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FRAMING HUMANITARIAN ACTION THROUGH DESIGN THINKING

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Preface: research narrative

The story of this research project explains how 'design thinking' has shaped the decision making and focus of exploration in regards to a design framework. Since designers are sense-makers, it is important to understand how this research project was affected by time and place in the history of global humanitarian experience.

When I first began this project, the working title was "Design for Self-Reliance in Emergencies". This title implied two things; that emergency victim's main motivation is to be self-reliant; and that designers can help them achieve this goal. The original purpose was hence to create a method for the design of off-grid and opportunity-altering energy devices developed for humanitarian interventions. The broad and a-priory research question was, *'how should we design off-grid energy devices for humanitarian emergencies?'*

In 2006-2007 I worked for the Norwegian Peace Corps initiative 'Design without Borders' where industrial designers are exchanged between development countries and Norway. This experience taught me that contextual insight is key to achieving a design process based on accurate assumptions and understandings. This is the common approach used in design thinking tools, when they are applied for development projects (Brown, 2008). Inspiration and insights depend on travelling to the field and collecting as much understandings about the user setting, the people involved, and external context as possible.

The initial research design therefore included an early-on travel to the field to achieve insights for the development of my contextual framework. In order to get access to humanitarian intervention sites, affiliation with a refugee agency or NGO working in the area was needed. Refugee camps, for example, are typically located in border areas where unrest occurs sporadically, and local affiliations provide safety for the field researcher. I decided to approach the Norwegian Refugee Council (NRC), and also use them as a case for my research. NRC was considered a beneficial partner due to their emergency intervention experience and also for their pilot position in designing shelters and livelihood alternatives. NRC headquarter staff expressed a strong interest in this research project, particularly due to the potential climate-change and energy generation focus that was currently a government priority. NRC particularly highlighted the need for off-grid energy devices in long-term refugee camps. Long-term refugee camps represent a major threat, to the surrounding land. Refugee settlements can include as many as 500 000 refugees settled in different camps.

The average amount of time that a refugee spends in a camp has reached 20 years (Loescher and Milner, 2009). Shelters are often created from wood or plastic. All food is cooked on a three-stone fire. Operational staff depends on diesel supply for running generators. The organization expressed a general interest in introducing off-grid energy for all levels of their operation. The reason was to reduce environmental concerns, with

references to the United Nations Environmental Program's 'Mainstreaming environment into humanitarian interventions'(UNEP, 2009, UNEP, 2011) and the Environmental Peacebuilding initiative(EPI, 2008). In 2011, staff at the Norwegian Refugee Council's headquarters in Oslo agreed to accompany me to different refugee camps, so that I could personally observe their needs. I was told that environmental concerns were at the top of their priorities. Staff at NRC and the United Nations High Commission on Refugees (UNHCR) believed that the recent focus on environmental degradation surrounding refugee camps in sub-Sahara, as well as the problems of heating of shelters in flooded Pakistan placed the environment in the forefront of their concerns. The World Food Programme expressed the same concern when I contacted them. They wanted to introduce off-grid energy to prevent the long term degradation of agricultural soil and deforestation of the land around the refugee camps. They used the Burundi evaluation as an example (NRC, 2009). They were also concerned about conflict prevention and promoting self-reliance among the refugees. I attended a course for field workers for the NRC, and conducted some interviews while preparing the field study.

In October 2011, two humanitarian aid workers were kidnapped in the Dadaab refugee camp (the refugee camp where I was to begin data collection) (Reuters, 2011). Other security threats occurred and the security regulations in all humanitarian agencies were revised. I was told that the NRC could not, for the time being, ensure my safety and would not agree to accompany me to the camps. It is a common challenge for the design of a qualitative research project, "that seldom, perhaps only sometimes, will things turn out the way they were planned. This means that the research design has to be adapted." (Widerberg, 2005)

The NRC advised me to put the field research plans 'on ice' but offered to make all their knowledge and staff available for my research. I began identifying and conducting interviews with humanitarian stakeholders in a descriptive case study process. I spoke with field, headquarter and technical staff at the NRC. I also interviewed non-governmental organizations who were working to solve energy problems in refugee camps; I spoke to architects and engineers, and developers of energy-generating equipment for remote locations with direct experience working with humanitarian customers. I visited exhibitions consisting purely of humanitarian customers and equipment providers, in order to understand the dynamics of this 'humanitarian market'. Following this diverging phase, I learned that the accessibility issue was not only something that challenged my research; it also challenged every single enterprise's design process working in this system. Access to end-users is prevented, while experts and short-term budgets define decision making during the design process. In order to understand the priorities and processes, I asked the participants to perform a task using graphic elicitation. However, no information that explained the fundamental product requirements or end-user requirements was revealed (Nielsen and Santos, 2013b). Instead, a list of system challenges of the humanitarian market was developed(Nielsen

and Santos, 2013a). From the original product design oriented project, the research problem changed to become an exploration of stakeholder interests and barriers where context specific products are unattainable due to the composition of the system.

The inaccessibility issue made it relevant to explore other ways of achieving contextual and end-user insight. Refugee anthropology provides some insight into the priorities and challenges of being a person without a country, and the 'refugee identity'. I studied qualitative interview techniques. Then, I interviewed a refugee family to understand whether an empathic design approach would be relevant in this setting, and to understand if there were motivations which were stronger for refugees than for others (Nielsen, 2014c).

Following the interview phase, I returned to the Norwegian Refugee Council, in 2012, to prepare for field trips. However, the Syrian unrest that began in spring 2011 had expanded tremendously. I was told that energy and environmental concerns were no longer priorities. NRC had diverted all money to Syria, so there were less financial resources to put towards sub-Sahara. In addition, the NRCs Climate Change Adviser position was vacant. There was no staff member who was specifically concerned with the environmental side of refugee camp management.

These events exemplified the challenges highlighted in my interview findings; the humanitarian market shifts focus and is unpredictable. Stakeholders and financial allocations change according to political and economic events, therefore it cannot be considered a sustainable market (Mays et al., 2012). This was especially true for contextually fitted designs requiring follow up.

Through this rugged path, the contours of a framework had emerged. This consisted of a humanitarian market where multiple stakeholder agendas affect product design rather than the end-user needs. Design process must be created within these multiple agendas, which were vague, unpredictable guidelines for design. The trade-offs were described and published to explain the choices a humanitarian designer must make, if they are comfortable with their designs not having a long-term effect on development, health or environmental protection goals (Nielsen, 2014b).

Still, the designer had to make sense of this situation. There was no rationale for creating objects to sell in the humanitarian market, when the products did not meet any of the objectives of sustainable camp management; self-reliance; improved health; or potentially creating a sustainable income alternative. How could the framework include ideas which would create greater resilience and inform the design of something more, *sensible*? *If humanitarian agencies operating in the Sub-Sahara contexts would not commit over time, were there stakeholders on the ground, connected to local governments that could provide input to the framework?* Further, *could we create a different path for design for the humanitarian system that could be used to develop more useful designs and implementation?*

The designer-humanitarian system relationship had to be further explored. The current relationship does not foster design solutions that solve the needs of the end-users. Instead, it sustains the humanitarian donation-supplier-customer system cycle. My interviews revealed that the designers were hoping to 'change the world', so their goal was not met either.

The next step of the research process was constructed based on this thought; can the framework for humanitarian design, including goals and theoretical concepts, be understood by including a broader range of stakeholders who are not currently not taken into account in the design process? The multiple interests of stakeholders, including those concerned with creating resilience had to be on board. This idea developed from a holistic look at the current situation. In order to design a new system, multiple agendas had to be tackled(Mays et al., 2012). Mays (2012) called for a new way for business and humanitarian logistics to work together; however, she neglects to include the host country stakeholders. When designers work in development contexts they are typically concerned with participatory processes, as a way to include end-users in the design process. The diagnostic part of my research demonstrated that the problem owner was the humanitarian stakeholder system, as much as the refugees. I therefore needed to explore *both* the humanitarian stakeholder system *and* the refugee perspective within this system.

By first inviting stakeholders to two identical workshops, one in Norway and the second in Ethiopia, I could extract insights from discussions and collective task analysis. This provided a deeper conceptual understanding of stakeholder 'worldviews' during this time period. Field studies were conducted in a refugee camp in the Somali part of Eastern Ethiopia. The Gaia Project provides fuel and donates stoves to refugee communities in Ethiopia. Together with the refugee camp managers, they provided a unique insight into the everyday situation of refugee women in Kebri Beyah. By exploring the end user experience of an ethanol cooking stove, the challenges of refugees in a chronic emergency demonstrated a representative difference between refugee end user motivations when compared to 'other poor' end user characteristics. The findings from these interviews clarified the disconnect between the humanitarian system goals and the refugees' motivation. The needs of the refugee end users cannot be a considerable part of sustainable development (Nielsen and Santos, 2013b) unless the inherent structure of the system is changed.

One last workshop was held in Oslo in March 2014, bringing together NGOs, enterprises, academia and designers. The participants were presented with my findings as well as the unprocessed highlighted priorities from the two first workshops. Using a scenario building technique, the participants were challenged with the task of building a design and implementation scenario. All ideal stakeholders were to be included in this scenario with the purpose including what they perceived as the objectives of the humanitarian system.

The accumulated data for this study consists of voice recorded interviews, voice recorded discussions, video recordings of the participatory sessions, notes from field observation, e-mails, and hundreds of post-its created during the cognitive tasks.

Insights about the design for humanitarian relief, which I named 'humanitarian design', were derived from an interim analysis of the data. It became increasingly evident during the process of this study, that the humanitarian system is indeed complex, and complicated. Yet as a human creation it is possible to change. The resulting concepts and observations are indeed small, yet I hope valid and relevant, contribution for humanitarian designers and humanitarian development policy makers.

Acknowledgements

Confidentiality

In accordance with the agreement with the involved participants in this research project, I will protect the confidentiality of all personally identifiable information collected. Names and identifying information of the participants will not be used in the reporting of the data, to protect their confidentiality. The Agenda Spaces do reveal the stakeholder's institutional names but the quotes are named as 'participant 1', 'participant 2' and so forth.

All video and audio tapes have been transcribed verbatim by the researcher. The sound files will then be kept on a hard drive in a secure place, and the transcriptions have been entered into a password protected computer. Only the researcher will have access to this data.

Once the study is completed, and publications have been developed, all original data will be downloaded from the computer and kept on an external hard drive which will be kept in a safe place in my office and destroyed after 6 years.

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Abbreviations

ARRA	Administration for Refugee and Returnee Affairs (Ethiopia)
FFWCCA	Former Women Fuel Wood Carriers Association, Ethiopia NRC Norwegian Refugee Council
FTS	Financial Tracking Service
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
Group URD	Groupe Urgence, Rehabilitation, Develloment
HoA-REC&N	The Horn of Africa Regional Environment Centre & Network
ICRC	International Committee of the Red Cross
INGO	International non-governmental organization
LDC	Least developed country
MEPF	Ministry of Environment Protection and Forestry
MOA	Ministry of Agriculture Ethiopia
MOWR	Ministry of Water, Irrigation and Energy of Ethiopia
NGO	Non-governmental organisation
NORAD	The Norwegian Agency for Development Cooperation
NOREPS	Norwegian Emergency Preparedness System

ODA	Official Donor Aid[1]
OECD	Organization for Economic Co-operation and Development
SLR	Sustainable rural livelihood
UNEP	United Nations Environmental Program
UNHCR	United Nations Humanitarian Commissionaire for Refugees
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
WFP	World Food Program

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[1] Definition: "Flows of official financing administered with the promotion of the economic development and welfare of developing countries as the main objective, and which are concessional in character with a grant element of at least 25 percent (using a fixed 10 percent rate of discount). By convention, ODA flows comprise contributions of donor government agencies, at all levels, to developing countries ("bilateral ODA") and to multilateral institutions. ODA receipts comprise disbursements by bilateral donors and multilateral institutions" OECD 2014. Glossary of statistical terms.

1. Introduction

This thesis expands design knowledge by incorporating 'humanitarian action' as a primary concern. Humanitarian action represents an unexplored environment for design research. The theory selected for this study and the research designs used were chosen to focus on the dynamics, nomenclature and identified challenges of humanitarian action while remaining within a design framework.

1.1. Humanitarian action

The humanitarian system (ALNAP, 2012) is a shifting conglomerate of stakeholders, globally and locally (geographically closer to the affected) who work to relieve the suffering of populations affected by emergencies. Stakeholders in this study, refer to institutions which are invested in filling the needs created in an emergency. The main stakeholders of the humanitarian system are humanitarian agencies and non-governmental organizations (NGOs), donor countries, service providers/enterprises (public and private), the host government and local partners where the people involved in an emergency seek shelter. The government which hosts the refugees has the responsibility to protect them. They determine the extent that a refugee can work, study or seek citizenship. The host government is therefore a major stakeholder. These governments frequently receive official donor aid (ODA) and humanitarian relief assistance. They are referred to within the humanitarian system as beneficiary countries, while the donation receivers such as refugees are referred to as beneficiaries.

Humanitarian action is framed as 'the overall international approach' that brings together these said stakeholders and should 'be motivated by the sole aim of helping other humans affected by disasters' (ALNAP, 2012). The disaster can be a result of a war, conflict, and natural or manmade disasters. The international coordination of humanitarian relief includes United Nations institutions, countries within the UN system, humanitarian organizations internationally and locally, and service providers. Service provider is a common nomenclature for companies that provide humanitarian relief services; legal, educational, communication, storage, water, sanitation, and so forth. Service providers also refer to the non-profit, organizational sub-units who deliver these services. Once it has been determined that an emergency occurred and assistance is requested, the common approach, known as the 'cluster approach' (where a range of humanitarian agencies operate under the coordination of a managing agency) is applied. This approach is becoming the norm in large scale humanitarian operations (Sphere, 2011). The manner in which this humanitarian system functions and when it is put into action (humanitarian action) depends on if the emergency is classified as an emergency that requires 'less urgent' or immediate development assistance. It also depends upon wether the host country of the emergency or affected request assistance from the UN.

The composition and presence of stakeholders on the ground during a humanitarian intervention is unpredictable. The type of stakeholders who arrive and the extent of the relief operation are results of multiple internal and external agendas, donations and the stage of the emergency. Humanitarian relief agencies refer to the Sphere Humanitarian Charter and Minimum Standards in Disaster Response (Sphere, 2011) as a guide which describes universal minimum standards for the provision of quality humanitarian aid when populations have experienced a disaster and need assistance from the international community. Humanitarian non-governmental organizations and humanitarian bodies use different nomenclatures for defining stages during and after a disaster. The terms preparedness, immediate emergency, early recovery, recovery phase and durable solutions phase (Figure 1) were derived from a simplification of policy reports of the UNHCR, NRC and UNs Office for the Coordination of Humanitarian affairs OCHA (OCHA, 2014, UNHCR, 2007, NRC, 2014).
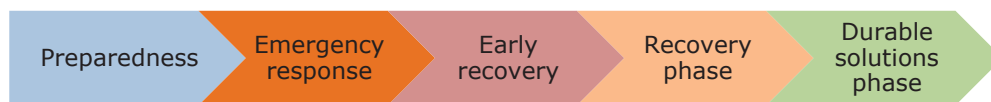
Figure 1: Phases of emergency relief

The humanitarian system is more heavily engaged in response during the emergency and early recovery phase of a crisis than during the later stages. As the immediate emergency response and early recovery phase are passed, there is a tendency for donor attention and involvement to decrease. At the same time, development organizations arrive to assist local governing stakeholders to supervise the response.

Movement in a positive development direction from an emergency relief situation has been named 'transitional development' (Kennedy, 2005, Pettman, 1974, Lloyd-Jones, 2006). Researchers who focus on transitional development, question how an emergency affected population and environment can move towards a self-reliant scenario.

Ideally, emergency relief interventions should be phased out after two years, and recovery should begin, before the transition hands over responsibilities from donor driven operations to local governing bodies. The transitional process should make people self-reliant and leave the environment unharmed. However, it has proven difficult to achieve this transition as more and more relief situations devolve into chronic emergencies, with an increasingly complex system of interactions between stakeholders and funding agencies (UNJIU, 2012). In addition to externa, conflict related local and geopolitical issues, there are multiple reasons for this that are related to the manner in which humanitarian relief is provided. Some point at the 'dependency cycle' where communities and individuals become dependent and passive from aid (Oliver-Smith, 1991, Oliver-Smith, 1996), others point at the destruction of natural

resources during a war and/or disaster. A third issue is the expectation of the displaced, war affected population. The people, who have been displaced from their homes, are often not welcome in the host country. There is also little support for the idea that they want to return to the type of life or environment they escaped (Eidelson and Horn, 2008, Arowolo, 2000, Graham and Khosravi, 1997).

A central element in this discourse is livelihood sustainability (Chambers and Conway, 1992, Krantz, 2001) during and after an emergency situation. Livelihood refers to how a person or a household achieve the basic necessities they 'need' for living. Chambers defined sustainable rural livelihood (SLR) as "A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term" (Chambers and Conway, 1992).

As more and more emergency situations transform into chronic situations of aid dependency, the lack of income producing strategies is critical. Long term sustainability of an affected community depends on the existence of infrastructure and industrial capacities to maintain the technology and knowledge that flow into relief areas.

1.1.1 Displaced populations

One of the great challenges of the international humanitarian system is meeting the needs of displaced populations. For the first time since World War II, more than 50 million people have been uprooted globally. The UN distinguishes between internally displaced peoples (IDPs) and refugees moving across borders and there is an estimated number of 16, 7 million refugees. (UNHCR, 2013b). Internally displaced populations have the same legal rights as other citizens, while refugees are a burden for the international community. Often, refugee camps are located in border areas and areas with hostile environments and scarce resources. The policy is for an emergency intervention to 'solve the problem' and resettle refugees within two years. Donor and host government goodwill during a crisis depends on the belief that their commitment to refugees will be short-term. The reality is that the average length of stay in these states of virtual limbo was last counted to be approaching 20 years, up from an average of nine years in the early 1990s (Loescher and Milner, 2009).

Refugee camps represent the most conventional way of organizing assistance for displaced populations. The UNHCR operates in accordance with the 1951 Geneva Refugee Convention (Nations, 1951), with a core mandate to ensure the international protection of refugees worldwide. The Convention section that relates to the Status of Refugees is the key legal document that defines who is a refugee, their rights and the legal obligations of states. The UNHCRs purpose is to "promote the basic human rights

of refugees and that they will not be returned involuntarily to a country where they face persecution. It helps them to repatriate to their homeland when conditions permit, integrate into states of asylum or resettle in third countries. UNHCR promotes international refugee agreements, helps states establish asylum structures and acts as an international watchdog over refugee issues."(UNHCR, 2015) However, it is the host government's responsibility to protect displaced populations within their country, while the UNHCR has the responsibility to ensure that the host government complies. It is the host government that suggests where refugee camps should be created.

The guidelines for setting up a refugee camp outline everything from the size of the tent based on the size of families; water; the number of daily calories; to cooking utensils. These requirements are the responsibility of the World Food Programme (WPF) and UNHCR. Other organizations such as the Norwegian Refugee Council manage refugee camps or operations in camps under the administration of UNHCR.

The design of refugee camps and the design effects on transitional issues including short and long term concerns of shelter construction have been explored in by research within architecture and political science (Kennedy, 2005, Kennedy, 2008, Kennedy et al., 2008, Leon et al., 2009, Al-Khatib et al., 2003, Barnes, 2011, Aubone and Hernandez, 2013). These studies describe how the short-term focus of the initial design affects the refugees' sense of wellbeing and opportunities. For instance, Kennedy reports that the "UNHCR's manual recommends the promotion of economic enterprises for camp residents – but does not assign space for the workshops, home-based enterprises, granaries or tool storage which these require" (Kennedy, 2005). This lack of holistic thought in the design of humanitairan relief interventions is frequently mentioned in building-back literature.

1.1.2 Humanitarian Norway
Norway is acknowledged by the international community as a humanitarian nation. Norway is considered"the most generous donor of the Development Assistance Committee (DAC) measured as a share of GNI. It has consistently maintained its level of development assistance, having spent about 1% of GNI on ODA every year since 2009". Norway also, according to the same OECD report, "holds some of the more experienced suppliers of technical equipment." One of the reasons that Norway is considered a relevant supplier of technical equipment is due to the influence of Jan Egeland and the Ministry of Foreign Affairs. In 1991, when Egeland was the State Secretary at the Norwegian Ministry of Foreign Affairs, he saw the need for a better approach to ensure high quality and reliable equipment for humanitarian operations. A Norwegian network for humanitarian technology was created; the Norwegian Emergency Preparedness System (NOREPS). NOREPS was expected to serve as Norway's forefront of technology suppliers for the UN and their underlying humanitarian implementers. NOREPS is today a network between the Norwegian Ministry of Foreign Affairs, the Directorate for Civil Protection and Emergency

Planning, the Norwegian Red Cross, major Norwegian NGOs including NRC and Norwegian private suppliers of relief products. Despite this reputation and investment from the government, the delivery of Norwegian industry to the UN is currently less than 0,17% of the UNs total annual purchase of 16 billion USD (IN, 2014). Humanitarian stakeholders such as NOREPS and Norwegian industries are therefore asking for research that increases knowledge on how the Norwegian industry can expand their role and impact the humanitarian market.

1.2 Humanitarian action as a 'design context'

In design research, the term 'context' is most frequently used in human-centered design. 'Contextual design' (Beyer and Holtzblatt, 1999, Beyer and Holtzblatt, 1997) overlaps with and is most commonly used in user- / human /customer-centered design. In user-centered design, 'contextual' hence takes as a starting point the worldview of the end-user. The designer works to interpret the end-user's experience as a starting point for idea generation.

In order to understand the specific challenges of designing for humanitarian action (HA), one must consider the difficulty of determining 'context' in relation to humanitarian action. The different emergency phases will most likely present very different contextual challenges. Are the products distributed through the humanitarian relief system expected to perform in one or all of these phases? How is this taken into account by the designers and other stakeholders?

The transitional challenge is referred to in architectural research, as how to mitigate the effect of short term interventions on long term development goals following a disaster. Designing solutions to bridge this gap and increase local resilience is referred to as 'Transitional design'. Within design for development theory (Margolin, 2007, Oosterlaken, 2009, Murcott, 2007), building local capacities and locally built technologies are central remedies. Similarly, the United Nations Industrial Development Organization (UNIDO) developed best practices for industrial capacity building in 'post-war' settings (UNIDO, 2010). This is only possible if the area is past the disaster and won't be struck again. The latter, where an area is drawn back into warlike situations multiple times is the case in many poor, environmentally vulnerable areas of Africa. Other solutions that have attempted to bridge the 'transitional gap' between humanitarian relief and long-term development include 'appropriate technology' products and services. These are based on low-tech, affordable and intuitive technologies that can be used in areas with little infrastructure. On a different arena, social scientists struggle with understanding and influencing the communities' acceptance of these technologies. Changing habits and customs is difficult and requires time and training, which typically expires once the immediate emergency phase is over.

One can also consider the larger 'humanitarian system' as a 'design context' composed of stakeholders and their relationships. To discuss what this means, one must first

understand how the humanitairan market functions and how the humanitarain system divides humanitarian action into different contexts based on urgency. Within refugee camps, non-food items, or equipment, are donated. Humanitarian action is dependent on funding from official donor countries. This is referred to as Official Donor Aid (ODA) (OECD, 2014). Humanitarian relief assistance is different from development aid. The Organization for Economic Co-operation and Development (OECD) has a simplified definition of humanitarian aid as a short-term affair when compared to development aid (OECD, 2001). While definitions of the OECD are heavily dedicated to the explanation of humanitarian relief in relation to financing mechanisms, other definitions may be more useful for designers, design researchers, design thinkers or systems thinkers. The United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA) provides an elaborated definition of humanitarian relief that shows the intersection between humanitarian relief, major stakeholders, definition of context and financial mechanisms. According to UNOCHA, the definition of humanitarian aid must be separated from development aid by focusing on the context:

"Context plays a decisive role in determining whether an activity is to be considered humanitarian. For example, building and operating a primary health care facility is a normal developmental activity in the absence of a crisis, but is usually considered a life-saving humanitarian intervention in the context of a crisis. An activity's designation as humanitarian therefore often depends more on its context than its nature. What then defines or triggers the beginning and end of a context in which aid activities are considered humanitarian?" (UNOCHA, 2004)

This understanding describes the view that has been adopted for this research project, because it is open-ended by questioning and reflecting upon the universal design and distribution approach required of humanitarian aid. This question about what defines 'context' when designing for humanitarian aid will be consequently be revisited through this thesis as a part of the research challenge.

1.3 The case of off-grid energy in refugee camps

The case of off-grid energy technologies in refugee camps was initially chosen as the main focus for this research project. Off-grid energy devices have the potential to mitigate the negative effects of humanitarian relief assistance. These negative effects have received increasing attention from humanitarian actors and are characteristic of the inability of the humanitarian system to consider long term development concerns and 'transitional' thinking. Further, several Norwegian enterprises are supplying humanitarian actors with off-grid energy technologies and have an interest in better understanding the characteristics of this market. Thirdly, off-grid energy devices represent a tangible focus for the investigation of design related questions.

In the larger concept of the environment in relation to humanitarian relief, environment was introduced as a cross-cutting issue through the initiative 'Mainstreaming

environment in humanitarian action' (Hampson et al., 2007, UNEP, 2009) and the 'Environmental peace building initiative' (EPI, 2008). The Humanitarian Charter's newest edition emphasized the need to integrate private enterprises to develop, supply and distribute goods such as food, shelter, medical equipment and *energy generating devices* (Sphere, 2011) (emphasis has been added).

Humanitarian relief agencies anticipate a dramatic increase in the international need for support, as chronic emergencies continue to demand assistance. Donor fatigue is a major concern as donors are willing to allocate large parts of a relief budget to the immediate emergency phase while longer term concerns receive less attention. This contributes to protracted emergency scenarios that can worsen and require second rounds of large assistance allocations. Increased collaboration between humanitarian and private sector through innovative strategies are regarded as one of the possible futures for meeting the mentioned increasing challenges and improving humanitarian relief (Alexander Betts, 2014, Betts and Bloom, 2014).

The countries facing the greatest challenge with refugee influx are located in particularly vulnerable regions, in Sub-Saharan Africa. These countries are particularly vulnerable to environmental degradation caused by humanitarian settlements. Finding a solution to the pressure of refugee camps in these countries has been a priority for the UN system since 2009 when they initiated "Mainstreaming the environment into humanitarian action" (UNEP, 2009). Their main concern is the degradation of arable land surrounding refugee settlements, due to the large amount of forest consumed both for constructing the camp and for cooking energy. There are indirect consequences of degradation including conflicts due to scarce resources and a lack of educational opportunities (Lyytinen, 2009). In areas surrounding refugee camps, refugee women are often assaulted by host communities when gathering firewood for cooking, and arrested by local police. The time consumed collecting firewood prevents women from benefiting from educational or income gathering opportunities.

The introduction of off-grid energy technologies is one way of mitigating these negative effects. By including sustainable energy into the SPHERE handbook(Sphere, 2011), as the minimum standard for relief response for humanitarian relief organizations, off-grid energy is in the centre of humanitarian relief operations.

Off-grid energy alternatives, introduced in humanitarian action for use in refugee camps, can be divided according to their purpose:

- Running operational services: solar panels for operational buildings, wind turbines, hybrid solutions of solar and diesel generators, solar cell powered health centres, cooling storages for vaccinations, water sterilization etc.

- Household energy and livelihood related alternatives: parabolic solar cookers, box solar cookers, fuel efficient stoves, ethanol and liquid propane gas stoves,

> bricket stoves, multi-fuel stoves, solar cell lamps, solar cell driven radios, energy for greenhouses, biogas etc.

From a design and innovation perspective there is an important distinction between how one would approach these two. Technology that is used for running operational buildings is typically maintained and serviced by trained personnel, while the end-user of household cooking devices is the emergency relief recipient – in the case of refugee camps, the refugee. The characteristics and role of the end-user is essential for understanding what type of design process is more appropriate and useful.

Also, the two categories respond to different goals. More energy effective energy solutions for operational buildings can cut diesel costs and provide a more 'economically sustainable' financial model for humanitarian relief organizations. Yet, a policy document review indicated that household cooking energy is the main environmental and humanitarian concern and that energy for operational buildings have other objectives. The use of firewood and kerosene lamps are linked to the largest number of negative health effects. Approximately, four million people die annually from complications related to indoor cooking smoke (Lim et al., 2013). From a user-centered design perspective, these two categories of energy use should therefore be handled as separate aspects; however they are targeted through the same UNEP initiative and UNHCR Energy branches.

1.4 Diagnostic study: identifying the research problem

Designers seek to identify the 'real nature' of a problem (Marples, 1961). This entails the inclusion of research phases within the design process that are broad, open-minded, and diverging, moving between problem descriptions and creative problem solving processes; especially at the beginning of a design process. This diverging phase is based on the belief that narrowing the focus too early can make designers miss important, underlying patterns and relationships relevant to finding the 'best' solution. Missing undiscovered, underlying problems can prevent innovation from taking place. The design perspective attempts to understand the context-dependent factors of each stage of the product lifetime. Most central end-user challenges relate to a the user phase of a product or a service. Still, all decision making considerations that affect a product design process, from the idea stage through testing to manufacturing, hand over, revaluation, the after-product life phase and improvement of a product are necessary stages that must be considered in design.

A diagnostic study was undertaken to narrow the research scope, strengthen the reasoning behind the choice of focus and ground research questions. Due to the lack of research on this topic, a grounded theory approach was taken. Grounded theory(Glasser and Strauss, 1967) begins with either one or more a priori questions, or data collections. Knowledge is extracted by studying the perceptions and actions of participants. Systematically coding and categorizing these allows the emergence of themes central to

the participants view of the phenomenon under study. This is particularly appropriate when approaching a new area such as humanitarian action where goals and solutions are not yet defined. Open-ended and generative interview methods allow for the extraction of relevant considerations and requirements when designing for humanitarian relief.

In order to gain access to information on the humanitarian relief settings that could help me narrow down the research problem, there were practical, security and regulatory issues to consider. Many of the geographical areas and topics I wished to explore within this research project required an affiliation with an international organization on the ground. There was also a need to define the perspective and scope of the research question in order to create a feasible research focus. I therefore identified a starting point for my exploration that could help me narrow down my focus; the Norwegian Refugee Council (NRC) became the entrance point to the diagnostic study.

1.4.1 The Norwegian Refugee Council
During the initial phase of research, an agreement was made with the Norwegian Refugee Council (NRC). They showed great interest in supporting my research and provided me with information and contacts for interviews and field visits.

Since NRC was established in 1946 under the name Aid to Europe with the mission to assist refugees in Europe, it has become an independent, private foundation, a strategic partner of the UN and other humanitarian organizations globally and nationally in Norway. NRC today operates in 25 countries and has approximately 5000 employees. NRC's main activity is the deliverance of humanitarian aid through programme activities in the field. NRC specializes in five programme areas, or core competences: Shelter, Food Security, Water, Sanitation and Hygiene (WASH), Education and Information Counselling and Legal Aid (ICLA). NRCs aim is to have core competences that are adaptive to different contexts and mutually reinforcing (www.nrc.org).

NRC served as the hub of participant involvement for the diagnostic study and assisted with sampling of stakeholders. The reason for selecting NRC as the starting point was based on the following criteria:

- a need to have safe access to relief contexts and humanitarian staff and other stakeholders
- all humanitarian agencies have specific mandates and routines, it was regarded useful to narrow down the research scope from 'global humanitarian system' to one organization's systemic level
- the geographic location of NRC, with headquarters in Oslo, accommodated the research budget
- the particular mandate of NRC focusing on immediate relief, and their experience NRCs particular focus on sustainable shelter construction and livelihood in refugee camps

- NRCs role as main Norwegian humanitarian customer, making them relevant links to Norwegian industries

The initial contact person at NRC was in 2011 the environmental and climate change adviser. In 2011, she embraced the idea of research on cleaner technologies for camp management and committed to arrange for my attendance to training courses and relevant refugee camp locations.

1.4.2 Methods and sampling of diagnostic study

The initial research plan included field research in refugee camps with NRC at the beginning of the project. The intention was to ground the research questions in contextual (in place) observations and challenges. However, when two NRC staff were kidnapped in Dadaab refugee camp in Kenya and several other incidents made the humanitarian agencies upgrade the security rating, NRC would no longer accompany me to the camps and ensure my safety. As the planned field visits and environmental focus were delayed NRC recommended that I confer with staff responsible for camp management and environment in the NRC, UNHCR, WPF, and their environment/sustainability training consultant, Groupe URD.

This chain of referral approach to sampling is known as snowball sampling (Goodman, 1961). Yet the selection of participants for the diagnostic study went beyond the chain of referral and the final selection of participants was based on the relevance to the topic, and as such can be referred to as a purposive sampling (Palys, 2008). Purposive means that the recommended participants were selected based on how NRC interpreted my research needs and the final selection was my own evaluation of this connection. Both purposive and snowball sampling can be criticized for being biased, and the possibility that some participants have been left out that should have been present, is there. Still the selection will reflect the relationship based humanitarian system as seen from NRCs view; and is relevant for understanding humanitarian action.

I interviewed representatives (Figure 2) of five refugee camp managers (CMs) of refugee camps; five headquarter officials with responsibilities linked to the environment, technical purchase, and implementation in the field. Advisors for technical equipment implementation and environmental programs at the WFP, UNHCR Energy and Environment, the UNHCR Innovation unit and Groupe URD were interviewed. During the period of the study, these agencies trained the NRC on refugee camp environmental issues and published best practice reports on energy and humanitarian relief (Groupe, 2006). In order to link the challenges described by these humanitarian stakeholders to current product design processes, the next step was to approach eleven enterprises that fit the selection criteria. They were selected based on an affiliation with the NRC and their experience with the humanitarian market. NOREPS was contacted and provided some of the participants, along with the NRC participants and other recommended participants outside Norway. All the enterprises had a design unit in

Europe and have designed products aiming at humanitarian customers. Figure 2 shows all the interviewed participants.

The grounded theory approach was continued throughout the diagnostic study, so that the findings would uncover research questions for the research topic. Two different approaches were used during the interviews with the humanitarian customers and enterprises/designers. These interviews with enterprises involved the use of a visual tool, while the humanitarian customer interviews used semi-structured open-ended interviews with a narrative style. All interviews were individual and took approximately 40-60 minutes and were recorded and transcribed verbatim.
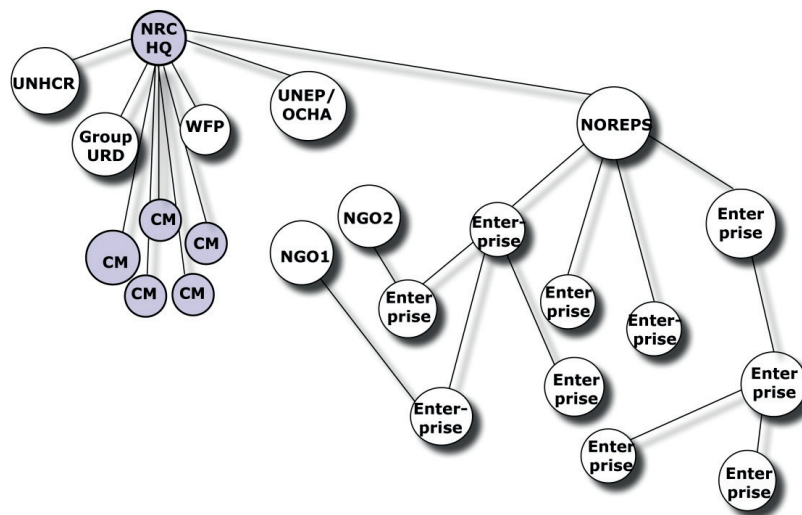
Figure 2: Purposive sampling structure

The interviews with the humanitarian stakeholders used open-ended questions with prompts used to elicit greater detail (Chase, 2003, Lawlor, 2000, Polkinghorne, 1988a, Riessman, 1993). The informants were asked to describe their approach to their humanitarian assistance work from beginning to end in a chronological manner. I used prompts to clarify and understand the situations and the relevance to the research topic. This interview technique encouraged the participants to relate an account of the setting and occurrence of actions. Information was revealed about factors that influenced the introduction of technology and which priorities led the respondent organization to act.

A visual tool was used as a communication enhancer during the enterprise interviews. Graphic elicitation aided interviews (Bagnoli, 2009, Crilly et al., 2006) have the effect

of easing communication between interviewers and informants, particularly when seeking an understanding of process and decision making. The enterprise participants were asked to elaborate on the product design process while creating a diagram using pre made notes. The notes would include well-known terminology of a product design process: idea generation, research, testing, manufacturing, lab testing, etc. The participant could also add their own words. The participant was encouraged to think out loud about the input which shaped the process. Shown below is a sample of a graphic elicitation interview diagram from the study (Figure 3). This figure is developed by one enterprise participant in dialogue with me.
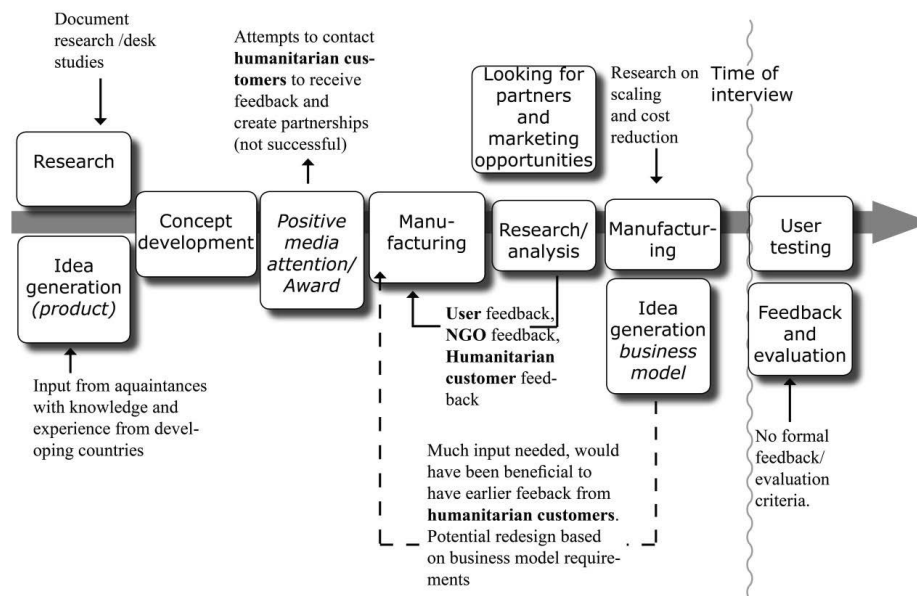
Figure 3: Graphic elicitation example

The squares were put in order by the participant while the words outside these frames and the arrows represent my note-taking during the interviews. The participant could then agree with my reasoning as I explained these notes and asked if we were agreeing on how he or she perceived the sequence of events. By working together on this diagram, the informant could agree or disagree with the way I understood his or her statements, and if they fit what he or she was trying to explain. I could also add arrows to indicate when a process had to be run twice or certain steps were backtracked. This provided an interactive interview that confirmed that I had understood the informants' meanings. These interviews were recorded and transcribed verbatim. The diagrams provided a description of the sequence of the decision making process.

1.4.3 Methodological lessons

The use of graphic elicitation proved appropriate for generating insights about the enterprises decision making process, experiences and relationships with other stakeholders. When interviewing humanitarian staff and NGOs however, the narrative approach generated more reflection and ease during the interview process. This might be because enterprises and particularly product designers and developers have an idea of what a 'design process' looks like and a vision of the priorities of their product; while it is perceived as more effective to share experiences through narratives when communicating challenges for participants that are not as familiar with the design process map.

1.5 Diagnosis of the humanitarian market

The challenges particular to the humanitarian market were discussed in three articles. The first article defines four characteristics of the humanitarian market that affect product design (Nielsen and Santos, 2013a). The second article explains how multiple agendas conflict and influence the design of off-grid energy devices in particular (Nielsen and Santos, 2013b). A third article explains how the four challenges and the multiple agendas proposed influenced designers to make trade-offs to realize sustainability concerns, unless relationships within the humanitarian system are reconsidered and rearranged (Nielsen, 2014b).

The findings showed that in-house designers increasingly aim for the expanding humanitarian market with the intention of making a difference, and contributing to the policy goals of sustainability and accountability. The humantarian customer is particularly challenging to work with. Policy goals are intangible and cannot be translated into useful requirements for the designer. There is little understanding among humanitarian customers for the input that enterprises need in order to design for relief settings.

On the customer side, the NRC distinguishes between 'spontaneous camps' (where people have migrated and set up provisory shelters, before the UNHCR decides to transform the provisory design into an administrated refugee camp) and "administered refugee camps". This distinction influences which type of services and equipment will be needed at a later stage, which is relevant for their design. Still, neither the customers nor the enterprises understand these differences since products are not selected based on specific field assessments. Instead, the accessibility of products are tested in regional preparedness shelters. The UNHCR selects the camp manager and the decision to set up a refugee camp is created in partnership with the host government. The host government decides where the camps are located. When the migration pattern has been predicted and there is agreement between donors, humanitarian organizations and host governments, camps are planned. Then there is coordination between water availability, infrastructure and sheltering of the displaced.

NRC informants refer to the Sphere Humanitarian charter and minimum standards in disaster response (Sphere, 2011). This charter is a recommendation and guideline "derived from the principle that disaster-affected populations have the right to life with dignity" (Sphere, 2011). It is formulated in broad and general terms in order to foster universal application. It recommends key practical actions and indicators designed to foster transparency and accountability in the organizations that refer to the charter.

The complexity and particular characteristics of the market make it difficult for in-house designers and enterprise suppliers to comprehend and attain product requirements. Further, the unpredictability of the shifting humanitarian system is particularly demanding for products that require end-user insight. Product design challenges within the humanitarian system are accounted for (Nielsen and Santos, 2013a) and connected to the four characteristics of the humanitarian market:

I. Timeframe and context: In the humanitarian market it is never known for how long a product is expected to live or what type of context (Beyer and Holtzblatt, 1997, Beyer and Holtzblatt, 1999) it is to be used in. While enterprises and designers perceive the aim of off-grid energy devices to have long term sustainability, the timeframe of humanitarian actors is short. The enterprise has to stockpile a high number of universally produced items that in the end may not perform satisfactorily when distributed. This poses challenges for the designer of the technology.

II. Finance: Humanitarian customers such as NRC typically work with 12-24 month budgets when purchasing non-food items, which conflicts with the longer term concerns embedded in technologies such as off-grid energy devices aiming at longer term sustainability. They try to justify their purchases within this budget cycle. The off-grid energy technologies that are the most economical might only pay off after 5, 10 or even 15 years.

III. Stakeholder variability: The third characteristic described by design enterprises and customers include the unpredictability of stakeholders during an emergency. The number of and type of stakeholders involved in any given emergency on the ground and at a global decision making level, differ from crisis to crisis. The enterprises do not know which organizations or other stakeholders will be on the ground when their product is expected to function. This makes it difficult to plan for additional services and/or predict if the systems required for product performance will be available.
The unpredictability of who will be present to follow-up, train, maintain and collaborate with enterprises and build business models, creates an unsustainable market perspective for the private enterprise.

IV. Supply chain and information flow: the humanitarian supply chain merely monitors a product from the time it has been purchased from the supplier until it has been handed over to the beneficiary government or warehouse. There is also no overarching system in place to learn about the user-phase or end-of life of a product, and the logistical chain of HA does not include options for recycling or the return of toxic waste such as batteries or solar cell waste. This last characteristic limits the potential of having a life-cycle perspective on humanitarian action services. It represents the linear view of humanitarian relief, where products and services are limited by the humanitarian supply chain. Information flow about a product follows the supply chain and follow-up is not routine within this chain. This means the learning ability of the humanitarian system is insufficient. Neither customers nor enterprises can build on earlier experiences with technology design or implementation. This represents a significant gap between short term solutions and the longer term needs expressed by the humanitarian customers.

These characteristics and the methodology behind the findings have been fully described in "Key challenges to product design in humanitarian markets" (Nielsen and Santos, 2013a). Briefly, the mandates and agendas of different relief organizations, the short-term objectives of humanitarian funding, the unpredictability of the global disaster occurrences, lack of follow-up routines and the number of chronic emergencies with little donor funding have led to a market overflowing with low quality non-food items for disaster relief. The unsustainability of this approach is striking. Humanitarian action needs a paradigm shift to incorporate more sustainable solutions into the process of humanitarian relief.

Moreover, the interview study showed that the refugee end-user is currently not prioritized in the design process and their insights are replaced by expert-interviews, desk studies and policy trends (Nielsen and Santos, 2013b)(Figure 4). An example of such a policy trend is the World Bank report and Lighting Africa Initiative (The World Bank, 2008). This report determined that there is an urgent need for solar lighting in remote development areas, sparking political and donor attention to the funding of solar lanterns.

Figure 4 shows the Diagnostic describe of humanitarian action, and how the 'problem formulation' that designers frame is developed with 'expert input' , where the 'experts' are technical advisers in humanitarian NGOs, policy advisers at the UN or trend reports from the World Bank. Donors influence and limit what humanitarian customers spend their money on. According to the NRC and UNHCR, a lamp, a stove or other off-grid energy product will only be considered emergency equipment if there is funding left after funds for each emergency victim have been allocated.
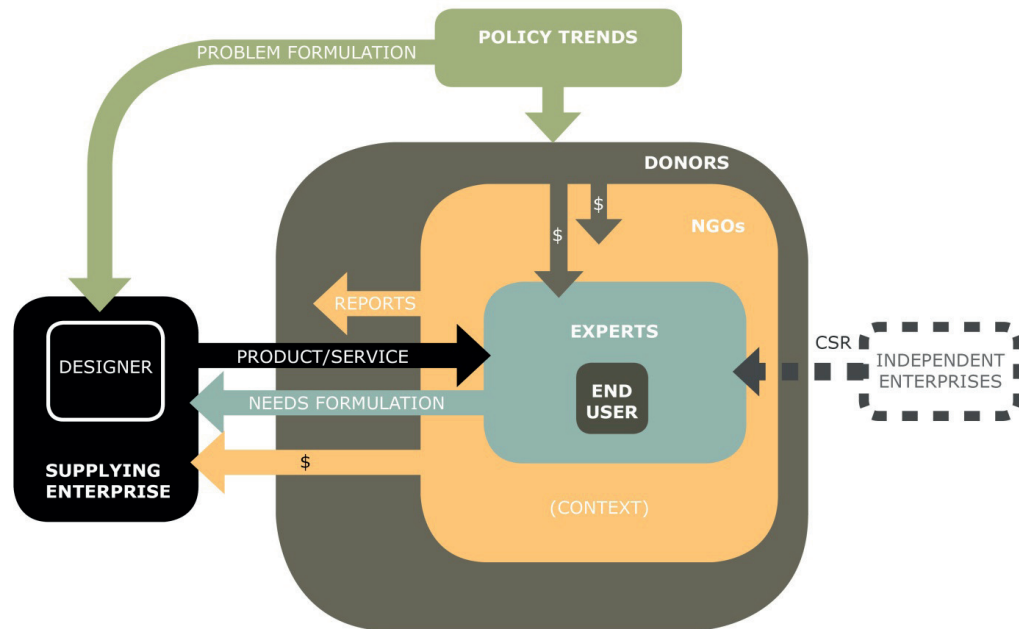
DRIVERS OF DESIGN DECISIONS IN HUMANITARIAN ACTION

Figure 4: Drivers of design decisions in humanitarian action (Nielsen and Santos, 2013b)

Donors and humanitarian customers understandably focus on the number of people reached by a donation, so adding very expensive technology to the one person ration would not be feasible. Solar lanterns are typically chosen over more expensive clean cook stoves. Stoves are distributed at a later stage, if at all, and preferably through a charity independent of the UN. Supplying enterprises and designers have difficulties gaining access to end-users and end user markets. These are shielded by NGOs, humanitarian staff and legal systems. Enterprises that act independently of donor funding (based on their own Corporate Social Responsibility funds) however have more direct and continuous access to implementation and testing in the field. For example, the IKEA foundation currently tests and designs transitional shelters in Dollo Ado in northern Ethiopia, and they are distributing blankets in Syrian UNHCR refugee camps. Since IKEA is financing the large product development process and other additional costs themselves, they have easier access than enterprises seeking traditional customer relationships. They also have their own team in the field. This has given them access as an NGO. They can apply a more conventional iterative design process than designers in enterprises that rely on donor funding. They gain insights relevant to their business

which may provide a profitable market share in disaster preparedness. Other enterprises which do not have upfront capital to invest do not have the same opportunity. Some choose to partner with larger enterprises or initiatives in order to access the inner sphere of the humanitarian relief context.

