power system</td>
<td>Php 5,000 (Relief International)</td>
<td>N/A</td>
</tr>
<tr>
<td>Electric bill in field offices</td>
<td>N/A</td>
<td>Php 3,055-150,000</td>
</tr>
</tbody>
</table>
ENERGY CONSIDERATIONS OF HUMANITARIAN ACTORS DURING TYPHOON HAIYAN RESPONSE

The conduct of a needs assessment is a crucial step in any humanitarian programme cycle. It enables organizations to decide what and how resources will be allocated, and whether there is a requirement to mobilize additional resources to meet the needs of a disaster-stricken community.

Among the secondary baseline data available that humanitarian assessment teams can use is information on location and status of utilities (ACAPS, 2014). However, this needs to be validated in field assessments. Notably, none of the participating organizations in the survey mentioned that they have included aspects of energy needs of disaster-affected populations (Table 5). In addition, there was a prevailing assumption that access to energy is a service that both national and local government should provide to affected communities. More so, energy assessments and energy audits were not conducted.

This consequently led to one lapse in overall humanitarian disaster response. A costly example of this disregard for energy consideration was when a fire coming from an unattended kerosene lamp killed a mother and her five children in one of the evacuation centers in Tacloban City (Viray, 2014).

Likewise, this lack of energy needs consideration has resulted to a failure to observe green or environmentally preferable purchasing, even for emergency solar power systems that were distributed to affected communities. There were reports of poor disposal of depleted batteries, non-durable solar power systems distributed to communities, and lack of proper briefing and orientation on how to properly use emergency power systems.

<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did your organization include the energy needs of affected communities in your Haiyan Response Multi-Cluster/Sector Initial Rapid Assessment?</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Did your organization recruit and assign an energy specialist, focal person or team, or one with a similar description during the phase of your Haiyan Response program?</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Does your organization conduct regular energy audits to determine compliance with energy efficiency or green purchasing standards?</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Do you have written energy audit protocols?</td>
<td>1</td>
<td>8</td>
</tr>
</tbody>
</table>
Humanitarian organizations recognize the importance of renewable energy in community resiliency-building and its importance to the local environment (Table 6). Further, participating organizations view that the cost of renewable energy systems is a non-issue in doing humanitarian response.

However, favorable perceptions on renewable energy technology did not effectively translate to the integration of renewable energy in response operations and actions by humanitarian organizations. Emergency response operations still heavily relied on fuel-run generators, which are still most common and readily available. Furthermore, the energy considerations of both responding humanitarian organizations and disaster-affected communities were not well-defined or prioritized and integrated as a life-saving need.

There is also an underlying assumption that restoring power, should be done by the government. All the participating organizations said that the national government should take the lead in increasing the use of renewable energy in humanitarian work. This can also explain why renewable energy was deprioritized.

### TABLE 6. Perceptions of nine (9) humanitarian organizations on renewable energy in humanitarian response.

<table>
<thead>
<tr>
<th>Perception</th>
<th>Agree</th>
<th>Indifferent</th>
<th>Disagree</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>We give first priority to mitigating and managing the effects of disasters to communities even with the high costs.</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RE technologies can help improve the local environment.</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RE technologies can help contribute to community resilience at a disaster context.</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RE is too expensive for us to consider for our work.</td>
<td></td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>The use of RE should be increased.</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Members of the women’s group Sulong Suluan participate in the demonstration of the solar home systems they received from ICSC in partnership with Christian Aid. Suluan in Guiuan, Eastern Samar is the easternmost island in the Philippines and has never been connected to the national grid. It was also the first island struck by Haiyan.
CHALLENGES IN ADDRESSING ENERGY NEEDS IN HUMANITARIAN RESPONSES

Energy as a Presumed Given

The limited reference to energy in existing frameworks and operational manuals guiding humanitarian actors reflects how addressing energy needs in disaster situations are often missed and overlooked. Energy is a cross-cutting need of all humanitarian clusters, yet there is no specific cluster solely tasked to ensure that energy needs are adequately and efficiently addressed. Consequently, energy is often forgotten in program planning and implementation of humanitarian responses, as it is assumed that restoring power should be the responsibility of the national government, or in some cases by telecommunication providers.