1.6 Influence of diagnosis on research scope

The final scope of this research project was derived from a combination of the findings from the diagnostic study, a policy document review and identification of the gap in current research. The sum of these led to a decision to (a) stay with off-grid energy in refugee camps as a primary case and (b) to move the research focus from a product and design process orientation up to a system-level;

(a) The research case of off-grid energy in the discussion with NRC further supported the research effort to investigate energy and environment in refugee camps. This case was therefore kept throughout the presented research design. Interviewed humanitarian stakeholders regarded the energy issue as a crucial issue for the future sustainability of humanitarian assistance. The initial interviews with NRC, UNHCR and WFP highlighted the negative effects refugee camps have on the surrounding area. This has become a central issue and contributed to the need to find more sustainable ways of assisting refugees (UNEP, 2009, UNEP, 2011). Moreover, focusing on refugee camps provides a tangible and comparable contextual (design) challenge. The introduction of solar energy based technologies, fuel efficient stoves; solar cell driven pumps and other off-grid energy devices are seen as a solution to move towards a "do-no-harm" humanitarian relief model in environmental concerns. Sub-Saharan countries were specifically mentioned by NRC. It was therefore decided to focus on the case of off-grid energy technologies in refugee camps in the Sahel region. Talks with technical advisors and environmental management within the NRC, with the UNHCR and the WFP, together with literature (Lyytinen, 2009, NRC, 2008, NRC, 2009), indicated that household cooking is a particularly challenging issue that affects vulnerability in refugee hosting areas. NRC mentioned challenges connected to heating tents and houses in colder geographic areas, yet their main concern was the sub-Sahara where deforestation is the biggest challenge. A broader interest in alternative energy technologies both for operational and refugee purposes was communicated by NRC. Yet, energy in the Sphere minimum standard (Sphere, 2011) is only concerned with energy related to household energy consumption, while technical advisers to humanitarian organisations describe energy as a holistic issue.

(b) Yet, while policy documents on energy in humanitarian relief focus on the long term goal of introducing alternative energy technologies due to their environmental benefits, educational and development impact potential (UNEP, 2009, UNEP, 2011, NRC, 2008, NRC, 2009), the diagnostic study demonstrated

that the current stakeholder agenda driven humanitarian system prevents technologies from contributing towards such goals. This insight meant that the research scope had to be levelled from a product/technology level and up to a more overarching level; of which influencers are relevant to understand and modify if technology design and introduction is to approximate the wanted (policy) effect. In other words, the reason the technologies cannot affect longer term development goals lay not in the technology itself but in the arrangement of priorities within humanitarian action itself. While the original aim for this research project was to understand the basis for design for humanitarian action within the case of off-grid energy devices. However, the complexity of the issue and the abovementioned challenges made it difficult for any of the stakeholders to provide useful insights into the requirements and needs. Instead, the view of the relationship between humanitarian stakeholders, enterprises and technologies are challenged by multiple agendas and unknown factors in bridging long and short term concerns. The description of the 'real nature' of the problem was not obvious. In order to affect humanitarian goals through the introduction and design of technologies, the understanding of these relationships must be reframed. Further approximation and understanding of humanitarian action hence became the research task.

1.7 Comparing perspectives with refugee host Ethiopia

The diagnostic study and the limitation put on the contextual, in-place; research plans due to security concerns guided the research plan to search for a beneficiary country stakeholder group to compare insights. Within the diagnostic study, the host government was highlighted as a central stakeholder regarding selection and planning of refugee camps. It has been made clear by the NRC participants that the host government policies' could play a major role in deciding which products would be introduced in a certain setting and how easy services would be to implement. Investigating the host country end of the research topic was therefore relevant to further understand the frames of humanitarian action.

Ethiopia was selected as the country where the contextualized part of the research would be conducted, and was expected to cast light on the issue from both the perspectives of government stakeholders, NGOs, enterprise environment and refugees.

Ethiopia is a country with both a long history in receiving and hosting refugees and receiving aid (both humanitarian and development related) from Norway. Reception of refugees from Somalia, South Sudan and Eritrea to Norway flows through Ethiopia. Due to its geographic location Ethiopia is likely to play a key role as refugee hosting country for the far future. Their background as refugee host and relevant stakeholders will be further elaborated upon in chapter 3.

1.8 Research questions

The research questions were developed based on the conclusion that humanitarian action needs to be reframed in a manner that can facilitate the bridging of means and intended effects of (energy) technology design and introduction in refugee camps. Since the product within the current dynamics of the humanitarian system cannot be designed in a way to contribute to the goals of humanitarian and development aid, the research approach had to be altered with the purpose of creating a different type of knowledge.

The research questions emerged from the above rationale:

A) How can humanitarian action as a phenomenon be framed in a meaningful way for design?

B) What target groups should be the focus of technologies designed and introduced in humanitarian relief?

C) How can design thinking deduct relevant information from complex stakeholder systems that lead to more appropriate design practice and decision making in humanitarian action?

Within these research questions there are several sub-questions. For example, in research question B, one can ask "who should determine the goals?" or in research question A one must ask "what is *meaningful* in this/these contexts (s) and from whose perspective*?"* However, many of these questions emerged and were approached in different stages during the research process and were a priori questions or assumptions as insights were made available. This follows the line of design thinking research; the questions/assumptions emerging will therefore be dealt with step-wise in an approximated chronological manner within this thesis.

1.9 Thesis structure

The thesis is structured in the manner that is perceived to give the most comprehensible view of the different research steps and decisions made. Some research steps happened simultaneously and could be presented in a different manner, yet the current approach is seeing a structured and close to chronological order. Every chapter has its own methodology description, findings and reflections yet the final synthesis of findings and development of frames was completed at the end of the research process.

The thesis' first chapter is composed of necessary background information. This chapter also includes a diagnostic study that was decisive in the creation of research questions.

The second chapter elaborates on the theoretical approach of design thinking, research gap and main literature influences.

A preparatory study of Ethiopia in chapter 3 introduces a specific context and beneficiary stakeholder perspective. It also represents a convergence from 'international

humanitarian action' at a global scale to a more tangible scope (Ethiopia) for comparison.

Chapter 4 seeks the refugee perspective that was missing in the diagnostic image of the humanitarian system. Included is a study of Bhutanese refugees in Norway and Somali refugees in Eastern-Ethiopia with the purpose of understanding and reflecting upon the 'refugee perspective' within a particular setting.

Chapter 5 describes the design of, process and findings of a first stakeholder workshop in Norway. The chapter further identifies pressing issues and fragmented perspectives of the case of 'humanitarian action' and off-grid energy.

In chapter 6, an identical workshop design is applied to a group of humanitarian stakeholders in Ethiopia. The findings from this workshop allow the emergence and comparison of two differing 'worldviews' of humanitarian action and roles.

Chapter 7 describes and discusses the third and final, combining perspectives stakeholder workshop. This workshop seeks to bring the findings from the previous steps into a participatory effort informing the reframing of humanitarian action.

Chapter 8 presents the main findings as conceptual frames that can be used to understand humanitarian action and increase the chance of impacting the long-term objectives of refugees. The results provided within chapter eight are a synthesis of the findings and revisiting the questions which emerged during the diagnostic study, the preparatory study, the refugee perspective and the framing of humanitarian action. This framework is presented on what is described as a power/knowledge backdrop of humanitairan action where refugees as end-users are left as disempowered and detached from the current dynamics of the humanitarian system. The framework suggests a new understanding of humanitarian action which is a composition presented as 'Agenda Spaces' and relationships between stakeholders.The framework is then divided into four categories; refugee insights, humanitarian system insights, and finally insights about the approach of design thinking for understanding complex systems.

The thesis is brought to a close with concluding remarks regarding the research questions and a summary of the main findings described in detail in chapter 9.

2. Research approach

Design theory and related methods were reviewed prior to the diagnostic study. The choice to move the focus of this study from product development to the system processes, led to a broader search for relevant literature to make sense of the humanitarian system using an exemplar case of designing off-grid energy solutions required different literature support. But even more challenging was finding a methodological approach that could be used to reveal insights from multiple perspectives and combine them to create a theoretical framework.

2.1 Relevant theory

When considering design theories for the research scope of refugee camps in the Sahel and Horn of Africa region, design for development was the first choice. Design approaches for low income settings have been developed through Design for the Bottom of the Pyramid (BoP) scholars (Prahalad, 2006, Prahalad, 2010) and earlier Appropriate Technology (AT) movements (Carr, 1974, Schumaker, 1973). AT is closely linked to 1970's social agendas; emphasizing people centred technologies and sustainable development. Appropriate technology approaches emphasized the need for low-tech items that could bridge the industrial gap between the 'north and south', while improving productiveness in developing regions. The AT movement and the following appropriate design direction (Nieusma, 2004), however, fails to consider community motivations and business models which are interested in creating sustainable markets, particularly under the limits of humanitarian action (Nielsen and Santos, 2013a). A more recent scholarly perspective regards the end-users at the bottom of the pyramid as consumers and an emerging market; this is referred to as the Bottom of the Pyramid (BoP) approach. They believe this is a more ethical, non imperialist approach than regarding them as passive recipients, and a more sustainable method than only highlighting the importance of creating technologies appropriate for the level of development. Other relevant theories are more general; Human Centred Design can also fit into development settings. These have been popularized by the international design and consulting firm IDEO, through an open access toolkit and funding initiative (Toolkit, 2008). Considering refugee end-users, design for marginalized groups (Hussain, 2011, Hussain et al., 2012a) including the capability approach (Oosterlaken, 2009, Robeyns, 2005), a focus on empowerment and capacity building provided useful advice on how to approach and empower marginalized end-users. But these do not sufficiently cover the power relations of the surrounding environment and institutions and what this means regarding the actual possibilities of an individual.

Participatory development approaches are well-known strategies in development theory (Chamberlain, 2007, Forester, 1999) for tackling these issues. Participatory methods also focus on empowerment, although they have been criticized for not being able to

affect development goals. Critics point at their imperialist origin and that they are also unable to challenge power structures inherent in local and governmental structures in the long run (Cooke and Kothari, 2001).

Relevant for understanding the refugee and the relationships within the humanitarian system might therefore also be power conceptualization theories. Central in power conceptualization theories stands knowledge and how knowledge can be used as a social control mechanism in institutions. While Lukes links the concept of democracy to the concept of power (Lukes, 1974), Foucault describes how individuals create conceptual possibilities of what they can achieve from structural boundaries created by knowledge and thought (Foucault, 1972). Foucault's theories are useful as a fundament to understanding refugee motivations, their perceived possibilities and the effect of these on relationships in the humanitarian system. Participatory research also applies these theories as a foundation, and has a long history of discussing and challenging power structures and the relationship between power and knowledge. Power conceptualization is central to maintaining a critical view of the participatory processes and for understanding the preconditions necessary for the establishment of a useful participatory research process. It is also important to keep in mind during the interpretation of results.

Common design for development approaches and projects have an underlying intention of alleviating poverty for the end-user communities. However, the diagnostic study demonstrated that the humanitarian system does not focus on alleviating poverty; something requiring longer term perspectives. Instead, the humanitarian system is one which in theory wishes to affect the move from a state of dependence and humanitarian assistance towards a sustainable, long term, unknown future scenario; but priorities are driven by multiple agendas and a short-term focused humanitarian stakeholder system. The agendas of the humanitarian system limit the impact of current design approaches. The diagnostic study further revealed that existing design theory would not be useful in a humanitarian setting such as refugee camps. It has for example proven difficult to create sustainable market economies through different financing models (Cavaglieri, 2008, Nagarajan and McNulty, 2004, Phillips, 2004). This is due to the scale of the informal economy, lack of money and limitations of humanitarian settlements, where for-profit work is often illegal or limited by local legal regulations. The short-term thinking of refugees about their situation coupled with cultural conflicts within the camps and between the refugees and host community has been indicated as factors that inhibit the positive development of technology programs and micro enterprise initiatives.

Approaches taken into account further include the transition between emergency, recovery and reconstruction, issues that have been targeted by architectural research in Building back Better (Lizarralde, 2009, Lyons, 2009) initiatives. This dynamic is still unconsidered in the vast design literature. The reason for this is partly because shelter is an integrated part of early response in humanitarian assistance (Sphere, 2011) where

architects are involved in the process. Designers are not an integrated part of these processes.

Next, the understanding of 'needs' is central for the interpretation of design theory in this regard. Identifying these 'needs' broadly refers to understanding the end-user's life and challenges. That information is used to deduce the types of products or services that would improve the well-being of the end-user and help them improve their opportunities. The diagnostic study showed that the refugee in the humanitarian system is not a customer in this sense. Instead it is the 'needs' or agendas of multiple stakeholders that determine the impact and selection of a design. This means that an approach for design, within humanitarian action, must consider this broader definition of 'needs' and know how to address them.

Finally, even if the design is supposed to function in a specific low-income setting with challenging infrastructures, the humanitarian system includes a global supply chain with centralized decision makers. The system is divided into givers and receivers of aid, donors and beneficiary countries, and multiple user-contexts. But there is little end-user influence on the design. The design for development approach is meaningless in this situation; unless a contextualized, user-centered design process can have an impact within the current set-up of humanitarian action.

2.2 Design thinking

The humanitarian system is unpredictable, constantly changing, and a solution cannot be based on a specific user-context or definable static requirements or needs. Approaching humanitarian action through design in an alternative way is not only dependent on deriving insights about the end user, but also on understanding the relationship between multiple stakeholders, how these influence each other and to discuss which objectives they are striving towards. The research questions presented require a new interpretation of the problem. The goal of this research is to improve understanding; and to figure out the purpose of design within humanitarian action. Understanding (sense-making) and purpose are central in design thinking and this makes design thinking a relevant research approach to consider.

'Design thinking'(Simon, 1969) focuses on understanding 'how designers think' and how design thinking can be appropriate in other fields. As the name implies it is 'a way of thinking' and is hard to describe as a 'process'. Still, it can be useful to discuss 'design thinking' as a process. Standing back and thinking strategically during the performance of a task rather than being immersed and losing oneself in the task, is central. Within the research topic, following design thinking would suggest that it is necessary to move the focus away from the technical and product design aspects of the research topic and instead follow the argumentation of the diagnostic study. The goals of humanitarian action cannot be impacted by designing technologies in the way the humanitarian system is structured. If a design method was prescribed, the technology

would still be impeded by the decision making process and the conflicting agendas. This would prevent the right product from arriving at a suitable end-user (or vice versa).

Instead, a *better* tactic than looking for design methods would be to focus on contextualizing designs for end-users in a global system with multiple agendas, and have an impact on humanitarian goals, or more definable and useful goals.

Research approaches that seek definite and universal rules or insights are less relevant than trying to unravel a dynamic, complex system and the interactions between problems and solutions. Design thinking does not provide such definite laws but instead focuses on meaningfulness, organization and communication of ideas. This becomes a continuous operation that contributes to more meaningful system interrelations.

The purpose of design thinking depends according to Buchanan upon the category of design (Buchanan, 1992). While the first two areas of design described by Buchanan relate to the making of visual art or physical products, the third and fourth are the ones of most relevance here and describe the situation of design for humanitarian action.

The third design category Buchanan describes is the design of "activities and organized services, which includes the traditional management concern for logistics, combining physical resources, instrumentalities, and human beings in efficient sequences and schedules to reach specified objectives [...] is rapidly evolving into an exploration of *how better design thinking can contribute to achieving an organic flow of experience in concrete situations, making such experiences more intelligent, meaningful, and satisfying*. The central theme of this area is connections and consequences."(Buchanan, 1992) (Emphasis has been added). The diagnostic study showed that the consequences of current design practice within the humanitarian system are not meaningful to the stakeholders. Exploring how this can be altered will provide both insights into the problem and into whether one can modify the design towards something more meaningful.

Further, the problem of designing for multiple agendas within the humanitarian system (Nielsen and Santos, 2013b) is one where humanitarian action as a system in itself seems to be the core of the problem. The diagnostic study triggered further questions about whether the humanitarian system can be changed from a state where it currently cannot facilitate the introductionn and development of sustainable technologies. This question about shaping complexity takes us into the fourth category of design by Buchanan; "the design of complex systems or environments for living, working, playing and learning[…].This area is more concerned with exploring the role of design in *sustaining, developing, and integrating human beings into broader ecological and cultural environments, shaping these environments when desirable and possible or adapting to them when necessary*" (Buchanan, 1992) (Emphasis has been added).

Finally, design (as design thinking) is an activity that moves beyond understanding into transformation. It allows the inclusion of intervention as a research tactic in which the

problem and its solutions change together and provide new insights. That the designer needs to intervene in order to create a better flow towards a purpose is supported by (Archer, 1979): "The first thing to recognize is that 'the problem' in a design problem, like any other ill-defined problem, is not the statement of requirements. Nor is 'the solution' the means ultimately arrived at to meet those requirements. 'The problem' is obscurity about the requirements, the practicability of envisageable provisions and/or misfit between the requirements and the provisions. 'The solution' is a requirement/provision match that contains an acceptably small amount of residual misfit and obscurity. […]. The design activity is commutative, the designer's attention oscillating between the emerging requirement ideas and the developing provision ideas, as he illuminates obscurity on both sides and reduces misfit between them."

Design thinking was chosen as the overarching reserach approach instead of actor network theory, organizational theory or systems design based on the nature of the research questions and diagnosis of humanitarian action in chapter 1. The research questions are built on the idea that complex conceptual understandings can be 'designed' into something purposeful and useful. These are all reasons for choosing design thinking. The undiscovered area of design for humanitarian action, and its many conflicts identified in the diagnostic study demanded a flexible research approach; acknowledging that humanitarian action here is a matter of perspectives, composition of perspectives and shaping. The idea that the humanitarian system, or the perception of it, can be shaped as much as understood through a design thinking research project, is what makes design thinking more appropriate to answer these research questions. Further, the interest in understanding the links between the *system* and the user-context, viewing the end-user as part of the surrounding context rather than the system, makes design thinking and its ability to deal with the above mentioned complex and unexplored problems appropriate.

2.3 Establishing a framework through design thinking

Considering the refugee as a stakeholder, yet not included in the dynamics of the humanitarian system, one path of the research was designed to understand the interrelations of stakeholders and the other path was focused on understanding the role of the refugee as end-user. The research design is further described in section 2.5. These understandings will be put into two 'frames' and contribute to a conceptual framework. A frame will in this thesis be understood as Dorst explains as "a (novel) standpoint from which a problematic situation can be tackled [...]. It is based on the key thesis: "IF we look at the problem situation from this viewpoint, and adopt the working principle associated with that position, THEN we will create the value we are striving for" (Dorst, 2011). The framework evolves through multiple iterations and by stepping between insights from the humanitarian system and stakeholder perspectives, and contextual (end-user) perspectives.

Schön asks:" What happens in design inquiry when there is a conflict of frames and perspectives. How do individuals talk with one another when their appreciative systems conflict? How does an individual shift from one frame or perspective to another?" (Schön, 1984). In humanitarian action it was clear that systems within humanitarian action conflict and the development of a new frame(s) will require a shift of perspective after or more preferably during the development of this new frame.

2.3.1 Logical frameworks of design thinking

The understanding of problem solving within humanitarian action as a 'wicked problem' has been influential for the choice of research approach. The idea of 'wicked problems' was adapted to design thinking by Buchanan (Buchanan, 1992) yet a 'wicked problem' was first described by Horst Rittel as a problem with the following definitions:

1. *There is no definitive formulation of a wicked problem.*

2. *Wicked problems have no stopping rule.*

3. *Solutions to wicked problems are not true-or-false, but good or bad.*

4. *There is no immediate and no ultimate test of a solution to a wicked problem.*

5. *Every solution to a wicked problem is a "one-shot operation"; because there is no opportunity to learn by trial and error, every attempt counts significantly.*

6. *Wicked problems do not have an enumerable (or an exhaustively describable) set of potential solutions, nor is there a well-described set of permissible operations that may be incorporated into the plan.*

7. *Every wicked problem is essentially unique.*

8. *Every wicked problem can be considered to be a symptom of another problem.*

9. *The existence of a discrepancy representing a wicked problem can be explained in numerous ways. The choice of explanation determines the nature of the problem's resolution.*

10. *The social planner has no right to be wrong (i.e., planners are liable for the consequences of the actions they generate).*

Further, the solving of wicked problems has the following characteristics:

1. *The solution depends on how the problem is framed and vice-versa (i.e., the problem definition depends on the solution)*

2. *Stakeholders have radically different world views and different frames for understanding the problem.*

3. *The constraints that the problem is subject to and the resources needed to solve it change over time.*

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4. *The problem is never solved definitively.*

(Rittel and Webber, 1973)

Since the wicked problem approach was formulated, it has become a common term in a range of qualitative disciplines, particularly those focusing on transdisciplinary issues with multiple perspectives (Conklin and Conklin, 2006, Van Bueren et al., 2003). It has been criticised for leaving out professional rationalism but, there are different responses to this. One of the more recent arguments is that most problems are, wicked; we are thinking, interpreting people and solving problems has a larger substance of communication than simply being 'puzzles' or 'layers of meaning' (Coyne, 2005). The wicked problem is worth revisiting as Coyne argues, since our design students are currently living in a contemporary design paradigm where they ask questions such as "How do we put design knowledge into a computer? or "How do we improve the efficiency of design? In some cases we can counter a question with a question: 'What do you mean by thinking?' 'Efficiency for whom?' 'by what criteria?' (Coyne, 2005) This is how the wicked problem becomes relevant. Humanitarian action is aiming at humanitarian *values* such as refugee well-being or environmental protection, while the humanitarian *system* directs itself at efficiency and solving short-term goals created by multiple agendas; this makes it important to approach it as a wicked problem by asking counter questions about who should we listen to in order to create a more meaningful system.

Humanitarian action in relation to technology design was found during the diagnostic study to be; a wicked problem. From a supply chain perspective, the humanitarian system perspective has already been identified as filling all the indications of a wicked problem (Tatham and Houghton, 2011). Identifying it as a wicked problem is useful for understanding the necessity of diverging and open-minded phases of design thinking as a research process.

Yet, defining the problem at stake as wicked is not sufficient to understand design thinking research as a process distinguished from other research processes; nor does it provide a particularly useful insight on how to 'solve' or understand how to deal with this research project.

Design thinking extracts and systematises knowledge about how designers think. This project therefore contributes to *design thinking research* by applying design thinking on the challenges identified in humanitarian action. By contrast, *design research* captures design knowledge which is "knowing in action, revealed in and by actual designing"(Schön, 1992). Either way, it is important to understand the fundamentals of design as compared to other disciplines. To illustrate for outsiders how design thinking research distinguishes itself from other sciences it can be useful to explain the simplified logical framework based version of Kees Dorst (Dorst, 2011). He explains that induction and deduction are the pillars of 'sciences' as we know it. While deduction

entails looking for results of actors and reasons, induction is the creative act of coming up with hypotheses explaining reasons when knowing the observed results (see table). Design however, concerns itself with producing *values* rather than results following a reason. This purposefulness is central to understanding design thinking.

Table 1: Logical frameworks of design and sciences (developed from Kees Dorst (Dorst, 2011))

Core equation	**WHAT +** (thing) **HOW** (working principle) **LEADS TO** **RESULT** (observed)
Induction	**WHAT +** **???** **LEADS TO** **RESULT**
Deduction	**WHAT +** **HOW** **LEADS TO** **???**
Design equation	**WHAT +** (thing) **HOW** (working principle) **LEADS TO** **VALUE** (aspired)
1st Abduction	**???** **+** **HOW** **LEADS TO** **VALUE**
2nd Abduction	**???** **+** **???** **LEADS TO** **VALUE**

Dorst continues to divide the type of logical frameworks of design into what he calls 1st Abduction and 2nd Abduction; since what designers do, is to abduct, or create, connections. The more complex design challenges, he argues, have a determined value, but no what or how. In this way his writing distinguishes itself from that of other design thinking researchers such as Rowe(Rowe, 1991), who sees the design process as one where it is necessary to think of the result and working principle at the same time. As an abstraction here Dorst's model is however useful. Within this research project, it will be

necessary to introduce a third abduction. A value has not been determined, while multiple agendas are not in line with the values of the humanitarian system; instead an agreement is needed on which value (and who's) is intended to create. A significant part of this research project will work with three unknowns. A hypothesis is therefore also, that values in stakeholder communities can affect working principles and the products designed and selected.

The Stanford Design Thinking Group explains that they "study the complex interaction between members of multi-disciplinary teams challenged to deliver design innovations related to wicked problems"(HPI, 2014). The research model is therefore to be distinguished from design research which would be concerned about the design of something or finding a tool or a way to design something. The multi-faceted nature of the project and the multi-disciplinary needs revealed itself in the diagnostic study were responsible for choosing a design thinking research approach above design research. Also the process is not a design process, but a way of finding out if design thinking can modify and extract useful meanings from a cross-disciplinary, not typically 'design' field.

Figure 5 Framing, from Dorst (Dorst, 2011)

According to Dorst, 'framing' implies that designers have to come up with "hows" and "whats" and test them in conjunction (Figure 5), by moving backwards. In humanitarian action, however, the diagnostic study shows that these "hows", "whats" and "values" (agendas) are currently not solving the equation. The values are not in the equation, but rather multiple agendas are. Formulating the objectives of humanitarian action in a useful way will therefore have to be a first and fundamental achievement within the research design.

2.3.2 The relevance of end-users in design and design thinking
This thesis follows the assumption of design thinking that all design is, per definition, aimed at achieving social improvement(Plattner et al., 2010). The human being is therefore at the centre of design as well as of design thinking. Design thinking also appears suitable for meeting the challenges revealed in the diagnostic study due to the issue of *end-user context* that was highlighted by participants in the diagnostic study. The diagnostic study showed that designers are confused by whom to design for when

the end user-context is unknown(Nielsen and Santos, 2013a). Also, the humanitarian customers and enterprises know little about the longer term impact of technology introduction on refugees.

The view of the end-user is connected to and at times overlaps with what is described as 'contextual insights' or 'contextuality'. A 'context' may define the limitations, the experiences of an artefact or a service, and can include everything from culture and relationships to infrastructure and legal structures; however, in human-centred design approaches applied in design for development projects it often refers to an end-user inclusive view of context. ISO 9241-11 for example refers to usability within a 'context', namely the 'user-context': the extent to which a product can be used by specified users to achieve specified goals with the effectiveness, efficiency and satisfaction in a specified context of use " (Gulliksen et al., 2003)".

As earlier mentioned, the focus on context and contextual end-user insights follows a long tradition within user centred design and also 'design thinking' of informing design based on a central inclusion of the end-user. The 'context' of humanitarian response therefore intuitively becomes the start of interest when seeking to find what and how something needs to be designed in order to fit the needs or requirements. The model of 'design thinking' that is being taught in design institutions, typically begins with contextual end-user insights, continues to idea generation and concept development and ends in testing, before it loops again in an iterative manner. Context and end-users are hence of central relevance for designers and others who apply 'design thinking'.

Dwelling on the role of context for the definition of relief, context is mentioned in 'Sphere charter and minimum standards in disaster response'. The 'Sphere minimum standard' serves as a reference for assuring quality in humanitarian response (Sphere, 2011). During the introduction chapter, Sphere states that context is something that one has to adapt a "universally applicable standard in a concrete situation" to. The relationship between universal solutions and contextual limits is hence another issue that is relevant for designers.

Regarding design, it is important for the designer to understand what the problem and opportunities look like from the view of the person who is going to use and in the end benefit from the product. How can a design be context dependent, while universally adapted, as the humanitarian system requires? The humanitarian system from this definition can be assumed to challenge designers in that the context is unknown yet the demands for the product performance and user acceptance are high.The most important influence of the context dependency of design on the research design is the decision to select a specific location for the framing of the refugee as an end-user. The lack of knowledge about the every day of a refugee is crucial for the understanding of the problem. The framing of the end-user as well as the exploration of stakeholder views are derived from research within the refugee host Ethiopia, together with interviews of long term camp refugees from Bhutan that were resettled in Norway.

2.3 Core literature

Design thinking for social innovation depends on an integrated approach with input from different sources and overlapping research steps when completing structures of understanding (Brown and Wyatt, 2010b). 'The humanitarian system' with its many stakeholders has here been treated as a holistic object of study, with the intention to better understand the problem and it's possible solutions and seeking areas where misfit can be reduced. Support for the rationale behind reflections and methodological decisions during the research path have been solicited in academic research ranging from design to ethnography and organizational theory. The table below presents the major influencers. The different approaches are piece by piece providing insights from different angles, seeking to complete the image of humanitarian relief.

Table 2: Core literature

Purpose	Disciplines	Scholars
Identifying research gap and developing research design, thinking 'in action' and applying the different methodologies for testing and refinement of conceptual ideas	Design and design thinking, design for development, design for marginalized groups, architecture, humanitarian supply chain management	(Schumacher, 1973, Pralahad and Hart, 2002, Buchanan, 1992, Buchanan, 2001, Kennedy, 2008, Kennedy et al., 2008, Creech and Steele, 2005, Mays et al., 2012, Simon, 1969, Schön and Bennett, 1996, Schön, 1983, Schön, 1984, Dorst, 2011, Cross et al., 1992, Rowe, 1991, Krippendorff, 1989, Rittel and Webber, 1973, Brown, 2008, Nieusma, 2004, Plattner et al., 2010, Marples, 1961, Brown and Wyatt, 2010a).
Understanding of development and humanitarian objectives and approaches	Development studies, peace studies	(Chamberlain, 2007, Cooke and Kothari, 2001, Galtung et al., 1980)
Informing qualitative interview approaches and field research and the reflection connected to these	Qualitative research and ethnography, refugee anthropology/critical anthropology	(Oliver-Smith, 1991, Oliver-Smith, 1996, Ferguson, 1997, Aase and Fossåskaret, 2007, Widerberg, 2001, McCracken, 1988)
Ethical considerations	Disaster research, qualitative research	(Wisner, 2004, Button, 1991)

	literature, anthropology	
Data collection and participatory process tools	Visual anthropology, Design ethnography, Visual tools, Cognitive Task Analysis, Qualitative research (narrative analysis), design theory, Organizational theory, Political science	(Collier, 1986, Salvador et al., 1999, Bagnoli, 2009, Crilly et al., 2006, Quist and Vergragt, 2006, Robinson, 1982, Militello and Hutton, 1998)
Interpretation of data, comparison of interview data (constant comparative method) induction and deduction of insights and results	Grounded theory, Interaction analysis	(Glasser and Strauss, 1967, Jordan and Henderson, 1995, Boeije, 2002, Mills et al., 2008)

2.5 Research design

The data collection process was completed through stakeholder workshops and interviews as the timeline shows (Figure 7).
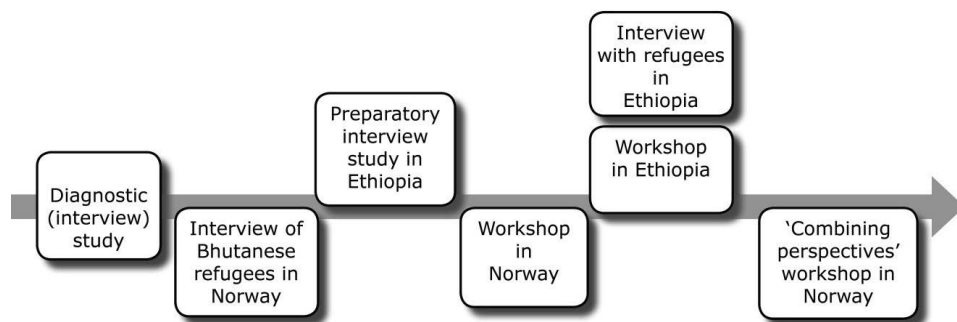
Data collection timeline

Figure 6 Data collection timeline

This data gathering timeline resulted from the design thinking research process; in which each insight and new question(s) that emerged determined the next step of the process. The problem areas of the diagnostic study were approached through different steps in an attempt to see the relationship between problem and solutions from new angles.

In accord with design thinking, stakeholder views were visited and revisited in order to develop a deeper understanding as sense-making gaps appeared. This is a basic idea yet it creates a complex research design. Methodological choices are described in each of the following chapters including the logic behind the method used for that phase of the study. Synthesizing chapters are placed between each data gathering phase.

The broad contours of the research design can however be described as the following steps:

> *Step 1:* create an initial model of understanding. This model was used to develop the design of the diagnostic study and the selection of participants
>
> *Step 2*: narrow the research scope by describing the characteristics and sense-making gaps in humanitarian action
>
> *Step3:* define the characteristics of the humanitarian system, include the missing influence of the refugee in the humanitarian system. In this phase the study entered into a messy period. Multiple layers and concerns were contemplated, from global to local concerns and priorities were identified for each research case.
>
> *Step 4:* understand and shaping the problem-solution from a donor perspective through a cooperative stakeholder process
>
> *Step 5*: extract additional understandings and shape the problem-solution space from a host country perspective and through a cooperative stakeholder process. Seeking refugee as end-user perspectives in and out of context
>
> *Step 6*: contemplative phase / converging phase, organizing patterns of understanding and extracting meanings
>
> *Step 7*: contemplative phase, organizing patterns of understanding and extracting meanings (converging and decisive phase)
>
> *Step 8*: combining perspectives through a third and last co-design stakeholder workshop
>
> S*tep 9*: extract conceptual frames of understanding

The research process was further characterized by periods, in which I constrained the problem. I had to make systematic re-evaluations (Rowe, 1991) of the issue at hand. Particularly in the initial parts of the research, when the objectives and problems of the

stakeholders were maligned, and when I was restricted from field research, I had to apply various lines of reasoning to reframe my thinking. I had to do this several times, as my understanding of the 'dialogue between the problem and the researcher' (Schön, 1983) expanded.

These "various lines of reasoning" included interpretations of case research, stakeholder interviews, ethnographic approaches and participatory approaches. They were based on the emerging idea that the humanitarian system is created by differing agendas and world views, attempting to work together or separately. The findings from this mixed approach helped me refine my underlying 'organizational principles or models' (Rowe, 1991). Further, Rowe finds that "often the concept can only come to fruition if a large number of apparently countervailing conditions can be surmounted" and that "antiquated institutional rules and codes might have to be overcome". Rowe builds on the idea that designers often keep in mind an overarching idea that they want to fulfill.

The insights developed ended in conceptual issues that can only be considered if the current 'humanitarian system' boundaries are challenged.

Continuing on the line of Rowe, the problem and the approaches are often messy at the beginning, and the design concept becomes more well-defined at the end. This process of analysis involved many 'sober and contemplative episodes' as Rowe described. It is difficult to describe in detail how these patterns of insights were combined through contemplation of the research data. Combining data from the refugee camp, with data from the workshop, interviews and literature, the framework insights were defined as they stand. The workshops and data analysis led to a more refined conceptual image of an agenda based humanitarian system. Finally, a coherent image was developed.

Rowe sees design as normative(Rowe, 1991), and this is perhaps where this research project agrees and disagrees. In the process, I have tried to show different perspectives of the current humanitarian system, while trying to represent the agenda patterns as they were created by the participants. The stakeholder workshops were a chance for the participants to design their own 'proper proposals' (Rowe, 1991) and through these I have searched for insights about what constitutes humanitarian action. For 'design thinking' to be applied as a research principle, it is essential that there is an intentional line between normative suggestions and research insights. On the other hand, there is a normative aspect in that I had an underlying wish to find insights that could contribute to better alignment of efforts, in order to improve humanitarian action.

2.5.1 Pattern making and visual tools
Central to the research design is that pattern formation and synthesis have been crucial steps on the way towards an understanding of the humanitarian system that is indeed more 'practical' and 'appropriate'. Design thinking in this sense becomes more pragmatic yet clearly normative. Cross(Cross, 2001) for example explains that

- the methods of design are modelling, pattern-formation, synthesis (in comparison to sciences that use controlled experiment, classification, analysis and humanities that uses analogy, metaphor, and evaluation)
- the values of design are *practicality, ingenuity, empathy, and a concern for 'appropriateness' (*as opposed to science objectivity, rationality, neutrality, and a concern for 'truth' or in the humanities: subjectivity, imagination, commitment, and a concern for 'justice')

The cross-disciplinary task of extracting holistic insights integrating aspects of the disciplines required consultations with literature within a wide range of disciplines as listed in Table 2. Various data gathering methods common within these categories have been applied during workshops, interviews and other encounters with experts and end-users. Particularly important for staying with design thinking as the encompassing approach was the application of a number of visual tools, both for data gathering and for analysis purposes. The tools applied have been selected along the process depending on which type of insight was the focus of attention in the problem understanding.

Table 3: Visual tools

Tool	Purpose
Process diagrams	Understanding the link between humanitarian relief and product design processes and decision making. Generating flow of thoughts and ensuring understanding between researcher and informant
Pyramid diagrams	Understanding priorities and reasoning behind technology implementation and decision making
Backcasting ladders	Experiment with making the stakeholder participants think in a coherent way
Story analysing through different coloured post-it's	Establish dialogue between participants on challenges, strategies and goals for humanitarian relief and technology introduction
Video recording	Data gathering and observational layer for a deepened interim data analysis
Organizational figures	Cognitive aids for comprehending patterns of findings between different participants understandings and consequences for research purpose

The selected tools for are influenced by the constructive, intervening ideas of design thinking. Nigel Cross explains that it is a common misunderstanding that 'design

thinking' involves a deep and investigative understanding research phase to understand the problem. Instead, research on how designers think has shown that design thinking involves thinking of the problem and the solution *at the same time (Cross et al., 1992).*

The specific methodological approaches, the rationale behind them and lessons learned are explained in detail in chapter 3-7. The chosen methodology stands as an assembly of experiments following a structure of 'design thinking'. Common to the experiments is that they seek insights in different contexts and from different viewpoints; in a participatory and individually centred manner. Some of these experiments are based on methods familiar to design practitioners, while the importance of some traditional qualitative techniques has been exemplified. Through different visual tools and by experimenting with techniques, different views relevant to answer the research questions emerged.

2.6 Stakeholder involvement

The approach explored in this Ph.D. is novel in that it seeks to investigate the role and potential of extracting design-relevant information and shape the problem-solution issue at hand from multiple stakeholders in two different geographic contexts. This decision was made based on the insight that the 'real nature' of the problem in this case is to be understood within the broader humanitarian system's 'view' of the problem and solutions, rather than in adapting solutions to the refugee. The latter in contrast would have required extensive work with co-design in-context with the refugee end-user.

'Stakeholder' is a representative of an institution that had an interest in the topic at hand; contributing to solving energy challenges in humanitarian action. By institution is meant a higher entity such as an organization, enterprise, government or group of individuals that are perceived by others as having similar interests. When an individual is included in a study, they will be called 'participants'. For example, 'refugees' or 'humanitarian customer' will be a stakeholder while the individual informants will be referred to as 'participant'. As the thesis progresses, the reader will find that the stakeholder groups become more refined, speaking of or 'Humanitarian organization Headquarters' and 'Camp Managers' as separate entities due to nuances in the findings when exploring stakeholder interests.

A major part of this research project applies a collaborative method of exploring whether the understanding of humanitarian action in relation to the research topic can be changed and understood through the development of alternative solutions.

Design thinking proposes that insights are provided when attempting alternative problem solving strategies; "The nature of the problem can only be found by examining it through proposed solutions, and it seems likely that its examination through one, and only one, proposal gives a very biased view. It seems probable that at least two radically

different solutions need to be attempted in order to get, through comparison of sub-problems, a clear picture of the 'real nature' of the problem." (Marples, 1961).

Following this thought and adding the line of reasoning of Buchanan, this research project is breaking down and attempting to change the shape of the complexity of the issue; from distant policy goals and a static supply chain driven mechanism into more tangible and meaningful entities. Since multiple stakeholder agendas are part of the problem and the humanitarian system is a conglomerate of human connections, the inclusion of stakeholders is central for this task. Exploring their potential for change through the description of new directions is therefore chosen as the target area for investigation.

3. Preparatory study in Ethiopia

I had made a mistake by booking my trip on the first of May, which is labour day and a national holiday in Ethiopia. While the other offices were closed on this day, HoA-REC&N agreed to meet me despite the holiday, and one of them brought their little dog along that was lying patiently under our plastic seats. HoA-REC&N came through as a highly committed organization and we spoke for more than two hours about energy challenges in Ethiopia. We were sitting at a popular ice cream store chain in Ethiopia, called Iglo. While we were sitting there, ladies stepped out from expensive cars wearing high, beautiful shoes and with modern and expensive looking outfits, buying ice cream for themselves and their children or husbands. This struck me as an incredible contrast to the street just a few blocks away, where children were polishing shoes and wearing nothing but rags. During a drive up to the city hills the evening before, I had seen children not older than two, perhaps three years old, carrying large heavy bundles of firewood up the steep hills, supported by older siblings and women of very old age.

Notes from research diary, 5th of May 2013

From the beginning of the diagnostic phase of the project it was clear that the contextualization of the refugee camp settings would be an important part of this study. However, when the NRC advised me to put the field research on hold due to increased security precautions, the decision was made to seek an alternate beneficiary country. In order to obtain insight into the experience of refugee camps, it was necessary to find a site that would provide me with similar data independent of the external factors that had resulted in a research redesign. As the main contextual focus was refugee camps, the chosen stakeholders had to view it as a relevant country. Ethiopia was singled out.

Ethiopia is a country with a long and well documented history of hosting refugees (Waldron and Hasci, 1995, Bariagaber, 2013). At the time of writing, this country is the largest host of refugees worldwide (UNHCR, 2014b, UNHCR, 2014a). Ethiopia is of relevance to research on refugee populations due to its constant influx of refugees and its geographic location bordering countries enmeshed in war, i.e. Sudan, Eritrea, Somalia, Somaliland and Djibouti. Ethiopia has an 'open door' policy regarding refugees. The support to assist displaced populations provided by international humanitarian organizations can be predicted to be a long term arrangement. Therefore, stakeholders in Ethiopia have useful experience and have learned lessons from the humanitarian system. Their experience was helpful in the exploration of agendas and the creation of a foundation framework. Ethiopia is a country where the government takes primary responsibility for resource and development issues. The landscape for

business investment is challenging; as a result, the private enterprise voice is less visible.

Ethiopia is also considered a tourist country and is relatively safe to travel in without security from a humanitarian body such as NRC. One of the NGOs recommended by NRC working with environmental issues, Project Gaia, has been present in Ethiopia for more than 10 years under the local named the Ethiopian Gaia Association.They were very helpful with information and support; as was the UNHCR country office.

3.1 Purpose

In order to gain familiarity with the context for the planned workshop in Ethiopia, an exploratory trip was planned and executed during May 2013. The plan was to create a network for the conduction of a participatory workshop as well as visiting refugee camps to gain familiarity with refugee challenges.

The trip to Ethiopia was targeted to:

- Find stakeholders appropriate for the participatory workshop

- Plan access and case studies for the refugee camps

- Gain first-hand experience with the context

There are many interrelated reasons why preparation for a participatory process must be given sufficient time and personal effort. From personal experience, working in different geographic contexts I was aware of the importance of personal commitment. Face-to-face interactions cannot be emphasized enough when planning a project that spans a large distance; particularly when the project depends on volunteer contributions. By meeting stakeholders before conducting the workshops, the chance that they will respect the research project; view it as a project of integrity; and be more likely to commit and contribute. Trust-building is further a precondition to creating a successful participatory process (Renn, 2006, Christopher et al., 2008, Schuler and Namioka, 1993), since lack of trust can affect the input and power relations.

The preparatory study enabled me to interview a selection of stakeholders before the workshop to gain familiarity with their priorities and interest in the topic of energy for humanitarian interventions. This allowed me to narrow the focus for the contextualized steps of the research design and to include them in the design of the workshops.

The preparatory study also provided information about which stakeholders should be included in the Ethiopian workshop. This idea was deduced from the assumption that different contexts and stakeholder systems would provide different opinions on who should be present for the workshop.

The trip also provided an opportunity to add insights into the work culture, social structure, politeness and other sensitivities required of the workshop design. When

conducting any event that involves many people, the knowledge of the place is a practical benefit for the planning. Understanding the need for proper introductions, format of invitations, and general etiquette, is very important when designing an event that will be appreciated as respectful of the participants. Familiarity with the context is also a practical issue, as it becomes easier to arrange conference space, transport, and service expectations. This is even more important in areas where communication can be challenging, as in Ethiopia where there is little internet service or internet calling services such as Skype (which is restricted by law in Ethiopia).

3.2 An encounter with Ethiopia

Ethiopia is the oldest independent country in Africa and one of the oldest in the world - at least 2,000 years. It may be traced to the Aksumite Kingdom, which coalesced in the first century B.C. (CIA, 2014). The Federal Democratic Republic of Ethiopia is a communist regime run by the ethnic minority Tirgayans. The government manages a country spanning three different climate zones, and nine ethnically based states called kililoch, singular kilikil, and two self-governing administrations (CIA, 2014). They have an impressive history without colonialism and extreme poverty challenges. The country is administrated by the Ethiopian People's Revolutionary Democratic Front or EPRDF (including the following organizations: Amhara National Democratic Movement or ANDM; Oromo People's Democratic Organization or OPDO; Southern Ethiopian People's Democratic Movement or SEPDM; and Tigray People's Liberation Front or TPLF) (CIA, 2014).

During the preparatory study and the following visits to Ethiopia, I observed the fast construction of buildings and highways in Addis Ababa. Infrastructure is visibly a priority of Ethiopia, yet in many areas of low income inhabitants are forced to move and market places are eradicated as a result of the city planning. The number of non-governmental organizations in Ethiopia is above 4000 (ICNL, 2014) and a high presence of embassies and national relief and development agencies from all over the world. A dramatic increase in the presence of NGOs occurred following two grand famines in 1973-74 and 1984-85. The international NGOs, well-paid UN and embassy community has inspired an impressive restaurant and night life scene, which add to the impression of Addis Ababa as a contrast filled city.

Images of the president fronting the construction of a large hydropower plant that will meet Ethiopia's extreme electricity need were broadcast on national television. Ethiopian electricity is currently at 4.929 billion kWh (CIA, 2014) and 89.7% is generated by hydro power. Meeting more of the electricity demand is a main priority of the current government. The many conflicts in the bordering areas of Ethiopia, particularly the unpredicted war with Eritrea, made Ethiopia a focus for conflict studies (Negash and Tronvoll, 2000, Erlikh, 1983). The war is an example of how perceivably small disagreements (based in longer ethnic and resource struggles in this region) can spark conflicts rapidly, which again demonstrates the relevance of Ethiopia in

humanitarian matters. Addis Ababa's majority is Christian Orthodox and their presence is strongly visible through churches, singing, national dresses and the slaughtering of goats for religious celebrations in the streets. The image of the many contrasts in Ethiopia continued with many discussions about the Somali minority in Addis both in the national newspapers and by the people that I met. Taxi-drivers and guides told me, that Somalis were 'all planning to become mass murderers' and made too many babies who would also become murderers. This view on 'others' as 'wrongdoers' was noticeable and contradicted other quotes that I heard such as 'Ethiopia is a country where Muslims and Christians can live side'. Other comments about different ethnic groups included: 'Chinese might even eat human meat, although there is no evidence yet' and Coca-Cola should not be drunk, as it was 'the poison of Jews'

My general impression was that Ethiopians are proud of their background and take ownership of the development and future of their own country. That this pride is reflected in how the Ethiopians see themselves: as Ethiopians rather than Africans. This was confirmed when I walked past a short, dark-skinned shoe shine boy with an Ethiopian, when he burst out "see, he looks almost African". It made me compare this impression to how Norwegians perhaps like to distinguish ourselves from earlier authorities, and the need for people to frame enemies in order to keep a nation's support together.

3.3 Interview set-up and scope
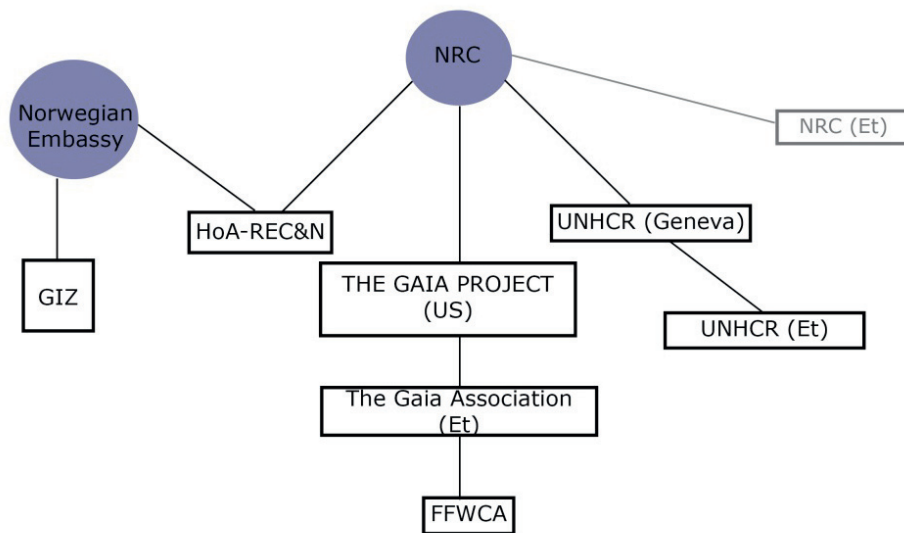
Figure 7: Purposive sampling Ethiopia

I spent a week in Ethiopia for the preparatory study. Interviews with the NRC and the Norwegian Embassy in Addis Ababa led to a list of stakeholders who were contacted for the participatory workshop (Figure 7).

The sampling requirement was that the stakeholders selected had to have a clear interest and invested resources into solving the issue of energy access in refugee camps. The previous diagnostic study had been open ended, semi-structured with the objective of grounding insights about the topic and perspectives. It was important to undertake the preparatory study in Ethiopia in a similar, open-ended, manner. All interviews lasted between one and two hours.

Table 4: Stakeholders and interview method

Stakeholder body	Informant	Method
The Norwegian Embassy / NORAD in Addis	Head of Energy plus section	E-mail and skype interview with head of energy plus section in Ethiopia
GIZ	Director and Renewable Energy Market Development Advisor	Semi structured interview at the GIZ compound in Addis Ababa
The Horn of Africa Regional Environment Centre & Network (HoA-REC&N)	Executive director and deputy director	Semi structured interview
Project Gaia, headquarters	Founder and Executive Director and Project Coordinator	Semi structured skype interviews
The Ethiopian Gaia Association, Addis Ababa	Project Coordinator and Project Manager	Visit and demonstration of stove and industrial capacity building initiatives, interview and small group discussion
UNHCR, Addis Ababa	Associate Environmental Officer	semi structured interview

UNHCR Addis Ababa:
NRC provided me with the contact details for the UNHCR environmental unit who put me in touch with UNHCR in Ethiopia. UNHCR is heavily represented in Ethiopia. They were running 14 camps and planned to open four new camps during 2014. The camps were run by UNHCR alongside the government counterpart Administration for Refugee and Returnee Affairs (ARRA).

The 2014 financial requirements for humanitarian action directed at refugees in Ethiopia were set at USD 199.8 million and were fully allocated to refugees across five groups: Eritreans, Somalis, South Sudanese, Sudanese, and urban refugees(UNHCR, 2014c).The UNHCR interviews were conducted at the UNHCR country office in Addis Ababa, with the Associate Environmental Officer. She had broad experience with energy issues particular to refugee camps, in the Ethiopian setting. Many of the challenges mentioned were related to fuel access and moving away from firewood as a fuel due to a government ban. The main concern was that few other fuel alternatives except from kerosene, had to be imported to Ethiopia and had increased in price. Ethanol was not available in large enough quantities to lower the price.

NRC Addis Ababa:
NRC's country office in Ethiopia did not accept the invitation to meet for an interview. Trying to approach the NRC in Ethiopia through skype to set up a meeting was difficult and the responses delayed. Beyond the advices from Oslo Headquarters of participants for the trip, the NRC locally could therefore not be included in this exploratory visit and had little possibility of affecting the findings. I never received any clear reason for this other than vague hints about how relationships between the NRC in Oslo and the NRC in Addis Ababa were not smooth. The UNHCR on the other hand contacted me and was available for energy research conversations nearly continuously, both the local and international staff. UNHCR became the central stakeholder facilitating camp access and communication with ARRA during the research phases in Ethiopia.

The Norwegian embassy:
The Norwegian embassy was contacted by Skype ahead of the visit, since the Regional counsellor for Climate Change, Environment and Clean Energy was out of the office during the preparatory research visit. She informed me, via an interview that lasted approximately 45 minutes that Norway signed, in December 2013, an agreement with the Ethiopian government about phase I of the Energy+ initiative in Ethiopia. This partnership agreement between Norway and Ethiopia initiated the Rio High Level meeting in June 2012. The goal of that meeting was to increase access to renewable energy and to reduce emissions from remote areas of Ethiopia. This project was to be run in three phases. Phase one would initiate the activities and the donors would make payment available. The donations for phase 2 and 3 were results based. When asked about working culture and social sensitivities in Ethiopia, the embassy representative told me that she found Ethiopians to be surprisingly similar to Norwegians. NORAD

and the Norwegian Embassy also cooperate with DFID (the English development organization) on the Strategic Climate Institutions Programme (SCIP). They focus on strategic transformative capacity building on all levels and actors within the climate including: NGOs, authorities, and the private sector. Also, a Climate Innovation centre was being created with the assistance of the embassy for the promotion of private investments and as an incubator for increased commercial activities. Opening Ethiopia to foreign investment is a priority of Norwegian interests in Ethiopia.

The Gaia Project:
NRC had informed me that the Project Gaia was one of the more successful cooking energy alternatives in refugee settings. They also described Gaia as an organization that embraces the values of humanitarian relief and transitional development challenges, and works with the triple bottom line view of sustainability. The Gaia Project distributes donated stoves that run on ethanol. The stoves are produced in Estonia by the Swedish enterprise Dometic. Gaia, however, adds a business model aiming at self-reliance, by setting up small enterprises where women can sell ethanol. They also try to import micro distillers to Ethiopia in order to provide necessary fuel and additional income to those involved. The Ethiopian Gaia Association cooperates with the Former Women Fuel Wood Carriers (FWFWC) organization for the promotion and training of women within this model. The FWFWC is a women's organization that originally was an initiative of the International Labour Organization (ILO).

During the meeting with the Gaia association, I was shown around the little compound in the middle of Addis Ababa, where they were testing the stove and working to improve the energy situation in Addis and in refugee camps in the east of Ethiopia. Gaia also works with domestic industries in order to build capacity and identify the industrial requirements needed to produce the ethanol stove locally. The time aspect of working with industrial development in Ethiopia was discussed, as import regulations, bureaucracy and infrastructure demand a long-term view, lots of networking and patience.

HoA-REC&N:
NRC in Oslo also advised a visit to the Horn of Africa Regional Environment Centre and Network (HoA-REC&N). They originated from the University of Addis Ababa and became an autonomous institution which "focuses on environmental concerns and sustainable development options within the Horn of Africa"(HoA-REC&N, 2014). The HoA-REC&N builds "initiatives related to land use planning, integrated water resources management, ecosystem management, climate change and energy and value chains for sustainable products and services. The Network, hosted and supported by the Centre, promotes more than 40 endogenous civil society organisations, higher learning institutions and research centres, in Djibouti, Ethiopia, Kenya, Somalia, South Sudan and Sudan" (HoA-REC&N, 2014). HoA-REC&N's Deputy director agreed to meet me in spite of the 1st of May holiday and I interviewed him and a technical program director

for almost two hours about energy challenges from the Ethiopian perspective. HoA-REC&N has broad experience with energy issues in Ethiopia and were invaluable in framing my understanding of the Ethiopian energy context and approaches.

GIZ:
The Norwegian Embassy in Addis Ababa recommended that I speak also to the German Society for International Cooperation (GIZ) who also had extensive experience with off-grid energy technology introduction programs in the Ethiopian setting. GIZ is the implementer of the initiative Energizing Development (EnDev) which Norway strongly supports. GIZ focuses on fuel efficient stoves, micro hydropower, and photovoltaic solutions for health centres as well as pushing for policy changes in relation to these issues. They were particularly interested in the effect of small scale energy centres in remote areas, and how it would affect life in rural, off-grid areas. One issue that they particularly stressed was that in order to keep skilled personnel such as doctors in remote areas, electricity was a game-changer. Providing people with the ability to charge a cell phone and perhaps even listen to the radio was something that made people more willing to stay in poor areas that needed development and improved their well-being.

3.4 Findings and implications for further approach

The interview data created an image of a country with an authoritarian style, and restricted opportunities for private enterprises, unless they had a strong connection to the local governing authorities. It is, according to participants, difficult to import the materials and technology needed to set-up and maintain solutions. Instead, the Ethiopian approach appeared to be a planned approach, where governmental bodies assess needs and contextual demands, and then experts are brought in to solve the particular problem. Due to their political situation with Eritrea, where the border had been closed since the war, illegal trade was common through Somaliland and Djibouti. Asian low-cost products were available and were bought by refugees and other low-income consumers. HoA-REC&N and GIZ articulated that the donation of lamps and stoves were destructive for direct market creation. The government focused on regions described as 'unaffected by humanitarian aid'. The Government of Ethiopia was trying to supervise this situation by adding local police authorities in local regions. The police would close down any enterprise selling products that were not of high quality and failed to perform.

3.4.1 Household energy
Household energy was one of the issues that affected the biodiversity and the everyday life of the Ethiopian refugees the most according to the participants. According to the interviews, solar cell driven lamps were emerging quickly on the Ethiopian market, both legally imported and those arriving through illegal trade. Both GIZ and HoA-REC&N administrated projects related to small scale renewable energy centres, but they did not see them as relevant for humanitarian relief, but rather as a development issue in Ethiopia. Also, the Gaia Association believed they had more impact outside of the

refugee camps; since refugees are restricted from developing small scale businesses. On the positive side, the camps had more direct donations and provided a more structured place for project implementation and follow-up which provided them with valuable information about how to improve their programme.

Infrastructure and legal restrictions were mentioned directly and indirectly by all non-government affiliated informants. The difficulties of importing technologies and equipment for industrial capacity building and even maintenance of distributed technologies, was central to this discussion. For metal workshops, the high tax on imported metal influenced the type of products that were affordable for the local industry. For example, most metal products in Ethiopia were either recycled items or reshaped used items that were welded by hand. Other products were made by very small metal pieces, since the high tax rate did not apply to materials that did not measure more than 1 m^2. One participant shared a story of how during the war with Eritrea, the Ethiopian government threw out the only industrial owner who knew how to produce higher quality technologies, such as stoves. For the local production of more advanced metal products, such as a gas canister for a cook stove, Ethiopia did not have the machinery that would build them in a safe and durable manner.

On one hand, household energy alternatives are one of the most complex issues to solve. They require the coordination of local service systems responsible for fuel supply, local legal frameworks, humanitarian relief standards, and resource management in addition to the design of the stove to fit the user and buyer preference. At the same time, it is an issue that if approached, could contribute to bridging the gap between short and long term development and resilience concerns.

Since all stakeholders shared this view on the topic of energy in refugee camps and humanitarian settings, it was decided that household cooking would focus the future research endeavours in Ethiopia. This shared focus was also appropriate for a participatory stakeholder workshop that was planned.

During the meetings with UNHCR, GIZ and HoA-REC&N, the central issue discussed was household energy. This was, also, described as the most challenging issue for all of the stakeholders. Even though GIZ also worked on installing renewable energy health centres across the country, they perceived the household energy issue as their biggest challenge. The focus on the Gaia ethanol stove project was ideal to frame the refugee camp context.

The meetings led to two assumptions about short and long term development objectives. On one hand, Ethiopia is a country where private sectors need a specific approach and products must be specifically fitted to a setting without infrastructure that provides appropriate maintenance. At the same time, the determination of government partners to solve the problems of all Ethiopia could be a context where a multiple stakeholder

approach would be highly relevant. The Ethiopian stakeholders had a high commitment to solve contextual issues locally.

3.4.2 Views on humanitarian relief and environmental impact

The stakeholders did not express that the negative impact on the environment was any lager in the refugee camp areas, than in other low-income, off-grid areas in Ethiopia. However, the interviews revealed that the impact was considered threatening to other types of progress. When considering development projects dependent on sustainable market creation, these projects would avoid the regions of heavy long-term humanitarian intervention. The reason was that, those regions were stuck in a dependency-cycle, and basing a development project on a scalable model of income was impossible. Typical models would be capacity building approaches combined with a business model and a product/service system solution that was not applicable in a humanitarian context. It was also regarded as difficult to sell high quality products in the host community surrounding a refugee camp, as people were used to donated, imported items. In general, these interventions were spoken of as if humanitarian NGOs are 'intruders' with negative impact, rather than the refugees being the problem.

3.4.3 Selection of and admission to refugee camps

During the preparatory study it was revealed that in Ethiopia, an affiliation with an NGO was needed to enter a refugee camp. Approval must be given by both the Ethiopian UNHCR and the Administration for Refugee and Returnee Affairs (ARRA). The Gaia Association agreed to provide an invitation letter for the future application of a research visa and admission to the camps. A precondition also included was that the association would accompany the field visit personally, therefore the planned refugee interviews would need to coincide with a planned visit to the field by Gaia staff. The Gaia staff planned to travel to the three refugee camps in Eastern Ethiopia in October the same year, where they had distributed stoves and were running ethanol programs and training. The Kebri Beyah refugee camp, close to the town of Jijiga in the Somali region of Ethiopia, was selected as a suitable location for data gathering in a refugee camp. The eastern camps were easily accessible in contrast to Dollo Ado, which would require United Nations transport that would further challenge the planning.

Considerations for stakeholder involvement in further research:

The preparatory study had provided suggestions about who should be included in the participatory process from Ethiopia. The stakeholders interviewed emphasized that all relevant ministries must be involved as early as possible, to protect the sustainability of the project. They provided several stories of how projects fell through or had to start over because someone from a ministry had not been involved from the beginning. Therefore, a list of the recommended governing institutions were noted from the interviews and included in the invitations for the workshop.

The lack of enterprises on the list, in comparison with the participants involved in the interviews was evident. The significance for the entrepreneurs in Norway is that they

often under estimate the importance of political networks and how the view of private enterprise can be in different settings. While the Norwegian Ministry of Foreign Affairs support the build-up of networks to front private enterprise solutions in humanitarian relief, the government of Ethiopia sees the energy issues as a matter of government and public affairs. This issue will be further discussed in the workshop planning and execution sections in chapter 4.

3.4.4 Norwegian and Ethiopian culture comparison and relevance for interaction

Nevertheless this incident triggered the question of whether Ethiopians may be as 'uncertainty avoiding' (Venaik and Brewer, 2010, Hofstede, 1983)as Norwegians; meaning that they avoid any semblance of a rejection during interactions. The people that I met in Ethiopia were very polite and easy to connect with, but cultures that are uncertainty avoiders often 'beat around the bush' so I wondered if this was a commonality between our cultures.
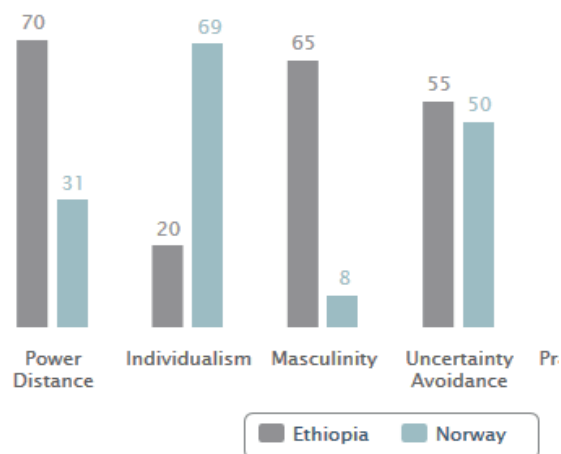
Figure 8: Cultural index comparison of Norway and Ethiopia (www.geert-hofstede.com)

The Hofstede dimensions (Hofstede and Bond, 1984) provide a quick if un-nuanced way of comparing cultures through qualitative indicators. I checked my observations with the Hofstede dimensions. My reflections about Norwegians and Ethiopians having similar levels of 'uncertainty avoidance' were supported by the Hofstede indicators. The indicator is described as: "The dimension Uncertainty Avoidance has to do with the way that a society deals with the fact that the future can never be known: should we try to control the future or just let it happen? This ambiguity brings with it anxiety and different cultures have learnt to deal with this anxiety in different ways. The extent to which the members of a culture feel threatened by ambiguous or unknown situations

and have created beliefs and institutions that try to avoid these is reflected in the UAI score".

Another observation that might be linked to the power distance indicator is that I, found that some of the participants were under the impression that I was a professor, even though I had introduced myself as a Ph.D. researcher. They might not have agreed to meet with me, if I was not a professor. This might be linked to the issue of future research opportunities; professors naturally have the power to apply for more funding and can be better collaborators for long term endeavours. This misunderstanding fortunately worked in my favour.

Briefly commenting on the other indexes, of Power Distance (PD), Individualism and Masculinity, one can see that Ethiopian culture in general has a higher acceptance of power difference. This could explain the reason I was invited to higher level meetings when it had been assumed I was a professor. The high collectivism compared to Norwegian culture could explain some of the reasoning behind including every stakeholder in every decision. The Masculinity indicator shows that the "society will be driven by competition, achievement and success, with success being defined by the winner / best in field – a value system that starts in school and continues throughout organizational behavior". These insights can provide me with some pointers on how to motivate participants during a workshop setting.

These comments on cultural indicators and implications do not provide research evidence in a methodologically valid way, but rather serve as an explanation of my considerations and reflections around sensitivities that affected my decisions. Impressions such as the idea that Ethiopians are 'uncertainty avoiders' in the same way as Norwegians, and that they expect large power distances made me pay more attention to my manner of communication. It made me focus more on interpreting communication, than what might be necessary in a more individualistic, risk taking country would require.

3.4.5 Other reflections and practical lessons

The interviews were conducted in the order listed in Table 4. The two first interviews were formal. The setting of the interview with the HoA-REC&N is described in the diary entry at the very beginning of this chapter. The first of May is a holiday and I had corresponded with the different participants for a while. It appeared as if nobody wanted to tell me that this was a difficult date to work. I received an e-mail the day before arriving saying that 'it might be difficult to see you due to the first of May holiday'. Of course the Ethiopian calendar should have been consulted more closely, but the update on the Ethiopian embassy in Stockholm was not up to date.

The preparatory study also allowed a glimpse into the logistics of the planned workshops and field visits. The stakeholder offices were all located near the Bole road. Due to the unpredictable traffic pattern in Addis this was a practical concern and the

decision to use a conference hotel in proximity to Bole Road was made. It was challenging to reserve conference hotels and also hotel rooms via e-mail and phone due to language difficulties and poor connections, so personal attendance to this was a benefit as well.

3.5 Conclusion: Humanitarian action 'worldviews' from Ethiopia and Norway

The diagnostic study and the initial stakeholder interviews in Ethiopia provided different types of individual and stakeholder group 'worldviews'.

Table 5: (Broad) comparison of donor and host country views

Diagnostic study	*Preparatory study in Ethiopia*
Priorities: cost, time, logistics	Priorities: developing infrastructure, water and energy on country level; household energy
'Real' energy objective: operational building energy	'Real' energy objective: solve the household energy problem in Ethiopia
Policy energy objective: household energy	Policy energy objective: solve the household energy problem in Ethiopia
Drivers : multiple agendas, changing policies, interest in involving private enterprise	Drivers: country politics, country development objectives, protecting biodiversity
Policy objectives: Less damaging camp management (UN system) Provide opportunities (Designers)	Policy objectives: developing infrastructure, protecting biodiversity
Main challenges: -timeframe -contextual unpredictability -unpredictable stakeholder landscapes -short-term funding - no access to end-user and end-user context	Main challenges: -lack of collaboration with humanitarian system and integration in development work - negative effects of donations in humanitarian relief areas on sustainable market creation - off-grid energy devices are stored and handled poorly

On one side it provided insights into what humanitarian stakeholder roles signify and which roles and impacts they have or the beneficiary stakeholders believe that they should have.

STAKEHOLDER WORLDVIEWS NORWAY/ETHIOPIA
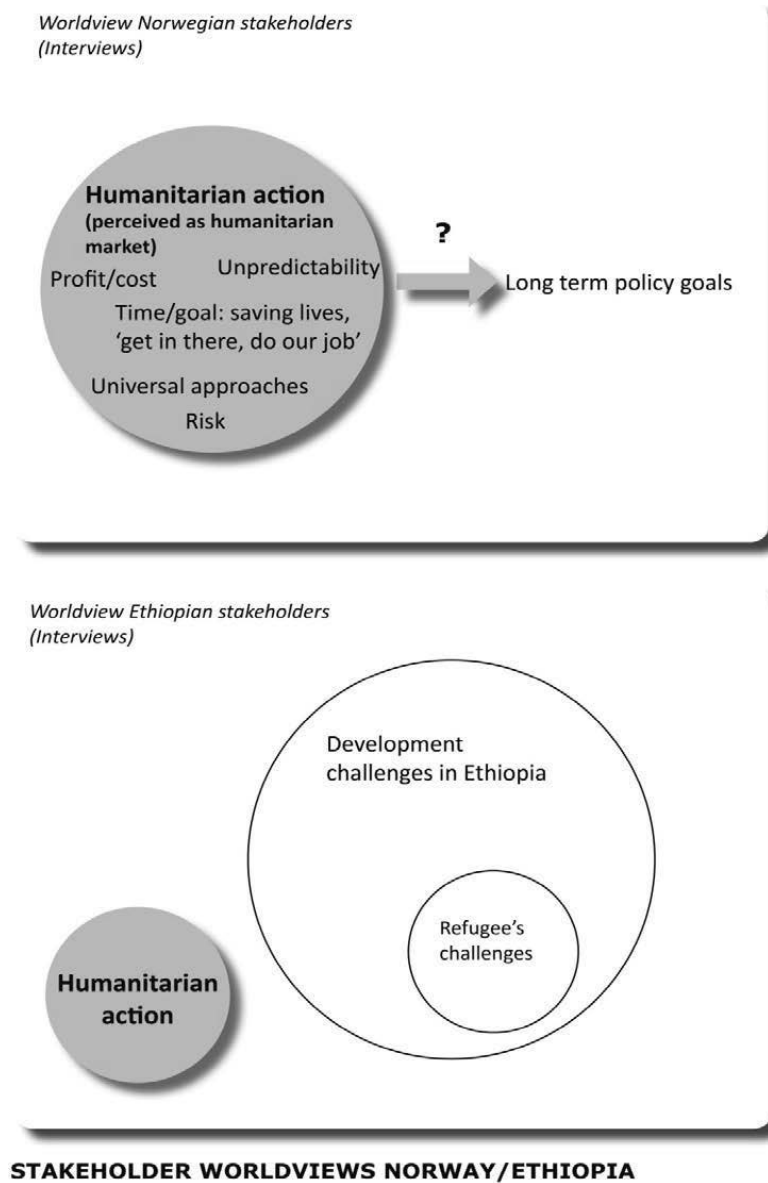
Figure 9: Worldviews

The view on humanitarian action and its challenges differed between the host country and the diagnostic study participants from donor countries. For example, it was easier for the Ethiopian stakeholders to pinpoint definite challenges and Ethiopian concerns. Refugee camp energy concerns were regarded as a part of a bigger picture of development challenges, where humanitarian stakeholders in Norway expressed it as a pure humanitarian concern within a systemic top-down approach. The preparatory study in Ethiopia regarded some conflict in the development/relief relationship as normal, as humanitarian relief is regarded as a disruptive activity for future development due to its interruption of Ethiopian market creating activities. Table 5 shows a comparison of the views extracted from the diagnostic study versus the stakeholder interviews in Ethiopia. These differences can be shown in a simplified manner in an organizational image. Stakeholders interviewed in the diagnostic study in Norway described a view of humanitarian action as separate from the long term policy goals of the UN and others. They emphasized sustainable camp management and transitional development. Ethiopian stakeholders also regarded humanitarian action as irrelevant in the discussion of refugee challenges and solutions; however they were closer to suggesting a solution by encompassing them within the development strategies of the country as a whole.

3.6 Summary

The preparatory study in Ethiopia shaped an understanding of a poor and politically challenged country where Ethiopian stakeholders regard the needs of refugee camps as no different, but instead a part of solving the needs of the country in general. Ethiopia is aiming at solving their challenges of water, energy and food scarcity on a country level, while the participants were not expecting that the country as a whole will benefit from on grid electricity in households. They therefore did not regard the needs of refugees as any more important than other marginalized citizens. Still, the relationship between the UNHCR and the government, on the issue of Energy, does not include collaboration between the two, according to the interviews. The open-door policy allows for refugees to live in Ethiopia and receive refugee status, but the government sees the life standard of refugees in terms of improving services as no particular priority. The inclusion of UNHCR and relevant governmental stakeholders should be included in the participatory approach to seek to understand this relationship and possibilities in more depth.

Moreover, the meetings provided a peek into a work culture that has larger power distances. The way one negotiates a topic is expected to be more expert-like than in Norway. These steps require a more formal preparation and execution. On the other hand, the similar uncertainty avoidance between Norway and Ethiopia indicated that issues worth investigating should be investigated first-hand and on many levels in order to reach full understanding. Lastly, the input of involving multiple stakeholders in my approach was further encouraged by indications that a project must involve a large number of partners in order to be considered feasible and appropriate.

4. The refugee's perspective

The students are sitting on the mat facing the young woman who is sitting in the shadow of a tree, the trunk at her back and surrounded by her family members who are standing in a half circle behind her. The students start asking her questions concerning what is her most positive and negative views on living in the refugee camp. When the students proceed to the question of "what would you do if you could do anything else than cook all day and clean all day" she shrugs her shoulders, laughs with a tint of bitterness and looks at them amused yet annoyed. She turns to the interpreter, saying "what do they mean? As if I had a choice? I have to cook and clean, I have no other option, how can they ask such a question?"

Note from research diary, Kebri Beyah refugee camp

The diagnostic study demonstrated that the refugee perspective was not an integrated part of the sustainable technologies discourse within humanitarian action. There is no significant consideration of the refugee perspective amongst enterprises or customers when designing technologies. No design literature was found that explains how to approach the humanitarian recipient – in this case the refugee - as an end-user.

A question that arose while immersed in the diagnostic study was: Does the refugee in a sub-Sahara refugee camp differ from other targeted low-income individuals when designing for development settings? This question is also an underlying concern of James Kennedy's Ph.D. work "Structures for the Displaced: Service and Identity in Refugee Settlements" (Kennedy, 2008). Kennedy asks 'transition to what?' This question considers whether the motivations of the refugees are related to the assistance that they expect to receive from the humanitarian system. Some refugees resettle in new countries, but others stay in refugee camp communities. What will they turn into? From what and to what should we help refugees transition? Do we expect displaced, disaster affected populations to transition back to the situation they lived in before they arrived at the refugee camp, or should they expect to reach the standard of living that the local host community has? Which motivation drives the refugees as opposed to the other, in this context, of marginalized people in development countries?

The article collection Culture, Power, Place (Ferguson, 1997) explores interrelations between culture, power and place in view of global migration. From the statement that "to be rooted is perhaps the most important and least recognized need of the human soul"(Coles, 1987, Weil, 1952), social science scholars studying refugees have been concerned with place-making and "refugeeness" (Malkki, 1992).

Refugees are, according to refugee anthropology, reshaping their identity when they enter a refugee camp. Coming from one culture, interrupted by crisis, refugees shape a new, 'refugee identity' (Oliver-Smith, 1991, Oliver-Smith, 1996) to cope with their new reality and dependency on the international relief system. However, refugee anthropology has expanded the definitions of the terms 'place-making' and 'rooted' since migration is becoming a global and increasingly complex and repeating pattern.

I wanted to explore the topic from anthropology by linking it to the design and energy focus of my research. The empathic, design approach that enterprises reflected in the diagnostic study, implies user centeredness. Empathic approaches are often inspired by ethnographic methods, as a way to generate solutions to solve the needs of the marginalized individual. Particularly, participatory approaches are regarded as an empathic stance and a way for design to increase ownership. A greater sense of ownership can lead to a greater degree of technology acceptance and in the long run, sustainability.

I will refer to the refugee in this chapter as a female because in the case of livelihood issues such as energy consumption, the woman is often the individual responsible for 'soft-preconditions for self-reliance' (Galtung, 1980, Galtung et al., 1980), such as resource gathering and education. A refugee's, as any other individual's motivations, presumably result from their complex contextual background, as well as, current influences. Her potential and motivations cannot be fully understood simply by orbiting the individual. Beyond interviews, focus groups and participatory observation it was considered necessary to understand the dynamics of the humanitarian refugee system and objectives related to self-reliance. What opportunities does this system provide and limit? The following exploration will be described in a holistic and narrative sense; including resettled refugees in Norway, direct experience with the humanitarian stakeholder system in Ethiopia, and the history and hierarchy of the Somali region of Ethiopia as integrated parts.

4.1 Interview with Bhutanese refugees in Norway

I had realized that accessing the vulnerable refugee in the field was going to be a challenge, at the beginning of my research. While waiting for a second opportunity from NRC, alternatives to field research were solicited. I knew that one problem of the design process for humanitarian relief was end-user access. Understanding whether the refugee's motivations were relevant for the study topic could not be left out of the research design. An option was to interview resettled refugees in Norway with experience from refugee camps. Could ethnographic interviews of resettled refugees provide any insight about the experiences of refugees in camps that were relevant to the framework?

Interviewing refugees that are resettled to a third country, and have been provided a safe and predictable future, could provide a way to obtain research data on this topic. This

could serve as preparation for field research. Hopefully, it will also provide an indication of the concerns of refugees and frame a basic understanding of 'refugeeness'.

In preparation for ethnographic approaches, designers would need to increase their knowledge of qualitative approaches. Relevant sensitivity issues were added from refugee and disaster anthropology (Button, 1991, Oliver-Smith, 1996, Wisner, 2004). Through volunteer activities at the Red Cross, I gained the trust of a family from Bhutan who spent 18 years in a Nepalese refugee camp. I conducted the interview in their home in Trondheim, Norway. A woman and her husband were interviewed in a household of eight people.

The woman was asked to tell their story from when they left their homes until arrival in Norway. This approach is seen as a trust-creating and open minded way of approaching a topic. From there, I could ask more specific questions related to the topic of energy, and the refugee camp context. Further, the focus on asking about activities rather than abstract or direct questions on 'energy' or 'motivations', is a well-known approach that is useful in interviews (Smith, 1987).

The answers provided by the husband in this interview supported refugee anthropology study findings of refugee's motivations in camps (Doocy et al., 2012, Oliver-Smith, 1991, Oliver-Smith, 1996). These include concern over income gathering strategies outside of the refugee camp. The woman however, was mainly concerned with protecting their children, removing them from harm, and achieving medical attention. Upon arrival in Norway, her motivation changed to wanting to provide the children and herself with an education, seeing more opportunities here than where she came from. She was illiterate and explained that the women's role was to take care of the household in the camps and perhaps a cow. The husband described great difficulty in adjusting to the role of recipient, having to look for a new 'identity' after feeling emasculated. The woman did not indicate any such problem. She was, busy fulfilling her own concerns of protection as steps on the way to becoming independent.

When asked more specifically about energy access, and by centring on activities related to energy, the woman talked how the camp managers had changed the fuel supply. It affected both the health of the family and the taste of the food. The taste however was not a concern as they got used to it. Still, they highlighted that they had no idea why the camp management changed the fuel strategy and lack of information on those decisions was hard to adjust to. When asked about the stay in the refugee camp, it was clear that safety for the family was a central concern during their long stay in a nepalese refugee camp.

> *Wife: Everyone cooked for their own families. We cooked in shelters made of plastic.*
>
> *Husband: Most things were made of plastic, only some of bamboo.*
>
> *In the beginning we had oil to cook with but then they gave us charcoal. I do not know why they changed from oil to charcoal. It affected us a lot. In the morning the whole camp was covered by a large smoke carpet.*
>
> *Wife: After that all the children had asthmatic problems. It also affected me and I also got sick.*

One of their daughters died from respiratory complications due to the indoor cooking smoke.

When problematic issues were raised, there was a general lack of understanding about why the camp management resolved it the way that they did. The helplessness of having to follow someone else's rules without understanding their purpose was clearly an issue that made them feel powerless and *unsafe*. This lack of understanding about the decisions made by the camp manager was raised several times during the interviews, and was related to many different topics.

When telling her story from leaving Bhutan until they arrived in Norway, the woman's face and voice became much more cheerful. She expressed gratitude for having arrived in Norway and how different it felt once she knew this was where they were going to stay. Particularly, that she could start to build a future. Most important was that her girls could get an education, and that she could learn to read and write herself. This showed how the goal was reached by the woman when achieving permanent residency in Norway, while the man had a different and more out of reach motivation of restoring his home in the country he was forced to leave due to the Bhutanese government's treatment of Hindus. While the husband seemed driven by a pain of having been removed of his pride and did not know how to provide for his family and fit in a role in Norway, the wife was happy as her family was safe and had opportunities for education and prosperity.

The woman and man had felt powerlessness during their stay in the camp, and the man expressed that he felt disempowerment since he could not sufficiently provide for his family and keep them safe. This case indicates that one of the needs of the refugee is to receive enough information and feel enough control over their lives to feel safe. They need to feel safe in order to protect their family.

The use of an ethnographic inspired interview technique in the Trondheim setting showed that it was possible to extract information regarding 'refugee identity' and decipher refugee motivations through this approach. Forced migration affects people's motivation and prospects. Some of these effects can be glimpsed during the interviews. The interview study also provided some valuable experiences with language challenges,

interpretation and ethical concerns when working with traumatized individuals in research that can be read to its extent in the article Out of Context (Nielsen, 2014c).

The ethnographic interview approach was effective in identifying the motivations of a refugee, showing the focus on safety from the woman's side and protection from the man's side. These experiences were brought into consideration when preparing the study of refugees in Ethiopia.

4.2 Refugees in Ethiopia

Ethiopia has a key role in the current refugee situation on the horn of Africa. Their 'open door' policy for refugees has been positively recognized internationally. Still, UNHCR notes that "There are no provisions under Ethiopia's law for local integration of refugees. While the country maintains reservations to the 1951 Convention notably to Articles 17-19, it supports an out-of-camp scheme, allowing refugees to live outside refugee camps and engage in informal sector activities as livelihood opportunities. The main beneficiaries thus far have been students absorbed into universities, whose fees are paid for by the Government (75 per cent) and UNHCR (25 per cent)" (UNHCR, 2014b).

There are currently 23 refugee camps and 5 transit sites within Ethiopian borders, hosting mainly Somalis, Sudanese and Eritreans.

4.2.1 Selection of refugee camp for research purposes

Three camps in the eastern part of Ethiopia were suggested by the Gaia Project and the Gaia Association in Ethiopia, as possible sites for this research. Since an authorization depends on affiliation and a letter of invitation from an NGO working in a refugee camp, the presence and work of Gaia in these camps were a practical necessity. These camps were suitable for the purpose of learning more about the relationships between stakeholders and refugee's viewpoints due to their long term presence and the environmental challenges found in the camps.

The three refugee camps surrounding the town of Jijiga since 1988 are extremely scarce in natural resources. The land used to be covered by low trees and vegetation, before the camps were established. Yet, longer periods of drought have affected the areas. There is little documentation available that explains the main cause of the arid land and lack of water. In the neighbouring Somalia and Somaliland, it has been documented that the civil war led to deforestation. Firewood and timber are a quick source of income for warlords during armed struggles and the never ending civil war (Ross, 2004). Whether refugee camps are a main cause of deforestation or if it is war lords or other effects that harm the natural resources in these areas is however not proven (e.g. (Jacobsen, 1997, Jacobsen and Landau, 2003). What seems certain, is the lack of vegetation and water resources which are extremely scarce in an area where the population is increasing. Three refugee camps are still administrated, more than 26 years after their establishment. The Somalis in this region are traditionally nomadic and pastoral communities (Bogale and Korf, 2007, Devereux, 2006). Once the refugee camps were

established, the little town of Jijiga almost doubled in size, as jobs were created in the offices of the relief and development NGOs. Ethiopian refugee camps are administered by the Ethiopian African Refugee and Returnee Association, (ARRA) but the registration of refugees is managed by the UNHCR. The UNHCR and ARRA work side by side in all aspects.

4.2.2 Ethiopia and Somalia

 "The Europeans embraced the Somalis for what could be had of them, and in return gave back the Kiss of Judas. The deadly imprint of that kiss can be seen in the faces of the refugees who, today, face starvation in waterless camps or wander about in Somalia begging for livelihood".

The betrayal of the Somalis, FitzGibbons 1982

All refugees in Kebri Beyah that were selected for the field research are of Somali origin and Kebri Beyah is located in the middle of what is called the Somali region. During 2013, Somalis were the largest refugee population in Ethiopia(UNHCR, 2013a). As the quote from FitzGibbons indicates, resource scarcity for refugees in the Somali region is not a new challenge but a part of a larger, geopolitical power relationship issue. The relationship between Somalia and Ethiopia remains the longest and most tense of Somalia's bordering disputes. Indeed, before the arrival of European colonialists, the Somali territory stretched all the way to Abyssinia. 'Menelik's kingdom' was described as starting at the Hawash river, west of the town Harar (FitzGibbon, 1982, Starkie, 1937, Margery, 1948). Harar and Ogaden are today both a part of Ethiopia. Harar, a UNESCO heritage site and a beautiful medieval town, was the Muslim religious and knowledge centre on the horn of Africa. In 1887, it was taken over by Haile Selassie's father. French, Italian and English forces signed treaties promising to assist in the protection of the clans within Ogaden. At the same time, they were importing arms and agreeing with King Menelik in his wish to expand Ethiopia. Letters between the English protectorate governors in Harar and England indicated that Ethiopians were brutally raiding Somali clans, stealing livestock, and capturing girls, boys and women into slavery. The strategic moves of King Menelik, when corresponding with English authorities, showed a smart empire. While Somali clans were not of relevant imperial interest when compared to a passage to the Nile which was obtained through the cooperation of Ethiopia. King Menelik regarded the Somalis as 'the herdsmen of Ethiopia' and the partnership between European imperialism and the strategic King resulted in the Somali region being inside today's Ethiopian borders (FitzGibbon, 1982). The view of the 'highlanders' of Abyssinia as more powerful than lowlanders in the Ethiopian power-structure was also suggested during the preparatory study.

The Somali region seen from the capital still seem to be one of strategic necessity yet seen as an area hostile to 'Abyssinians'. During the preparatory study in Ethiopia I met

with a human rights advisor working incognito for a Norwegian development organization and several foreign and Ethiopian journalists. They expressed the difficulty investigating issues of war in the country. The Somali region is particularly difficult to investigate, they told me. They predicted that diplomatic efforts with Eritrea would be conducted, since it is very challenging for Ethiopia to keep a good and safe relationship in the East. The Eritrean war forced Ethiopia to improve their relationship with the Somalis in the east, due to the geographic location and connection with the sea; these hints indicated a continuously tense relationship between abyssinians and somalis that might be disfavouring somali refugees.

4.3 Reasons for focusing on household cooking energy

All of the stakeholders who were approached during the preparatory study in Addis Abeba highlighted household energy as the 'real issue' when it came to energy concerns for camp managers, refugees, host communities and Ethiopian authorities. 95 % of the energy consumption in Ethiopia consists of burning fuel wood for cooking (Wolde-Ghiorgis, 2001, Wolde-Ghiorgis, 2002). Ethiopia banned the use of wood for cooking in 2012. Since then, arrests of refugees have occurred and there is a general increased feeling of insecurity. UNHCR further states that "environmental degradation around camps, the fragile ecosystem and scarce resources have led to tensions between host communities and refugees in some locations. UNHCR is working with partners and the Government to address and mitigate the situation within the confines of limited resources".The lands surrounding Ethiopian refugee camps are deteriorating quickly and the health of the women and children in the camps are threatened by indoor smoke related complications. According to the UNHCR and ARRA, providing refugees with household cooking alternatives is a demanding task; spanning challenges of technology acceptance, maintenance, training and appropriateness. Stoves provided and donated are often selected by donors, and do not match the end-user cultural preference and cooking habits. However, fuel affordability and access to alternative fuels was the most challenging obstacle according to the UNHCR, together with changing and unpredictable laws and regulations related to energy production and use. The explicit focus of stakeholders on household energy, together with the scarce literature available (Wolde-Ghiorgis, 2001, Wolde-Ghiorgis, 2002) informed my choice to focus this study on household energy.

4.4 Methods and considerations

The methods used (Table 6) during the field visit were a combination of pre-selected methods and thinking-in-action approaches. The pre-selected methods were based on ethical considerations, the research topic and data richness. The approaches that were tried out in-action resulted from the unpredictability of external happenings during the research project, and the time- and topic constraints put upon us by the refugee camp bureaucracy.

Table 6: Methods applied in refugee camp

Planned approaches	Modified approach in-action	External factors
Ethnographic interview technique	Semi-structured interview technique	Limitations put upon us by camp managers as to how long we were allowed to stay in camp and what we were allowed to ask questions about.
Focus group discussion	"Negative role play approach" invented by trial and error on site	Uncertainty and lack of time for trust-building may have restricted the flow of communication. Presence of male/authoritarian figures may also have affected planned approach.
Drawing / visual technique	-	Drawing technique was tried as a manner of triggering open discussion.
Observation of food preparation and fuel use	Demonstration and some observation	The amount of staff following us around and dictating what the women should do, as well as the time limitations, hindered the application of observational research techniques.
Open-ended interviews with humanitarian staff	No modifications were necessary	-

Ethnographic interview techniques can be seen as an alternative yet not an equivalent to in-depth field studies. The first attempt to frame an understanding of the refugee as end-user is published in the article Out of Context: Ethnographic interviewing, Empathy, and Humanitarian design (Nielsen, 2014c). This article describes a classical qualitative, semi structured interview, with the dual purpose of framing the refugee 'identity' as well as understanding the relevance of ethnographic interviewing as an approach to understanding vulnerable end-users. The method and analysis are described in this publication (Nielsen, 2014c).

Qualitative interview methods emphasize thorough preparation and consideration of trust-building and consent prior to undertaking interviews(McCracken, 1988, Aase and Fossåskaret, 2007, Widerberg, 2001). In addition, sources on research execution in disasters and among disaster victims underline the particular challenges to consent and ethical conduct when encountering emergency victims that were consulted prior to the visit in Kebri Beyah (e.g. (Association, 2013, Button, 1991, El-Khani et al., 2013, Jacobsen and Landau, 2003, Mackenzie et al., 2007)). Anthropology is also attentive to the role of the researcher and the relationship between the observer and participants in a study. The literature made me increasingly aware of the demand for continuous reflection, particularly regarding the role of the researcher as an outsider.

4.5 A visit to Kebri Beyah refugee camp

Kebri Beyah was created as a response to displacement following the Somali civil war in 1988 and was the main focus for the visit to the Somali region. We landed in Jijiga, the town surrounded by three refugee camps. The land is visibly arid, without much vegetation (Figure 10). Houses can be seen from the air, as little clusters of huts surrounded by fences. This provides each family with quite a large area. Camels can also be spotted, casting shadows on the flat landscape.

Figure 10: Ogaden landscape

It is difficult to say where Kebri Beyah refugee camp ends and where Kebri Beyah town begins from looking at it. The camp and town share a popular market place. The camp has cafés and a visible social scene with men sitting in plastic chairs chewing chat and

goats wandering around the streets. At the time of writing, there were 15502 registered refugees living in Kebri Beyah, 100% were of Somali origin (UNHCR, 2014a). These refugees were divided into 2,173 households divided into four zones (Figure 13).
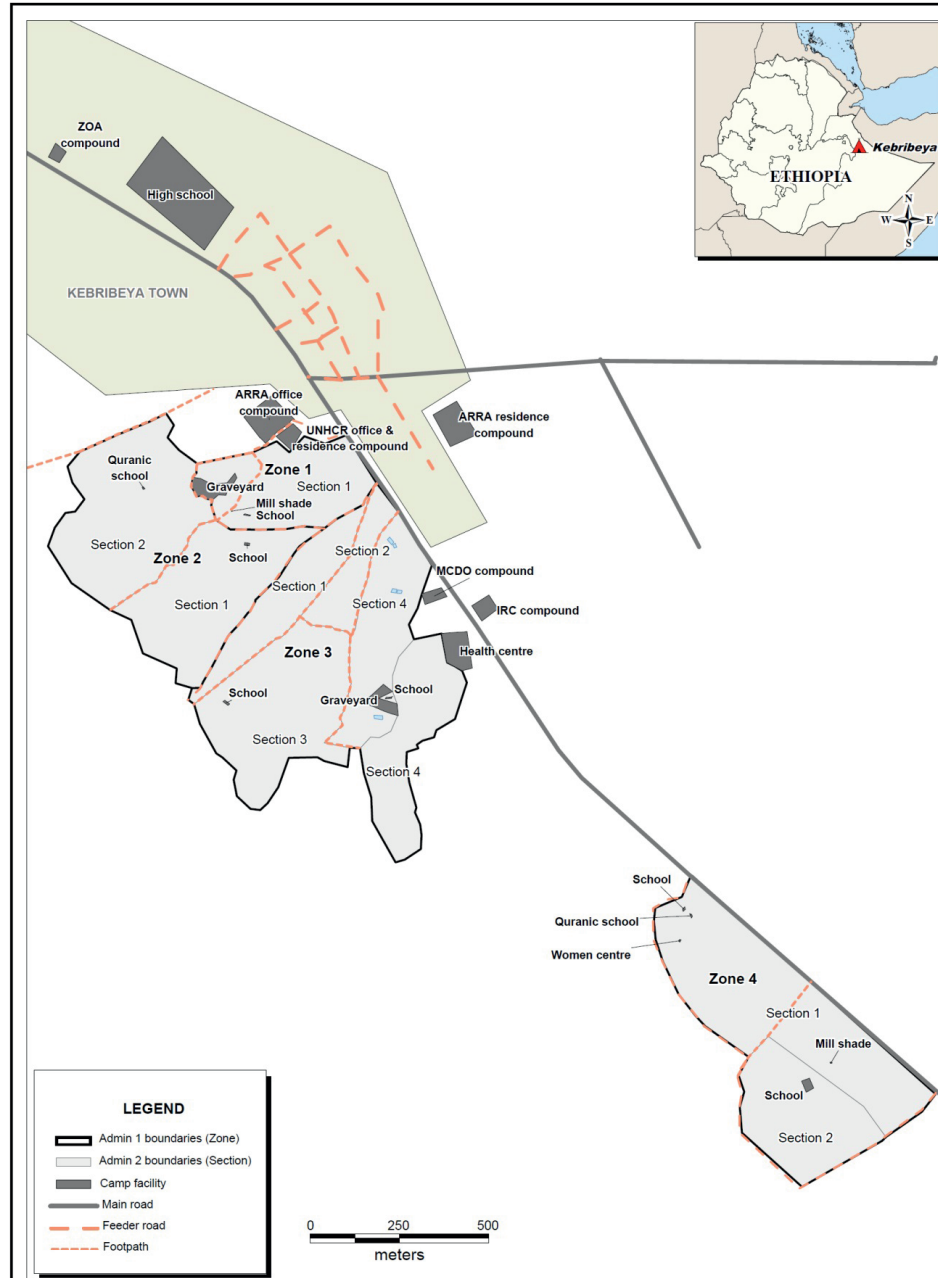
Figure 11: Map of Kebri Beyah refugee camp (UNHCR, 2014b)

4.5.1 A student design project as key to refugee access

Setting up an interview in a refugee camp is not a straightforward process. There are two active environmental NGOs in the camp; the Gaia Association and Save the Environment. Gaia started distributing stoves in Kebri Beyah in 2006 and has provided every family with the CleanCook ethanol stove (Figure 12). They also distribute ethanol in the camp.

Access to camps became feasible for this project due to a student project. Prior to travelling to Ethiopia, an agreement had been made with the Gaia Ethanol Stove project in Ethiopia. Three industrial design students from NTNU were going to analyse the user stage of the stove in Kebri Beyah, with the purpose of improving the stove or providing an alternative. Since it is difficult to be granted access to refugee camps, it was essential that we accessed the camps with a concrete purpose and through affiliation with Gaia. This proved invaluable in terms of gaining access to the refugee women that I wanted to learn about.

The students performed the interviews and also visited the host community and the nearby town Jijiga to find out more about the fuel supply systems and energy technology options. Their experiences as design students in Ethiopia have been published in two articles (Hasselknippe et al., 2014, Grande and Nielsen, 2014) and their reflections about ethical challenges in a separate article (Nielsen, 2014a).

Figure 12: Gaia ethanol stove (photo: K. Hasselknippe)

4.5.2 Chronological account and reflections of field visit

The first day we spent three hours briefing the Jijiga town offices and refugee camp offices about our intentions and plans for interviews. The African Association of Refugees and Returnees (ARRA) and UNHCR officials restricted my plan and limited

the topic of questions that I could ask the refugees. The questions had to be purely related to the technical aspects of using an ethanol driven stove. In addition, we were restricted from using cameras one of the days.

We were four women entering the camp as a team. We were accompanied by the Gaia Association and UNHCR officials that selected the families we were to interview and drove us around the camp. We asked to enter the camp in the early morning in order to spend time unaccompanied by officials, but this suggestion was refused. Ethiopian culture seem to be similar to Norwegian culture in the uncertainty avoidance sense, see chapter 3.4.1. Instead of saying that something is not possible, they would avoid the subject. If the answer might be 'yes', they said 'it is possible'. In that sense, they left the possibility open for someone to object and change that possibility.

Figure 13: Somali houses, Ethiopia

Since we were unable to conduct observations and gain familiarity with the camp refugees 'daily practices, our methodological approach was limited. Instead, it allowed some insights into the hierarchical structure of camp management and access to refugees.

We were granted access to interview six women surrounded by their families in Kebri Beyah refugee camp. Accompanied by appointed interpreters from the UNHCR and

Gaia, we were shown into the different areas of the household compound, kitchen and bedroom huts. Refugees live in traditional Somali house construction and some households own more modern cement buildings as well. The households are surrounded by a yard, hidden behind tall branch fences. Some houses (Figure 13), particularly the kitchen huts, were traditional bent branch structures covered with old textiles and food bags, while half of the families had concrete houses for sleeping in.

These were two different entities and the large families seemed to spend most of their time outside. Women were moving busily through the compound with laundry or water, young men seemingly doing nothing, while adult and elderly men were not visible around the household. When we entered the compound, the women provided us with a plastic mat in a colourful pattern and flat crushed jerry cans to sit on, under a tree.

The students conducted interviews with the refugee women who owned ethanol stoves from the Gaia Association. The interviews began by asking the women to tell us how long they had been in the camp, how many children they had and other questions that were easy to answer. They further asked the women to tell them five positive things about being in the camp and five things that they thought could be improved.