Climate-induced disasters such as Typhoon Haiyan proved that restoring grid power can take months, especially if the damage to power infrastructure facilities is extensive. The ability of humanitarian organizations’ ability to respond in a timely manner is hampered when energy considerations are not integrated at the outset of the humanitarian response and securing energy needs of the response teams deployed becomes an afterthought.

The humanitarian response becomes expensive especially if it becomes a logistical challenge to procure and deliver energy systems to affected communities. This can potentially distort the local supply market, with humanitarian actors tending to compete with affected communities for energy systems and fuel.

Energy Strategies are Implicit at Best

Humanitarian organizations generally view energy as a utility. They implement response activities on the assumption that energy is already a given or will be restored inevitably; if not, they can easily access tested tools and business-as-usual technologies such as fuel-powered generator sets.

With this mindset, humanitarian actors tend to neglect the need to have a well-planned energy strategy in humanitarian response efforts. In effect, energy systems could be in place, but are implicit at best.

Implementing a comprehensive energy plan early on can provide different opportunities for both humanitarian organizations and disaster-affected communities. Energy costs can be reduced in the long-term with savings generated can be allocated to other projects. Likewise, the humanitarian response can positively contribute in providing green and sustainable energy through renewable energy to affected communities.

Fuel-Powered Generators: The Costly Default

In the aftermath of disasters, communities and emergency response teams tend to rely on generators to provide emergency or temporary power.

Although these generator sets can provide ample power for a limited span of time, they have inherent safety problems. The most common generators used in such cases are those run by gasoline and diesel fuel, both of which have the potential to explode or catch fire when unmonitored and improperly maintained.

The emissions from gasoline are hazardous to human health and contribute to the effect of greenhouse gases. Moreover, the noise produced by these machines may negatively affect the productivity of residents. The constant loud noise may also add to the trauma experienced by emotionally frail and distraught victims, especially when the effects of the disaster are still fresh.
Aside from their safety, social, environmental, and health issues, generators are generally costly. Gasoline and other fuel supplies become scarce in the aftermath of disasters and prices tend to surge until conditions normalize.

Our survey revealed that in addition to the Php 25,000–500,000 expense for the purchase of diesel fuel generators, humanitarian organizations spent Php 1,000–100,000 a month to power their generators when they conduct activities and run their field offices. As these technologies are easily accessible, completely halting their use may be difficult.

This work stresses that fuel-powered generators could be effectively utilized as a third line of defense against power outage, a back-up to the existing back-up.

Integration of Renewable Energy in Disaster Response

Our survey revealed that humanitarian organizations view renewable energy systems as useful in addressing access to energy of disaster-affected communities especially during the recovery phase (e.g. deployment of solar lamps, installation of a solar-powered fish drying station project). The potentials for integration of renewable energy system applications even during the emergency relief stage need to be further explored and optimized. The SAFE strategy encouraged the distribution of solar lamps and solar-powered torches to internally displaced populations in evacuation centers. There are already commercially-available renewable energy systems that can support basic lighting, ventilation, and powering of communication and mobile devices.

Other humanitarian responses in different countries have pointed out other applications of renewable energy systems, including the electrification of evacuation camps using solar photovoltaic systems and solar-powered water pumps.

The Humanitarian Environment Network (2016) pointed out four technology-related considerations when integrating solar energy in humanitarian actions. We share the following observations on these points:

1. Costs and cost effectiveness – Over the recent years, the cost of solar systems have gone down. However, the upfront and initial cost of procuring solar systems is more expensive than the traditional system. Therefore, it is important that the decision of whether to procure a solar energy system be part of the energy strategy within the disaster humanitarian preparedness plan and fundraising plan of the humanitarian organization.

2. Performance of systems – The most common question encountered in introducing solar systems is whether the system has the capacity to power devices, appliances and equipment. The performance of the solar system is also dependent on the capacity of the system and the location of the field office.