Figure 14: Interview with a refugee woman in Kebri Beyah (Photo: K. Hasselknippe)

In order to gain less structured and more improvised input through discussion, we prepared a focus group discussion. Having invited twelve women to participate, four showed up. The women preferred that the focus group discussion took place inside, in a Somali house. These are quite small and very dark and it is difficult to see everyone's facial expressions. During the focus group discussion it proved difficult to engage the Somali women in a discussion about the stove, the stove design, usability of the stove and so forth through questions or statements. Due to the quiet and restrained atmosphere in the dark hut during this attempt, we decided to try different approaches in order to stimulate more improvised input from the women. By introducing role-play and having one of the students pretend that she was using the stove, the atmosphere changed. Pretending that she collected a ration of ethanol, brought it into the hut and making several mistakes, the women started correcting her and laughing amongst themselves. She pretended to spill ethanol on the ground, forgot to remove excess ethanol, pretended to be a child and tried to drink the ethanol and so forth.

Figure 15: The 'negative role play' approach during the focus group discussion

These actions made the women talk to each other, which is the goal of a focus group approach. The role-play worked as an ice breaker and once we had the discussion going, we could introduce other questions. We for instance asked about who would be allowed to use the stove, and they answered that the ethanol stove needed an adult user. A three-stone fire would allow a girl to cook while they did not trust the ethanol stove that much due to the fire hazard. Further, they explained that they liked the aesthetics of the stove because it looked like something they might own once they lived in the United States, where they were hoping to be resettled. A small discussion about aesthetics and

usability took place amongst the women, showing that the 'negative-role-play' technique had been effective as an ice-breaker.

The second study took place later in October 2013. This visit was accompanied by staff from a UNHCR headquarters, as well as my supervisor from NTNU. The presence of a professor and a headquarter official seemed to affect the process, particularly the appearance and expectations of the staff in the camps. When I was there only with the three students, the people we encountered and interviewed among humanitarian staff were very honest about problems and challenges concerning the ethanol distribution, and the relationship between different organizations such as the UNHCR and ARRA. Once my supervisor and the officer from UNHCR in Geneva came with us, everyone seemed to present things more from their best side and the answers were without many challenges. This however gave an insight into the power structures that can hinder a clear flow of information about what is successful or not in the field.

A conversation was held with a UNHCR camp manager during this visit, who explained the structure of the camp management and the challenges concerning fuel access.

Following this unstructured interview, I fell ill with food poisoning and could not visit the refugee camps the next day of our field trip. My supervisor and one of the students were given instructions on what to look for, together with a camera, and they visited the two other refugee camps Abhere and Shedar while the two remaining students visited host community institutions in Jijiga. Following the visits to the Somali region, the students wrote:

> *"Sheder and Abhere were the first camps we visited. They are located northeast of Jijiga, about 1,5 hours driving along a bumpy gravel road. Both camps are much younger and smaller than Kebri Beyah. Gaia Association has projects in both camps, distributing Kerosene in Sheder and ethanol in Abhere.*
>
> *Due to the chronic lack of time we always face, we spent by far more time in Sheder than Abhere. The refugees here mainly come from urban areas in Somalia, so the camp also resembles a town more than the two others. The families are smaller here than in Kebri Beyah and so are the lots, which are limited by tall fences. The houses are, like in all three camps, traditional Somali huts.*
>
> *Instead of only receiving rations of basic food supplies like rice, beans and pasta, the refugees also receive some money (100 birr per family member per month). With this money they buy additional food and supplies. This gives them more freedom to choose what to eat, and provides an income for the farmers who sell their produce in the local market.*

Since we were visiting just before noon, we were lucky enough to observe some of the families cooking. For lunch they usually eat rice, either cooked with spices or vegetables, or mixed with milk and sugar. Through speaking with the women cooking, we learned more about their food culture and cooking habits, as well as how they want their stove to perform. The refugees in Sheder are provided kerosene stoves from Gaia, but like in all camps the problem lie in the supply-chain and there is not enough kerosene. Most refugees therefore also buy charcoal (transported to the camp on camels, sold for around 120 birr per 50kg) or go to forage wood. Burning charcoal or wood contributes to deforestation in the area, which the refugees are well aware of, but they have no choice. After lunch in Sheder, we went for a quick drive to Abhere, were we met some more families, observed the camp and had a cold drink with some of the local teachers that told us more about life in the camps.

The next day we went very early to Kebri Beyah, to observe the women preparing breakfast. A traditional Somali breakfast is small injera, which are cooked on a cast iron pan. The injera cooks fast, but its still a time consuming task, considering that each person eats about 4-5 injera for one meal! One of the women we visited had already been cooking for more than two hours; she was preparing breakfast for a family of nineteen, that's more than a hundred injera!" (Grande et al., 2013)

The energy need for household use was made clear by the student's findings. Yet the refugees were still not very interested in discussing cooking or energy needs; instead they kept bringing up water, medicine, and prospects of leaving Ethiopia for a better place.

During this second visit, my supervisor was carrying the camera and perhaps it was his higher position that made them not restrict camera use. Since it had been difficult to gain much input on aesthetic preference and usability aspects, the plan for the second visit was to attempt some additional communication strategies. By bringing drawing equipment and paper, the student who entered the camp was tasked with gaining further input on the stove design by using drawing and visualization techniques with the participants. The UNHCR representative from Geneva accompanied them as well. The remaining two other students went to Jijiga in order to explore existing product-service systems available in the host community.

The student's attempt to use drawing as a manner of communicating with the refugee women proved challenging. The women did not understand what she wanted. She tried to draw different examples of what a stove could look like if it was different, but did not receive much input.

4.5.3 Scope and documentation

During the first visit to the Somali region we were granted access to the refugee camp Kebri Beyah, for two days. Three students accompanied me to the camps. Six interviews were conducted with six women. The interviews were conducted by the students while I took an observational role. Prior to visiting the families, I conducted a graphic elicitation interview with one of the sub officials of UNHCR. All interviews and conversations were recorded and transcribed. Since we were only granted access to the camp for short periods of time, I brought a Gopro camera to expand the richness of the data that we collected. A Gopro camera is micro sized cameras that can be mounted on the chest of the holder, or placed in any other discrete location to video document our endeavours. In addition, a field diary was written and issues from conversations with Gaia, UNHCR and ARRA staff were recorded in the notes. It was difficult to plan how to gather data, as the restrictions changed on a nearly daily basis. The first day we were not allowed to video or image record, the second day we were allowed to do this. An interview was also conducted with the Danish Refugee Council's office in Jijiga, during a spontaneous visit on the third day of our Jijiga visit, when we did not have camp access. During the second visit, I fell ill after conducting a semi-structured interview with a camp official of UNHCR, but my supervisor and the students visited the camps together, with an environmental officer from the UNHCR headquarters in Geneva.

4.5.4 Methodological lessons

The decision to use a small camera (when permitted)was useful. However, technical aspects were difficult to address for the person carrying the device, while trying to communicate well with the informants. Allowing students to conduct the interviews proved valuable, as it left me free to observe non-verbal language, power structures and to take notes, while adding questions during, before and after the interviews. During an interview, an employee of UNHCR explained to us the pressing need for clean water in the camp, as well as refugees having to leave the camp to get medical attention. During the second visit, one of the design students was asking questions about the ethanol stove and conducting experiments using visual tools, while my supervisor asked more general questions. He also had conversations with the women regarding their background and the positive aspects of being in a refugee camp as well as interviewing the interpreter about life and his own growing up in Kebri Beyah.

4.6 Findings

The experiences and data gathered in Ethiopia and with the Bhutanese refugees in Norway created an image of a refugee who felt unable to affect their situation in the long term, and also felt helpless within the humanitarian system. Her motivations and interests were not in line with those of NGOs attempting to implement what the NGOs see as 'life improving' technologies. This appears to be the result of the power relationships present in the humanitarian refugee camp situation, and the actual challenges of living in a resource scarce refugee camp in the Somali region.

The insights uncovered during interviews with refugees from Bhutan and Somalia showed that the information received from humanitarian actors does not fit the reality perceived by the refugees. There was a mismatch between knowledge that reflects reality, and the information provided to the refugees with the intent of motivating them to develop their own survival and 'feeling safe' mechanisms. They have no way of knowing whether or when they will be resettled and 'safe', if the provided services will improve their lives in the long run. As a result, their motivations remain short-term. Their first priority is to keep their families safe.

4.6.1 'Feeling safe' as a basic motivation

The water scarcity is severe in Kebri Beyah refugee camp and the government officials explained that they are approaching foreign experts to irrigate and manage the water in a better way. Foreign industry and investment is absent in this region, as in Ethiopia in general. Not-for-profit organisations are welcome to suggest and implement solutions.

The interview transcripts unambiguously showed that the refugee women thought safety was their main motivation for remaining in the refugee camp. Even after 22 years, they focused on safety as the best thing about being a refugee. The best day of their lives had been when they received refugee status and it made them feel safe. Secondly, their need was for more water for their families, and thirdly medical attention. Some families literally begged us to help them in this regard and it almost became unpleasant to interview them further on their experience with off-grid energy.

Regarding power-relations, Somalis were described by the Ethiopian humanitarian staff encountered during the research visits as "traders". Following the Eritrean war, these regions were used extensively for illegal trade and transport due to the geographic connection from Ethiopia to the ocean, through Somaliland. Sociologists describe these Somali populations as a hierarchy, where clans which traditionally trade and own camels have a higher status than clans who settle down or do manual labour, such as metal work (Gundel, 2009). Negotiation and trade are adaptable and beneficial talents in these infertile and arid lands. Traditional resilience measures balance domestic animal ownership with resource availability (Bogale and Korf, 2007). These studies relate the nomadic life style to unpredictable resource availability and suggest that a self-reliant pattern of resource management already existed.

The negotiation aspect of the Somali culture is supported by documented accounts that describe how displaced populations move across borders between Ethiopia and Somalia, with the purpose of negotiating their refugee rights (Ryle, 1992). The refugees that we spoke to explained how they trade and exchange the rations given to them by the camp managers for other goods, particularly milk and vegetables. The trade and nomadic issue were also found in the interview results, when the women explained how they traded strategically for certain types of goods, in order to provide more nutritious and valuable food and other items.

As a designer and a researcher, I am aware that my interest and background affects what I see and pay attention to. From a design background, I pay particular attention to people's behavioural patterns around objects, as well as anything that they might do or say that tells me something about their 'inner' needs. That a 'real need' exists is something that is central for design for development projects, but is also an assumption that might affect my observations. In a situation where people lack the key necessities for a decent standard of living, clean water and medicine, such as in Kebri Beyah, whether they 'need' a certain type of technology to cook their food becomes secondary, if not irrelevant. Further, their motivation lies in something that might happen tomorrow, next year or never. The feeling of belonging and opportunity, living from day to day while striving for safety is a human way of surviving.

Interviews with refugees both in Ethiopia and Norway showed that the basic needs of protection and safety are the main motivation of refugees. We can decide to provide them with a certain type of technology, but it may not affect their motivation. This understanding was uncovered in the interviews with the refugees and through observation.

Speculating into their real needs would be almost an unsubstantiated way of seeking to translate these women's frustrations and lack of opportunities and everyday struggles in design opportunities. When observing that newer stoves were stacked on a shelf and smoke was coming from the old mud stove in the corner of the huts, the women did not express any problem with the traditional ways of cooking.

Instead, it was clear from the interviews that the priority of refugees is to live as well as they can from day to day: this includes services from the UNHCR/ARRA including water and medical care, and information about their future. Future opportunities include their first option to leave Ethiopia for the US, the second option would be to use any university degree or skill to work and provide a life for themselves in Ethiopia. All of these issues relate to the safety aspect that the Bhutanese refugee woman in the preparation interview expressed. While the 18 years spent as a refugee in Nepal was remembered as a situation of feeling unsafe and disempowered through the lack of information about her future, the resettlement in Norway had provided her with this safety feeling that she was longing for. This safety provided her with the opportunity of affecting her own and her family's future (Nielsen, 2014c).

4.7 Final reflection

The encounter with resettled refugees from Bhutan in Norway showed that long term stays in camps lead to a feeling of disempowerment. The lack of understanding of decision making, in this case related to energy access, made the refugees feel insecure. This feeling of safety as a main motivator, and lack of power to change their own life in the direction of more safety, was supported by the observations and interviews in Kebri Beyah.

The Sphere standard is a multi-agency effort where "The targets are normative levels of services required to sustain life with dignity. " Dignity in this case seem to be linked with a need for a sufficient understanding of humanitarian action amongst family keepers/women refugees so they can feel that they can keep their families safe. Including the refugees more in *information* and *decision making* services may be the key to decrease the mistrust that prevents 'technology acceptance' and change of habits. From a design perspective, a combination of co-design efforts with technology design and introduction could be one effort that would have this effect. Refugees could learn about available technologies and options while in the camps, while using the interactions to increase trust between the refugees and the humanitarian system.

5. Workshop design and stakeholder workshop in Norway

The diagnostic study indicated that multiple agendas within the humanitarian system replace what is perceived by technology developers as less applicable humanitarian objectives. Relationships between humanitarian stakeholders were reported as tense and their agendas as conflicting. The preparatory study in Ethiopia had further shown that the perspectives of donor and host stakeholders may imply that a differetn focus for technology and service interventions is needed for them to have an intended impact in the humanitarian system.

This knowledge led to my interest in investigating these stakeholder relationships further, as a step towards a sensible image of humanitarian action as a stage on which design can acually have a desired impact.

The first stakeholder workshop of a series på three was organized at the Oslo and Akershus University College of Applied Sciences (HiOA). This University College is located centrally in Oslo, Norway, and was easily reached by all participants. The educational setting (Figure 16) created an informal yet institutional setting that could inspire egalitarian co-creation and foster the learning process.

Figure 16: Norway workshop environment

5.1. A workshop as a setup for participant observation

The reasoning behind choosing stakeholder workshops as a follow-up to the diagnostic study and the preparatory study (both interview based) is perfectly described by Becker and Geer:

"The most complete form of the sociological datum, after all, is the form in which the participant observer gathers it: An observation of some social event, the events which precede and follow it, and explanations of its meaning by participants and spectators, before, during, and after its occurrence. Such a datum gives us more information about the event under study than data gathered by any other sociological method. Participant observation can thus provide us with a yardstick against which to measure the completeness of data gathered in other ways, a model which can serve to let us know what orders of information escape us when we use other methods." (Becker and Geer, 1957).

By conducting stakeholder workshops and placing the different stakeholders of the humanitarian system in one room with specific tasks to complete, I was hoping to complete a more nuanced and insightful picture of humanitarian action. This would require me to observe and analyze the participants with focus on their relationships and differences; this is in qualitative research referred to as participant observation. The findings from a participant observation based study would then be compared to and complete the findings from the interview studies and allow further reflection on the research questions (Jorgensen, 1989, Atkinson and Coffey, 2003).

5.2 Workshop methods

Collaborative methods have a long tradition within design and design thinking. Design has increasingly applied participatory approaches to understand the end-user perspective (e.g. (Crabtree, 1998). The facilitation of workshops can be seen as one way to generate insights to inform design. Facilitation is defined for this purpose as the construction of a meeting place that will foster smooth communication. Central to facilitation is the *facilitator:* "A facilitator is an individual who enables groups and organizations to work more effectively; to collaborate and achieve synergy. She or he is a "content-neutral" party who by not taking sides or expressing or advocating a point of view during the meeting, can advocate for fair, open, and inclusive procedures to accomplish the group's work. A facilitator can also be learning or a dialogue guide to assist a group in thinking deeply about its assumptions, beliefs, and values and about its systemic processes and context" (Kaner). Facilitation is commonly referred to in the origin of constructivist education theory, particularly influenced by Freire and Dewey (Dewey, 1916, Freire, 1970, Freire, 1982). The participatory approach illustrates the transformative agenda of design and design thinking. Designers typically apply participatory approaches, often seeking to empower unprivileged participants or to foster grass-root innovation. Designers also apply participatory approaches in order to

inform design decisions in product, service and systems design in private and public sector.

A series of three participatory workshops with stakeholders from the donor (Norway) and beneficiary (Ethiopia) context were conducted. The first two workshops were focused on understanding the problem of designing for humanitarian relief and tracking the process that conflicting stakeholders used to align their goals and strategies.

Design thinking suggests exploring a problem through the exploration of different solutions (e.g. (Rowe, 1991)). An essential hypothesis that makes design thinking as a research approach appropriate is that alternative ways to frame 'humanitarian action' can emerge through insights created while trying to solve problems. The 'worldviews' presented in chapter 3 following the preparatory study in Ethiopia illustrate the different perspectives of Norwegian and Ethiopian stakeholders. This observation informs the next research design step and suggests a participatory stakeholder approach. Table 5 on page 72 showed how far policy goals are removed from the priorities that influence design decisions in humanitarian action. The same distinction is not so apparent within the Ethiopian priorities where humanitarian challenges are aligned with country challenges. A priority question underlying the next steps would be: *By further exploring the implications and details of these 'worldviews', would it be possible to identify the relationships of relevance for a conceptual framework that bridges the short and the long term challenges? Further, could the identified dysfunction of the relationship between stakeholders and goals be modified through a participatory process?*

The Norwegian and Ethiopian workshops were designed identically (Figure 17) for comparison purposes. However, the preparation, workshop environment, execution and structure varied as a result of place and participants. Workshop methods consisted of a combination of storytelling and a scenario building tool called backcasting. The combination drew insights from individual experiences and collective perspectives and processes. It allowed the researcher to learn from observing the participants' ability to move from their individual standpoint towards a collective goal setting.

5.2.1 Storytelling
The inspiration for using stories as the first step in the workshop emerged from lessons learned during the diagnostic study at the beginning of the project. Everyone from engineers, designers, and humanitarian staff to NGOs expressed the complex challenges within the humanitarian system through analogies and stories; trying to articulate the system-related challenges within humanitarian action. This extensive use of analogies and stories in the diagnostic study exemplified how the complex challenges of the humanitarian system and product implementation could best be explained to people of other backgrounds. It seemed innate for both relief organization representatives and enterprise representatives to express their concerns and priorities through narratives.

WORKSHOP INTRODUCTION

STORY STORY STORY STORY STORY STORY STORY STORY STORY

ANALYSIS

GROUP A

ANALYSIS

GROUP B

Goals Barriers Strategies Goals Barriers Strategies

Break

BACKCASTING

GROUP A

BACKCASTING

GROUP B

Ladder diagram Ladder diagram Ladder diagram Ladder diagram

PRESENTATION AND CRITIQUE
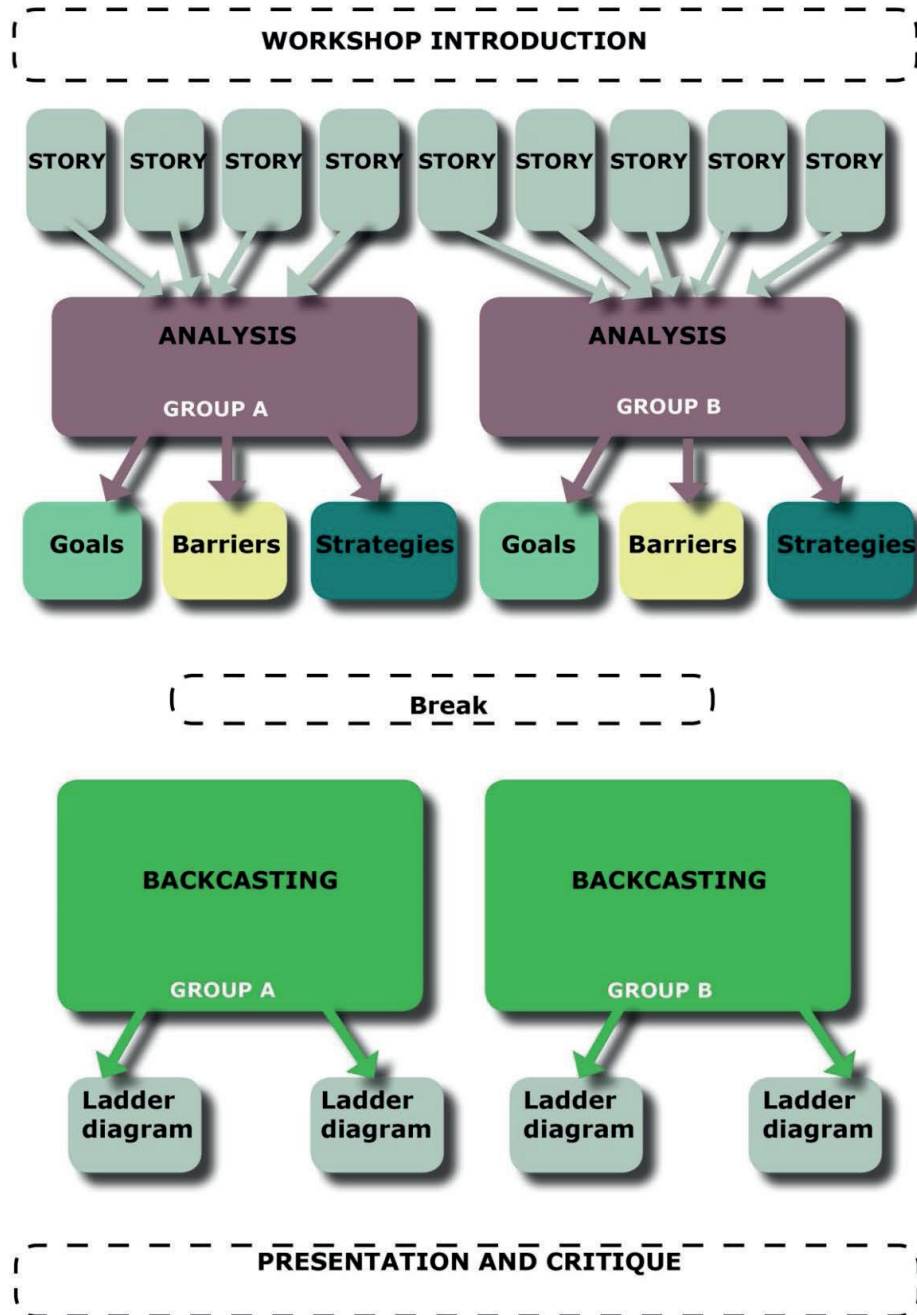
Figure 17: Design of stakeholder workshops in Norway and Ethiopia

These stories represented either their own experiences or were examples of overheard stories from their work environment about mismatches and failures between private enterprise and humanitarians. Two additional questions that emerged from the insight that story telling was a natural way for humanitarian stakeholder participants to express their experiences were: *Can sharing experiences during a workshop and meeting other stories from people of different perspectives add to personal narrative knowledge? Can this assist in the reshaping of the stakeholder relations themselves?* 'Narrative knowledge' is a term used by human scientists to explain how story telling identifies the practitioners understanding (Cooley, 1902). Narrative ethnography has dealt with storytelling as a way of understanding people in different social contexts. The latter, referred to as the 'Chicago tradition' is concerned with how relations with social contexts reshape people's 'personal stories' and how people continually revaluate their experiences and themselves through the comparisons of stories.

Theoretically, one can make important distinctions between 'stories' and 'narratives'. However for this research, I will use a collapsed version of the two, and as Polkinghorne (Polkinghorne, 1988b) treat them as equivalents. This is because storytelling will function as a tool within steps of the participatory process, rather than a narrative method embracing the larger research project. Treating them as equal for this purpose should not hinder the understanding of their reasoning.

The use of stories can provide us with knowledge about how each participant has made sense of the system they are working within, through personally analysing the experiences encountered. Stories make it possible to "render the concrete particularities of experience" (Crites, 1975). Experience is "found in the most practical discussions of education and it is found in the most revered theoretical texts. It is owned by no subject field (Adler and Van Doren, 2011). But, "to use distinction, it tends to function as a word, not a term. It is mostly used with no special meaning and functions as the ultimate explanatory context" (Clandinin and Connelly, 1989). Further, "From the point of view of inquiry, it may be seen as a term that violates many researchers' notions of academic appropriateness". This latter criticism comes from what Schön (Schön, 1983, Schön, 1987) calls 'technical rationalists'. Within transformative sciences such as design thinking research, storytelling can have an impact on the relations between system stakeholders. For this current study, investigating the human-relationship based stakeholder system can be understood *and* manipulated through participatory approaches.

There are also examples of storytelling used to share experiences between people of different backgrounds and it can be used to identify challenges, strategies and objectives (Xu, 1994). Stories differ from other verbal transcripts in that they are carriers of meaning. Inside a story one can identify experiences including insights into challenges, lessons learned or even strategies and subjectivity. People turn to stories because they are trying to communicate a message. Finally, storytelling can be regarded as a method

that easily fits different geographic and cultural contexts. Since people with very different professional backgrounds and also social contexts were going to work together, the universal nature of storytelling can foster an egalitarian communication between participants.

5.2.2 The narrative environment

 "The meanings of stories are poorly understood without careful consideration of the circumstances of their production and reception". This is referred to as "the narrative environment" (Gubrium and Holstein, 1999, Holstein and Gubrium, 2008). In this study, this concept of the narrative environment was used consciously to explain the reception of stories and the production of stories as an entrance to knowledge about the environment of humanitarian stakeholders.

5.2.3 Backcasting

Insights into matches, mismatches and issues of conflict was achieved by using a scenario building tool. The scenario tool, or process, selected is called backcasting (Holmberg and Robèrt, 2000, Quist and Vergragt, 2006, Robinson, 1982). Backcasting is a process that traditionally has been applied with the objective of learning to create common visions for sustainable futures. Backcasting has been applied in the development of policy documents such as the Kyoto protocol (Quist, 2007) and is a results-oriented process.

This research project hands back the power of objective definition to the stakeholders by letting them define the goals for the backcasting themselves and not predefining it. It is for example not a given that 'sustainability' is a useful or desirable term for the participants. Instead, the workshops were designed with the understanding that stakeholders had objectives underlying their decision. In the humanitarian system, the designer has to please multiple agendas. It was decided to take a more pragmatic approach and not assume that 'sustainable development' was the objective when designing off-grid energy devices for humanitarian refugee camps, even if this is the written policy objective.

Analysing this process would provide insights into where gaps could be narrowed and where misfits and opportunities existed.

There was also interest in the effect of the process itself. Designers work through the conceptualization of different solving strategies as a way to clarify their understanding of a problem, and even change or exchange the problem for something else. Asking the stakeholders to imagine different pathways to solutions within the topic, would indirectly manipulate the problem-solution space. The second half of the workshop focused on creating new directions within the humanitarian system for the design and introduction of technology. The groups were first asked to analyse each story by dividing them into goals, barriers and strategies. This can also be referred to as 'cognitive task analysis' and is the same method that was used for analysing and

interpreting the data in the interview study (Nielsen and Santos, 2013b). Cognitive task analysis (Militello and Hutton, 1998) is a way in which one can understand a person's basis for decision making by giving them a task to perform. This task was a strategic step of bringing together the single stories into the group discussion and the next step of scenario building.

Participants were asked to select a common vision for the group, before selecting the steps on a ladder towards achieving the goal. Instead of providing the participants with objectives to reach, the groups were asked to select their own objectives. Following the story telling session, the group members were asked to identify goals, barriers and strategies by analysing the stories. This aided their selection and reflection around objectives that they could agree upon.

Insights on decision making processes can then be extracted from the participant's accounts during the backcasting activities.

5.2.4 Documentation and data analysis

Qualitative research methods for data analysis offer various ways of analysing participatory processes. The documentation methods applied in this research project can be categorized as follows:

a) Results documentation. Various publications within the area of backcasting have emphasized the *results* aspect of the workshops, the exact process maps and analysis, and non-interpreted data from the sessions. The output of ladder diagrams was copied and topics from post-it notes divided into categories (Smith et al., 2005).

b) Verbal transcriptions and analysis. The data material consisted of recordings of the discussions. These were transcribed verbatim. From recordings I have transcribed and applied meaning analysis for critical discourse analysis (DA) (Fairclough, 2013, Van Dijk, 1985). The transcription is dealt with as one data set. The use of stories was deliberate. Stories were in the discourse analysis regarded as complete meaning units and were therefore analysed as a whole.The discourse analyis has paid particular attention to the relationship between communiation and power, and interactions relevant to the research questions and methodological learning.

c) Verbal transcriptions and planned observation. Methods required for the application of conversational analysis (CA) (Peräkylä and Vehvilinen, 2003): conversation analysis requires data material that allow the analysis of social dynamics between the participants. This part is strengthened by the video recordings of interaction during the workshops. Cognitive processing of documentation that explores conversation patterns can be added. This allows the researcher to reflect more deeply upon issues such as group dynamics, power relations and their relevance in the process and outcome.

d) Visual documentation: visual documentation methods have the advantage and challenge of collecting multiple levels of impressions in addition to sound and verbal transcripts. Visual documentation can add information about body posture, facial expressions, and external disturbances. Visual documentation in this case supports the verbal transcription and planned observation that was limited by the one researcher's multiple roles as facilitator, instructor and observer.

During the workshops a combination of these methods of collecting data were applied. Observations and non-verbal communication were noted during and after the workshops in a research diary. All verbal recordings were transcribed verbatim and outputs photographed and documented by note-taking. Input from the video analysis will be commented on in separate sections under each sub chapter.

The overall objective of this approach was to extract holistic and contextualized meanings from their process. Since I was interested in how the participants made sense of the holistic system by segmenting it, I needed an interim analysis.

5.2.5 Video as visual tool and medium for reflection

Video is most commonly used in qualitative research as a way of interacting with interview subjects, for example in visual anthropology (Collier, 1986). In design, it is commonly used as a way to observe end-users and understand their habits. In this research project however, video was used to understand the stakeholder's interactions. Since I was busy explaining tasks and ensuring a beneficial task performance, it was difficult to observe the non-verbal clues about these relationships. Video provided access to these non-verbal dynamics.

The video recordings were viewed after the first round of transcribing and coding, in order to observe non-verbal language, input on process, methodological approaches and possible indications of power-structure.

Observing the process of communication between the participants can provide:

- Insights about the relationships of the system and their dynamics.
- Insights relevant to learn from how the process was facilitated and the value of the process (processual insights)

After the first analysis of the transcripts, the videos were viewed. The data found in the videos required a reanalysis of the transcripts. It was necessary to revise the original analysis, because the added information from the video analysis changed the meaning of the transcripts.

The workshop videos were also edited into video collages (illustrated in Table 7), as an organizational structure similar to the organizational figures. These video collages helped create a summarized view of the information that stood out and characters that were dominating within the workshops. By keeping in mind the insights from the

diagnostic study, the mismatches between workshop quotes and other expression of interests were exemplified and patterned. This served as a way for me to 'mediate with the material' and think of different ways of combining the data and reflections provided by the multi layered and extensive data material.

Table 7: Snapshots from video collage

5.2.6 A note on the presentation of methods and findings in the data description

The analysis of data gathered during the workshop is informed by interaction studies. In interaction studies it is explained that it is often difficult to separate sequences of methodological steps and execution from the findings (Jordan and Henderson, 1995). I was also interested in how the facilitation of and the participatory method itself influences the topic of study. Therefore, the workshops are described as a sequence where process and facilitation decisions are included in each section. These sometimes include relevant practical consequences of these decisions. It is important to keep in mind that the methodological steps and impacts are as much a part of the findings, as the insights revealed about the described topic of the workshops. However, the findings and results presented in a separate chapter are the ones that are considered to be in line with the research question and scope.

5.3 Sampling and facilitation of stakeholder workshop in Norway

The background of and composition of the participants, the timing, location and facilitation is influential on the resulting process and gathered data.

5.3.1 Participants and set-up

The participants were selected through a purposive sampling technique as described in previous chapters. The participants from the diagnostic interview study were invited, in addition to member enterprises of NOREPS . Five other participants had accepted but in the end abstained from the workshops, which were voluntary. An alternative could have been to make agreements with the different insitutions beforehand obliging them to participate, or to compensate for their time by providing a financial incentive for their

work time. This could however bias the findings as it could influence their expectations and reason for participating.

The sampling requirement for the enterprises included that they had designed and produced an off-grid energy device with the purpose of entering the humanitarian aid market, and had experience with humanitarian customers. Eight humanitarian relief and aid organizations were invited. The list of participants who accepted the invitation is shown in Table 8. An invitation letter informed the participants that the workshop topic was to design energy solutions for humanitarian relief. The participants were not informed in the invitation letter about who else was going to participate.

Table 8: Participants in Norway

Type of participant
Humanitarian customer organisation(1)
Enterprises(8)
Designers(3)
Academia(2)
Total:(14)

5.3.2 Facilitators and briefing

Two design students from NTNU attended the first workshop and also played a role as facilitators. The students (during the time of this workshop) were writing their master theses on the effects of cooperation between NGOs and private enterprises in emerging markets. They were looking for insights related to this theme. They were also familiar with design thinking from two perspectives since they had studied at the NTNU Department of Product Design and the NTNU School of Entrepreneurship. The students were briefed about the process of the workshop, and they were included in the planning and decisions that I made during the design of the workshop. They were asked to focus on the flow of communication and group participation during the task performance. Otherwise they were to participate in the groups with input from their own experience and objectives.

All of the workshop information was presented in English due to the presence of one German and three British participants. However, no further instructions regarding language were given to the groups during the backcasting tasks.

 The workshop was introduced with a brief Power Point presentation that provided background information on the topic. An agenda for the workshop with estimated

timeframe was also provided. The results of the diagnostic study were not introduced until the very end of the workshop. This was done to avoid affecting the participant's responses to the workshop tasks. I regarded that providing a minimum amount of information is necessary so participants will perceive that there is a clear target and need for their presence to keep them motivated and so that they participat because they see a benefit from it. Providing an introduction to the topic and the research plan therefore created that minimum of trust between me as an observer/facilitator and them as contributors, and that they were there for a common purpose. Before the workshop I had e-mailed a survey to all participants asking for input about their expectations.

5.3.3 Group structure

This Norwegian workshop consisted of two groups of 6 people (Table 9). Groups were structured to achieve an even representation of experiences with the topic; by adding an equal number of designers, entrepreneurs and NGO workers to each group. A student facilitator from NTNU was placed in each group. The task of the facilitator was to encourage participation; stimulate the communication flow and also participate in the interactions.

Table 9: Group structure in Norway

Group A	Group B
Enterprises (4)	NGO (1)
	Enterprises (3)
Humanitarian customer (1)	Academia (1)
Academia (1)	Designer (1)

5.4 Findings from the stakeholder workshop in Norway

The group discussions were transcribed verbatim and analysed in three steps. First, by applying the Van Manen method (Van Manen, 1990) of looking for information that stood out to identify the main issues of discussion. Secondly, the transcripts were analysed looking for aspects of contextual boundaries and how the groups approached the issue of context by coding. Last, the video recordings were watched alongside the transcripts to look for patterns of power relations and non-verbal communication clues in the task performance.

The tasks given were visibly welcomed by participants who promptly began lively discussions, paid close attention and responded quickly to questions, solving the tasks

effectively. The experience sharing that took place while analysing stories and creating goals demonstrated that the interest in hearing more about each person's individual background and experience as a motivation for discussion and sharing during the backcasting process.

5.4.1 Output from story analysis

Despite the differences in background and product experience, participants were able to communicate using the storytelling format, when questions emerged; the replies were shaped as an analogy that encompassed their experience. The stories told included:

- Experiences from humanitarian field work and contextual assessments from the perspective of a humanitarian customer. The story teller emphasized the problem humanitarian workers experience when they have too little time and strict budgets, and that sustainable solutions only develop thorough contextual assessments, personal presence, human capital and networking.

- The design and implementation of a cooking stove for a refugee camp. The story told emphasized the multiple factors that must be considered before selecting or designing a stove. Fuel availability and type was mentioned, as well as, training and follow-up.

- The design of a mud stove for production and income purposes among women in the Jinja province, Uganda. The story teller highlighted the difficulties of changing habits; teaching new material properties; and how to maintain the stoves, without being nearby.

- Design of a solar cell lamp. The story was about trying to fit a good design, to a new and unknown development market. The story illustrated an inverted design process and the many challenges that were overcome.

- The design of a water catchment add-on for emergency halls. This story emphasized the difficulty of gaining contextual knowledge with the humanitarian system, for small initiatives with new ideas.

- Selling a solar cell lamp in Haiti. This story was about mistrust. The problem was the attitude that humanitarian customers have towards entrepreneurs and salesmen during the disaster in Haiti. Humanitarian customers did not believe that profit-makers wanted to create something positive. The participant disagreed. He believed that the attitude and rules that describe the interaction between the humanitarian and private sector must be re-written for any change to happen.

- The development of a business model for off-grid energy devices. Two of the participants told stories about the development of business models related to biogas generators. Cooperation with larger enterprises and political actors were emphasized as a strategy to become an included part of the humanitarian system.

The stories listed here represent the variety of concerns mentioned. There were three student participants who did not have 'field experience'. Because they did not have professional experience they referred to stories that they had heard from others. Since these did not represent their personal experience, their data was not included in the analysis.

BARRIERS	STRATEGIES	SHORT TERM GOAL	LONG TERM GOAL
ENTERPRISES AND DESIGNER: THE HUMANITARIAN SYSTEM AS A BARRIER: LACK OF WILLINGNESS TO CHANGE"THEY DON'T LIKE PRIVATE ENTERPRISES" HIGH INVESTMENT COSTS	**ENTERPRISES:** IDENTIFY ENTREPRENEURS SELL SERVICES CREATE BUSINESS MODELS WITH NGOs FIND LOCAL, NON-CORRUPT PARTNERS	**MAKE MONEY IN HUMANITARIAN RELIEF**	
END-USER AS A BARRIER: DIFFICULT TO CHANGE HABITS			**CREATE SUSTAINABLE BUSINESS /SUSTAINABLE SOLUTIONS**
COUNTRY BARRIERS: CORRUPTION	**DESIGNER:** CO-DESIGN THE PRODUCT CREATE OWNERSHIP CREATE TRUST	**DESIGNER: CREATE SOMETHING THAT PEOPLE WILL USE**	
HUMANITARIAN ORG: PRIVATE ENTERPRISE AS A BARRIER: RISKTAKING BAD IDEAS **CONTEXT/TIME BARRIER:** NO TIME TO IDENTIFY HUMAN RESOURCES IN CONTEXT		**HUM.ORG: CONNECT LEARNING WITH ACTUAL RESULTS ON THE GROUND**	

Figure 18: Story analysis from the first workshop in Norway

The story analysis session consisted of putting goals, strategies and barriers on post -it notes and grouping them on a large sheet of paper. This process served as a diverging phase, and numerous challenges and ideas were generated and discussed. The ideas generated questions related to the humanitarian system and other participants' experience. The participants moved and talked quickly, the communication flowed easily. The groups produced 42 post-it notes describing barriers, 52 post-its contained strategy suggestions and 13 defined goals. There were many more challenges and strategies than goals on the post-it notes. This may indicate that the goal setting process is not difficult; instead the participants experienced the system as flooded with obstacles. Goals, barriers and strategies were grouped and redundant terms removed, by going through the post-it notes and identifying patterns of meaning in the transcription. Many issues were phrased in different ways but with similar meanings. For example 'make affordable technology' in strategy is a re-writing of the goal 'affordable technology', without adding any additional information.

The participants agreed on which topics were relevant. Although participants tried to pull the attention of the group back to issues they were personally concerned about.

Figure 18 shows a final categorization of barriers, goals and strategies that emerged from the group story analysis. This figure demonstrates that enterprise participants and humanitarian customer participants were divided in the barriers they identified in humanitarian action. While enterprises connect barriers to humanitarian customers, the humanitarian organization participant viewed cooperation with private enterprise as *risk-taking*.

In strategies, designers saw opportunities to design the product in a way that created trust and ownership for the refugees, while enterprises focused on the business aspect in order to make a profit. The humanitarian organization wanted to know how any of these insights and learning could be realized in practise.

5.4.2 Output from backcasting

The backcasting sessions inspired heated discussions. The task appeared easy to understand for the participants and they began immediately. The selection of a common goal took less than ten minutes for each group. Each group chose ambitious and holistic goals, they focused on goals that were relevant in any development or relief context. During the creation of ladder diagrams, both groups selected issues, raising questions and sharing experiences and opinions; and providing input into processual and social issues. The backcasting process is described in 5.2.3.

Group A: Designing a system for sustainable energy production

Group A discussed stories about emergency shelters, biogas supply and clay cooking stoves. After analysing the stories and goals, the group was asked to select a goal that they would like to achieve in a wished scenario, and determine steps to achieve the goal if all needed resources were available. This group was determined to solve the problem of sustainable energy in any given context of a development country. Figure 19 shows the first backcasting diagram designed by group A. Bringing with them stories and experiences, the participants centred on the challenge of local connection and the problem of getting end-users to change their habits. The groups experience included encountering local corruption and the problem of finding a 'good team'. As the ladder illustrates, the path led to 'nation building' before it could lead to 'sustainable energy access (Figure 19).

**SUSTAINABLE &
EFFECTIVE ENERGY
PRODUCTION**

**NATION
BUILDING AND
INNOVATION**

BUSINESS MODEL

Understand the culture and marketing customs. Competi-
tors, institutional framework. How can the solution help
the local community? How can it be implemented and paid
for? Make a product that people can identify with, and
something that people feel is a solution to their
problems. It has to be something tangible not theoretical.

OWNERSHIP

TRUST

Engage the local community.

Local and cultural knowledge, local resources materi-
als, skills, knowledge, benchmarking
market research.

Figure 19: Backcasting towards sustainable energy access (Group A)

The discussion centred on the question of how to deal with the complex 'system' of
givers and beneficiaries. This supported the findings in the diagnostic study, about the
multiple stakeholder agendas and unpredictable stakeholder landscape being a major
obstacle. Some parts of the discussion were concerned with impressions of what the
local communities 'actually' wanted. They suggested that power brokers can be corrupt
or unreliable. The end-users were regarded as not responsible for making their own
decisions, and any technology brought in would, in the end, rely on corruption. Local
authorities were often corrupt implementers who acted without the knowledge of the
country authorities.
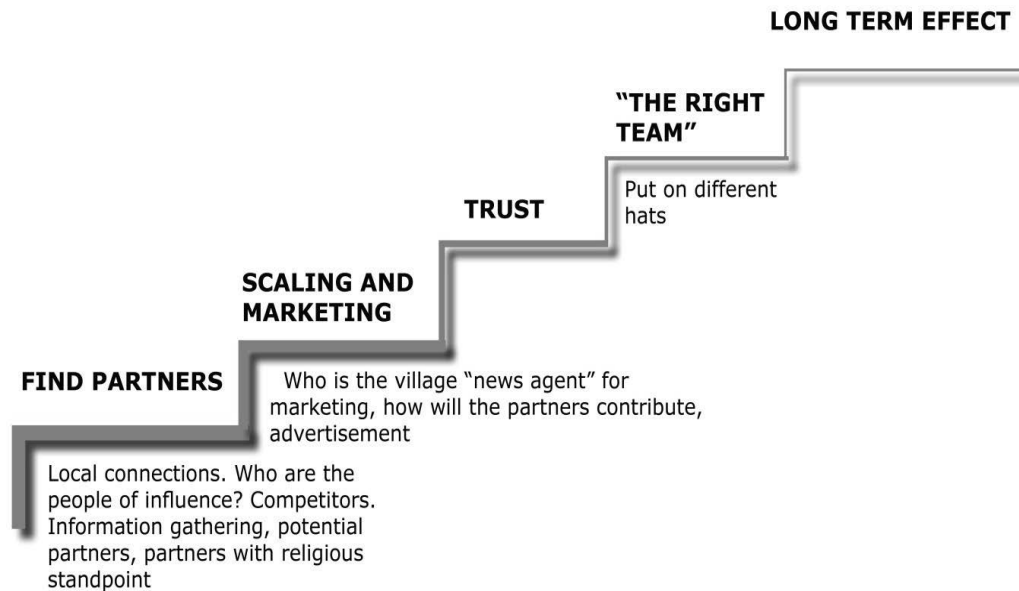
Figure 20: Stakeholder ladder (Group A)

The one designer in the group kept trying to pull the discussion focus back to the end-user and contextualization of the product, in an attempt to ground the design in user and contextual knowledge. Still, the others were more concerned with partnerships and implementing technology that already existed; these technologies had been developed and implemented successfully in European settings. They believed that bringing in the right technology and having the right people tell the communities about the benefits would be sufficient, if the government in those countries were more democratic and the market more open to foreign technologies.

Due to their interest in policy development, as a necessity for the successful implementation of the first ladder, this group developed two additional ladders. One of these ladders described the policy change that was needed to facilitate the scenario from the first ladder. The second additional ladder was a stakeholder ladder (Figure 20) that outlined how to involve the right partners for the realization of their idea.

As can be seen in the policy ladder (Figure 21) Group A was concerned with the dependency cycle in a development context and how beneficiaries (both on decision making level and end-users) could take advantage of the situation.

DEMOCRACY

PROCESS TOWARDS DEMOCRACY

PREDICTABILITY

Local customs, customs, white man's money

CORRUPTION
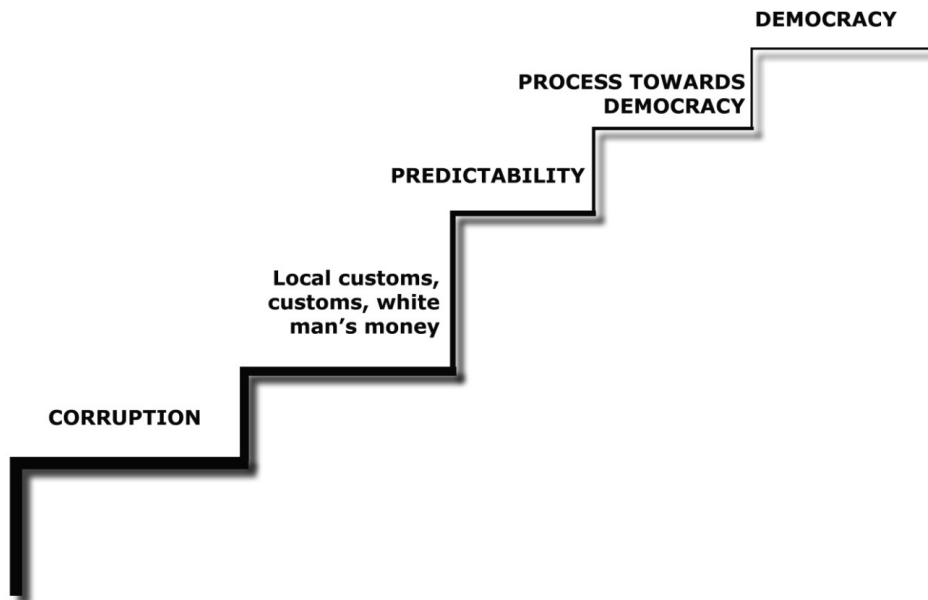
Figure 21: Policy ladder (Group A)

Group A participants spoke from their experience and explained that people working in implementation are not paid enough. Therefore it is culturally acceptable to accept bribes, as a part of their income. Many statements were made such as 'The bigger the monkeys the higher up the tree' and terms such as 'white man's money' when indicating that partners in the field were looking for personal benefits from their cooperation with Norwegian enterprises or development projects. Participants in this group were also concerned with the unpredictability that these expectancies brought to setting up and running a business.

The backcasting process triggered a discussion in this group that critiqued the lack of emphasis on the implementation phase of technology introduction. The problem of connecting local partners with governmental level decisions in the host country was an issue that this group dedicated approximately a third of their backcasting session too. Moving from local to national or system scales were described as the main challenge, which was basically due to the relationship between the donor and beneficiary stakeholders. From the designer's side, however, the obstacle was about spending sufficient time in the host country and understanding who made the decisions, and how the end-user could be reached with a suitable design.

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Group B: Skill identification and entrepreneurial capacity building in refugee camps

Group B based their backcasting process and related discussion on their individual backgrounds, mainly from humanitarian relief, refugee camps, solar lanterns and emergency shelters. The problem and goal that they selected originated in a story brought into the group by the salesman of a lamp. He said that there was a general and system penetrating scepticism that affected the relationship and possibilities between private businesses and humanitarian organisations. The other participants were also interested in understanding how businesses could work with humanitarian organizations. The group set out to find a goal that could formulate a solution to this problem in the refugee camp context.

The group continued to share knowledge and asked questions, aimed at particularly one representative, about his experience of 'being a salesman in a disaster'. They were interested in knowing his opinion of whether private enterprises could contribute in a humanitarian system where profit was limited and in refugee camps where enterprise development is often not allowed. The participant replied that it should be possible to make business models that would fit, but that the "energy needs are so huge, it is just a little light". The need for a model that allows for a larger impact in refugee camps is needed. The reason that it is difficult to come up with solutions was the lack of willingness from humanitarian stakeholders in the field to actually discuss new, innovative ways of doing things.

The group decided that the technology was not in need of improvement. The issue was making money, gaining access and impacting people's opportunities for development. A discussion followed about whether the refugees should simply be receiving things, or if their capacities were a resource that existed in every refugee camp and could be the link to creating something long term. From this discussion they realized that the creation of an NGO that could identify entrepreneurs within the refugee camps (Figure 22) might be the answer to long term and larger scale solutions. This could be the link that private enterprises could sell and develop their products through, while the enterprises would provide an income alternative in camps. Twelve steps were added to the goal of identifying entrepreneurs for the creation of small businesses in refugee camps, to help meet energy needs. The ladder is strongly dependent on the identification of local partners, which the enterprises believed NGOs should be responsible for identifying and grouping. The ability of NGOs to identify capacities was the important link in this model, and who should finance this process would be a central question for its implementation.

**IDENTIFY AND SUPPORT
ENTREPRENEURS IN
REFUGEE CAMPS**

**SUPPLY
CHAIN**

**WARE
HOUSING**

**MOVEABLE
BUSINESS MODEL**

EMPLOY

TRAIN

GROUP

LISTEN

Use local partners
to group individuals

SKILLS

**LEGAL
ASSESSMENT**

Survey

NEEDS

**GATE
KEEPERS**

Get legal stuff sorted out and identify
change-makers

NGOs identify local partners
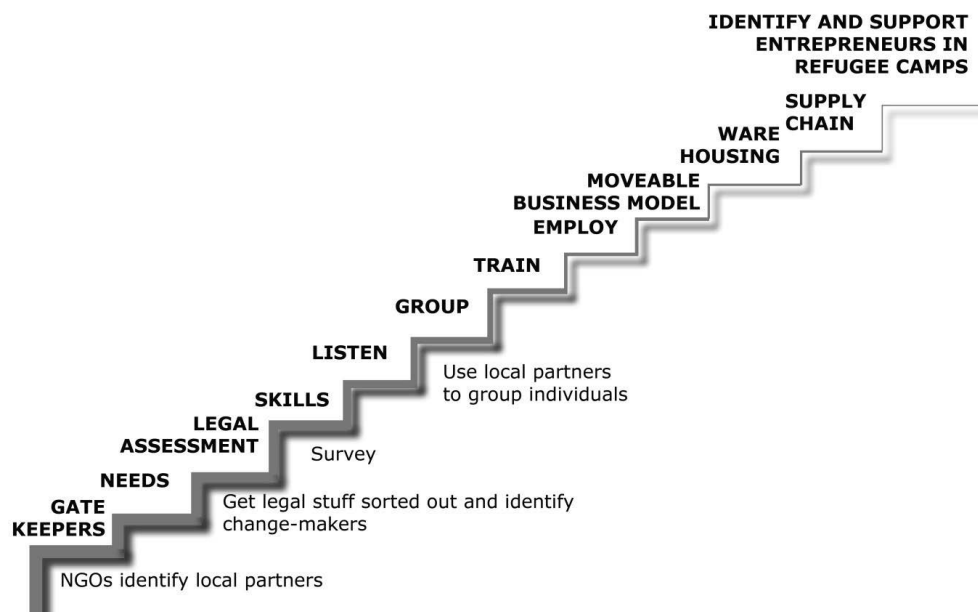
Figure 22: Backcasting towards 'Identifying and supporting entrepreneurs in refugee camps' (Group B)

5.4.3 Key issues raised during the task performance

During the story analysis, barriers and strategies were discussed as interconnected issues. The analysis of these is presented in categorical sections which will explain their relationship. The barriers mentioned were related to the humanitarian system and institutions active in humanitarian relief; stories included corruption, mistrust, and accusations that 'the system' was unwilling to change. The following sections describe the discussed barriers and suggested strategies. Goals were selected but not discussed by the participants; therefore the list was made in accordance with their categorization of barriers first and strategies second. The categorization was based on which themes received the most attention and not issues that were swiftly mentioned or put on a post-it note without receiving additional attention.

Refugees as end-uses: barrier or opportunity?
The participants were divided between regarding the refugees as a barrier at the end of the design and implementation line, and regarding them as a necessary element in the

design process. Many enterprises expressed their belief that people in development countries 'do not want to change habits'. From the tone of discussion and facial expressions one could see that they regarded it as an annoying barrier that people do not use a product unless it is exactly right, as though that were a flaw in the refugee. Other participants, however, saw it as a necessary demand that a new technology or service had to benefit all of the involved parties in some way. The strategies varied between *changing people's habits* and *adapting the product.* Strategies to change people's habits involved training, and/or strict regulations that would require people to use a product. One person thought that working with people while developing the product would solve some of the refugee's problems.

Risk taking:

The *high investment costs* of developing and selling a product to a relief market, compared to the risks of not reaching a market after its final development, was extensively discussed by the enterprises. The product has to fit well with the context and needs of the humanitarian customers, but the investment of developing and testing and improving the product lies solely on the enterprise. Humanitarian customers rarely cooperate with enterprises to develop new innovations. The NRC participant on the other hand perceived that humanitarian customers had the most significant risk. It will be the humanitarian customer that takes the risk and blame, if the relationship with a private enterprise goes wrong (Figure 23).

product hand-over

- •Enterprise is risk-taker
- •High investment cost
- •Research and development
- •Lack of contextual insight increases cost

- •Humanitarian customer is risk-taker
- •Reputation
- •Skepticism of private enterprises/ profit
- •Lack of contextual insight in development phase increases risk
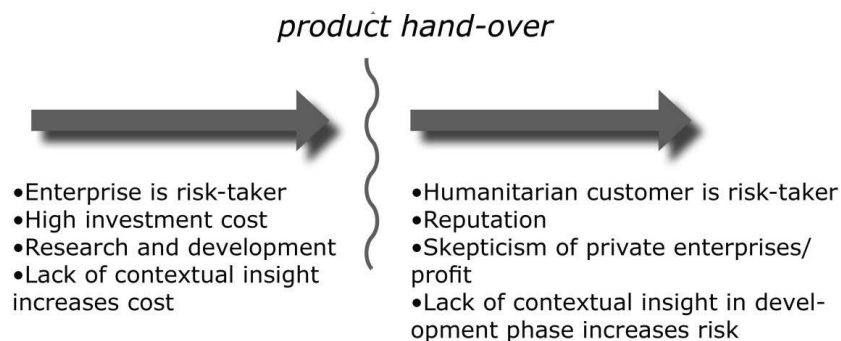
Figure 23: Perceived risk-taking in the customer-supplier relationship of the humanitarian system (the humanitairan market)

The potential of innovation:

Enterprise participants brought the discussion back to the example of cell-phones and their extensive success amongst camp refugees. The stories expressed an expectation that products had to be innovative and meet multiple needs, basically ground breaking innovations, if humanitarian customers were going to see them as important. Cell-phones were brought up several times as an example of a technology that became

important to refugees and changed their lives. This example proves that there are opportunities for other innovations, as well. As for the topic of profits (that humanitarian organizations resist and the Sphere standard requires they are kept to a minimum level) a participant expressed that 'well, the cell phone companies and the telecom agencies are not there to be nice, they are there to make money, they are billion dollar businesses'. In that way, humanitarian stakeholders admit that there are paths for making money in humanitarian relief; however they do not see themselves as responsible for supporting private enterprise innovation processes. Again, some participants expect this type of innovation to happen based on a need from the refugees and smart entrepreneurial skills. They expect the product to be ready and the business model to be ready; they are not active parts in developing the product or business models. This insight suggests that enterprises or designers should make their own paths towards gaining contextual insights, independently of their potential humanitarian customers. They should treat the refugees as any other end-user, without relying on humanitarian customers.

Strategies of system avoidance:
The discussion above led to a discussion about whether the humanitarian actors should be involved at all, since the humanitarian system is not welcoming in the way it appraoches private enterprise, and do not take part in a product design process. Instead, they rely on the enterprises to test new ideas. Several strategies written on the post-it notes suggested a need for private enterprise to access the market directly. Strategies such as 'find ways of entering the market without depending on aid-money' stem according to the participants from difficulties in comprehending how private enterprises can work with humanitarian actors, when looking for long-term opportunities. Enterprises want to work in their area of expertise; creating or finding markets and selling their products. They would prefer to enter humanitarian settings with their products, and sell them. In that way they would contribute to micro economies, without needing assistance from humanitarian stakeholders.

Another issue discussed was the enormity of the (energy) needs compared to the small impact of one lamp or one stove. The group vacillated between goals of wanting to help everyone, to simply selling high quality technologies to those who could afford them, and at least achieve some impact that way.

The enterprises did view the humanitarian camp managers as barriers in themselves, being 'too conservative' or simply not liking private businesses. These statements only came, however, after one of the humanitarian managers had left the workshop.

Amongst the strategies for avoiding the humanitarian customer as a gate keeper, one group suggested that smaller NGOs within the refugee camps assisted the suppliers in building micro enterprises. Having NGOs that are working in refugee camps, assist refugees to start micro businesses would be a way into the direct market that the enterprises in group A were looking for. Some enterprises were promoting a model with

product and micro enterprise, they would like to have the NGOs in the field build business capacities. This would be an entrance point for enterprises and their products. This triggered a discussion about whether refugees are allowed to do this formally – informal businesses and informal economies are already present in camps.

Selling services rather than products:
One participant suggested that, instead of selling products, one should sell services, in terms of training programs that could teach people to build their own products; lamps, stoves etc. This suggestion emerged from a discussion about the challenges and goals of local production. Local production was seen as key to sustainable development and maintenance of products, but the knowledge is also a much needed service in refugee camps.

Human capital:
Realizing that the human capital is the only reliable resource in emergency situations, the participants discussed how human resources could effectively be identified in relief situations. They believed that one could connect the right people, namely creative/entrepreneurial people, end users and executers, and *innovation hubs* could be initiated locally.

Longer-term stakeholder collaborations:
A question was raised about how to create long term development together with NGOs or humanitarian customers. Participants had experience with engagements that were very short-term. They would receive funding for a certain amount of products, before an NGO distributed them in a camp, provided some training and leave. They would like to measure how many people's lives were impacted by the product or service provided. Short term collaborations, that donor funding fosters, don't allow for this.

Related both to the issue of wishing to access a direct market, and attract humanitarian customers, came a *ffordability.* Participants thought it was difficult to choose between lowering the cost of a product enough to make it attractive to humanitarian customers *or* refugees, or offering a high quality, durable product.

During the backcasting sessions, the groups moved from asking questions and setting goals, to attempting to answer them. When trying to respond to the challenges, more questions were raised and an extensive list of small and large problems were written on the post it notes. The discussion shifted between solutions, obstacles and 'unknown' issues.

5.4.4 Questions raised

The questions presented below adress the issues which consumed most of the time and provoked the most engagement during the task performance. These issues inspired a further exchange of experiences. The following question created the most debate:

Question: How to use human capital as a resource:
One humanitarian participant largely impacted the process of the group by linking this issue with beneficiary context and experience from the field. One of the issues returned to was *how* humanitarian relief could make better use of local resources. This was regarded as a key question to create a more sustainable humanitarian action model.

> *Participant 1: "There seems to be an assumption amongst designers that there is a design for every solution and the best way to do something is maybe to produce something and fly it in. In most settings, the quickest response will come from the host, from the population itself."*

This resonated partly with the discussions about connecting with local lower-level governance partners, rather than national host country partners, which the enterprise participants had experience with. Connecting with host populations was an issue that the group discussed extensively. Also, group B discussed how to find 'the right' people and considered this the alpha & omega of success or failure when aiming at sustainable energy supply.

The groups kept trying to determine how human capital could be used in a constructive way to achieve the objective at the top of their ladder diagram:

First answer: Capacitate through innovations of financing:
When discussions centred on creating sustainable (business and development) solutions, within the constraints of the humanitarian system, an alternate strategy evolved. Some participants, in both groups, suggested that a preferable strategy would be for designers and entrepreneurs to detach from the relief model, and identify human capital in the refugee setting. By identifying the 'born entrepreneurs' and assist them in developing business models independent of donation, the private enterprises and/or NGOs could assist them and the refugees would benefit. This would depend upon a mentality change within humanitarian relief towards making a profit in humanitarian settings.

One discussion (that one of the groups spent a quarter of their analysis time on) was concerned with how the humanitarian groups viewed the work of NGOs as destroying the refugees' need to make individual choices:

> *Participant 1: "yes but that will happen anyways if people are given buckets--- there's a lot of how do we trust them, I think the losses over the, the inherent cost of buying, transporting, storing, packaging and moving out, it is high. I think there's a lot of argument for the cost efficiency of giving money directly and a lot of greater choice, people can prioritize it how they want. You know you can make it so that they have to build a house with it for instance, but if they have 9 children then maybe they want more space and less fancy windows or something but it will be a little while. But in some senses, and they can say yes, I want to invest in something that is going to save me money in the long term.*

> *Participant 2: so do you think that giving maybe will cannibalize the NGOs because you don't need that many people anyways?*
>
> *Participant 1: Well people like Visa and Master Cards are very interested in this. There may not be a need for NGOs at all, governments can put ten million into a Visa account and[…]"*

Second answer: The potential of innovation: 'Jumping hurdles' where the hurdle is the stakeholder relationship

If the problem is that not all refugees can pay for technology, but donating items will destroy the possibilities of sustainable market creation, one alternative would be to create solutions for the refugees who can afford them. Another way would be to create business models that could work within the frames of humanitarian refugee camps. The solutions suggested reveal that the participants considered it impossible to reach the larger refugee group through a market approach.

One participant expressed their expectations for the enterprises as to 'jump hurdles, with innovations like mobile phones'. Much of the discussion on solutions went back to the concept that there had to be ways that private enterprise could improve things for refugees, without the humanitarian system having to facilitate and open up. The enterprises expressed their preference of avoiding the humanitarian systemic problem of low-cost technology and lack of market, in the strategy post-it 'sell lots to those who can afford'. Both quotes represent the belief that one could avoid the entire humanitarian donor-aid dependency and lack of follow up discussions, by creating a humanitarian system that fits whatever the designer or product supplier wanted to achieve. The quotes show how both sides saw the collaboration between private enterprise and humanitarian stakeholders as a hurdle. 'Innovation' shouldn't have to deal with the root problem; namely that the humanitarian system is not open to private investment except for unique hurdle-jumping innovations, such as cell phones.

Third answer: Knowledge transfer

A question emphasized by one participant was how knowledge that was generated in Norway among academics, humanitarian staff and enterprises could be implemented in a 'real' humanitarian setting? How could the development of a holistic understanding of humanitarian relief and technology introduction help, if it cannot affect the policy and money-flow dependent reality on the ground?

In summary, these three answers represent three new questions. The first answer attempted to answer *how do we motivate?* The second answer 'to *innovate*' was followed by a discussion of *how can one ACTUALLY change people from their current routines in the humanitairan system by thinking out of the box*? The third answer required a higher level learning connection to practice in the field, which led to the last

question *how do we apply knowledge to change humanitarian action?* From the design thinking perspective, we have moved closer to more system related issues and opened more questions, which will guide the framework development and next research steps.

5.4.5 Sense-making gaps

There were a few issues where the groups struggled to find agreement or where they were clearly talking about different concepts without understanding each other. These are listed below as sense-making gaps that the framework will seek to fill. Krippendorff explains that one way of interpreting the claim *"design is making sense of things"* is that *"the products of design are to be understandable or meaningful to someone" (Krippendorff, 1989).* Regarding the frames of humanitarian action as a design, it is important to map the *gaps* in sense-making. The targets that the groups selected and aimed at in the Norway workshop were derived from discussions they had during the story analysis. By phrasing their objectives as; 'get NGOs to help engineers and entrepreneurs', 'combine core business with aid', ' connecting creative + executing + end user people', the participants expressed concerns and experience with the challenges identified in research on the humanitarian supply chain. These goals largely represented problems identified in the interview study. All the targets and discussions were connected to a wish to create something long term; either a sustainable market, or something that could be scaled up in order to have a real impact. What they were suggesting was the need to design for humanitarian refugees' long term benefit, within a system designed for short-term relief. There were two issues; one of context and the other on useful goal setting. The following issues remained divisive, as the participants could not find agreement:

Context:
Different views on the meaning of context caused conflict between the participants. This shaped their opinion during the workshop task of creating visions, strategies and barriers. The meaning of context was discussed as 'being in field' and understood as a requirement of the design process. Participants communicated that they were accustomed to finding their product requirements largely through insights gained from the end user context. Related to product design processes, it was emphasized that maintenance is not available and that it is difficult to change end user habits. These are contextual issues, as well.

Included in contextual understandings were *legal limitations* to the suggested solution ladders: The participants spent time during the workshop questioning the legal barriers of earning money inside a humanitarian intervention. The enterprises found it difficult to contribute to long term, sustainable solutions, if they could not change the refugee's rights to enable them to benefit from business model innovations.

Humanitarian goals and applicability:

It was pointed out how little one technical solution could achieve when the needs to be filled are so large that they seem unattainable. The current humanitarian customer as well as the evaluators were looking for solutions that would help everyone, while developers felt they could provide a solution to one specific problem. Bringing down requirements to a realistic level was essential. The goals written down were of two kinds; vague, holistic and difficult-to-attain-goals of humanitarian action, and the contrasting measurable targets such as 'make local adaptations', 'count numbers of people helped', 'healthy cooking' and 'safety'. This division triggered questions about whether part of the challenge was to reduce the lager goals, to small and attainable, practical steps, and the difficulties of defining an in-between type of strategy.

Within this challenge of understanding, making use of goals and translating them into requirements, was the image of *the self- sustaining humanitarian system.* Participants paid attention to 'rules and regulations and a humanitarian system that does not wish to change'. Related to this issue, was 'transparency' *as a negative:* an issue where customers and developers agreed was that transparency is a negative concept within this market. With donor interest in keeping a good reputation, any negative publicity around donations would harm system sustainability. There was little reporting on programs and/or product implementations that were not successful.

5.4.6 Social dynamics and processual insights

Albeit power relations are a well-recognized obstacle to achieving equal representation and empowerment through participatory planning (Cooke and Kothari, 2001, Gaventa and Cornwall, 2008), the observation and awareness of power structures can provide relevant research insights.

The participants who did not remain for the entire workshop session introduced themselves to individuals they wanted to connect with. During the task performance, however, the tasks seemed to bring all of the participants to a more equal footing. The story telling session seemed to be popular and each participant's story was returned to throughout the discussions and the backcasting session. Two of the participants had much more field experience than the others, and when they spoke everyone else came in the background. The experienced participants dominated the group sessions. The facilitators attempted to stimulate equal turn taking, but most of the time the communication pattern returned to domination by those with experience. The obvious power relationship between those with experience and the others may have occurred for a combination of reasons. One, could be that the other participants wanted to learn from these experienced participants. Another reason could be that the experienced participants took a very persistent role through their view on the humanitarian system and it's many challenges (Nielsen and Santos, 2014). They were very convincing in their reasoning and attitude towards private profit in humanitarian aid.

One of the experienced participants spoke the most, of all of the participants, at the workshop. The participant took an educational and experienced role, making statements to teach the other participants about the challenges and dilemmas of humanitarian relief.

Some participants asked questions about rules and regulations and the space for creating business models. Others took an active part in putting the pieces of information from the experienced stakeholders, with questions from the other participants to ask about links in an attempt to connect context with other statements.

Another relevant occurrence happened when the most experienced participant left the workshop and the group became unsure about their proposed solution. They expressed that they didn't have enough background from the context of refugee settings to know if their solution would be viable.

Language and gender:
Gender and language were two other issues observed to influence the power relationship. There were four women in the workshop, out of 14 participants, including: myself, a participant and the two facilitators. In both groups, the discussion topics were controlled by male, English native speakers. They often directed their concluding statements (not their questions) towards the women in the group, while the women asked more questions and did larger parts of the job completing the task. In one of the groups, the majority of the participants were Norwegian and one of the English speaking participants also knew Norwegian. However, the participant did not want to speak Norwegian even though another group member clearly uttered this wish. Sometimes it seemed as if the English language was used by the men subconsciously as a power tool, while the women tried to change to Norwegian in order to include all participants. The participant who spoke English received support from another participant, who's English was impeccable and together they seemed to use this as a tool of power in the group dynamics. Even when the one native English speaker left the group at the end of the backcasting session, the other English speaker kept over steering the rest of the group by speaking English and affecting the power dynamic in the group.

During the workshop it became clear that reducing the amount of information about a large, complex issue such as humanitarian action to useful knowledge was a challenge to all of the participants. A few examples will illustrate how these limitations seem defined by a combination of agendas and experience of the stakeholders. The following discussion took place during backcasting:

> *Participant 1: Everywhere there is a McDonalds. And the basic philosophy there is give an image right, but what goes into the burger and how it's made and everything is all local. And okay, McDonalds owns a percent of each franchise so they get theirs in the end but it is local entrepreneurs, local businesses who actually back it.*

Participant 2: I think it is important that we make something that people identify with. That they feel like it is something that they like they want to be a part of and they feel like it's a part of …

Participant 1: Solution to their problem.

Participant 2: Yes.Yes.And then there is, different ways is like making something that is very similar to what you already have and that you kind of feel safe about it or you can make something that is extremely new that is wow, it is something different. I use small mock-ups. So that it is easier to see the difference and to kind of get it on the table and be able to look at it to turn it around and so that you have something to rely on people that you don't know anything about. And you can get new angles.

Participant 3: Yes particularly in the developing world you need to give them something tangible. They're not good at the theory side.

Participant 4: For me this isn't in principle anything else than selling a chocolate through Narvesen I mean you go through the same kind of evaluation process. I mean how can you sell a chocolate. The only factor in development countries is that.

Participant 2: Culture

When Participant 2 expressed the need to create a product or service together with or with indepth knowledge of the user, Participant 1 saw Participant 2's words as a part of a market strategy. Participant 2 was trying to explain how the feeling of ownership can be affected through the design process, the other participants were thinking about business models. These different 'agenda spaces' affect understanding and are important issues because:

- It illustrates the role stakeholders take based on agendas.
- It also shows Participant 2's agenda and use of 'design thinking' as a process of trying to look at the problem, 'from different angles'. While Participant 1 and 3 are limited by their views and are single-minded about their idea of what was needed, Participant 2 was asking them to be more open minded, by 'turning it around so that you have something to rely on, people that you don't know anything about'.

These insights about the roles and power of each participant will further discussed when creating an organizational image in the conclusion chapter.

Roles of facilitators and researcher:
The student participants in each group were given the assignment to facilitate the process, while I intended to observe. Regarding the role of the facilitators, one took a part as a participant and knew how she wanted the problem to be solved. Her role became more affected by her views as an entrepreneurial & design student, while the facilitating role was taken over by another participant in this group. The other facilitator

kept more in touch with her facilitator role, yet another participant also took this part and was actively pushing for more post-it notes and quicker idea generation. This was probably due to his earlier experience with idea generating sessions as he was a participant who had participated at design seminars earlier.

What I also found was that when I entered the proximity of one of the group discussions, the participants would turn to ask me questions. These questions would be of two kinds. One type of question related to whether I thought the group was performing the given task correctly. The second type of questions were related to direct questions for understanding certain topics such as "what is the regulatory framework in a refugee camp" and other boundaries that would limit the feasibility of their ideas.

As an observer I also found it difficult not to interrupt the process when I saw that they were stuck or had a fact wrong. When one participant left group B I found it necessary to explain some issues of humanitarian aid that the previous participant had explained to me before, and in this way I might have affected the process slightly.

It was also necessary to pause the discussions a few times in order to ask participants, particularly in group B, to think of the involvement of all group members as this group was more polarized than group A.

5.4.7 Feedback from participants

During the evaluation session at the end of the workshop, one feedback received was that the story telling session had inspired them to tell more stories and to explain to the other group members about their project and success factors and failures.

According to the participants, it was a possible disadvantage that the stories triggered other stories, and discussions expanded, which made it difficult to draw everyone attention back to the problem solving, back casting task. For the purpose of the research objective it was necessary to see how the story format contributed to knowledge sharing and interest.

5.4.8 Video analysis

The use of cameras combined with voice recording made it possible for me to pull back from the processes for a while and to not affect the group dynamics with my presence. Reviewing the video recordings served as a separate exercise after two iterations of analysing transcriptions and verbal recordings. The difference in posture when directing comments to different participants during the workshop strengthened the view that the different roles affected the outcome of the participatory process. After one participant left, one can see a more relaxed posture from the other participants. As soon as another dominant participant left, the other participants started moving between rooms, sitting on desks, with a more relaxed body posture, and they took a more 'teaching' position in the group, directing their attention to the students.

5.5 Concluding Agenda Spaces

An *idea* of the participants' agenda (Figure 24) emerged during the analysis of the first workshop in Norway. These rectangular areas have been labelled 'agenda spaces'. The circlular labels illustrate where the participants emphasis was placed in the data analysis. Their stories and input were based on not only experience but also underlying agendas which shaped their contributions and argumentation. Agenda is defined as the underlying intentions or motivations for taking part in the workshop or motivations in relation to the topic discussed.

The participant, whose agenda seemed to lie in a personal and professional interest in *understanding refugee end-users through collaborating with them*, positioned herself very differently from the other participants during the discussion about 'context'. The other participant's agenda lay within the *making money in relief situations* space and were sharing stories and asking questions relating to where profit is in this market, seeing profit as the driving force. As the figure shows, a distinction can be made between these participants and others who were collaborating routinely with NGOs and/or had a non-profit business model. These were overlapping motivations of *long-term sustainability* and *making money in relief situations*. Long term sustainability is used here as a broad term, but viewed from the affected community's perspective rather than the enterprise perspective. The enterprise may argue from their side that sustainability can be about having access to a sustainable, profitable market where their driving force is a reliable customer relationship. This driving force was made clear particularly through their many questions related to how one can make money in refugee camps. One participant communicated clear and strong scepticism about the meaning of the workshop through statements which expressed doubt that short-term relief organizations could contribute to longer term goals within the current system. Particularly, he questioned how a group of people discussing humanitarian action in Oslo could contribute to anything useful on a larger, global scale. His agenda space was therefore related to how it could be included in *international management and system mainstreaming*. His position was explained in a top down manner, recognizing the relevance of including bottom up. He did not seem to recognize how private enterprise with their profit focus, could contribute to long term humanitarian goals His experience of the hindrances in the large short-term focused bureaucracy, also shaped his understanding of the other participant's input. He answered every question or suggestion with rhetorical questions or reasons for why the system could not contribute to longer-term objectives.

AGENDA SPACES NORWAY WORKSHOP
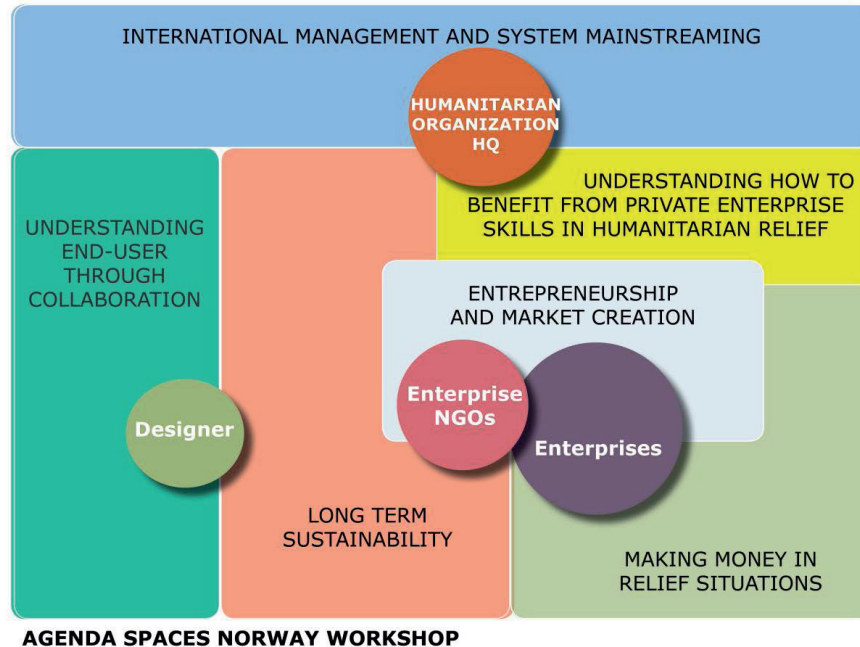
Figure 24: Norway workshop agendas

A reflecting question from this concluding section was: how do our agendas shape the way we experience and remember experiences? The individuals' shared experiences of barriers and strategies may be linked to how they connected to an individual participants' goals and what he or she believed hindered or contributed to the achievement of that goal. This way of understanding the humanitarian system in relation to ones agendas, again shaped communication and what the different terms mean to each of us.

5.5.1 Summary
The backcasting technique proved suitable to create an understanding of how humanitarian action stakeholders work and interact. The debated issues allowed the creation of an agenda map suggesting the drivers of input and decisions of stakeholders within the humanitarian system. The findings supported the conclusion of the diagnostic study that the gaps of relevance lie between:

- Humanitarian goals and actual priorities
- Difficulty understanding the use of contextual design principles for longer term sustainability in a global, short term focused humanitarian system
- Lack of knowledge about needs and impact potential
- Misaligned agendas and mistrust between stakeholders

- System-level difficulties within the stakeholder relationships that prevent innovation from taking place
- Stakeholders have an agenda-based understanding of the underlying questions that must be taken into account when discussing private sector impact in humanitarian action

The discussions led to a recognition that the key to bridging the identified gaps lies within understanding:

- What context signifies, what potential there is in context and how it can be considered in humanitarian design processes
- How to use human capital and capacity building in a purposeful and effective way to create sustainable markets in a humanitarian action context

Related to the participatory process, observations of power relations that hindered the discussions were related to English language, gender and type of actor.

This suggests that it is difficult to create a constructive learning space for humanitarian and private sector participants. Some of the participants acted as mediators, looking for bridges between problems and solutions, humanitarian context and the potential added value of private enterprise.

6. Stakeholder workshop in Ethiopia: 'emerging worldviews' on humanitarian action

The workshop in Ethiopia took place in the Jupiter Hotel (Figure 25) on Bole Road in the capital Addis Ababa, centrally located between the various stakeholder offices. Similarly to the Norwegian workshop, each group had an appointed facilitator. Equipment included large format paper, post-it notes in different colours, pens and markers. The workshop language was English.

Figure 25: Workshop environment in Ethiopia during story analysis

6.1. Participants and set-up

Participants were selected based on recommendations during talks with stakeholders in Ethiopia during the preparatory study, described in chapter 3. The importance of including a variety of stakeholders, particularly from the Ethiopian Ministries, was then emphasized several times by all stakeholders. Again by applying a purposive sampling method a total of 24 participants were invited to the participatory workshop on energy in humanitarian refugee camps in Ethiopia. Twenty participants came to the workshop

(Table 10: Participants). The table shows the full list of participating stakeholders. Groups were divided into three groups of five and six participants. Twelve participants were from Ethiopia, four were from Norway, and one was from each of the following countries: Finland, Germany, and Trinidad.

Table 10: Participants in Ethiopia

Type of participant
End user (1)
Humanitarian customer (8)
Ethiopian government/policy makers (5)
Academic/Research (8)
Total: 20

6.1.1 Facilitation and briefing

In Ethiopia, it was important to send out formal invitations. The letters had to include each participant's title, name and affiliation. Ethiopia has, by contrast to Norway, a larger power distance and masculinity index as explained in chapter 3.4.1 They have a formal working culture, with less flat structured work hierarchies than Norway. The introductions were longer and more elaborate, due to the expectation of formality, which was much more structured than in Norway where informal workshops and gatherings are a common activity. The introduction included the preliminary results from the Norwegian workshops, and an introduction to the challenges of the humanitarian system. Another reason that more background was provided at this workshop, was that the first interview study was based on insights from the donor side, and there was an underlying assumption that this perspective was less well known in Ethiopia. There was as also a need to motivate the participants of government institutions to contribute during the workshop and to understand the larger scope of the research project, as correspondence or follow up between Norway and Ethiopia might be difficult once the workshop ended. The participants were not informed about who was going to participate, until the day before the event. However, invited participants sent recommendations for additional participants.

The Norwegian students served as facilitators for the collaborative sessions, as in the Norwegian workshop. The difference was that three students in this workshop had were the same ones who had accompanied me to the refugee camps around Jijiga. They had spent six weeks in Ethiopia learning about the energy topic from the refugee perspective

and system's perspective. They were able participate actively in the group work and contributed with valuable contextual insights.

6.1.2 Group structure

The groups were designed to place an even number of institutional focus and nationality within each group. English proficiency was also considered when grouping the participants. The end-user connected to the NGO in group A did not say anything during the story telling session and needed translation and support from another Ethiopian, so the two participants from this NGO were placed in the same group (see Table 11: Group structure). Two participants left during lunch. So Group A and Group B were merged. It is the merged group's backcasting process that is presented in 6.2. However, the story analyses are presented from the initial group constructions.

Table 11: Group structure in Ethiopia

Group A	*Group B*	*Group C*
End user (1) from NGO	NGO (1)	Humanitarian customer HQ (1)
NGO (1)	Ethiopian government stakeholders (3)	NGO (1)
Humanitarian customer Ethiopia (1)	Humanitarian customer Ethiopia (1)	Ethiopian government stakeholders (3)
Ethiopian government stakeholders (2)	Ethiopian University (1)	Ethiopian University (1)
NTNU (1)	NTNU (1)	NTNU (1)

6.2 Findings

The most intense parts of the discussion took place during the story telling session. The session expanded, as participants regarded it as an opportunity for their institution to inform other counterparts and about their experience managing energy technology projects. One participant introduced several energy generating projects which had been administered among challenges and opportunities. They also elaborated upon partnerships with the Government of Ethiopia as well as the European Union. Many of these were large scale projects focused on emission reduction and methane gathering in urban settings and the introduction of rural energy in the Gambella region in Western Ethiopia. University introduced their solar cooker projects, and the presented challenges gaining access to refugee camps. The three students that had accompanied me in Kebri Beyah and Jijiga (see chapter 4) also introduced their ideas about creating energy

alternatives that bridge host community and refugee populations in the region. The more opinionated stories and contributions were provided in response to presentations.

6.2.1 Output from story analysis

The story analysis during the Ethiopian workshop produced 22 goal post-its, 41 barriers and 31 suggested strategies for how to overcome these. When comparing the post it notes with the transcripts and categorizing them into barriers, strategies and goals, a pattern emerged that is shown in Figure 26. The discussions and post-its indicate that the participants were broadly in agreement on the main barriers to energy access in Ethiopia and its refugee camps. The categories of barriers were divided into those relating to the humanitarian action, barriers of Ethiopia and barriers of understanding (Figure 26).

The stories told revealed a mistrust of both decision makers higher up in the humanitarian system, and donors. Instead, the goal setting was found where the participants did not have directly conflicting goals, although the values guiding their emphasis varied. The underlying wish was to see technologies implemented that truly made a difference in the field. The main goal was to 'change to the better' as conditions currently were very harsh.
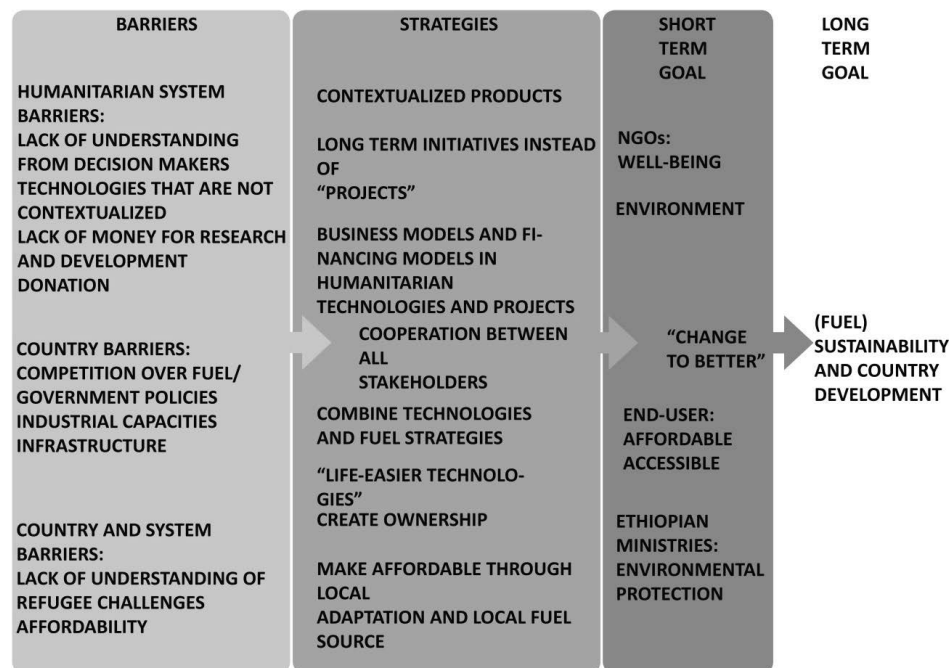
Figure 26: Story analysis Ethiopia

Another reason that there was no major distinction in barriers was that there was no enterprise involvement in the workshop in Ethiopia. All participants, including the designers, had direct experience with the challenges of a refugee camp.

According to one story, many technologies are tried but few actually change the situation of resource scarcity for the involved parties. The reason for this were:

Lack of understanding:
A concern raised by participants was the inability of technology developers, providers and people who donated items to really understand the challenges of refugees. Among these challenges were the everyday struggles of finding income, staying healthy and getting by. The lack of understanding referred to a lack of sensitivity to cultural variety and habits.

Ethiopia is a large country with 80 ethnic groups and the livelihood and cooking habits of Eritreans, Somalis and South Sudanese are all distinct. These distinctions for example include ergonomics, types of food, and preference of cooking indoors or outdoors, and required fuel.

Lack of context-specific technologies:
In relation to the lack of understanding, the participants wanted more context specific and user sensitive technologies to be supplied. In order for these to be relevant for refugees it would have to be affordable and simple to use. It would have to be developed based on contextual insights about the available energy sources. Contextual understanding and innovating in extreme settings with no infrastructure and particular cultural habits, requires investment into research and development. This investment before the implementation project was difficult to achieve.

Barriers of short-term perspective:
Other participants found that it was problematic that all projects were called 'projects' or 'pilots'. They interpreted those words to mean something that is funded and initiated but not meant to last for long. Instead, they would like to see a commitment to create something long-lasting. Related to this challenge of short-term project-based initiatives were *strategies of learning, training and education that* were seen as necessary to create lasting change.

The strategies that were identified based on each participants experience and goal, were related to the ability of 'the right technology' to overcome barriers:

"Life-easier-technologies":
In order to solve these issues, the participants saw it as necessary to move out from the short term perspective. By adding research and development funding to initiatives, changing from project thinking to development thinking, and to check that every product or service created a benefit for all involved parties, particularly the end-user. If the technology did not make life easier for the end-user, including affordability and

accessibility, it would not make a change. Another way to make life easier for the end-user was to add a business component to the product or service, so that people could earn an income. This was phrased as 'Life-easier-technologies' by one group, other groups had other versions of this aspect.

Combination of resources, not one technology:
The participants agreed that in order to solve the energy demands in Ethiopian refugee camps, one had to look at multiple solutions for fuel alternatives. Fuel alternatives were at the heart of the discussion, instead of the design of the technology. A requirement must be that technology could be adapted to the available fuel.

Stakeholder cooperation:
The participants saw the lack of stakeholder cooperation as a reason that decisions were made on the wrong basis. They thought better coordination between all stakeholders was required to improve the situation. Earlier decisions made by administrative stakeholders created mistrust between stakeholders and implementers in the field. One participant thought it was difficult to have good input on contextual requirements for the selection of products and services, and that local coordination would improve this. This type of coordination is based on 'someone running the system' as one participant said.

Short-term goal of improvement, long term goal of sustainability:
The goals were being divided into short and long term goals. The participants focused on 'change to the better', which meant that they viewed the current resource situation as very challenging. They had seen few technical solutions that improved the refugee situation or the environment. The first goal was to improve the situation and provide a solution that would continue to make it better. Overarching, for the participants was the goal to stop deforestation and to achieve a sustainable fuel situation. For other participants, the goal was to improve the well-being and living standard of the refugees.

6.2.2 Output from backcasting
Due to the reduction from three to two groups, only two ladder diagrams were created. These represent two distinct pathways to the same problem: how to ensure that the most contextualized technology will be made accessible for refugees? The first ladder (Figure 27) suggests a tool that could provide each stakeholder with the right information in order to purchase a suitable technology for a certain refugee.

Group A analysed their stories of information gathering, they knew where to find information and whether to accomplish decision making in headquarters versus needs in the field. The goal selected was to develop a tool that would create information from contexts available for headquarter decision makers; including information on ongoing projects, lessons learned, and local customs relevant for the product selection.
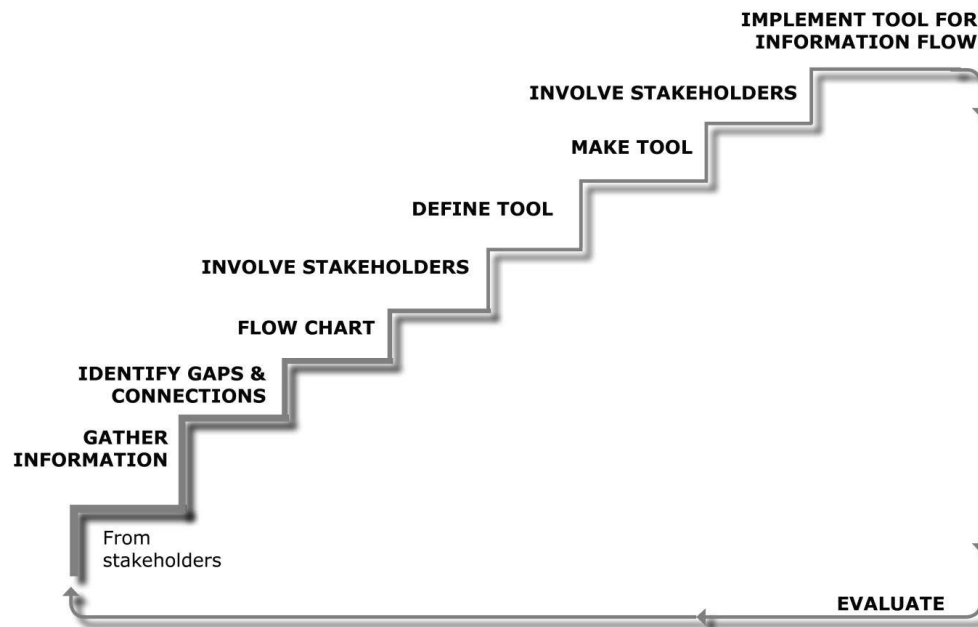
Figure 27: Backcasting diagram (Group A)

During the discussion, one participant argued that the information flow was problematic for the field staff. They had input on what was needed but lacked information on the available solutions. One participant, who had just returned from a refugee camp, said that a tool might be difficult since the information provided might not be very accurate.

The resulting suggestion from this group was an information sharing tool (Figure 28) that takes different stakeholders into account. They proposed that this tool should be administrated by local partners. By continuously gathering information about needs and monitoring existing technology introduction programs on the ground, the local teams would inform the other counterparts. This was seen as a resilience mechanism that would make relevant information available if there were sudden changes in humanitarian needs due to emergencies or an influx of refugees. The participants argued that they also needed information from the top about their decisions and available technology information, which they seldom received. Information had to flow in both directions.

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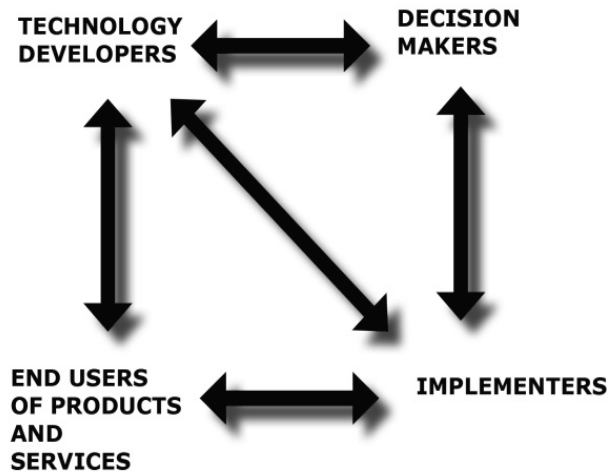
Figure 28: Information flow tool (Group A)

In Group B, the participants discussed how they would deal with a lack of firewood, combined with local preferences and shifting fuel regulations. The conclusion was that a stove could be developed through an inclusive process of relevant partners, selecting the correct technologies and combining them so that they could be adjusted to different user and fuel scenarios. The project would be largely dependent on research and iterative testing of the concept, and piloting, with added training. The project would take from 3 to 5 years to complete, from start to finish. The group discussed how this time frame went beyond the budget time of humanitarian interventions. Pilot projects which typically had short-term funding were not appropriate for product development that would be contextually grounded. The participants were united in the thought that solving the fuel access problem in refugee camps, required a combined approach rather than relying on donated technology.
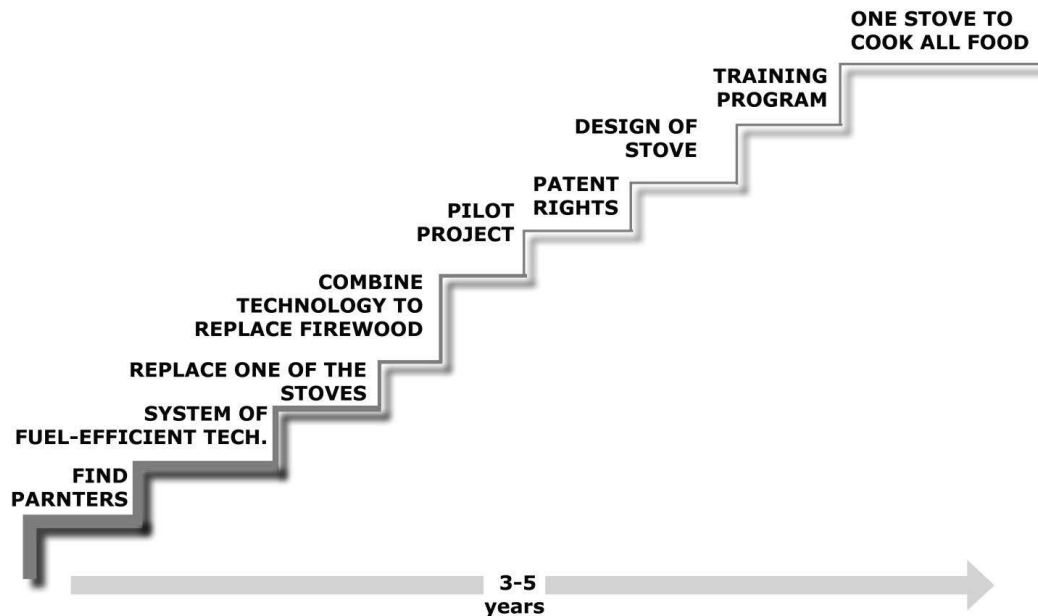
Figure 29: Backcasting diagram (Group B)

6.2.3 Key issues raised during the task performance

The discussions during the backcasting session were largely centered around household energy; including fuel access, domestic fuel sustainability and technologies for cooking energy.

Cooking energy – a complex issue:
Participants agreed that household energy was the most pertinent issue and the most important one to solve, yet the most complex and challenging.

> Participant 1: *"Energy issues for domestic energy is one of the most challenging and one of the most sensitive issues as well."*

The discussion revealed that 'sensitive' meant that there were many factors that had to be taken into account. Product-service solutions had to address qualitative issues such as cooking habits, cultural preference, training and cohesion plus available infrastructure and fuel accessibility. All participants agreed that cooking habits were not sufficiently considered when designing products for this setting. Refugees were expected to adjust their habits to the technology.

> *Participant 1: "Even the material that we send to them has to be fit to their culture cause Somali women are cooking simply sitting on the ground and the rocket stove is very big so they are sitting up down, so it is not easy to use this. That is the point that I find around. So they throw it or they use it for water or something else."*

A rocket stove is a well-known fuel saving stove that we had seen at markets next to the Kebri Beyah refugee camp. What we saw were poor quality materials that would quickly wear out. This issue was not discussed during the workshop. Regarding ethanol or liquid petroleum gas stoves, or kerosene access to these fuel types limited the use of distributed stoves.

Mixed fuel strategy:
None of the participants regarded one technical product or fuel to be an independent solution to what they saw as an extensive household cooking energy challenge. Solar cooking technologies were the topic that created the largest disagreements. Universities and other institutions around the country are developing and introducing solar driven cooking devices in low-income regions of Ethiopia.

One participant was highly skeptical of solar cooking, due to usability issues. They had already invested time testing them, with the conclusion that they had very poor usability. Other participants were more optimistic about this solution. This was despite a list of difficulties and people described as reluctant to use them without continuous, personal follow up and persistence from research teams. One participant spoke about solar cookers as a symbol of how decision makers at the top do not listen to those in the field; since they kept receiving technologies that didn't fit with the context. They concluded that this was due to a view of refugees as different from others. Some participants saw solar energy as a complimentary solution. Mixed fuel strategies (when one takes many energy sources into use instead of relying on one) would be an adaptable and wise decision. This would make communities in the many resource scarce areas of Ethiopia less vulnerable to changes in fuel access. This approach would require the adaption of an end user product to many fuels, or the availability of several products

Host and refugee relationships:
One group of participants was the first to bring the role of the host community into the discussion:

> *Participant 1:"Well there's a point there, that technologies are given to the refugees, but to the host communities, they are not. So now, a problem of, I don't know what to say.*

> *Participant 2: you mean that by giving to some, you've created a difference (between people)?*

> *Participant1: "yes that is the problem. I think with the Somalis especially. The local community is using firewood, and the refugees are using some other technologies. And then that situation it becomes an attractive thing to become a refugee for the local people [...] They get better services, better education, better healthcare, then where they are".*

Competition and negotiation are particularly strong motivations in Somali ethnic culture and clan structure. This issue was raised by participants in the diagnostic study. Knowing how to balance resources and opportunities in a host community, with those available in the refugee camps is an important consideration when designing products, services and policies for technology introduction programs in humanitarian action.