Integral to adopting renewable energy systems is employing energy efficiency and savings strategies that should be observed even during peaceful times. The conduct of an energy audit is a prerequisite before humanitarian organizations decide on investing in an appropriate renewable energy system that can address their respective energy needs.
ICSC through its RE-Charge Pilipinas project recently trained 20 local government and fisherfolk leaders from Laguna and Rizal to harness solar energy to prepare for disasters and climate impacts. They received TekPaks assembled by Haiyan survivors and will be part of the solar emergency response teams under AKKMA (Aksyon para sa Kahandaan sa Kalamidad at Klima), a PHILSSA campaign network.
3. Life-cycle of installations - The life-cycle of batteries is an issue for most solar-powered systems. There were instances when even if the solar power systems were newly procured, the life-cycle of the batteries already decreased because they were stocked and stored for an extended period. It is important for humanitarian organizations to train their staff on how to care for the systems. More importantly, they must also secure warranty agreements with renewable energy providers, which in turn must have accessible service centers. When considering distribution or installation of solar systems in the affected-communities, it is also crucial to incorporate technology transfer and capacity-building with localized orientation on management, troubleshooting and repair of solar power systems.

4. Recycling of batteries – The recycling and proper disposal of batteries should also be discussed should the humanitarian organization decide to distribute solar power systems to affected communities. Improper disposal can potentially contribute to soil and water pollution and can further subject recyclers to possible health risks, especially if there is no proper orientation on the handling and disposal of lead acid or nickel batteries. As much as possible, mechanisms should be developed to allow communities to return depleted batteries to solar power system distributors and developers.

Ways Forward for Humanitarian Organizations

The time is ripe for the humanitarian community to discuss how future humanitarian responses will be energized. As energy is a cross-cutting need of humanitarian clusters, specifically tasked to provide energy and energize humanitarian operations. The cluster should likewise be responsible in consolidating and coordinating information on energy needs assessment of affected communities, and in maintaining an active inventory of energy providers from the government, civil society and private sector.

At the organizational level, addressing energy requirements should be an integral part in disaster preparedness and contingency plans of respective organizations. The conduct of energy assessments and audits is a basic step. It enables humanitarian actors to know how much they spend and how they can save on energy costs.

As much as possible, humanitarian organizations should likewise observe ‘green purchasing’ in procurement of energy systems needed for their humanitarian operations and humanitarian actions. Green purchasing can be part of the organization’s business and logistics management system. It puts a premium on energy efficiency and waste reduction.

In doing disaster assessments, information related to energy, including energy sources, extent of damage to energy source and facilities, status of energy service providers, energy needs and considerations of affected communities should likewise be part of assessment tools.
CONCLUSION AND RECOMMENDATIONS

This case study identified the common energy sources and needs of several international humanitarian organizations who have implemented humanitarian interventions in the aftermath of Typhoon Haiyan. Their community projects and their handling of administrative and logistical functions revealed how energy is not explicitly considered in their humanitarian actions.

This shortcoming could be attributed to the fact that energy per se is not comprehensively defined and explained in the existing global and national operational guidelines for humanitarian response, as well as to the weak perceptions of (and little attention paid to) energy.

Moreover, energy is a service that is assumed to be provided by the national government, making it a given or a default in similar post-disaster situations.

The study also showed the minimal incorporation of renewable energy technologies in response operations despite the high individual energy requirements of humanitarian organizations. Grid electricity and the use of portable fossil fuel-powered generators were cited as the most common energy sources because they are the most accessible.

One finding worth commending is the incorporation of RE technologies in livelihood projects by some humanitarian actors. However, whether such efforts were explicitly part of the organizations’ response plan requires further validation.

The case study recommends:

• Create a well-resourced working group or identify a specific cluster within the humanitarian cluster system which will ensure that the energy needs of humanitarian actors and disaster-affected communities are adequately and efficiently addressed, and with which the private sector energy providers can closely coordinate and collaborate;

• Develop a clear operational framework that guides humanitarian actors to integrate energy needs in disaster preparedness and response plans, and that is consistent with the UNHCR Handbook for Emergencies and the Global Strategy for Safe Access to Fuel and Energy (SAFE);

• Develop guidelines, protocols and useful tools that will enable humanitarian actors to integrate energy needs assessments and promote good practices of integrating energy efficiency and renewable energy solutions in response interventions; and

• Explore collaborative arrangements that will ensure that the energy needs of responding humanitarian actors are prioritized and met during the onset of emergency response. For instance, emergency responders can facilitate agreements with logistics and transport sectors to fly in solar-powered generators and batteries.
REFERENCES


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