Economic sustainability:
The income generation aspect was described by one participant. This participant had experience with refugees and the surrounding community. The participant had found that refugees were motivated by a new product or product-service system that could add an income generation possibility that didn't exist before. They saw this as a motivation that both refugee populations and host communities share. The participants focused on solutions that could add income opportunities yet function independently from infrastructure:

> *Participant 1: "the biogas backpack which is a very light backpack for the transportation of biogas. This is the business component. You fill up the backpack, you take it home. You don't need pipes, you don't need any infrastructure, you don't need a truck, or at least you need to see how much you need to transport versus the fuel you need for it".*

Infrastructure:
Another issue linked to infrastructure and introduction of technologies was the legal infrastructure and maintenance related to bringing in imported spare parts:

> *Participant 2: "in the field we saw one place that the ethanol pump was broken and it's been broken for a year so they had to come up with this make-shift system that is distributing that isn't that accurate but the real reason that they can't fix it I guess is not only because of budgetary constraints but because they'd have to take that, ship it over to Addis, and then find someone in Addis who is able to take care of things".*

Participants supported this view by frequently expressing the challenge of spare parts "being stuck in customs" for years.

The clash between sustainable market creation and humanitarian action approaches:
As explained in the preparatory study in Chapter 3, Ethiopian counterparts regard the work of humanitarian stakeholders introducing donated technologies as counterproductive to their work for sustainable development.

> *Participant 1: "I think another barrier at least from our perspective is not understanding or not being aware of the market. For example, I am sure there's quite a bit we can learn from the developing, the developing world. For example, there's the global alliance for clean cook stoves. They work on creating a market for cook stoves in the world. And then eventually they would fold and there would be an existing market that could run by itself. But that's been focusing mainly on development actors. Or, the development aspect. And then, because the humanitarian organizations don't really work in a market based way as you can say, they don't take into account that, what exists in the market, and the different approaches that exists there".*

Combining needs with appropriate solutions:
The belief that the 'humanitarian system' was incapable of taking into account market needs within the current system was explained by one participant as a lack of contextual research.

> *Participant 3 "I'm thinking about the goal behind, understanding the market, I guess the goal for that would be having a clear idea of the technologies available and the market and the different business models used. And in that would come a lot of research.Matching need (market and end-user need) with technology".*

> *Participant 1: "But the make-shift system they made, it is actually working very well. So this has to do sort of with the context-specific design. But also designing at the right level".*

One participant regarded the design of appropriate/maintenance free technology (low-tech added products) as a strategy to avoid unnecessary maintenance logistics. Another participant thought that there had to be technology available 'out there' that fit with specific needs.

Communication and use of capacities:
As participants were continuing their discussion, they agreed that there were trainings and skills development programs conducted in refugee camps, but the efforts of each activity were not intertwined:

> *Participant 2: "You know that in the refugee setting there are technical trainings, they are trained in things like woodwork, metal work, and there are agencies that are involved in this".*

Different elements within the humanitarian system lack knowledge about what other elements within the system can do. This is a challenge of the large humanitarian bureaucracy, the combination of multiple NGOs on the ground and different procedures and follow-up.

6.2.4 Sense-making gaps

As in the Norwegian workshop, some discussions were related to the understanding of certain concepts. Related to the discussion in the Norwegian workshop about whether the refugee is a capacity or a barrier, the discussion in Ethiopia was centred on the challenges of a refugee woman and local/cultural concerns.

Is the refugee woman capable and busy or *dependent and idle?*
A tense discussion surrounding the refugees' daily life and needs ensued between the participants. This provided insight into the two different views of 'the refugee'. One participant believed that refugee women do not have more time on their hands than other people; they try to continue with the same activities as they had before they entered the refugee camps. Ethiopian humanitarian customer participants thought that many technology designers and implementers had the idea that refugees have leisure time and are looking for activities, with the idea that idleness is the root of all evil. But, contrary to these ideas, refugee women's lives are as they argued, already filled with chores, taking care of as many as nine or 10 children, washing and cooking up to 9 hours each day. Solar cookers were brought forward as an example of solutions that required more time than was available among already hard working women.

> Participant 2: «Do you think that a person being a refugee doesn't have any time? Despite them being concentrated in a camp doesn't mean that they don't have any activities!"

This view served as a basis for discussions concerning technology introduction programs, instituted in camps as well as in other developing contexts in remote areas of Ethiopia. While technology developers claimed that a sufficient focus on training and follow-up would help introduce solutions that required changes in habit and additional preparation of food, other participants argued that time is not something women have more of than any other person. The technology would have to make her life easier, not more complicated. Another participant supported this view by her few but distinct comments. She said that she was concerned about the affordability of fuel. As long as the technology made her spend less time on cooking, she would use it, if the fuel were not more expensive.

Diasgreement on the meaning and relevance of (in place) context:
In the Ethiopian workshop, context was divided into different purposes (Figure 30). One understanding was that contextual tailored solutions and contextual insights are something that decision makers want, but they rely on local partners to define what is relevant. Context also included the need to know habits and requirements in order to select manufacture or maintain selected technologies. Lastly, context was discussed in relation to infrastructure and maintenance: how easy would it be to maintain an item and which systems must be in place. Infrastructure was mentioned multiple times. The lack

of infrastructure as well as import barriers surrounding refugee camps prevented the possibility of importing extra parts.
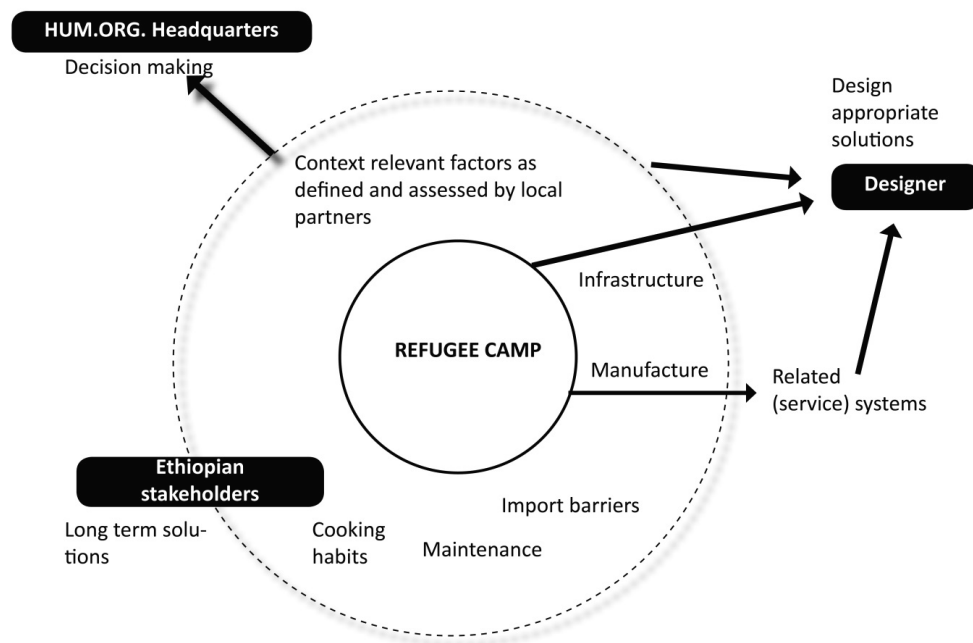
Figure 30: Context and purpose

Local resilience/ environmental objectives:
The Ethiopian participants described local resource preservation as an overarching goal for new technologies. 'Stop deforestation, 'sustainability' and 'local energy' were all topics valued by the participants.

Product related goals: Goals selected in the Ethiopian workshopincluded low cost technology and a product design process that increases ownership. Simplicity was also mentioned as a necessary requirement of technology to match the lack of infrastructure.

6.2.5 Social dynamics and processual insights

From the research diary: *We are at the conference room, down some stairs at the basement of the hotel. There are no windows. Curtains, brown-patterned wall-to-wall carpets and table cloths make a formal and a bit constrained atmosphere, yet the woman offering coffee and service several times including little pastries eaten during breaks creates a pleasant atmosphere. The participants stand around tall tables and when we leave for the lighter decorated lunch area, people mingle and talk to each other more than in the conference room. One of the women is pregnant and looks like she is falling asleep or may faint from lack of air.*

The workshop athmosphere was more formal, yet the flow of communication seemed more free and people were not afraid of speaking their mind loud and argue openly.

Task interpretation:
Backcasting was well received and the groups had no problems understanding or completing the task. However, the task given to the participants of sharing a story was interpreted somewhat differently by the participants in the Ethiopian workshop. The stories presented were specific elaborations of challenges and ideas about what the focus of the workshop should be, who should take responsibility and what had been achieved by whom within the humanitarian system.

The experience from local humanitarian organizations included experiences of testing products for energy generation that were very difficult to use and time consuming. They expressed the need for fuel and the need for a process that took into account the contextual needs. Experience from the technical research participants included stories about how including a business component into a product could allow an aspect of self-reliance into the design.

Another participant suggested was that by spending a lot of time on training, one could increase the use of environmentally protective products such as solar cookers, by several percent. In the Norwegian workshop, most of the discussions and areas of conflict were brought up during the backcasting process. In Ethiopia, the stories were interrupted by other participants and it was the storytelling that led to heated discussion regarding the key issues listed in 6.2.3.

Power relations:
Some of the most interesting observations related to power relations took part during the presentation of stories and were documented on video.

A few individuals clearly and loudly showed their views and demonstrated some of the power relations in the way they were speaking about issues raised. They were speaking

angrily and directed themselves towards the Norwegian and academia participants with direct messages to 'bring home to the donors'. Some participants demonstrated their position through a consistent humanitarian vocabulary, addressing Ethiopian counterparts as someone to 'collaborate with' 'and 'create partnerships' and 'develop tools' for.

Some participants used an accusatory 'you versus us' rhetoric while others listened and attempted to bridge knowledge gaps between groups. Some participants asked rhetorical and clarifying questions as part of their own learning process, but were attacked with rhetorical questions from other participants. This strengthened the 'us and them' categorization.

The most constructive parts of the backcasting session interestingly took part among participants who were able to discuss concepts without emotional outbursts and stances. They demonstrated a personal and idealistic motivation for solving problems.

One way of interpreting the differences in task interpretation from the story telling sessions was that the participants had different points of observation when looking at the problems rose. Their stories were more elaborated. The participants in the Norwegian workshop were geographically distanced and personally unaffected by the problem in the field, while the participants in Ethiopia worked on a daily basis with energy challenges, either though work with refugees or on a political or research level in Ethiopia. It may also be that they were more prepared, taking the workshop tasks more seriously, as they thought it would have an effect on their work challenges.

Role as observer:
During the workshop in Ethiopia, I took a stronger part in welcoming and introducing the participants to each other, than in facilitating and instructing tasks. I had met the participants in Oslo before, while in Ethiopia there were some participants that I had not met and that were invited based on what was presented as a university (NTNU) formal invitation to an acedemic event. This probably made me play more the part of a guest. I felt the need to justify our role and purpose more. Also, since the students were taking such an active role as facilitators and participants in the groups, the need to direct the tasks was less apparent. Also, nearly all the participants were active during the tasks.

Another relevant observation related to power and roles was the way the participants directed themselves towards us as researchers. Their behaviour indicated that they regarded us as representatives of the donor country, Norway. Statements indicating that "we" as a group of outsiders needed to spend more money and invest in technologies, that would solve the problems in refugee camps, emerged from some of the participants. These comments appeared to express the belief that we represented Norway, the 'humanitarian system' and had significant decision making influence. There was a clear division during the story-telling session, between 'them' and 'us'. 'Us in Ethiopia

knowing what the problems are' and 'you in Norway/Geneva who should make better decisions'.

Gender, language and conversation dynamics:
The group structure in Ethiopia revealed less gender based domination than in the Oslo workshop. The women participated equally. However, individuals who knew each other, and were more fluent in English, tended to dominate the discussions. Many of the women were from international working backgrounds, so it makes it difficult to say anything about gender and participation. However, in one group a very dominant participant shaped the outcome of the backcasting session.

Culture and communication:
When communication is analyzed based on cultural component, the analyses often argues from a model where communication between participants of different cultural backgrounds is difficult, due to differences in discourse styles and cultural misunderstandings (Gumperz, 1982). For instance, disagreement can be communicated non-verbally in some cultures and be perceived as anger or dissent by another.

The experience from the workshop did not show noticeable evidence of this being a problem for the communication. The high educational level combined with the earlier mentioned high index level of uncertainty avoidance explained in the background chapter may have something to do with this; people were active listeners and the group sessions were less dominated by one person's input. Also, the personal characteristics of the participants that had intercultural experience, might have affected this so that it did not represent a challenge.

6.2.6 Feedback from participants
It was difficult to ask for feedback from the participants during the workshop, because several of them left before the end of the day. Apparently, because the workshop was held on a Friday, people saw it as an opportunity to start the weekend early. A year later however, one of the participants, travelled to Trondheim. This provided an opportunity to interview him about his experience. Conducting an interview that late on one hand prevented the possibility of comparing input with the spontaneous feedback given after the first workshop. On the other hand, conducting the interview when some time had passed provided insight into which parts of the workshop had a longer term impact on the participant's view of the topic. What he appreciated and remembered from the workshop was that the issue about refugees was new to him. He thought that bringing together many different stakeholders was a useful approach. He left with new contacts and ideas about how collaboration between agencies could improve the lives of refugees, something he had not considered before. After the workshop he had moved from the idea that solar energy was the main solution for Ethiopia:

> *Participant: "[…]we work on energy studies and rural energy in terms of solar energy. So there are offices, NGOs and so on working. But if I look at the extent*

> *of the problem, I mean, wide significant parts of the population live in rural areas where there are no other means than biogas. So looking at the extent of the problem, things that currently are being done, is not enough to, we need to do more and we need to do it in an organized way".*

He had however expected a more technically advise oriented workshop. He expected us to represent specific and technically detailed solutions for them to learn from.

6.2.7 Video analysis

Similar to the Norwegian workshop, the use of cameras combined with voice recording made it possible for me to play the role as observer and facilitator. Using the video documented some of the nuances instead of losing details because of note-taking. The anger from some Ethiopian participants directed at 'us' as researchers was visible in the video recordings. This strengthened the viewpoint that we were looked at as representatives of the 'donor and decision maker' Norway and that we could return to Norway with the messages given. This anger was directed at poor decision making at the head office and donor level that resulted in unsuitable technologies, instead of high quality context-based technologies for Ethiopian refugee camps. The video shows a triangle of communication between us as researchers, and several of the other participants. It is clear that some of the participants felt they had little influence and were helpless in the hands of decision makers and technology developers.

An interesting difference from the Norwegian workshop was that no one in the Ethiopian workshop seemed to care if the camera or sound recorder was turned on. It did not change their posture or way of speaking; it did not seem to matter. This indicated that the atmosphere was more egalitarian or at least that people felt free to speak their mind. The customer/enterprise relationship was not present which in the Norwegian workshop led to a sometimes tenser dialogue, as enterprises may have expectations and a role to play in relation to the customer and vice versa.

6.3 Concluding Agenda Spaces

The third organizational model (Figure 31) shows how the different stakeholders placed their emphasis during the storytelling and backcasting process. One participant kept trying to focus the discussions and solutions on her underlying goal of finding systemic innovative solutions.
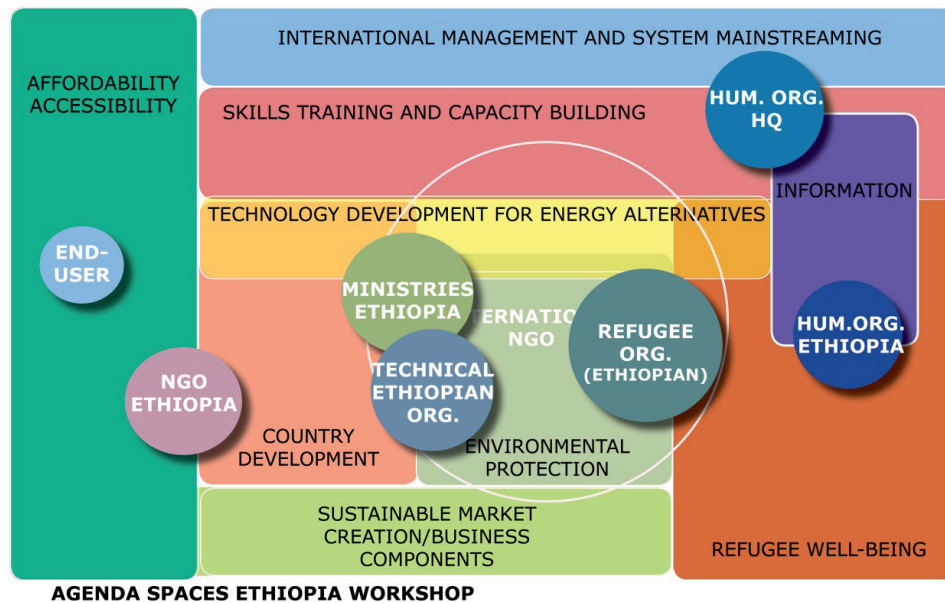
Figure 31: Ethiopia workshop agendas

Another participant did not appear to see herself as a catalyst to change design or implement processes. She did argue from her own experience and expressed a desire to have access to something more affordable and easier than today's options. Another participant argued from the side of refugees and provided new information to some of the other stakeholders by explaining that refugees were just like other people and need usable solutions like everyone else. Other participants embraced the issue of country development, refugee well-being and environmental protection as a holistic issue. Another participant presented stories from Ethiopian development projects and had not much direct experience from refugee camps yet provided important input on technology development and sustainable markets in Ethiopia. One participant argued largely for environmental solutions while others provided input related to an understanding that challenges for refugees will be solved if the rest of Ethiopian challenges are met.

From the discussions during the backcasting sessions and during the story sharing, it was possible to generate an organizational figure (Figure 31) of where the participating stakeholders placed their interest. As in the first workshop in Norway, the agendas were formed from the questions they asked and the issues they repeated.

Ethiopian participants saw the technology introduction from the perspective of *Country Development*. This overlapped with *environmental protection,* as the deforestation and resource management is a key factor in Ethiopian politics. Others put their emphasis in the overlap between *Country development* and *Environmental protection,* but limited to *technology development and energy alternatives.* Their input both during the story telling session and the backcasting sessions highlighted the need to include a *business component* in products and services. Their experience with this was more successful in areas without humanitarian relief organizations present. They drafted an image of a suggested 'new design' of humanitarian action as an integrated part of development efforts (Figure 32). One participant during storytelling and backcasting thought that the humanitarian system could manage knowledge and partnership development in the field. This agenda space is named *International management and system mainstreaming.* This participant wanted to create an information sharing tool. The goal of an information sharing tool was to create an easier way to *manage* the contextual differences on the ground in a resource efficient manner. However, another participant wanted more information from administrators and how they would deal with shifting political resource regulations and the amount of non-user friendly technologies. Another participant was concerned about bridging cultural aspects, technology adaptation, business and skill development and taking a longer view. These participants stretched over more agenda spaces in their efforts than the other stakeholders who firmly argued from a narrow agenda.

Only one participant was firmly committed to the understanding that only affordability and accessibility could make end-users included. According to the end-user, *affordability and accessibility* would make her change habits and buy different fuels and products. Other participants also argued for cheaper technology solutions, but did not mention fuel affordability.

Current view

Suggested keys to long term technology acceptance for
refugee end-user:
Time reduction
Access
Availability
Afordability

Refugee

Humanitarian action

Mistrust

Host
community

Mistrust

**National (Ethiopian)
development efforts**

Main motivational
factor host:
Increased income
opportunities

Suggested integrated view

Missing system's factors:
• role of humanitarian action
• role of ethiopian institutions
• role of private sector

**Humanitarian
action**

Refugee
(system
user or
customer?)

Host
community / local
partners as product
service system owners

**National (Ethiopian)
development efforts**

TOWARDS AN INTEGRATED STAKEHOLDER SYSTEM

**Figure 32: From short term to sustainable humanitarian action deducted from
discussions in Ethiopian workshop**

6.4 Humanitarian action 'worldviews' from Norway and Ethiopia

The diagnostic study and the exploratory study in Ethiopia revealed two different
perspectives that were named 'world views'. The first and second workshop indicated
that there are a third and fourth world view not taken into account by the humanitarian
system: the one of the refugee as end-user, and the one of the host-community
individual interest. These two story themes were crystalized from the analysis of the
gathered data, and are related to resilience. The view on the refugee's role can be
divided into two perspectives;

The story about the aid receiving refugee:
A reoccurring question addressed in both workshops and all groups was whether
refugees have a potential to adapt to and benefit from a new technology. This question
created debate about the functionality of the technology, as well as, the possibility of
developing entrepreneurial and small scale industrial capacities with the product. The
participants began by addressing their different concepts of the refugee. Below is an
example of one exchange during the Ethiopian workshop:

> *Participant1:'But time is probably not so important in a refugee camp',*
>
> *Participant 2 (agitated): 'You think so?'*
>
> *Participant 1: 'I don't know. What do people do all day?'*
>
> *Participant 2 (loudly): 'Do you think that a person being a refugee doesn't have any time? Despite them being concentrated in a camp doesn't mean that they don't have any activities. The children they go to school [. . .] in the end of the day, time is equally very very important as in the cities themselves.'*

According to the participants, particularly those in the 'field', too many technical solutions assume that refugees are different from other end-users. They believe that refugees 'sit around in camps' receiving aid. This results in time-consuming technologies, such as pedal driven energy solutions or solar cookers that need hours to cook beans. The knowledge of aid dependency (Oliver-Smith, 1991)does not mean, that these refugees have more time or different capacities, or that they require anything less from the technologies than other end-users.

The story about the capable refugee:
Many stories focused on how to identify and make use of the existing capabilities of the refugee. One story that became a topic of discussion in the first workshop was the 'Dadaab millionaire'. The 'Dadaab millionaire' is a refugee in one of the largest refugee camps in the world, Dadaab in Kenya. He began by making and selling ice, but then expanded into retail and earned over a million dollars. This was brought up by the humanitarian customer and one enterprise as an example of how entrepreneurial skills can be valuable in an emergency and should be investigated as a resource. Another discussion centered on how the humanitarian system will eventually move towards cash transfers rather than donated items. Then the non-food item supply will decrease while bank and ICT information services will dominate. This is regarded as an empowering step, since this will enable people to choose what they want in terms of services and items rather than someone else deciding for them. An example provided was how people have started using a Visa-card or a Master-card in emergency relief areas today instead of receiving pre-determined items. This increases the affected's power over own decisions and can also stimulate local economies.

The discussions in Norway focused on finding capacities and tapping into resources. Ethiopian participants focused more on building capacities and creating opportunities. The capability issue was discussed in Ethiopia as the need to include a business component in the technologies distributed to households; adding opportunities beyond purchase or donation. The participants in the Ethiopia workshop also discussed the need to identify and build capacities both on an industrial and entrepreneurial level in refugee situations. One group started with a discussion on the unpredictability and lack of dependable and predictable resources in humanitarian settings. They agreed that there was no predictability regarding materials, stakeholders and/or financial support. One

group recommended designing a system that would encourage entrepreneurial capacities to bring technologies to the refugees. They could create a sustainable market rather than starting with the product design. Much of the discussion centered on how a private actor could contribute to a humanitarian setting, when the ban on for profit enterprise creation in refugee camps in Ethiopia remained. The groups agreed that this would more or less rule out NGOs working to provide tailor made solutions.

An interesting aspect of the workshops was that even though knowledge about the refugee was not assessed in global discussions on humanitarian innovation, the question about creating a long term impact from short term intervention was related to the role of the refugee. Requirements that were created from the discussions, on technological innovations included motivational aspects that would help bridge short and long term impact:

- Time reduction as motivational factor (end-user/technology acceptance)
- (Fuel) Access as motivational factor (end-user/technology acceptance)
- Affordability as motivational factor (end-user/technology acceptance)
- Income gathering as motivational factor (end-user/service-system maintaining)

An organizational figure (Figure 33) was constructed to locate patterns within the suggestions and interests of the stakeholders in the two workshops. The figure shows how contextual factors were seen as an opportunity for improvement in the Ethiopian workshop, while these were seen more as obstacles in the first. This might be because the issues of local capacity building, adaptation to local culture and local partnership by the Ethiopian participants were seen as a target, while for the enterprise participants in Norwegian it was seen as a barrier to overcome, or to avoid. Strategies from the Norwegian workshop of overcoming these obstacles within could be divided into three steps. These issues were equally important for the system's learning, as they were for the product designer. They were discussed in both workshops.
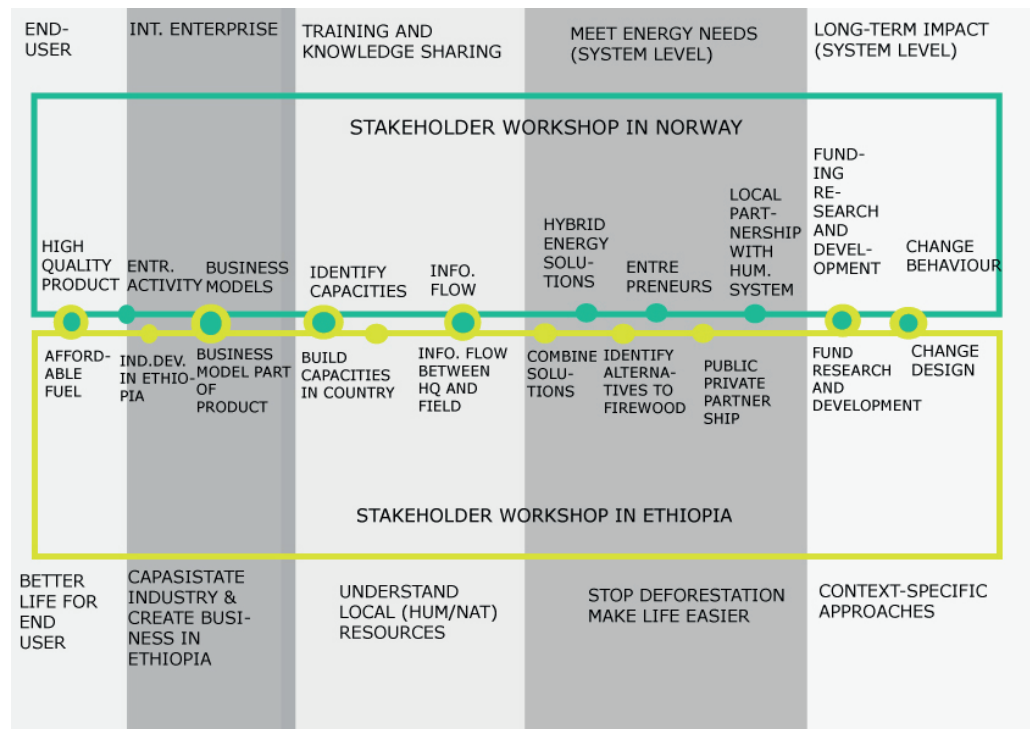
Figure 33: Combining issues; identifying patterns from Norway and Ethiopia

The following strategies were discussed to decide how to join the efforts of humanitarian action with longer term sustainability needs:

Strategies for local energy resilience:
In the Norwegian workshop there was an extensive debate about how lower level local partners (local mayors, priests etc.) were more certain to make sure something was well implemented than more high-level partners (i.e. ministers). In the second workshop they discussed how local communities could be the key to create long term (energy) solutions. When asked to create targets for future reach, all groups selected strategies to improve the humanitarian system's ability to stimulate the move from short-term to local long term resilience objectives. When the groups discussed solutions, the participants repeatedly changed from focusing on product design and object focus, to discussing issues related to achieving a long-term impact and sustainable solutions for relief and development. One observed difference was that stories in the Norwegian workshop focused on reducing the cost of a stove by selling fuel, while the discussion regarding affordability in the Ethiopian workshop centred on the cost and appropriateness of fuels. The technology itself might not be the problem; one could develop mixed fuel access and supply solutions. This illustrates the need for designing

integrated product-service-systems within this setting which support local partnerships, capacity building and information flow. Discussions also focused on the *local stakeholder partnership motivations* to create change on an individual level. In these discussions, enterprises shared experiences on how to launch a technology in a sub-Saharan African market. The necessity of incentives to create something 'sustainable' was raised by designers. Designers interpret the word 'incentives' as "everyone must have some benefit of using and implementing the technology" while for the enterprises, this term triggered a discussion on financial incentives given to sub officials in order to enter a market – in so many words, corruption. There was agreement in the prudence of working with local government officials rather than a higher level. The participants' experience was that approaching a country's bureaucracy on a higher level was more expensive and time consuming. They were both referring to corruption expectations and the local decision maker's power relationship to the central decision makers was considered a positive element. For other participants, 'incentives' could be a shorter cooking time, less smoke, or something else immaterial, while for the enterprise 'benefit' and 'incentive' referred to paying someone for doing something.

Strategies on learning and contextual knowledge:
Discussions in Ethiopia centered on the difficulties of implementing technologies and fuel access systems in remote Ethiopian settings. Resource scarcity and off-grid energy devices rely on single and often policy dependent fuel source. At the same time the different 'cooking cultures', or habits, made it difficult to introduce one type of stove. The participants referred to ergonomic factors such as the Eritrean women cooking in a standing position and the Somali women sitting down, and the differences in the type of food they cooked, which require different sizes of flame and intensity from a cooking stove. These issues make the current one-size-fits-all designs inapplicable. Still, the imported designs were aesthetically welcomed by the refugees, who saw them as 'western standard'; they enjoyed keeping them in their house. During the back casting session, one group decided to design a new and integrated implementation/design process; in other words a participatory design process for a multi-purpose stove. This would be a dynamic strategy fitting with different types of fuel and in different 'cooking culture' contexts. For participants who were responsible for product selection and implementation processes in the field and headquarters, information flow was essential to achieve contextually fitted solutions and to understand problems on the ground. During the last decade, humanitarian customers and beneficiary countries advocated strongly for receiving less earmarked funding. As argued by one participant in the Ethiopian workshop, it was important for them to select a method to effectively and efficiently allocate funding for energy alternatives. This changed the product selection process from customer dependence on donor selection to one in which the customer would define the appropriateness of a technological product. Collecting information from the field more efficiently was chosen as a goal by the headquarter participants. Stakeholders in the field focused on a lack of information "on the ground" about which

technologies were available. Designers argued that an information tool could not replace first-hand knowledge, and that there were multiple barriers to receiving information in the very hierarchical humanitarian and sociocultural context of the Ethiopian refugee camps.

Information access and the results of information sharing in humanitarian action:
An issue raised in the diagnostic study, was how the crucial insights about refugees and end-user context can affect a design process. A majority of the backcasting sessions in the Norwegian workshops were about the importance of contextual insights on numerous levels. Customers emphasized that they did not have the time, resources or mandate to undertake the assessments needed, and they did not know *how* to implement learning and apply knowledge accumulated within the humanitarian system. *Transparency* was a theme discussed in relation to this discussion about information sharing. A learning system (Gunderson, 2001) with potential for readjusting to new situations and crisis must have awareness of how information is made available and what information is shared. Customers argued that humanitarian organizations only pay attention to failures of camp management and humanitarian relief, and transparency work against long term resilience building.

> Participant 1: "So you are saying that transparency is making trouble because all the bad stuff gets attention?"

> Participant 2: "Yes well it is like my girlfriend she will remember the bad things I've done for much longer than the good things. Beneficiaries are the same as girls".

In the Ethiopian workshop, one participant was focused on the lack of funding and technology that is contextually fitted. This participant had numerous stories about the difficulties of introducing solar energy cooking stoves and the inability to find fuel for the technologies donated from central decision makers

6.5 Implications of findings for next research step

In the chosen design thinking research approach, methods are selected and altered, based on findings that inspire new insights and questions. In this case, a synthesizing process followed the two workshops. In this case, comparing findings from the two workshops led to the extraction of differing world views that determine what the stakeholders regarded as the 'driving motivations' and underlying assumptions that affect the possibility of bridging the gap between short-term and long term impact of humanitarian relief efforts.

The discussions drafted a picture (figure 32) of a current and a wished-for picture of humanitarian action in relation to Ethiopian context. The picture illustrates an attempt to answer an underlying question in humanitarian action; what is the longer term picture, a more 'sustainable' humanitarian system, going to look like? Solutions for driving a

short-term focused effort towards longer term results do according to the Ethiopia workshop participants, imply that

- one understands the refugee's motivational factors better
- that these motivational factors are taken into account when introducing services and technologies
- that local partners benefit more from humanitarian action and the relationship between international humanitarian system stakeholders and local organizations becomes tighter

What the discussions did not answer, is what would be the more detailed role of partners.

6.6 Summary

Aspects in the two workshops showed sense-making gaps and interest in how contextual insights, skills and motivations and local decisions and communication can play a role in meeting humanitarian needs; through public private collaborations in the current humanitarian system. Participants in Ethiopia focused on more specific issues than in Norway. The backcasting technique proved once more appropriate and an abstract understanding of how humanitarian action stakeholders work and interact in Ethiopia and from a beneficiary country was created. Focus in Ethiopia was on technology development based on contextual insight and capacity building. The participants regarded the team from NTNU as part of the donor /humanitarian decision maker nexus, which influenced their input.

A map suggesting the agenda spaces driving input and decisions was created based on the debates. This map suggested the following gaps of relevance:

- A gap between humanitarian stakeholders and governmental stakeholder goals. Ethiopian government wish to target energy and other resource scarcity issues as a national problem and not specifically for refugees. Humanitarian action stakeholders are however not in contact with stakeholders involved with technology design within Ethiopia.
- Information gap between stakeholders in Ethiopia and humanitarian agencies' headquarters. Headquarter participants contributions strengthened the view of development issues being separate from humanitarian issues, by emphasizing information flow regarding humanitarian action concerns mainly.
- There were also few links and little interaction between end-user representatives and others. A general lack of end-user understanding was discussed without directing a discussion towards the only end-user in the room.
- End user concerns raised *by* the end-user were put in a simple affordability and accessibility agenda space, indicating that the many agendas of the multiple stakeholders present fail to meet these minimum requirements for fuel and product change.

As in the Norwegian workshop, the NGOs and designers served as mediators and bridges between different needs and stakeholder agendas. The English language was a barrier as well as work experience/status perception rather than gender.

7. 'Combining perspectives' workshop in Norway

The third workshop was held in Oslo at the House of Literature, a well-known public arena for discussion. The workshop environment inspired creativity through its design with artistic drawings on one wall and large windows facing a park on the other (Figure 34).

Figure 34: Combining perspectives workshop environment

The initial observations made during the data gathering sessions in all three workshops were generally supported by interim analysis coding and categorizing. While the workshop in Norway included long discussions on the creation of contextual insights and identification of key players among the refugees – who were regarded as possible entrepreneurs – the workshop in Ethiopia focused on the notion that refugees were, just ordinary people going on with their lives. The backcasting focused on solving local challenges; which were more specified and tangible. One participant in the workshop remarked that a refugee or a poor person's life does not include 'sitting around all day' but is filled with necessary chores in order to make ends meet.

Central to the debate in the Norwegian workshop, was the application of entrepreneurial and profit incentives as a means to provide long term solutions. Cash transfers were seen as an empowerment process. From the customer's side, it was discussed, that one should 'jump hurdles' and think outside the box by creating a payment system that would allow for other business models to evolve. In the Ethiopian workshop

participants suggested that instead of targeting refugees with 'sustainable', donated, solutions, one could give host community entrepreneurs, service providers and technology developers a larger role in filling the needs of the refugee population. In other words, the solution according to Ethiopian stakeholders rests in a resilient surrounding community.

Large parts of the discussion in both workshops centred on methods of changing habits, design products and implementation programs that fit with or would change peoples' motivations. Conversations in groups and in plenum (during the story telling sessions and presentation of results) included reflections on the difficulties of changing peoples' habits and the need to create healthier options. It is necessary for people to understand the advantages of technology, such as solar cookers. From the end-user perspective, the current energy solutions were *cheaper, last longer and were more easily available* than the alternatives provided. While the discussions among system stakeholders in the Norwegian workshop were largely based on assumptions such as 'people want to contribute' or 'people need to feel ownership', the end users want something to make their lives easier, rather than more difficult.

Some of the questions that arose in the workshops but were unanswered were: 1) How *can the humanitarian system apply these ideas? 2) Is it possible to develop a strategy that would combine interests from the beneficiary as well as the donor country? 3) If the donation of items is unwanted and humanitarian actors at the top of the system are not aware of existing contextual needs and local resilience systems what should be the role of 'western' technology designers, suppliers and the humanitarian customer?*

The findings from encounters with refugees added their perspective as people who are focused on short-term challenges and struggles. While they hope for good services from the systems and services that are available in the host community, although not utilised by the humanitarian system. The input from refugees, described in chapter 6, revealed their view that they are unable to influence their situation and they are detached from decision making within the humanitarian system that is designed to meet their needs. Their priorities were the same as any other disadvantaged person in the community, however in a short term focused reality, waiting for what 'will happen next'. Until then, they regard themselves as dependent on the humanitarian system, grateful for the protection and hoping for the best possible services. Meanwhile, they try to protect themselves further and provide for their families, as best they can. According to the findings, the refugees are considered in technology development and local contextual discourses but are still disconnected from system level discussions. With a higher attendance of designers and participants who had visited the refugee camps, the combining perspectives workshop sought to understand whether this viewpoint, together with the 3 unanswered questions from the workshops mentioned above, could be brought into a discussion of a more human centered approach.

7.1 Workshop design

This third workshop was based on reflections on input from the previous steps: diagnostic study, Norwegian and Ethiopian workshops, refugee perspectives and the overarching research topic and research questions.
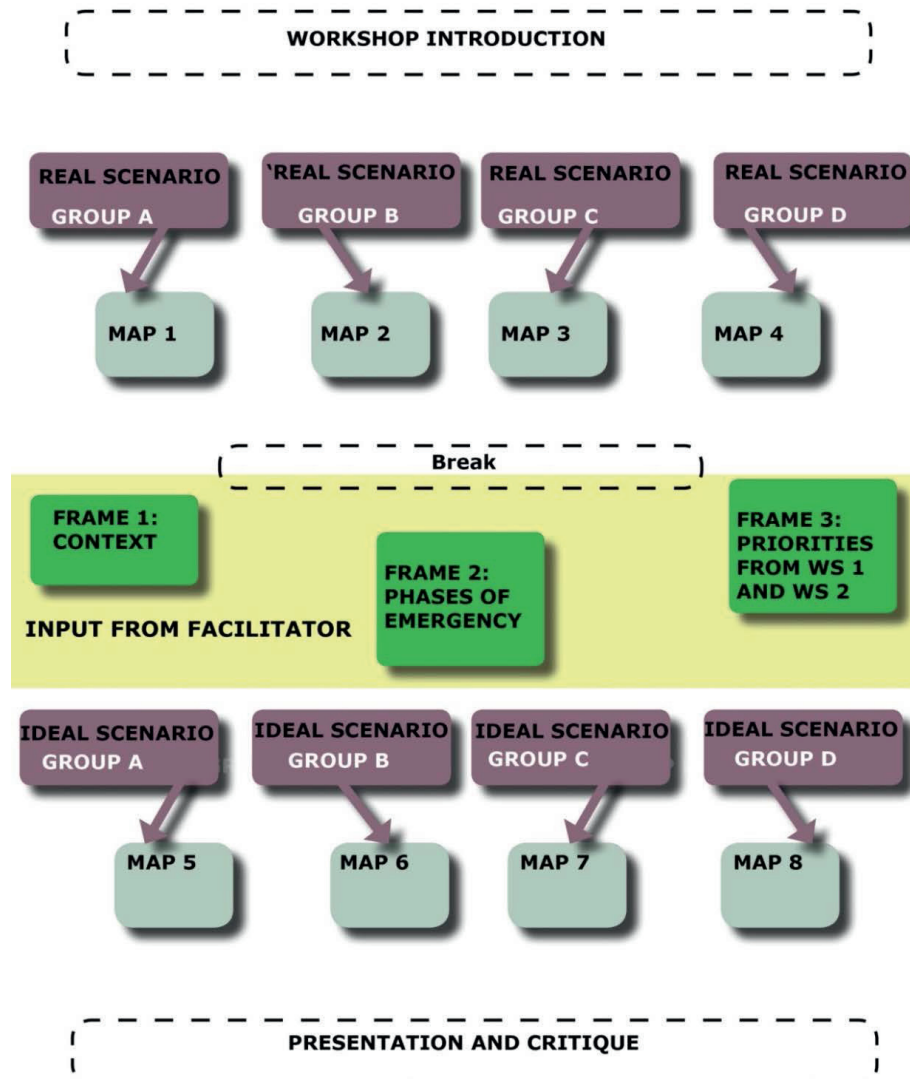
Figure 35: Design of the 'combining perspectives' workshop

The gathered material and the conclusions from the workshops were reviewed before preparing for the last workshop. This workshop was designed as a last participatory effort in an attempt to connect stakeholder views and bridge gaps of understanding.

The first two workshops identified differences in perspectives between stakeholders in a donor setting and a beneficiary setting. These differences were linked to distance from the problem and stakeholder agendas. These affected the communication process and effect of the workshop model. Also, the more 'system focused' problems discussed in Norway, originated largely in the customer-enterprise relationship that was concentrated in the first two phases; the preparedness and the immediate emergency phase. The workshop in Ethiopia, on the other hand, never mentioned preparedness and the immediate emergency phase. Although, the energy concerns discussed were related to a general development perspective and long term issues. A shared perspective in both Norway and Ethiopia was that refugees were capable and could be the link to longer term perspectives. However, in Addis there was a more down-to-earth view of the refugees concerns and their struggles.

The underlying structure of the final workshop was to use the previous findings from Ethiopia and Norway as the borders of a map. The participants would be asked to create a road map of a design and implementation process that could fill the different areas of the map. The workshop was divided into two parts (Figure 35) that will be further described and justified in 7.1.2.

7.1.1 Participants and sampling
The same participants (Table 12: Participants) were invited for the third and last workshop as for the earlier Norwegian workshop. Six of the participants from the Norwegian workshop and the two Norwegian students from the Ethiopian workshop took part.

Table 12: Participants in the combining perspectives workshop

Type of actor
Humanitarian customers (relief organizations and networks (11))
Enterprises (10)
Academic (4)
Total: 24

7.1.2 Preparation and facilitation

The workshop was introduced with a brief introduction of the research project and a summary of the output from the first two workshops. Also, a short introduction about the impressions from the field visit in Kebri Beyah was provided. The purpose of the introduction was to clarify the intention of the 'combining perspectives' workshop for the participants. There were 4 groups with 6 participants in each group. Groups were chosen in order to create as even a balance between groups as possible; between technical experience, experience with the humanitarian supply chain on a theoretical and funding level and experience with the design process.

Three design students and one design researcher served as facilitators. Two of the students had served as facilitators in Ethiopia and also accompanied me on the trip to Kebri Beyah refugee camp. These were present in each group in order to streamline the participatory development process and to monitor the process so all voices would be heard and represented during the task performance. The facilitators were instructed to facilitate the flow of information and to ensure a dynamic task performance while participating with their own experience.

Regarding methodological learning, the first two workshops had showed that the use of storytelling was an appropriate way to introduce themes; promote learning; and stimulate questions amongst the participants. During the presentation of stories in the Ethiopian workshop, the reality of being a refugee in a refugee camp was discussed. The contrast between participant understandings was clear, and it provided a good insight and support to the problem of trying to understand who a refugee is without contextual background.

However, the storytelling method, particularly in the Norwegian workshop seemed to affect the group process and focus for the backcasting session. The stories from individual participants made the other group members curious to know more about it, so some parts of the task performance in groups was spent to ask questions related to these stories. One of the intentions of the combining perspectives workshop was to bring all of the different and identified challenges and priorities into a common frame. The stories generated in the previous sessions were not used in this workshop; instead the time was allocated to scenario mapping.

Still, there was an attempt to bring the insights from the Norwegian workshop that were concerned with human factors to a level more applicable for products, energy and humanitarian relief. The combining perspectives workshop was designed to bring the processes of the technology participants into a framework consisting of the identified terms from the discourses in the first two workshops, combined with the insights from the interview study.

The selection of methods and graphic elicitation focused on first dissecting the experience and then reassembling it by attempting to understand the underlying themes:

- The humanitarian system of stakeholders and emergency phases: seeking the predictability of stakeholders and an understanding of how product design processes can adjust to the emergency phases and financing pattern, from preparedness to 'self-reliance'.

- Context: what parts of the design and implementation process should take place in the context and which parts and decisions should be made out-of-context?

The scenario mapping was designed in a manner that would ground suggested approaches in real experiences and products/services that were understandable and familiar to the participants.

Real scenario mapping:
The first half of the workshop was dedicated to mapping an exemplary scenario of design and implementing a product and/or service in a humanitarian relief context. The groups were encouraged to take a product or a service one of the group participants had developed as a starting point. The reason for this was to ground the process in something tangible, given the abstract nature of the mapping task. Then they were asked to write the steps of the process onto a large paper sheet, explaining the process of development. They were asked to elaborate upon who, what and where was involved in the process. They were instructed to add who provided which input for a process, what type of resources was brought in; where the different steps took place; and finally where the input was drawn.

Imagined process and considerations
After the real scenario mapping, the participants were asked to find a hypothetical product or service in order to imagine an 'ideal design scenario'.

STEPS OUT-OF-CONTEXT

PREPAREDNESS   EMERGENCY   RECOVERY   TRANSITION   "SELF-RELIANCE"

STEPS IN-CONTEXT
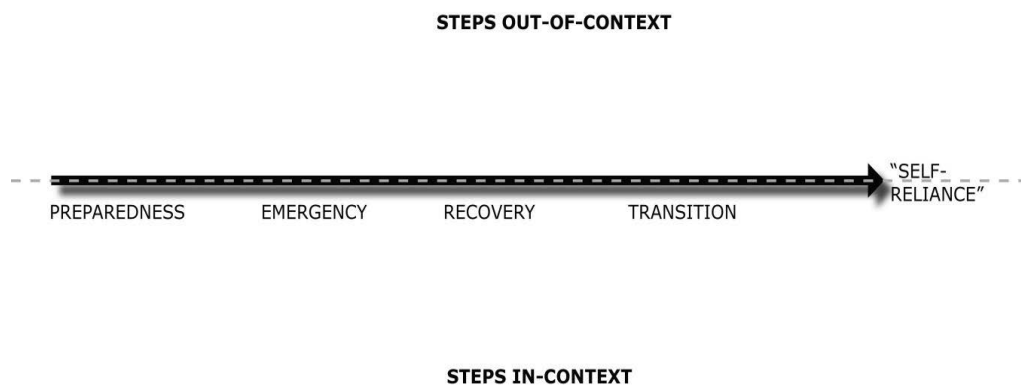
Figure 36: Considerations for scenario building

They were then introduced to three issues to consider during their scenario building (Figure 36): emergency phases, context and priorities from the two previous workshops. The processes they mapped out would have to fit within a visual map similar to the one in figure 37:

- *The four phases of emergency (preparedness, immediate relief, recovery and transition).* The participants were asked to imagine where on the timeline of a relief scenario their product/service should be planned, designed and implemented. The map had to reach from preparedness and up to 'sustainable development' or 'self-reliance' for the communities involved.
  The aim of this exercise was for the groups to contemplate and discuss how different development steps and their requirements could fit more effectively with the humanitarian relief scenario, and which type of information was shared between the different types of participants. Further, the challenges that the enterprises expressed in the diagnostic study and in the Norwegian workshop, would then be mapped onto an image of what the NGOs expressed as the challenge of linking short and long-term concerns. From this exercise, further insights about the humanitarian system in relation to technology design and implementation was sought.

- *In-context and out of context:* Analysis of the Norwegian and Ethiopian workshops revealed that participants with experience in the context of interest were more able to articulate and communicate the technical needs, than those who were more distant and unfamiliar with these challenges. The participants were asked to place the ideal design and implementation scenario in context or out of context as they preferred. Context is a relative term and the intention was to extract an understanding and/or awareness of the meaning of context when attempting to meet the goals of each emergency phase.

- *Priorities from Norway and Ethiopia:* 48 priorities that had been revealed by participants during the analysis sessions of the previous workshops were placed on small paper notes and spread on a table. When there was an hour left in the workshop, each participant was asked to pick one of the priorities, that he or she wanted to 'be the advocate of' during the 'ideal design scenario' task. The purpose was to determine to what extent participants would be able to use priorities from other stakeholder groups when conceptualizing solutions.

Once the scenario maps were completed, each group presented the process and the results to the other participants.

7.1.3 Documentation and data analysis
The group discussions were documented through voice recording and transcribed verbatim. It was analysed in three steps. First, by applying the Van Manen method (Van

Manen, 1990) of looking for information that stood out to identify the main issues of discussion as in the first two workshops. Secondly, the transcripts were analysed looking for aspects of contextual boundaries and how the groups approached the issue of context by coding. Thirdly, the transcripts were analysed looking for aspect related to the issue of moving between he emergency phases and long term concerns and development issues raised in the Ethiopian workshop were identified.

7.2 Findings

The recordings of the workshop were transcribed verbatim and the differences between real and ideal scenario mapping were analyzed. The participant's contributions supported the earlier findings and added some new insights about how enterprises and humanitarian actors handle the challenges of the humanitarian system.

7.2.1 Output from ideal process mapping

Figure 37, Figure 38 and Figure 39 illustrate the ideal scenario maps produced by group A, group B and group C. Group D's process was focused on discussion rather than visual representation and did not produce a map that is possible to present graphically.

Group A: Designing an improved energy supply for a refugee camp
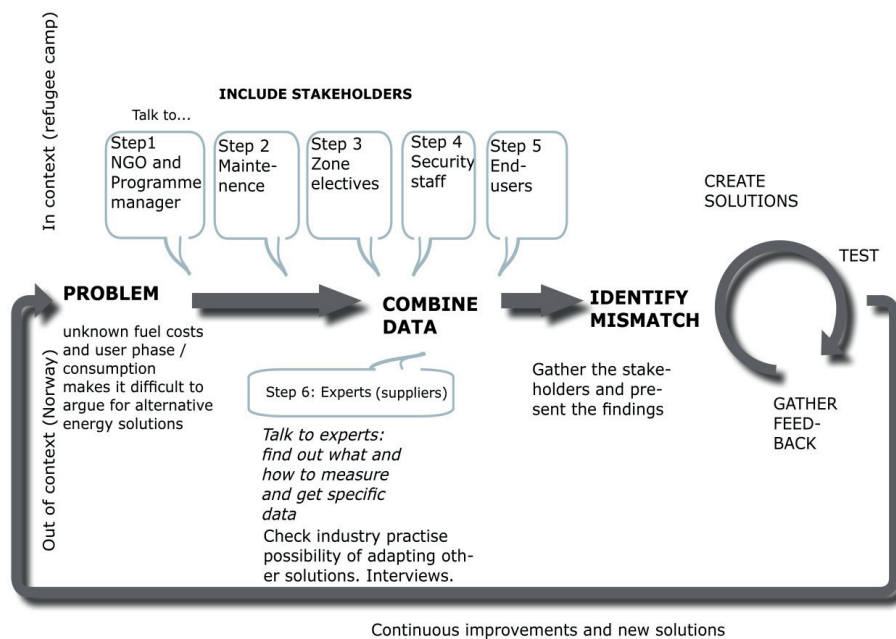
Figure 37: Ideal scenario group A

Group A began with a problem related to energy consumption in a refugee camp. As the image (Figure 37) illustrates, the group's ideal scenario was to talk to stakeholders one

by one in camp, and then after having combined the energy data they would bring this to experts in the Research and Development section of the company. The group divided their process into steps.

Step 1-5 in context in a refugee camp and step 6 out of context, at their research and development department in Norway:

1. Talk to NGO and programme manager
2. Talk to maintenance staff
3. Talk to zone electives of the refugee camp
4. Talk to security staff
5. Talk to the end-users
6. (in Norway): Talk to experts/suppliers

These six steps mapped in which area energy use would be more efficient and the actual energy used compared to the energy need. The calculation and combination of qualitative and quantitative data could be combined by experts and new solutions suggested. The mismatch between actual energy use and promised energy could be used to create and test new solutions, and the lessons would be brought back to the company for further innovation and iteration. This process is interesting because it suggests that increasing the private enterprise's role in managing energy efficiency and gathering data in the refugee camp would be successful.

This image presents an easily comprehensible approach to a single problem. Although, the group ignored the 'emergency phases' of the set boundaries. Instead they argued that replacing diesel with solar energy would be a more sustainable choice, no matter where it occurred on the timelines. They also thought that the long term development of the region was too large a challenge for a company to deal with the problem identified from the participants' common experience was that it is difficult to gain knowledge on the diesel cost in a given setting, due to a lack of budgetary control within the customer organization. The other groups tried to put their products into the larger setting, aiming at bridging the gaps between short-term and long term sustainability concerns.

Group B
Figure 38 was designed by group B. They decided to focus on the need for water and sanitation. The map shows the ideal process of designing, implementing and handing over an integrated water, sanitation and energy solution in an emergency situation. They involved four main stakeholders; first donors, then implementing agencies, suppliers, host communities and host government. The images show no stakeholder involvement beyond the 2 year 'transition' boundary. Instead, they were replaced by wants or means such as "teach the teacher", "it has to pay for itself", "sustainable solutions. They also indicated that the local communities and governments would assume full responsibility for the implemented solutions."
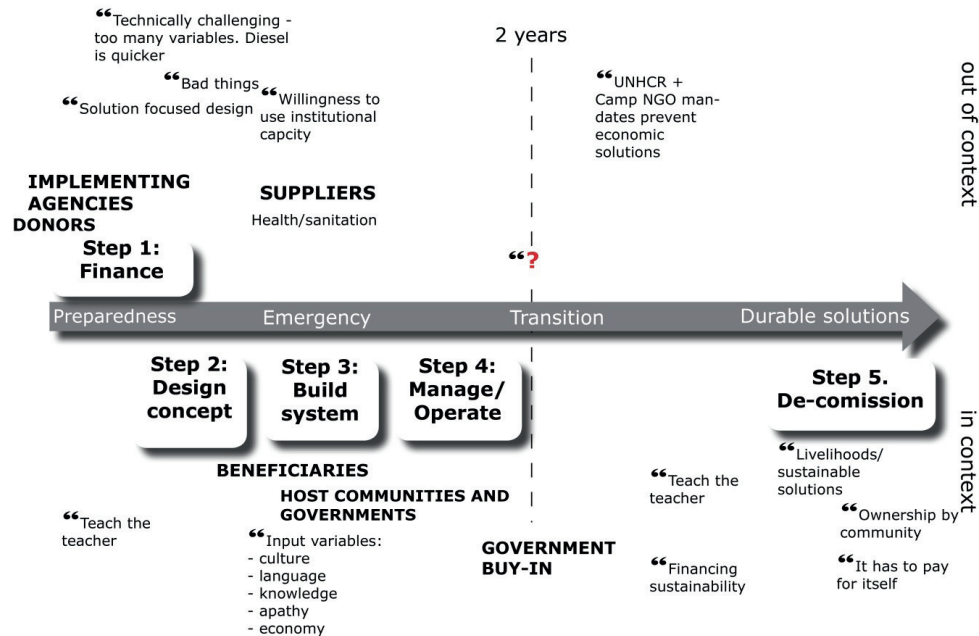
Figure 38: Ideal scenario (Group B)

Group B divided the different actions into five different steps:

1. Finance: In an ideal scenario, the financing would be available for the technical developer and implementing team within the preparedness phase. The implementing agencies and donors would prioritize water and sanitation designs when they realized that an emergency might happen. As the map demonstrates, this process is the only one that the group considered would take place out of context; internationally or in a donor country.
2. Design: the technical solution would then be designed.
3. Implementation: beneficiaries, including communities and local governments would be a part of the implementation of the design, at the starting point of the emergency.
4. Manage/operate
5. De-commission: After the forth step, the group placed a transitional timeline of 2 years, when the government would assume the maintenance of the provided solutions and manage the water and sanitation system. The group placed "financing sustainability", between transition and durable solutions in context. They described the system regulations of UNHCR and organizational mandates as a limitation. While the steps at the beginning of the process were more usual,

financing over the long term created much discussion on business models and local ownership.

Group C

The ideal scenario map developed by group C represented the largest shift between exemplary and ideal processes. This group reduced their problem to a needs assessment. The context was regarded as something that the process runs through, not towards.
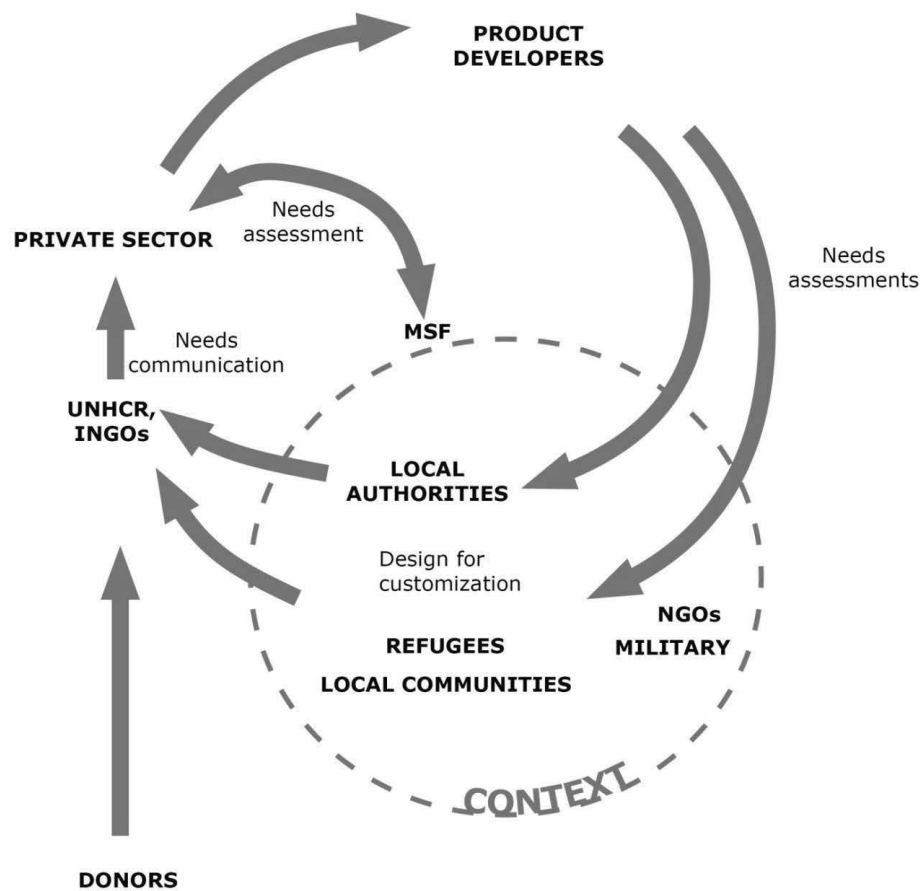
Figure 39: Ideal scenario (Group C)

The map is built around a discussion on shelter design. The group developed a process for the design of an ethanol stove in the first task. But, when they discussed how to proceed, they decided to shift their problem to one of the humanitarian customer's experiences. They were interested in shelter design as the task appeared more interesting from a design perspective. Parts of the discussion centred on using human capacities as a benefit through the use of intuitive design. From the insight of one participant, that people when given sticks and tarpaulin would build their own tents, the

designers asked why this approach is not used. Transitional shelter designs are not new. The question quickly became how temporary and provisional designs could be improved and whether the funding would be available when it needed be done. Another issue rose related to family size, and the problem with deforestation and waste connected to using simple or locally available materials as building blocks.

Another observation was that one participant with design experience did not want to acknowledge that a design process had to start at the beginning of an emergency. Rather, he thought designers should be involved and technology/service solutions be designed and in place prior to a disaster. A good design is easier to achieve early on than trying to improve or alter something that does not meet all the requirements from the beginning. The participant reflected that, "the problem is that we don't help them until we help them". This view was supported by another participant.

Group D
The last group focused on the design of a fuel efficient stove that could fit within the humanitarian supply chain. Their final diagram was very untidy and could not be interpreted in retrospect. Their categorization of stakeholders; idea generation; and problem selected, phases and context could not be distinguished in the large compilation of post-its and their placement on the piece of paper provided. However, the issues they discussed are still reflected in the findings even though a diagram could not be constructed here.

Instead of focusing on meeting needs on the ground, some parts of the group focused on how to design the stove in a way that would fit with the supply chain and how to finance it thought the existing institutions.

The issues that were not solved in theory, but created much debate, were the issue of fuel supply, usability and changing customs in context. The designer was interested in knowing whether the product was too difficult to use, as it would require much preparation and understanding of how to prepare fuel. One participant offered that it would have to involve training and follow-up in terms of questionnaires. This made the product use and the cycle in the transitional phase and beyond, difficult for the group to describe.

7.2.2 Interpretation of key issues
Regarding context, the suggested ideal scenario maps for design and implementation and relating discussions of the groups can be divided into four themes. The participants were asked to place the steps of the process of conceptual development to implementation into different contexts. It became clear that the different participants' understandings of 'context' were linked to the spaces in which they navigate within their professional work. This was the origin of the discussion about context and how it should be approached. These discussions also had the function of creating a learning space for the participants. When bringing up 'context' they told each other stories. The

meaning of their stories was related to how they functioned, in order to create something sustainable within their ownprojects. These could include ways of creating ownership, relations with stakeholders in the host community or the creation of business models.

The analysis further showed that the issue of context, the understanding of context, and the timeline of emergency phases were interlinked. Participants approached the issue of context differently, depending on where they focused their attention in their professional experience and mandate. For example, participants with experience and a professional focus on development settings, understood context in relation to development work and the opportunity to spend large amounts of time and effort in one 'context'. Participants from other agencies were largely focused on preparedness warehouses. Preparedness warehouses are storage spaces strategically located in regions that are likely to face large emergencies frequently. They keep necessary equipment available for this reason. The participants who had experience in this area viewed context in relation to the preparedness phase. 'Contextualizing' a product had to do with producing it, so that it could be useful when flat packed and stored.

I) A context detached process:
*P*articipants familiar with the supply chain of the humanitarian system, with a strong focus on the preparedness shelters and an 'off-the-shelf' approach to product supply, understood 'context' as something handled at the end of a *linear* design process. In other words, when an emergency occurred, stakeholders would meet centrally and decide on procurement, before purchasing and sending items to the field from the preparedness shelters. This approach indicated that 'context' in the sense of 'field' was regarded as less relevant for the design process. Large investments had to be made in training and making the technology fit the context at a later stage. This design process benefits the cost-effective, short-term focus of immediate emergency focused stakeholders and fits within the current humanitarian supply chain model.

An issue related to this, was that resource dependent products are largely dependent on local customs such as fuel stoves. This model can prove expensive and inaccessible for SME's when products deplete quickly or require training budget control, also, had a large degree of influence on the strategy of where to design and introduce an item.

> *Participant 1: "It may be cheaper to do design in Oslo, but to sell the concept and to influence the people within my [NRC] sector is probably better at country level. And programme level at the region rather than the head office. We can make the influence but we can't make decision, or we can, but they hold the budget. The country and region holds the budget. Oh is that the same in other humanitarian agencies? Where is the budget held"?*

> *Participant 2: In the head office. But the budget each year is a collaboration the programs they propose budgets for next year. And it has to be accepted".*

The quote above also shows how budgetary control within a humanitarian organization affects the organization's ability to contextualize a design or an implementation process.

II) A context-connected view
Group A included participants with long term experience working with large humanitarian customers. They outlined out a process that indicated their view on context was to have continuous communication with the involved partners in the 'field'. They also hired regional staff to follow up their products and to ease the information flow. In this manner, input was continuously available on how to improve their product, something that the enterprise benefits from. It did not mean that the product would be the perfect one from the first trial, but that perhaps the next one would be one step closer to what the customer and the beneficiaries wanted. Continual improvement meant moving between context and home, which required a long term relationship with the customer and an understanding of contextual presence. They required local staff hire and locally trained personnel. This *context-connected* approach means that the added value and the contextually is achieved largely through *human capacity building,* yet the product is not one that affects larger aspects of long term development beyond the transitional boundary. The an benefit of this approach is that the design does not necessarily have to be tailor made for a context but the service provided will deal with technical challenges and maintenance. For companies that provide products and services that are not a routine demand of operations, gaining this type of relationship with a humanitarian customer is a bigger challenge.

III) A contextually involved view
Two of the groups, discussed context in the design process sense, common to design for development projects. Some of the participants had experience with building ideas in field and in close contact with end-users (not refugees) in poor areas.

IV)A systemic approach
One of the groups concluded that in order to have any solution, for energy, water or health, be sustainable, one would have to integrate them holistically into the relief intervention. Sphere is the handbook for humanitarian relief minimum standards, and is referred to by humanitarian staff internationally. Their view is that a number of stakeholders are necessary to include, both in and out of context. Creating livelihood solutions is a target that must be approached as a whole. The financial part is the beginning. Which means you may need the money before you design your solution; something that has proven difficult particularly from an enterprise perspective. This approach would suggest that any solution is part of the responsibility of the camp manager. The boundary of this system is the refugee camp or humanitarian intervention. It does not involve the refugee, participatory development with end-users/refugees or the host community until quite late in the process.

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7.2.3 Sense-making gap: sustainability within humanitarian action

All groups entered discussions to verbalize how actions taken during an emergency situation could contribute to long term solutions that could be sustained by the refugees. One discussion between an enterprise and a humanitarian organization headquarter participant ended with the conclusion that enterprises need to be involved more also in the preparedness planning in order to predict needs and provide equipment before an emergency occurs. For a participant who understands product design as something that depends on functioning local systems for maintenance and supply, it was difficult to understand the humanitarian system supply chain of sending out thousands of items after an emergency has occurred. Mapping and trying to build resilient systems before and around the people that need assistance, seemed more tangible and understandable. The discussion had shifted between sharing insights about shelter construction, where the initiative of emergency victims was discussed and creating intuitive designs. The lack of information about the situation on the ground and what happens before and after the emergency phase will be inaccessible for the designer. This seemed to be irrelevant for the relief organizations due to their mandates of immediate response imperative and saving lives focus.

7.2.4 Social dynamics and processual insights

Despite the abstract and challenging nature of the tasks given, and the many boundaries introduced, the workshop participants were all engaged and contributed to the tasks. They showed interest in solving the tasks and discussing the issues of relevance to them, while understanding the humanitarian system.

Workshop environment and stage setting:
The combining perspectives workshop took place one winter morning in the Literature House in Oslo. Participants arrived from Geneva, England and Norway.

From the research diary:

> *The room is a light and inspiring space with caricatures of Norwegian culture celebrities on the walls. Yet it becomes rather crowded when filled up by 22 participants. The room is cold; everyone keeps their jacket on and seems perhaps even more concentrated on the task in front of them as if sitting in front of a fireplace together*.

It is likely that the way a workshop is introduced and how much information and what type of information is given, can affect the process and the outcome of a participatory process. It was my intention to bring priorities and findings still unprocessed to the workshop. The first two workshops were introduced with some information on the topic and the interview findings. The storytelling session then seemed to function as a tool that created equal footing for all participants. The generated outputs from Norway and Ethiopia were building blocks for the development of a 'new way' of doing humanitarian design that could challenge the mismatches and inadequacies of the

humanitarian market (Mays et al., 2012, Nielsen and Santos, 2013a, Nielsen, 2014c, Nielsen and Santos, 2013b). I presented the diagnosis of the system based on the articles belonging to the diagnostic part, and added the priorities from Norway and Ethiopia on little notes.

Task interpretation:
In advance I had weighed the issue of whether I could ask the groups to think in abstract terms versus thinking of a case-related issue. The decision was to combine it, by attaching the abstract problem solving model to experience within the group, in order to make the task comprehensible.

The first half of the workshop was therefore aimed at mapping a process of design and implementation familiar to participants of the group. Product developers were asked to elaborate on a product design process aimed at a humanitarian customer, and these were mapped into a diagram and a timeline. Groups were asked to elaborate on which stakeholders were involved at what stage, and participants asked questions in order to fill the entire diagram from idea generation to implementation.

During the second half of the workshop, participants were asked to map an *ideal* process of design and implementation. They were asked to place the different steps of an imagined process into the phases of an emergency, from preparedness to recovery and finally the development objective of 'self -reliance'.

I had further asked them to contemplate on and indicate whether the different steps required action 'in-context' or 'out of context'. Some participants asked for an explanation of what I meant by 'context' and I explained that it meant 'in field' or back at the R&D department in a donor country. They were also asked to include which stakeholders and other resources they perceived as important to involve and at what stage.

This process involved a number of post-its and markers and collaboration between participants on a cognitive task analysis process (Militello and Hutton, 1998). Surprisingly, the complex task and the participatory setting went smoothly and many issues were discussed. All groups identified an 'imaginary' product to develop before they completed large process maps in agreement.

The last task given was consciously or subconsciously ignored by all participants. When the participants were asked to advocate for an issue raised in one of the previous workshops, the participants were too submerged in their discussions and busy sharing their own view with the other participants. Another reason might be that although one might pick a note one agrees with or sounds important, it might have been difficult to argue for within the mapping process. The issue might not be similar to their experience, opinion and agenda. In either case, the participants quickly moved the little notes to their pockets or curled them up inside their hands.

Social dynamics and power relations:

The combining perspectives workshop showed the same tendency found in the other workshops, where representatives from larger organizations tended to participate more than those from smaller organizations. However, the difference in this workshop was that these participants provided constructive and idea generating input. The few participants with more experience were less likely to ask questions and instead provided statements such as 'there is a market failure here because..' These statements reflected their professional positions.

Interestingly, the third and last workshop was also the one where gender, age and experience affected participation, type of contributions and statements the most. While the female participants asked questions, the male participants provided answers in the form of statements, frequently dominating the discussion. Of course, all the facilitators in the groups were also women, but also the participating women that were not facilitators took a role of asking more quesitons.The male participants were quicker to say 'this is how we do it where we work'. The participants with longer experience provided examples of scenario building. This pattern was visible, but did not dominate the entire workshop. However, it was not a prominent observation from the Ethiopian workshop.

Further, two groups decided to collaborate in English, and the other two in Norwegian. Once an English speaker entered the group due to the intervention of changing participants, the groups changed to English and all participants seemed equally confident with this.

The role of the observer:

The idea that the observer becomes a part of the observation is at the very heart of social construction (Holstein and Gubrium, 2008). For the workshops, my supervisor assisted with the video recordings and I had students acting as facilitators. This helped me gain a 'more' distanced role as an observer. Yet, during the participatory sessions, participants asked me questions and would turn towards me when I came near their table, as if to check if they were performing the task to my liking. During the Norwegian workshops, questions were related to a lack of insight about refugee camp regulations. In Ethiopia, questions were related to expectations and future directions for the research project. In the role of observer, but also providing an introduction the participants had different ideas of what I was expecting from them. The different answers I provided affected the participation that I was trying to observe as objectively as possible.

During the combining perspectives workshop, the tasks created more questions. The participants turned towards me more frequently to clarify tasks and concepts. I attempted to keep a distance more actively than in the first two workshops. Also, in the first two workshops the task was more 'open' in the sense that the participants in the last workshop built their scenarios from a starting point. In the first two workshops, it

seemed more natural for me to provide comments and observations. In the final workshop there were more groups and participants, and the discussions never stalled.

Interventions during task performance:
Participation in all workshops was voluntary and some group members left before the end of the workshop. The group structure had to be changed during the day to accommodate the changing numbers, and we ended up with two groups. Even though ongoing and interesting reflections were interrupted, this was not purely a negative aspect. The reduction in participants resulted in an addition of new people to other groups that appeared to have a positive and stimulating effect on the discussion in those groups. It added new perspectives and questions to the task performance and forced the groups to sum up and explain their 'group thinking' to the new group member.

Half way through the first task of creating a design and implementation process to fit the humanitarian relief and development context, I observed one of the groups was stalling on an issue and that discussion had stopped. After discussing it with the second observer, I decided to exchange one group participant with a participant who had technical field experience from another group. I substituted participants in all of the groups so that each group could receive a new perspective. This proved successful in that the new participant brought in new aspects and could see the process from a different angle. Another benefit was that the group was stimulated to explain the reasoning behind their approach when the new participant entered the group. This again provided a useful insight into participatory thinking.

7.3 Conclusions

The combining perspectives workshop revealed how participants regard work in humanitarian action as a linear process, where the agendas of each stakeholder can be placed along the timeline. Where their agenda spaces are focused revealed how they place themselves in relation to (emergency) context (Figure 40: Agenda spaces). While enterprises most often asked questions and contributed in terms of how to tailor their products for preparedness shelters, designers were more interested in how the longer-term development context would look like. NGOs were interested in designing solutions in location, with local partners, hoping that this would lead to a longer term sustainability. Designers were interested in understanding how their designs could change end-user habits over time and therefore focused on the longer term self-reliance scenario.
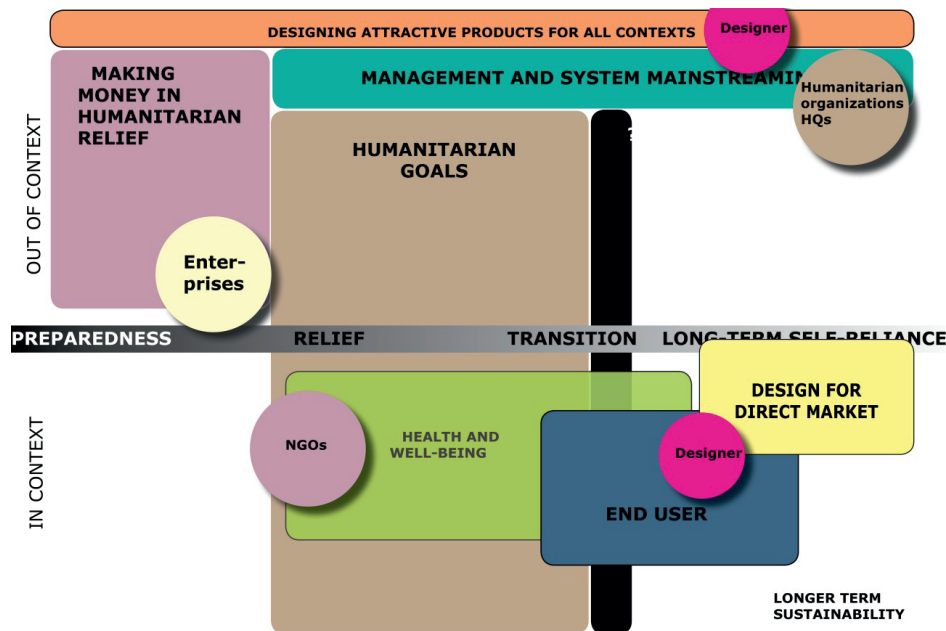
Figure 40: Agenda spaces in Combing Perspectives workshop

7.3.1 Linear views of humanitarian action

The linear thinking of the humantiarian organizations contrasts with the cyclic model of group A and the rationale of designers. It was also one where the participants familiar with working in development contexts had difficulties finding a good angle. Some participants spent much of the time during the group discussions raising questions about this timeline to the other participants. Their effort of turning the process into a more cyclic and contextually grounded view, while other participants described the systemic limitations and needs as a linear process with certain mandates along the timeline, became an interesting struggle. But even in the cyclical model of group C (Figure 39), the only financial input was from the donors at the beginning of the process. It therefore does not become a freestanding cyclical process, but instead very similar to group B's (Figure 38) where the money is supposed to be available at the beginning of the process. How to keep money flowing during the durable and transitional phase remains a riddle, so the cycle in Figure 31 will only run during the first two phases of the timeline.

7.3.2 Summary

By looking at the process maps, comparing them and matching transcripts through the use of the 'highlighting technique' (Van Manen, 1990), and through four iterations of the text, some observations and following reflections emerged. These observations

relate to the ability of problem holders and participants within a participatory process to think holistically.

a) It is difficult to move from real to ideal

The main difference between the output in the ideal process maps from the example ones, was that the participants tried to incorporate individual priorities and their own tasks and agendas into the map. The process became an accumulation of learnings and served as a learning 'tool' while the task of creating a 'new' process seemed a bigger challenge. The difficulty illustrates how the main challenge of the humanitarian system are its many agendas and mandates. The importance of each persons' or agency's task overtakes the need to create a holistic picture and redesign this.

b) Communicating processes between enterprises and humanitarian workers

It appeared as if the task given challenged the participants to make them consistently try to simplify their views and experience in order to communicate them. The observation of difficulties in communication was interesting. Especially, the efforts of humanitarian agency representatives attempting to reduce and communicate the complexity of an issue. While enterprises and designers tended to reduce a problem to their company's product, the humanitarian workers related to problems, interconnections and issues typical of their 'system' that overarched the task.

c) Tasks and decisions in humanitarian action were viewed as a linear process

When each participant was focusing on his/her own experience, the description of the process became a sharing process as much as ideal scenario building. It was difficult for the groups, due to their strong focus on their individual agendas, to picture humanitarian design and relief as a holistic issue. One of the groups, however, designed an ideal information sharing loop that was partly circular, indicating the need for institutional learning and an iterative approach. At first glance, this figure looks as if it distinguishes itself by being represented as a cyclical, iterative process, more than the others. However, interestingly, the donor input was regarded as external yet necessary. While all the process maps regard donor funding as the initial driver, the cycle is supposed to run by itself after iteration. In reality, this prevents the process in figure 39 from being a totally circular process after all, unless one can determine how to keep it running.

d) Complexity is complicated

The problem holders in all groups were the enterprises providing and developing a product with humanitarian customers. The resulting maps showed that, the more the product was interlinked and dependent on the coordination and cooperation of a humanitarian relief intervention, the more problems occurred in an attempt to describe an ideal process map. The more complex process maps were from groups who chose product development related to water, sanitation and energy. The discussions related to the building of these maps were hued by problematic statements, questioning the following:

- *Can emergency relief really impact long term issues?*
- *Is the humanitarian system capable of learning?*
- *How can 'it' pay for itself in the long run if we donate in the first place?*

Juxtaposing the scenarios described in figure 38 and 39, similarties evolve that can be illuminated further by the transcribed discussion. The group developing figure 38 spent a long time discussing the issue of monitoring and 'knowing what actually is consumed and how it is consumed', as a problem that would solve the issue of improved innovation for humanitarian action. The group developing figure 39 left the idea of mapping the scenario in relation to the emergency phases and the in/out-of context areas in order to develop the contextual input cycle. What is interesting and similar in both discussions and figures, is that they placed the private enterprise central in connecting the contextual needs with the new solutions. Which leads to the question;

- *Is the humanitarian system capable of translating insights into knowledge relevant for information?*

When the enterprise took charge of the information gathering and follow-up, the complexity of the map and the problematic issues diminished.

8. Resulting framework

The following chapter presents a new framework of understanding nuanced through interpretations of stakeholder contributions during the workshops. The framework's overarching conceptual idea is that a lack of knowledge sharing is a fundamental issue leading to the identified malfunctions of designed interventions for humanitarian action. Included in the framework are also an interpretation of the refugee's perspective; a new way of discussing stakeholder relationships through mapping of agendas; different 'ways of thinking' within the humanitarian system; and a proposal for how contextualization can take place within a humanitarian action context. Finally, a check-list of how this contextualization can apply to the case of household energy supply for refugee camps is presented.

These are all 'organizational images' not presented visually earlier in this dissertation and hence my final results. The earlier chapters have presented reasoning and development of structured periods as images step-by-step.

The first chapter presented an image of how system level problems are causing the failure of off-grid energy technologies to impact the humanitarian goals of refugee health and environmental protection. This image illustrated how multiple stakeholder agendas within the 'system' were affecting the design and selection rather than refugees' context-based insights and a user-centred design approach.

The research questions were therefore moved from being product design and design process focused to a higher conceptual level. The stakeholder system and relationships between them, as well as the role of the refugee, needed to be further investigated in order to make sense of humanitarian action for design. A design thinking approach was decided to be appropriate for this task based on the character of the deduced research questions and the still undiscovered theoretical foundations of humanitarian action as a design setting.

Following the preparatory study in Ethiopia described in chapter 3, I found that in line with what Rowe describes, reflections typically bore fruit after more structured, analytical periods, where the transcripts and patterns were laid out in tables and mind-maps. This process of restructuring (Rowe, 1991) resulted in the emergence of the first comparative yet simplistic worldviews. These organizational images showed the difference between humanitarian actions as seen from the giver as opposed to the receiver. These worldviews can be seen as the rough and early theoretical frames that needed to be redesigned and refined.

A key weakness of these early holistic images of how different stakeholders perceive humanitarian action, was the exclusion of the view of the refugee from both the Ethiopian and the Norwegian side. Chapter 4 described how two visits to Kebri Beyah

refugee camp and an interview with Bhutanese refugees in Trondheim began to capture this view by including the camp hierarchy, relationships between hosts and refugees, and the resulting motivations of refugee women. This study supported the idea that *knowledge* is a central player in the power hierarchy, that prevents trust and sustainable solutions from improving the humanitarian system. It also revealed that challenges (not particularly energy related) are significantly more important and fundamental to the refugee population.

Chapter five explained how the previously gained/gathered insights and worldviews informed the design of two stakeholder workshops; the first in Norway, the second in Ethiopia. The storytelling and backcasting process allowed me to revisit the research questions and findings from earlier,by seeing them through the different stakeholder's perspectives in a more dynamic and challenging setting. Through this process the 'Agenda Spaces' term emerged. Two agenda space images resulted. They exposed how the different agendas of each participant's institution affected their focus during the group work. Each stakeholder was trying to achieve both their individual stakeholder goals and collective, 'humanitarian goals. Yet, there were many question left unanswered. These were related to how short-term interventions can contribute to long term impact; how humanitarian action can benefit host country objectives; how the humanitarian and private stakeholders should work together; and how the different stakeholders' efforts could work in unity.

Finally, an activity was designed to answer these questions and to refine the framework further during a 'combining perspectives' workshop in Norway. In this workshop participants were asked to create a design and implementation scenario and place this into a map of short and long term concerns, 'international' enterprise motivations and contextual factors for building longer term relationships with local stakeholders. Ideal processes were suggested and emerging issues discussed in chapter 6.

I have arrived at a framework that presents a novel way to understand humanitarian action. The intention of the concluding frames is to contribute to the establishment of design for humanitarian action as a field. The purpose of this framework is further to increase the chances of stakeholders impacting humanitarian objectives and more generally, to provide a manner of approaching complex stakeholder systems through design efforts. The basis for achieving impact is with a way of reasoning that can facilitate communication between stakeholders. Tools of communication are therefore central for this fundament to be created. Bridging the current gap between intervention and longer term effect is fundamental. This is true not only for the work of designers, but it could also be relevant to a broad range of individuals, organizations and policy makers who are working to improve humanitarian action.

8.1 Line of reasoning

In order to repeat what is meant by 'frames' and "Framing" (Schön, 1983) it should be understood here as "a (novel) standpoint from which a problematic situations can be tackled […]". It is based on the key thesis: "IF we look at the problem situation from this viewpoint, and adopt the working principle associated with that position, THEN we will create the value we are striving for"(Dorst, 2011). Moreover, as mentioned in chapter 2, framing here refers to the working space of 'hows' and 'value':

WHAT **+** HOW LEADS TO VALUE FRAME

Figure 41: Framing (Dorst 2011)

By analysing the perspectives of the multiple stakeholders; including refugees and stakeholders individually and stakeholders in participatory workshops, patterns have slowly emerged. These describe the values stakeholders strive for and how existing approaches can be combined more effectively. While 'humanitarian action' can be said to target *values,* and the individuals may seek *to make a difference*, the stakeholder workshops have shown that it is each institutions' *agenda* that determines the input and decisions of each stakeholder. Reaching overarching *values* as a system of agendas is dependent on finding a way to understand, combine and/or influence these agendas.

For the system as a whole to be able to affect *values,* the analysis revealed that knowledge flow must be improved, in order to understand and trust each other's objectives. This includes the relationship between refugees and refugee camp authorities. The visit to Kebri Beyah refugee camp and the interviews with Bhutanese refugees in Trondheim identified the camp hierarchy, relationships between hosts and refugees, and the motivations of refugee women. These interviews reinforced the Norwegian workshop perspective that *knowledge* is a central player in the power hierarchy.

Between each step in the research design, I applied different types of analytical tools. I used structured approaches: by interim analysis where I first looked for information that stood out in the transcriptions (Van Manen, 1990), before looking more specifically for issues that could fill in the sense-making gaps and say something more about the key issues identified during the previous steps.

After this I would move towards more meditative processes, particularly when identifying patterns that pulled the different findings together. To 'converse with the material' during these meditative processes, I would use organizational models, mind maps; moving between the different types of data gathered; and writing up insights in an iterative and highlighting manner. The underlying purpose was always to find a way to move towards a holistic image of humanitarian action and how the different stakeholders' interplay could be represented in a meaningful way.

The resulting four frames will be presented based on the following line of reasoning:

(a) Interaction and positive collaboration within humanitarian action can be regarded as a scene taking place in front of a Knowledge/Power backdrop (chapter 8.2).

(b) The Knowledge/Power backdrop affects the refugee who is unable to make use of the introduced services, in order to create a better future. Moving towards a more effective view of humanitarian action and design depends on knowing the refugee's perspective.

(c) This scene can be understood by examining the relationships between each stakeholder groups 'Agenda Spaces'. Improvements are based on understanding and evolving the motivational aspects and benefits between them (8.4).

(d) Achieving a contextualization of products and services *within* the humanitarian system requires the elaboration of a context based design process that focuses on sustaining and communicating experiences (8.5).

(e) For the case of off-grid energy for refugee settlements, this Sustainable Contextualization includes a number of concerns that tie international humanitarian concerns, (including health and environmental aspects) to local sustainable partnerships and refugee motivations (8.6).

(f) Humanitarian actions are currently viewed as linear processes. Although, circular processes include learning and system adaptability as the more successful stakeholders (in bridging short and long term concerns) have learned. This would require a paradigm shift in Humanitarian Action (chapter 8.7)

These resulting findings and frames were developed through what Schön would describe as a 'reflective conversation with the materials'. Further, as in any design process, the results should represent the current understanding of the complex system and suggestions on how to impose favorable changes to the domain (Woods and Hollnagel, 2006).

In qualitative studies, this is commonly referred to as 'dwelling with the data'. Some frames took longer to develop and refine than others. It is essential that the frames have a communicative quality, if they are going to facilitate communication between the stakeholders. The lack of information flow between stakeholders is a significant problem of humanitarian action.

8.2 The Knowledge/Power backdrop of humanitarian action

The diagnostic study uncovered a significant distance between enterprises and end-users. The distance from the contextual problems evident among stakeholders in the Norwegian workshop, was less visible within the Ethiopian workshop. Still, within Ethiopia there was a clear division between stakeholders who understood the refugees and humanitarian relief needs, and those who were unfamiliar with them. Some stakeholders had little knowledge of the particular challenges of refugees and the deforestation of refugee camps; these areas were described as either too dangerous or the responsibility of others.

Identified communication and knowledge gaps which seriously affect the usefulness of introduced technologies are:

- Lack of knowledge among enterprises and facilitating networks in Norway about the actual challenges of humanitarian action

  "You find ways to stimulate the local economy. If the hindrance to recovery is that the roads are all washed out, don't fly in tons and tons of tent, fix the roads and the entrepreneurs will fill the void. And where the design comes in I guess is identifies needs like energy in very rural areas and make it fit to expectation, needs, in the west we often have a very naïve idea that you know a little African village and one light will be the thing that changes it all. Of course you go to these places and there'll be TVs and satellite dishes and generators running and a cold fridge and everyone needs a cold beer and we forget that actually people are pretty good in these places at finding their own way"(Participant 1).

- Lack of knowledge among humanitarian customers as to how they can affect priorities within the humanitarian system

  "I think a lot is decided by the source of the financing. If a donor is setting the agenda: if they decide the priority is energy, then they will put their money in that. And the NGOs would all very fast follow. But all our principles, I think all humanitarian agencies, is to be a conjugate through all this funding to be perfectly frank and honest. That's about it. So if it was a greater priority, we would do that." (Participant 2)

- Lack of knowledge about how 'sustainable energy' can actually be introduced and contribute long term

  "All humanitarian customers have sustainable energy on their strategy notes […]. But it is not that easy in reality" (Participant 3).

- Lack of motivation for enterprises to contribute to long term sustainable development

  "The [humanitarian actors] do not actually know how much energy is lost from generators during the user-phase for example. This makes it very difficult for us to know what we're competing with and present the best numbers to them" (Participant 4).

- Lack of collaboration between national institutions and refugee camp managers to increase the focus on humanitarian action and the surrounding regions.

  "It was new for me. I actually was not encouraging the students, the image that we had, to go to the refugee camps. That was because I was not involved before, and I felt that even though there are a number of problems related to humanitarian things but I was refraining from getting involved in refugee camps which are near the borders and so on which might not be secure for students. So it was new for me to deal with humanitarian product development [...] From the workshop I found out that this area of humanitarian is an important area to address and I would be looking for work in terms of the solar" (Participant 5).

- A lack of initiatives linking host community resource supplies and innovations with the needs of the refugee camp.

  "So there is no effective organization even to do this (linking local needs with energy supply). There is no organization doing this activity except Gaia association. Because this activity has its own work, people have to do many things, so most organizations do not want to do this activity and then to protect the environment" (Participant 6).

- Power relations affecting information flow between local program leaders and central program leaders within the same organizations. This was identified through interviewing and comparing information from local and central staff within the same organizations (multiple participants).

Participants in Ethiopia described the central challenges of the refugee camps, which other local participants were unaware of. The distance between the participant offices and the reality of the field, where each refugee woman had four or five stoves that had never been used, made these realities unknown to the headquarter participants. There was no fuel available to use with the stoves. The cronic lack of fuel supply in the camps was also not communicated to the participant organization at a headquarter level. The information that we received when visiting the camps and talking to the refugees,

provided a clear image of fuel access as the main problem in Ethiopian refugee camps, not stove technology.

This mismatch between information that reaches decision makers and refugees versus what is actually happening, seems to permeate the stakeholder relationships in humanitarian action. The main division of power/knowledge in this system is caught between knowledge that is shared and knowledge that is kept – consciously or subconsciously- by the humanitarian system. The insights derived from encounters with refugee women, including the end-user in Ethiopia clarified the overwhelming role of power relationships in the social underpinnings of the humanitarian system. This explains why humanitarian action is unable and/or unwilling to embrace the refugee as a part of the system.

Power relations in design practice and design research usually refer to the development (and adaptation) of methods that consider marginalized user groups and empower them (Nieusma, 2004, Hussain et al., 2012b, Frauenberger et al., 2011, Schuler and Namioka, 1993). The humanitarian system is designed to empower and increase capacities; yet without the opportunities that result in successful empowerment. Designers working with empowerment in mind must dare to ask, "What happens when a human who has been trained and educated is not allowed to apply and prosper from the knowledge they acquired"? Without thinking about real opportunities where the end-user is located, empowerment is an empty concept. The entire refugee system in this case is limited to refugees and is coloured by an inconsistency between what capacities people are given and the opportunities available to them. What does this do to the relationship between the refugee and the humanitarian system? And what does knowledge mean to a refugee?

The refugee interviews demonstrated that a lack of knowledge about their future was one of the most difficult aspects of being in a refugee camp. Knowledge takes different forms. In a refugee system, humanitarian providers are perceived by refugees as the 'knowledge holders'. This knowledge and power imbalance within this system is striking. The relevance of this view of the humanitarian system / refugee relationship can be explained by breaking it down to 'real knowledge' and 'substitute knowledge': In many cases, for example, the humanitarian system 'knows' or predicts that a refugee camp will not be a short-term affair or they 'know' that some refugees will not be resettled in the short term. However, this knowledge is not transmitted to the refugees.

In absence of 'real knowledge', alternative knowledge is created by the refugees. The 'false' or 'indirect' knowledge and how it affects the refugee, is perhaps the most significant influencer of their well-being. Providing activities of a certain kind represents 'knowledge'. If a refugee is allowed to go to school, they perceive it means they will get to use the education given to them. But this knowledge is not provided. For example, even in an 'open door policy' country like Ethiopia, the majority of refugees are not allowed to work after they finish their education. During the field research we conducted we learned that, refugees stopped seeking education, because it did not

provide them with income or a job. In addition, the sacrifices were too great, especially for refugee girls who often have to walk far and unsafe distances to school. Finally, the interviews with refugees revealed that they only 'start their life' mentally, once they are resettled. Conscious use of knowledge is likely to affect the way refugees perceive newly introduced technologies and changes. It would be relevant to look at how a more conscious use of information would affect the relationships vertically and consequently, trust in the humanitarian system. This may affect the refugees' motivation to participate in programs implemented by the camps, including energy transition programs.

> *"The most difficult thing was, not to know anything about what would happen"* *(Bhutanese refugee).*

The knowledge issue is however not limited to the humanitarian system / refugee relationship. The workshops also identified power structures between enterprises, humanitarian actors and between the top and bottom of the humanitarian organizations. These power structures define boundaries between stakeholder motivations and have been explored as 'Agenda Spaces'.

8.3 Seven steps to safety

In line with relational-self thinking, the refugee's motivations will vary, creating different motivations when fleeing, in a refugee camp and upon arrival to 'safety'. Those who were interviewed exemplified a clear distinction between what their focus was before and after becoming refugees.

Mistakenly, *safety* did not include being protected from indoor cooking smoke or avoiding the difficulties of collecting firewood for hours, as the engineers in both workshops assumed. Instead, their motivations were divided into different steps depending on their background, prospects and cultural power-relations. The interview studies examined whether refugees were different from other end-users with similar preconditions. As will be shown, the refugee is not different from other humans, yet a refugee's realistic choices in a refugee camp is affected by the role that this system and the circumstances of her past allow and expect her to fill.

The relational self, described in the human science literature, is a concept where stories of past and present shape the human perspective of self and 'identity'(Cooley, 1902). The refugee's motivations will be affected by how she regards her past, and her future self. An individual's motivations and actions are influenced by a complexity of necessities, interactions and expectations from current power relations in their society, as well as patterns shaped by incidents and cultural patterns from the past.

> *"The best thing about arriving to Norway was, that we were safe. [...] Now, the opportunities for my children, they can study to become what they want, is the best thing about being here" (Bhutanese refugee in Norway).*

The latter quote shows how the refugee had to be resettled before regarding improved opportunities and planning their lives as an actual option and priority.

A refugee, who is dependent on a relief organization for daily survival and protection, is also affected by a conglomerate of traditional decision patterns and the new 'camp culture'. Earlier refugee anthropology has argued that refugees create a new 'refugee camp identity' (Oliver-Smith, 1991, Oliver-Smith, 1996) when confronted with the role as recipient of aid.

7 Steps to Safety from a refugee perspective

Choice

Protection through capabilities : skills, education, work

Safety through status, Status through aesthetics and etiquette

Safety through connections; networks and aquiantances

Economic protection: affordable solutions, trade, negotiations, positioning

Protection of family: water, medicine, nutrition

Protection from harm (reason to seek refuge)
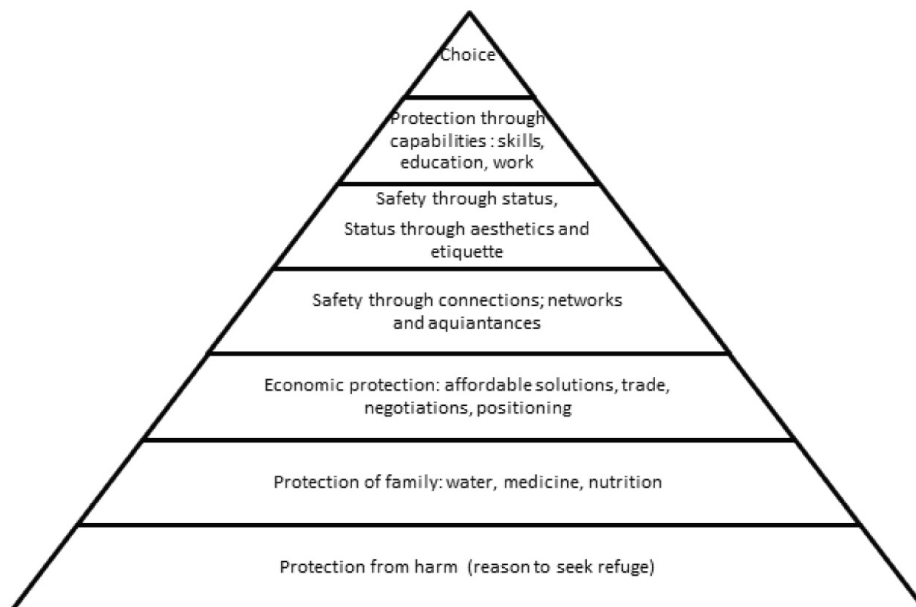
Figure 42: Seven steps to safety from a refugee perspective

The data from the interviews with refugees describing their priorities when they entered the refugee camp and their relief when coming to Norway compared with the data from interviews and conversations with the humanitarian staff in the camp were analysed. The refugee women's focus on water and medicine when we asked about cooking and fuel was revealing. All of the refugees we spoke to identified that the most important

concern for them was *safety*. Only after safety has been assured, will other motivations arise. When describing safety they described their experiences of civil war and persecution, and a social power system where they were not safe. Neither the refugees we spoke to, nor the end-user participant in the workshops, mentioned health aspects or usability. The refugee families that were doing better did want a nicer stove, and they wanted a 'square kitchen' and more options for buying clothes.

The ladder in Figure 43 is based on interviews with Bhutanese refugees in Norway in 2011 and Somali refugees in Eastern Ethiopia in 2013. The first step includes protection from harm, something they seek from the refugee camp. When asking the refugees what was the best thing about being in the refugee camp, all replied "that it is safe". Even the refugees that had arrived to the camps when they were only two years old reported remembering the terror and the relief when arriving.

> *The best thing about arriving to the refugee camp was, safety*" (Asking refugee in Kebri Beyah to tell her story from how she arrived to Kebri Beyah).

> *"The best thing about living in Kebri Beyah is safety"* (Refugee in Kebri Beyah after 20 years living there).

Secondly, staying safe for the refugee included a wider view of what safety entails for their family. This means achieving access to healthcare and water. The refugees we visited in Ethiopia were not interested in discussing the stove; instead they spent every minute asking about water. In Kebri Beyah one family only received 15 liters of drinking water that was supposed to last for 3 weeks for a 14 person household. Access to water and medicine was repeated before, during and after the interview questions about cooking and energy. Medicine and health care access was also emphasized many times by the Bhutanese family, who were forced to work illegally outside of the camp in order to earn enough money for health care.

The refugee families who lived in the poorer areas of the camp, with sick children did not talk about stoves but about clean drinking water. For a refugee setting such as the Somali refugee camps, the safety aspect may be even greater. Somali clan structure and hierarchy(Gundel, 2009) together with a lack of trust in the efficacy of the central governing powers creates a general mistrust between people. Power relationships and protection in terms of economy, status and connection are relevant to understanding safety as motivation (Figure 43).

> *"The hardest thing (by staying in a refugee camp) was that I could not protect my family the way I wanted"* (Bhutanese refugee husband).

The third safety motivator entails making ends meet by getting the most for their money, including identifying and using the most affordable fuel. Refugees explained how they spent time trading the food they were given with others, in order to create the most nutritious diet for their children. They explained how they tried to get more for

what they had, and how they negotiated for better services. Negotiation and trade as a way to keep the family safe parallels descriptions of clan structure in Somali culture (Gundel, 2009); there is therefore a chance that this aspect of safety is more prominent within the Somali refugees than others.

Interviews with humanitarian staff supported the idea that the refugees were looking to get the best services while staying in camp. According to humanitarian staff members, individuals from each family would sometimes spend hours every day trying to negotiate better conditions for themselves or their family with camp staff.

The fourth step describes safety through connections. The Bhutanese, the Somali refugees, and the staff in Kebri Beyah explained that the refugees increase their chances of accessing better services through building networks and connections. This was also, according to our interpreter, one of the reasons that the refugee women were interested in being there for the interviews. They regarded it as an opportunity to be 'seen' and recognized as 'helpful' so they would be remembered when activities they could benefit from came up.

The fifth step refers to safety through status. The women that owned houses made of concrete were also dressed in brighter clothes in addition to receiving different treatment from the staff. The aesthetics of their house and garden seemed to be in accordance with where their house was located in the camp. In one part of the camp, the houses would be traditional Somali constructions made of branches and some of the children wore dirty rags and had burn marks on their knees. In another area of the camp, the refugee women were dressed in newer clothes and even changed the color of their headdress before we interviewed them. They were also the ones that had nicer houses and there were people moving to and from their compound with goats, laundry or just to see what was happening during our interviews.

Literature on Somali clans(Gundel, 2009) described the importance of improving status and competition. This further explained the Somali culture as one where the family structure was the key to safety and future opportunities in a situation where one is in relying on the goodwill of others, the camp managers. Further, observing how the women looked at the staff; and how they thought we or the staff might be able to help them gain refugee status; combined with explanations from the staff that the women saw our visits as a potential opportunity, confirmed my view of safety as composed of different steps.

The sixth step relates to the possibility to work or education. When asking the women what they would do if they had all the time and resources they wanted available to them in the camp, some of the women mentioned education and income gathering activities such as weaving.

The final step in the pyramid is choice. One of the women laughed at the question, suggesting that she had no choice and that it was a rude question to ask. This showed

how she regarded her situation as impossible to change by simply wanting it to be different. There really was no choice, but it can be motivation at the top of the safety ladder for those who can see it.

This pyramid is suggested as a starting point for a discussion of the refugees' role in humanitarian innovation and design.

8.3.1. The aesthetics of a better place tomorrow

The stove was described as representing a 'choice' at the end of their journey to 'safety' in a different place, and is at the top of this pyramid. During the focus group discussion in Kebri Beyah the women were noticeably focused on the possibility of leaving or achieving a more 'western' life. This was expressed both through interviews with refugee women and confirmed by staff. According to humanitarian staff there were incidents where members of the host community wanted to marry refugees in order to gain refugee status, providing them with the chance of leaving for better opportunities elsewhere. When talking to the women about the stove and what they liked or disliked about it, the women said they liked the smooth metal designs. They explained how they imagined that stove would be what modern women in a modern western household would own. When asked what they wanted the most, if they could have anything they wanted, they responded that they wished for a square kitchen, a tidy kitchen, and one day when they could leave they hoped to go where there were more options. They wanted to be able to choose clothes, and modern dress. The stove was, beautiful, since it fit with the image of where they hoped they would live tomorrow. This view of human nature as being anchored in a want for improvement, was expressed also by one of the refugee women as *"you know, our souls always want more and more"*. This references Kant, who was the first anthropologist(Kant, 1974) among philosophers and defined the literature on human nature, free will and competition. Through his writings from human centred philosophies to political philosophy, Immanuel Kant explained how human nature striving to improve their situation is a corner stone of human individual and societal development and a requirement for human progress.

8.3.2 The refugee as understood by the humanitarian system

The findings showed that in order to understand the refugee's role and opportunities, one also needs to take into account prevailing discourses in the humanitarian system which determine her role as end user. The effect of this view can be contrasted by and understood by the refugee's perspective. Two themes of interest crystalized from the data analysis of the workshops. The selections of goals and strategies of the participants divide the stories into a technologically optimistic one, and a capability optimistic one. In addition, the role of human capacity building in humanitarian emergency settings divided the participants regarding future resilience scenarios.

Stories shared during the Norwegian workshop also showed that the enterprises had greater success when they included local community stakeholders in developing and introducing technologies similar to a local entrepreneurship building approach. Local

stakeholders can identify existing capacities within a camp setting. The main obstacles to creating self-reliance through capacity building in camps are that refugees are legally restricted from making money:

> Participant 1: *"Isn't it decided that you can't earn money when you're in a refugee camp"?*
>
> Participant 2: *"(Laughing) you are not supposed to".*
>
> Participant 1 : *"But it seems that people actually can..".*
>
> NRC: *"Makes the world go around. But as an NGO, the government says, it's illegal to employ refugees, then you can't have a project to set up entrepreneurial business enterprises because you will be breaking the law.If they are breaking the law then they can pay the bribe or…disappear or change their names or whatever it is. So it is how to tap into that without being thrown out or..".*
>
> Participant 3 : *"But how common is this? I mean it is about creating permanent settlement isn't it"?*
>
> Participant 2: *"Well it is about permanent settlement but it is also, like as a Palestinian refugee in Lebanon you can only have a job to a certain grade, like taxi driver, day labor, things like that and that's the case in Jordan, in Kenya it is illegal for refugees to work at all, I think in most countries it is quite heavily restricted I think there are very few where as a refugee you have total free range to do whatever you want. So there is a lot of control".*

Neither can NGOs have a profit-making objective because it will affect their access to humanitarian settings. One solution presented was to include the host-community as entrepreneurs and work on entrepreneurship as a local resilience component within the host community. If the host community could build capacities that would allow them to benefit from the refugee population, it would stabilize the conflict filled relationships between host communities and refugee populations due to resource scarcity (Lyytinen, 2009, Porter et al., 2008). One group started with a discussion on unpredictability and the lack of dependable and predictable resources in humanitarian settings. One group recommended designing a system to encourage entrepreneurial capacities to bring technologies to the refugees and begin the creation of a sustainable market rather than starting with the product design. Much of the discussion centered on how a private actor could contribute in a humanitarian setting, when there was a ban on for profit enterprise creation. The groups agreed that this would more or less rule out NGOs working to provide tailor made solutions.

The trend to move from an image of the refugee as dependent towards an image of the refugee as a capacity is critical to understanding where the humanitarian system is headed. Designers as well as decision makers must consider this in their future efforts.

8.3.3 Practical implications of the 'seven steps to safety' frame

The frame intends to exemplify how designers, and other decision makers within humanitarian action, can better account for the interest of the refugee. This study showed that the refugee's perspective is based on the fundamental need to feel safe. This means that the refugee in this example will not perceive a service or product necessarily as an opportunity to improve her own future in terms of less respiratory illnesses, or saving the environment. Her experience is that the information given by the camp managers is not to be trusted and her focus is on protecting herself and hopefully one day, to leave. This will limit her longer-term interest in the products and services provided. From the humanitarian organizations side it would indicate that they should improve their way of informing refugees about their future prospects, but also work more actively with host communities to include beneficiaries in services in a manner that they can see benefit them in the longer run. For the designer, the findings indicate that contextual input is invaluable but also that designing for longer term impact with short-term focused refugees may be their main challenge when designing for refugees. For donors, the prominent challenge will be to allocate more resources into combining development and humanitarian efforts in resource dependent products such as stoves.

Nevertheless, the scope of the studies does not allow a generalization of the frame to account for all refugees. What is essential is that this frame is considered and the understanding that the perspective of the refugee does not match the expectations of the humanitarian system of a refugee end-user.

8.4 Humanitarian action as Agenda Spaces

At the start of this research mission, I believed that a framework for humanitarian action had to increase the end value in some way. The framework had to explain how to move from a situation of design and supply of ill-fitted solutions, towards a more well-functioning system that could achieve end-results that have *meaning* within humanitarian action.

The diagnostic study showed that within humanitarian action, it is not clear to the actors how to affect humanitarian values though their individual efforts. Instead the agendas of multiple stakeholders are substituted by short-term market influencers such as policy trends, donor priorities and expert input (Nielsen and Santos, 2013b). The input from different stakeholders during the workshops showed that even if the values of humanitarian action are clear, stakeholder agendas are somehow misaligned and arranged in a way that makes it impossible for the system as an integrated unit to reach these values. Parts of the problem seem to be that the end objectives of humanitarian action are intangible and difficult for the stakeholders to reduce to sensible targets in a contextualized reality with everyday practical challenges and regional objectives.

The insights derived from centering the refugee's perspective showed that the refugee's motivations are not compatible with the current agendas of enterprises or NGOs when

introducing improved cooking stoves. There is no overarching follow up system in place that can provide insight into technology acceptance of off-grid energy devices, making it difficult even to gain secondary data on what is needed:

> *Enterprise participant: "To be frank, I don't have time to follow up what happens to our lamps after they have been handed over. I have enough work just to get these things out there!"*

Also, the humanitarian customers often admitted that they do not have the information about 'what they want':

> *Humanitarian staff participant: "NGOs normally don't know what they want. That's always going to be a big issue. They haven't got a clue.[…] if they come and ask us do you want a tent that is this small (pointing at a stack of post-its) we'll say sure, and they go off spend three years, thousands of dollars and they come back and they say hey you can put this in your pocket and we say great but they say it's ten thousand dollars and we say well we want it for three dollars and they make it down to four hundred and we say okay but we still say we want it for three and the expectations keep increasing among NGOs basically".*

The seemingly conflicting and 'leading no-where' agendas had to be further investigated and reduced to a reasonable form. The most basic values/motivations are relevant when designing interventions for the humanitarian system. This multi-faceted process was aided by visual tools, provided by participatory efforts (ladders and process maps) and through synthesizing images represented in the conclusion sections of each chapter. These can be described as part of the 'abduction' process that Dorst refers to. I synthesized the findings in order to reveal an image that reflects the meanings of the participants. While the earlier 'agenda space' organizational figures were used to discuss the differing agendas of the workshop participants (enterprises, NGOs, designers, government representatives, humanitarian staff and humanitarian headquarter staff), the findings presented in the concluding agenda space figures can be compiled to create a broader view of humanitarian action.

These nine agenda spaces (Figure 43) (AS1-9) emerged as a result of what appeared to be at the forefront of the participants' thematic interest and argumentation. The frame shows how each stakeholder was placed *by the participant* during the workshop interaction.

Figure 43: Agenda Spaces (for Figure 44)

It also illustrates how knowledge as a motivational aspect within the system could flow between the spheres of 'Donor' (Norwegian), 'Refugee camp' and 'host community' (Ethiopian) and 'Ethiopia' in order to bridge the needs of humanitarian relief with other integrated interests. It is important to mention that these agenda spaces were developed based on statements and communication emphasis during the workshops and do not necessarily reflect mandates of the stakeholder's institutions. For example, of course safety is the interest of several institutions, yet it was not the agenda at the forefront of the participating representative's rhetoric during the workshop task performance *in relation to the topic*. Further, donors were underrepresented in the study, and the other insights about their interests were drawn from the other participants' experiences with donors. They are therefore represented in grey figures outside the dotted lines. The refugees in Figure 44 are placed between the two chairs of country development and humanitarian actors. Humanitarian actors focused on their main mandates and short-term perspectives, while understanding the refugee's long term motivation was under prioritized.
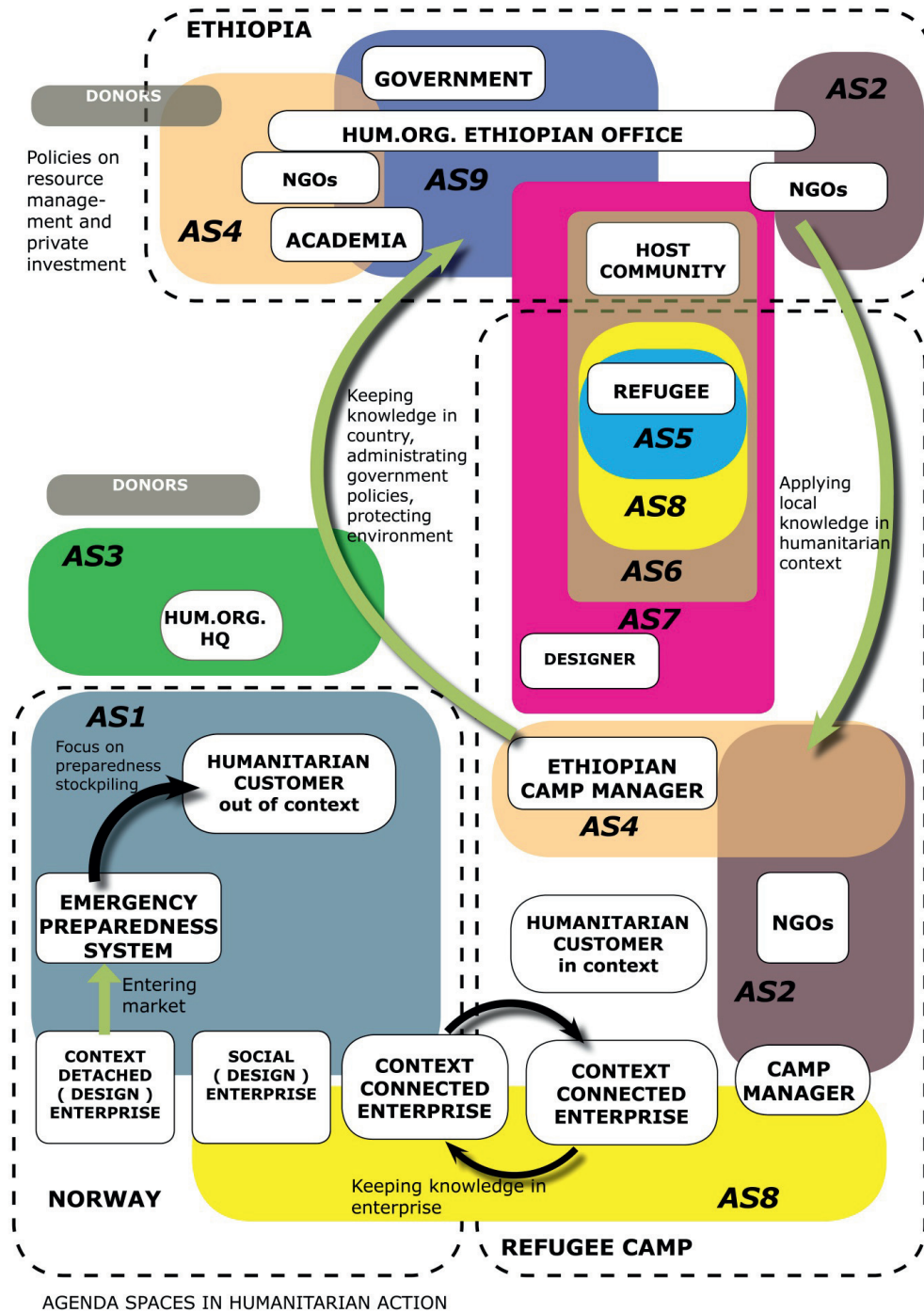
AGENDA SPACES IN HUMANITARIAN ACTION

Figure 44: Agenda spaces in humanitarian action

The findings about the refugee perspective showed that the refugee's motivations were more limited to safety than those of other development end-users. The conversations in workshop 2 suggested that the best way to integrate the refugees into humanitarian action is to perceive them as part of the host community sphere (the dotted line) by adding host community motivations into the equation. The designers expressed an interest in knowing more about the end-user and the host community. This placed the designer in agenda space AS6 which embraced both contextual spheres ("Ethiopia" and "Refugee camp") and the refugee's agenda space AS5 Safety.

Following the arrows that move between the agenda spaces, the successful enterprise gains knowledge through 'context-connected approaches' in which they employ local staff that maintain and gather information about contextual challenges; this is an example of how to connect contexts and create sustainable and learning systems. By successful, I refer to their reputation among the customers interviewed. They were well-known and were invited to introduce their products in most emergency situations. Increased access to knowledge about solutions and decision-making within the humanitarian system was also the agenda space from which Ethiopian stakeholders argued. They requested to harvest information and knowledge as the fruits of the technology transfers that take place within humanitarian action. Acknowledging these motivations within the humanitarian system could ensure host country efforts become more in line with the goals of humanitarian action. In other words, the arrows represent the necessary links to strengthen to achieve a *'win-win'* scenario that can sustain interventions.

8.4.1 Practical implications of Agenda Spaces

Figure 44 illustrated how a multiple agenda market can be understood in way that makes it possible to design products and services for humanitarian action. The relevant new term is therefore "Agenda Spaces" rather than the presented map, which maps the agenda spaces of stakeholders in the three workshops and suggests the placement of the refugee's agenda within this map. Agenda Spaces presents complexity in a manner that makes it possible for different stakeholders to communicate about decisions and effects and discuss how the refugee benefits from suggested interventions. This means that the use of Agenda Spaces must be regarded as an analytical tool for designers but also other decision makers in humanitarian action to map the relevant agendas for their goal. The frame presented represents the findings from the conducted research, but is simply one example of what the process might look like depending on the involved stakeholders' contributions.

Paying attention to and integrating safety concerns into activities *through conscious use of knowledge flow* would indirectly lead to a more sustainable humanitarian relief model. This organizational model is central to understanding the design frame, implementing technologies and appreciating the effects of stakeholder agendas on achieving these goals.

The process has demonstrated that stakeholder workshops are an efficient way of understanding underlying agendas. Following a process as exemplified during this research process, the map can be used to discuss how to affect the intended goals of a project.

For example, if the intention is to provide sustainable energy alternatives for a refugee end-user, the map shows that the motivating factor of improving opportunities requires that the design of the product or service include the host community. Further, it requires that the Ethiopian stakeholders benefit from the effort. If however the interest of an enterprise is to succeed in the humanitarian system with a sustainable *customer* relationship, the agendas in the lower part of the map should be considered.

8.4.2 'Agenda Spaces' as analytical tool

Mapping agendas can be useful for understanding how the design of products and activities within a multi stakeholder system can last longer and have a self-sustaining future.The introduction of Agenda Space mapping as a way of understanding humanitarian action is the framework of widest relevance and transferability. This approach is transferable to other research projects that require participatory approaches and understandings of how to achieve value within multi stakeholder networks. It is useful in that it reveals how a multiple stakeholder system can be understood in relation to impact and also that it manages to encompass both the vulnerable end-user and the wider stakeholder system as an entity shows how this mapping might look like in another situation with vulnerable end-users and multiple stakeholders operating with differing agendas.

The stakeholders can be categorized as the ones providing solutions (supplying part), the ones involved in meeting the end-user needs (receiving part) and the end-user contextualized part that determines feasibility of a solution within the end-user context (affecting wider context part) within a system. This latter part would for example include repsonsible governmental institutions.

As can be seen in figure 45, the agendas understanding (end-user) context, end-user well-being, knowledge, profit/efficiency, and institutionalization of knowledge are identified in a general framework as it was within humanitarian action. Next, the Agenda Space of the end-user must be mapped, the agendas where end-user relationship relies (AS Community), the agendas of the institutional stakeholders, and the agendas of stakeholders within the part affecting wider contexts. These will have to be determined in each analytical situation.
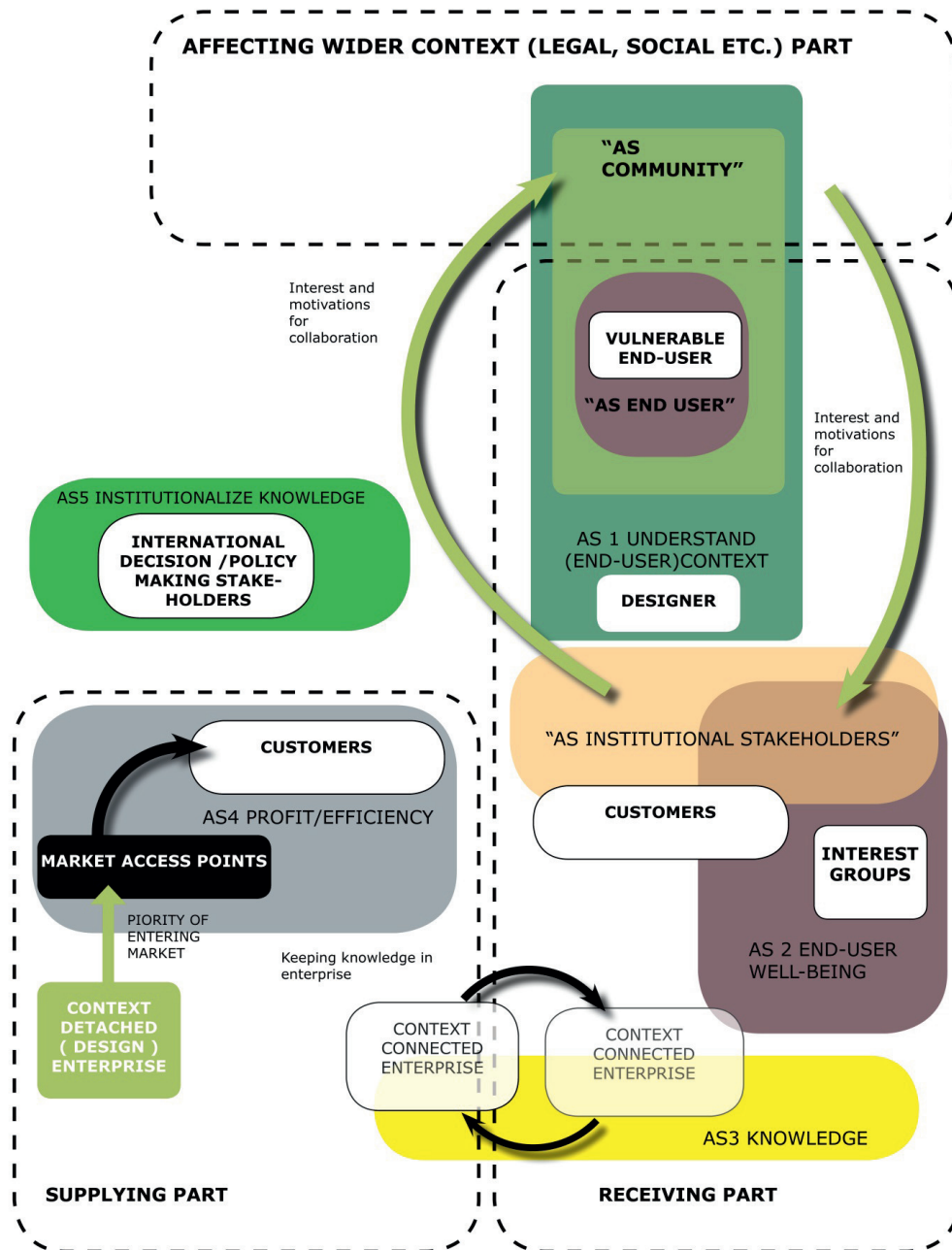
AGENDA SPACES AS ANALYTICAL FRAMEWORK

Figure 45: Agenda spaces as analytical framework

The frame suggests that in complex systems, stakeholders will reason individually in accordance with their interest when the guidance is weak; and that these must be viewed collectively in order to understand how to combine these with the needs and priorities of a vulnerable end-user. Guidance in a traditional consumer-market is provided by customer satisfaction based on their experience with what the enterprise provides. While in humanitarian action, end-users are not the customers and hence don't hold this power. This situation could be transferable to other so-called 'quasi-markets' such as public healthcare markets in welfare-countries and other private/public partnership based systems.

The mapping of Agenda Spaces in humanitarian action showed that some stakeholders will be further removed from the end-user perspective than others. Some enterprises have an underlying value system that makes them conduct activities that will connect them with the end-user's context, while others will be further away from the 'goals' of the system. It could be interesting to explore whether in public/private partnerships these would be the stakeholders that become more expensive and less purposeful to include.

'Agenda Space' mapping will illustrate this in a manner that makes it easy to understand. The researcher administrating the mapping process hence communicates these underlying factors. It becomes the design thinker's task to assist the system's stakeholders understanding about this distance and in consensus with relevant decision makers suggest policy changes, system, service or product innovations that take the motivational overlaps as starting points. This is what will lead to a situation that *facilitates* long term impact.

The impact of an intervention is based on the understanding of how this intervention can bridge these agenda spaces or bring these agendas together. In the case of Ethiopia, the host country is an indispensable partner for creating sustainable solutions. Showing how interventions in humanitarian action would benefit the host country development in general, would be a 'smart' goal for an intervention. Creating wider project objectives such as fuel supply for the region surrounding refugee settlements *and* host communities would be one proposition that could satisfy several 'Agenda Spaces'. It could also motivate interaction between the stakeholders which does not happen today.

Finally, what is the value of Agenda Spaces as opposed to related approaches such as stakeholder analysis? Stakeholder analysis has been adapted for policy making in development projects by the World Bank and originates in business management. Stakeholder analysis originally had the purpose of increasing the success of businesses(Brugha and Varvasovszky, 2000). The World Bank suggests interviews with relevant stakeholders in order to understand their interest in a matter and to use this to achieve goals. For example, the World Bank clearly regards it as a strategic tool with a predetermined goal, in stating that a stakeholder analysis can "Convert opposition into support through negotiations, information and/or coalition building, including offering

tradeoffs" (The World Bank, 2001). The 'Agenda Spaces' mapping approach builds on understanding the stakeholders through their dynamic as a group, more holistically and participatory than through individual interviews. There is also no set goal at the beginning of the process, the approach implies that the facilitator of the process would have to let the overarching goals be determined by the participants. The research process shows that the participants input and emphasis changed as other stakeholder groups were present; demonstrating that the agendas should not be separated from each other.

With different stakeholder compositions, the agenda space map might look different even if the stakeholders were the same. Also, the agenda mapping indicates the motivations that (may) connect stakeholder agendas and that depend upon each other.

Stakeholder theory also traditionally distinguishes between those who affect or are affected by a decision or action (Freeman, 2010) while the agenda mapping approach seeks to integrate those affected into the system. The agenda spaces approach is also a way of *discussing* and comprehending a complex system rather than a tool to achieve success. Or, its 'success' would be if the process itself narrowed the gap between the affected and the affecting stakeholders and the 'design thinker' could find a way to stimulate this process. This comes back to the 'design thinker's mission of narrowing the gap between problems and solutions (Rowe, 1991).The approach has a more normative and value directed purpose than traditional stakeholder analysis.

8.5 Sustainable Contextualization

A central observation from the combining perspectives workshop is that the designer consistently refers to the word 'context' during conversations. As one designer expressed it during the last workshop:

> *"All is context! Yes, it is bold to say it, but it is true! A designer is never out of context"* (Designer)

I agree. This expresses the design thinking aspect of this research, and adds the concept that context must be used as a part of a strategy. The designer has to be aware of whose perspective is relevant to each step of the process.

So how do we contextualize a product or a service for humanitarian action? Contextualization can be considered as a process, or can be broken down to steps of reflective action. Qualitative research methods can emphasize how you 'do' something rather than what the something 'is'. I applied this approach during the exploration of ethnographic interviews of Bhutanese refugees (Nielsen, 2014c), as a way of understanding motivations through actions. This approach is inspired by Dorothy E. Smith's (Smith, 1987) point of view; that one should focus on "how" something is done to achieve good insights. By moving away from the different methods of goal setting in the organizational figures and searching specifically through the transcript for 'active'

expressions during the discussions, I could identify advice that was repeated yet not emphasized on the ladders. By looking for *how* the participants in the Norwegian and Ethiopian workshops used verbs and actions, it was possible to identify five issues that were repeated by participants who had direct experience working in the field, either in the refugee camps or in a development setting.

These imperatives are tools for contextual attachment and long-term thinking about technology introduction in refugee camps. The 'how's' were mentioned during different stages of the ladder development and can therefore be illustrated in a five step process independent of the specific goals of each participant.
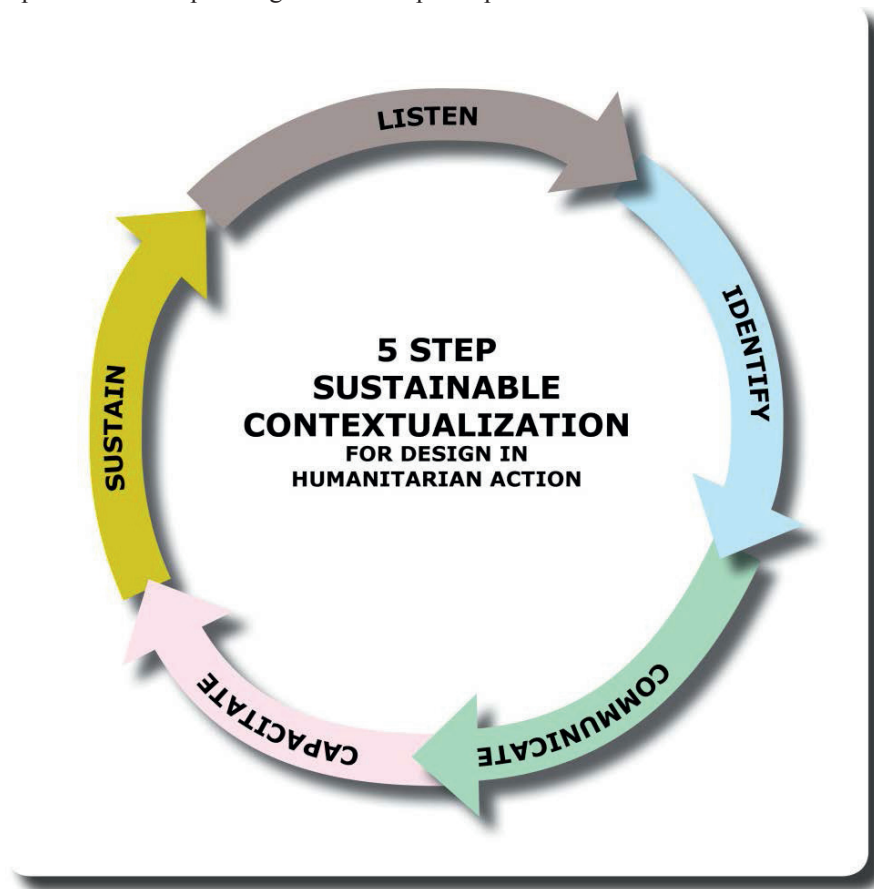
Figure 46: Sustainable Contextualization

This 5 step method illustrated in figure 46 is relevant for looking at smaller and larger scopes of the humanitarian system; as the experience of humanitarian action is largely represented by a lack of appropriate information sharing models or routines. The good design of products is dependent on making this cycle continuous, but this is also true for

larger and long term focused humanitarian relief activities. This method includes the following steps:

Step 1 Listen
Local representatives explained their frustration that headquarters and donors do not listen to the needs in the field. For instance, they explained that they had to test hundreds of not user-friendly solutions because (a) they were donated and (b) the designers believed that the refugees' daily life differs from other people's. NGOs also explained that products were selected and introduced without paying attention to local customs. For instance, refugees in the north preferred cooking while standing, and in the south and east the refugees wanted to sit on the ground while cooking. Still, the same solution, without adaptation, was expected to work in both locations. The choice of one group during the second workshop, to develop an information sharing tool, illustrated this need to find better ways for the humanitarian system to *listen*.

Step 2 Identify
In the Norwegian workshop, parts of the discussion were related to *how one can identify power-brokers, entrepreneurial skills and human capacities* within the short term focused humanitarian relief setting. While headquarter staff focused on finding ways to identify *contextual differences* and *needs on the ground*, the challenge of identification was knowing what technologies and materials were available locally and internationally.

Step 3 Communicate
From the field, humanitarian agencies and NGO staff, as well as refugees, explained that they had little access to knowledge about what and why things were selected on the central level of the camp manager. In headquarters, much of the information needed was unavailable due to their distance from the field and lack of knowledge and cooperation with local partners.

Step 4 Capacitate
All participants agreed that giving people the capability to affect their own wellbeing and to contribute to filling needs in a refugee camp would be a benefit. Empowering and capacity raising activities that try to implement this thought exist in many camps, yet the participants from enterprises and designers did not see how the introduction of technologies could benefit from these activities. The discussion was occupied with how designers and entrepreneurs could tap into and contribute to capacity building and increase the refugees' earning prospects.

Step 5 *Sustain through motivation*
An important issue in the Ethiopian setting was how one can keep capacities in a low resource setting. People who are trained and hold a position in a technical area will leave for a city or go abroad in order to practice their new skills. Understanding how to

motivate skilled staff/end-users to remain in the area is key to keeping a product and product implementation programs running.

The lack of ability to contextualize something in the humanitarian system was highlighted as one of the main challenges, due to unpredictability; however this five step contextualization process is modifiable and relevant independently of which perspective you see it from. The method takes into account that all parts of the system must consider other perspectives when planning solutions. Further, each step is dependent on each other. The method can be applied by any individual or stakeholder wishing to create sustainable solutions through contextualization.

8.5.1 Practical implications of Sustainable Contextualization

Sustainable Contextualization emerged from the discussions on how solutions can be contextualized for a short-term focused humanitarian system. It is therefore intentional to call the contextualization process itself the 'sustainable' part. Sustainable Contextualization introduces a contextualization process for humanitarian action designs that emphasizes relationships. This means that the iterative contextualization process requires a collaborative effort but also works from each stakeholder's part of ensuring that communication and knowledge-flow is present in all efforts. Contextualization of products and services that is sustainable can only happen if all relevant stakeholders are deciding in collaboration:

- How to *listen* and to whom
- How to *identify*, and decide who's responsibility that should be
- How to *communicate* identified concerns through all levels of the organization, between the humanitarian organization and the refugee and between enterprise and humanitarian customer
- How to collaborate about *capacitating* the identified entrepreneurs/technological developers/refugees in order to create a sustainable team to drive the solution forward
- How to include motivational aspects for all involved parties in order to *sustain* the introduced solution and to run the loop again

This frame therefore attempts to bring the stakeholder groups closer to each other. This frame will particularly benefit the relationship between local and headquarter offices of the same organizations or enterprises, as the headquarters will need to show how they listen, identify, communicate, capacitate and motivate at he grass-root level. The process can be run by facilitators that are designers, NGO staff, camp managers etc.

8.6 Contextualizing off-grid energy in refugee camps

This research project started with off-grid energy devices on a product design level, yet the conclusions moved to a system level. The problems are not based in the technology but, in the coordination of their implementation and the lack of communication with

refugees which affects sustainability and acceptance. What do the presented findings imply for research designing off-grid energy in refugee camps?

The term 'technology acceptance', as well as the discussions during the workshops, suggest that there is an undeserved blame on the end-user in low-income countries, particularly women, when they 'choose not to change habits'. Instead, the conclusions from this study show that the proposed solutions may fail due to the designers not accepting the end-users role. So, perhaps, 'acceptable technology' would be a more enlightened term.

From the system's perspective, it is clear that understanding the underlying priorities and relationships of local stakeholders has not received enough attention when proposing solutions. This issue becomes more obvious when the solutions sustainability is dependent on the refugee. In the case of household energy, the distance between top and grassroots in the humanitarian system is enormous. The effect on the health of refugees, who die from a lack of opportunities, toxic environment, and from the failures of making contextually fitted products *with* services that are grounded in local systems, is horrendous. The local partners are more willing to support imported solutions if they include a plan for economic sustainability instead of fostering dependency and increasing mistrust.

For the design process, the designers of off-grid energy solutions need to be embedded in the humanitarian system and step on each side of the fence; host country, refugee camp, and donor mentality. On the host community side, local partners will have to be engaged in connecting the energy needs of refugees with the motivations of the host community.

Regarding the refugee as end-user and recipient of technologies, the safety pyramid must be taken into account, understanding that the refugees' primary motivation is to stay safe. This means that their interest in changing habits and complying with technology decided by designers who don't understand their needs will be limited.

The experience from companies who have worked routinely and long-term with humanitarian customers can bring learning into the areas that will increase refugee well-being and dignity. As one of the process maps of the combining perspectives workshop explained, enterprises try to keep a circular loop of insights from the field that feeds the development process (Figure 38).

**A checklist for Sustainable Contextualization
of
Design of household energy alternatives
for refugees**

Working within the frames of humanitarian action, the design of an off-grid household energy alternative based on the research evidence has to include a consideration of:

1. Host country priorities: including fuel policies, main goals of country stakeholders. This is important as an understanding of what to rely on and what to try to influence through the design.

2. Collaboration with local partners and national development objectives to influence design and fuel policies – longer term!

3. Host community motivations: host community involvement may be what changes your design from a short-term thing to a longer term influencer and game changer.

4. An understanding of the (refugee) end-user to understand her motivational 'baseline'. The safety pyramid can provide such a baseline but this model should be rebuilt in each context.

For designers, this means that a design process for humanitarian action must be an embedded part of this system-level work. On a product level, the suggestions that need to be based on in place assessments, from the combined agendas are:

5. Product enhancements (can be developed also locally) designed to fit cooking and ergonomic preferences of the end-user.

6. Products designed for extremely challenging infrastructure. These products must be in accordance with import regulations and industrial capacities and industrial capacity building plans of the country.

7. The 'Aesthetics of a better place tomorrow' philosophy: aesthetics is relevant for user acceptance and traditional designs may not always be what someone looking for new opportunities may want.

8. The design should link host community and refugee interests. This may be achieved through a business model, or that the product or service is developed as an integrated part of the host community income strategies.

Figure 47 : Design of household energy alternatives for refugees

With collaboration and dedication from the larger stakeholder system of humanitarian relief, this loop can also be used to solve the more complex energy challenges within each refugee camp. This depends upon an increased access to refugee settings and willingness of the humanitarian donor system or other sources to finance it. A telling statement from one participant during the Ethiopian workshop was

> "*We don't want any more Projects. We have a problem with the word Project. It means it will end, having solved nothing*" (Participant).

The need for long term commitments and coordination between humanitarian technology introduction programs and national energy transition programs is therefore crucial.

Some enterprises suggested detaching themselves from humanitarian action as a strategy for creating sustainable energy alternatives for refugee populations.This option was in some participant's view one where the enterprises take direct responsibility for working in-context with local partners from or prior to the preparedness phase. This option would allow the humanitarian actors to keep facilitating relief interventions, but also require humanitarian actors and the larger humanitarian system to let private enterprises 'in' to access the direct market.It would put a larger responsibility on the enterprises for gaining information and improving their innovations.

Enterprises and design practitioners choosing to work *within* the frames of humanitarian action however, need a set of guidelines that can help them achieve long term impact through their technology and systems designs. The suggestions made during the workshops as well as the insights from field research and interviews with refugees have enabled the crystallization of 8 general rules for designers who choose to work towards longer term impact within the frames of humanitarian action (Figure 47).

8.6.1 Applying the checklist

The checklist is divided into four steps that are general (can be applied by decision makers in the humanitarian system) and four aimed at designers (the person(s) designing the product and/or service). This frame is therefore closer to a guideline than the previous three frames that aimed at exemplifying the need for a changed understanding of the refugee, humanitarian action, and the contextualization process.

Donors can influence the fulfillment of these check points by requiring that implementers include these points in designs, but also by contributing politically to push for a more integrated approach with host countries of refugees. It could be convenient that NGOs already present within camps to complete some tasks such as motivational baseline development, while collaborations on several levels are necessary for the designer with other stakeholders to include local industries etc.

8.7 Resulting perspectives on futures of humanitarian action

During the combining perspectives workshop, enterprises and designers were looking for cyclical models for idea development. These models need to include user insights and outcomes that need to be tested iteratively. Humanitarian stakeholders consisting of humanitarian organisations, networks, donors and service providers approach the preparedness-emergency-recovery phases as short term, linear pieces. It must be kept in mind that these outlines are for comparison purposes and not nuanced models.
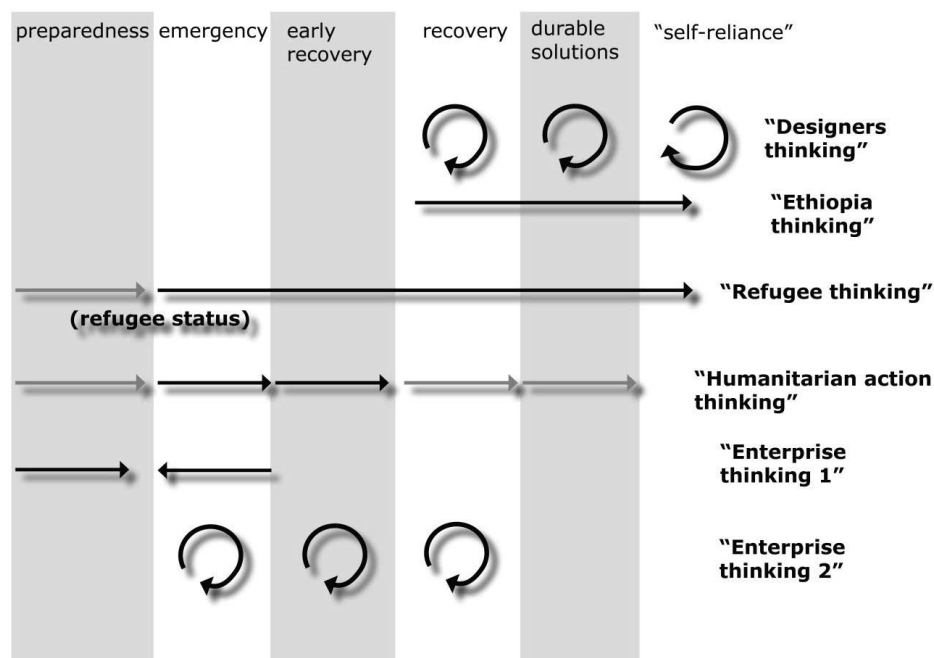
Figure 48: Ways of thinking in humanitarian action

The figure (Figure 48) first shows the iterative thinking of designers, and how they are familiar with designing in development contexts where people have unlimited opportunities. This is from recovery up to durable solutions. Ethiopian stakeholders also focused on a linear process, 'solving problems' as they see them in a development context. Their process was not about iterative learning about the end-user, but about reaching specific goals. For the refugee, her focus was uninterruptedly on reaching safety, not knowing what would happen beyond the emergency phase. Humanitarian customer stakeholders showed a very clear argumentation related to the phases of filling emergency needs and early recovery; preparing in terms of research and development for particular contexts, or interest in what happened after the emergency phase was absent. They also admitted that the donor's focus and budgets limited them from

thinking beyond their short-term 12 month perspective when selecting products and services. When enterprises and other technology developers work together with NGOs to solve resource access problems, they need to be able to 'design think' for it to have an impact. As the suggestions show in the Norway workshop, one solution is to avoid the humanitarian system completely. The strategies discussed argue for a system detached process for resource management based on the goals identified.

The findings have shown that the humanitarian system includes the refugee but has a specific image of the refugee. Two section presented the humanitarian system's view of the refugee before reflecting and concluding about the refugee's perspective based on the interviews and field research.

The agenda spaces figure 44, suggests that developing solutions based on the host community/region is the only space that binds the interests of Ethiopia, Norway and international humanitarian stakeholders. During the combining perspectives workshop, one of the participant who had experience working with refugees said:

> *"The problem is that the refugee doesn't want self-reliance. They want to leave" (*Participant).

As shown in the pyramid of refugee motivations, the motivation of a refugee is to leave and therefore their motivation to move outside the dependency cycle of humanitarian relief is not a priority. Various insights show that the refugee remains an element removed from what the humanitarian system can affect. The refugee will only 'start their life' mentally, once they have been resettled. Unless the 'refugee system' itself changes. Within the Somali region, Somali refugees live next to a Somali host community, yet they do not have the same rights. As they expressed, the biggest positive experience they had, was the day when they received their refugee registration card, identifying them as refugees.

Another problem encountered were the host community members who also want to leave the area or get free food supplies. So they try to find ways to gain refugee status. Whether this is a more widespread problem in other host communities in the least developed countries (LDCs) remains to be investigated.

Further, the need to develop water and energy solutions for the Somali region was expressed by the government stakeholders in Ethiopia.

If humanitarian action wishes to contribute to the long term self-reliance perspectives of resource management, there are two main options:

1. The regions around the refugee camps must be connected to the needs of the refugee settlements, and approached as a holistic issue.
2. Refugees, who live in long term refugee settlements, must be able to have citizenship rights equal to the host community citizens, when the settlements are located in regions with a similar ethnicity and culture.

There exists a third path, where the refugees return to their home country. This was the original goal of the refugee system and creating 'refugee' as a status. However, both Bhutanese refugees in Norway and Somali refugees in Ethiopia, have seen little progress towards the possibility of return, and the refugees will have to stay in a different country for a longer period of time. Preventing their independence from the humanitarian system would prepare them to return, if that option should open. Further, a more sustainable perspective on refugee settlements in border areas would ease the tension in these areas and reduce the number of people who are forced to flee as well as reduce the pressure on natural resources in the area.

The two pathways can be seen as a negotiation between donor/refugee receiving countries and refugee host countries. If host countries are willing to negotiate and provide refugees with increased rights, this could increase the potential impact of projects aimed at creating resource resilience. Donors could provide incentives, in terms of development funding, for that region; particularly focusing on government priorities such as water and energy.

The research findings moreover indicated that stakeholders are not able to find a consistent application of human centred design process that can impact humanitarian goals. The humanitarian system is designed to exclude the refugee from the continuous loop of donors, developers and implementers of activities. The refugee has no influence on this loop. However, during the stakeholder workshops it became clear that understanding refugee concerns is tremendously relevant to the stated goals.

Is the refugee different from other end-users? Which human factors within the humanitarian context have the ability to progress and develop? These were questions raised and debated during the Norwegian and Ethiopina workshop. In the Norwegian workshop the focus was on legal restrictions for entrepreneurship, while in the Ethiopian workshop the discussion came closer to refugee's motivations and every day challenges. The conclusions in the workshops were that refugees are no different from others but that the special situation of their status and the refugee system is what limits and becomes a boundary around their range of motivations and abilities to progress. The power/knowledge chapter (8.2) explained how information plays a key role here.

During the final analysis of this study, relationships were identified which the humanitarian designer must consider, if he/she would like to increase the impact of design on relief and development goals. The first relationship to consider is the relationship between the host community and the aid receiving humanitarian 'victims'. As discovered in the chapter 'Framing the refugee end user', the refugees may find themselves surrounded by a population from a similar ethnicity and cultural background. In the Somali region in Ethiopia, for instance, the host community expressed jealousy of the refugee status of refugees. In other settings, there is reported

mistrust between refugees and hosts or refugees of certain etnicity are heavily discriminated upon (Lyytinen, 2009, Moro, 2004, Tandon, 1984). Investigating the nature of their relationship is hence important for understanding whether a design could target the host community as well as the refugees, and where cooperation would be beneficial.

The second relationship is the relationship between the context of the refugee and systems designed for resilience and sustainability. It is necessary to pay attention to the contextual insights and understandings which motivate refugees. Information from relevant literature combined with encounters with refugees in the field can provide that knowledge.

9. Conclusions

When we are searching for knowledge about other peoples and reasons, it is largely motivated by an underlying need to understand ourselves. In humanitarian aid we want to know, how we can provide the most help. Even after decades with a lack of clear evidence that aid helps, and knowing the dependencies and corruption it may feed, we do not discuss *whether* we should help, we keep searching for a *better* way to help. Perhaps desperately, we want to find a way for communities to reach our level of well-being. Individually, we want know that what we do matters. Humanitarian staff seek a way to save lives. Refugees want services that will take them out of the refugee camp.

The socioeconomic development of the refugee depends on the opportunities given, while the socioeconomic development of the region and larger context surrounding the refugee camp depends on stimulating the dynamic between the agendas in the larger picture.

A missing link between the concern and effect is *how knowledge flows* between the relevant stakeholder groups. Knowing how separate agendas can link to affect *humanitarian values* requires the acknowledgment of the refugee and the host community as stakeholders in humanitarian action, and a consideration of where information is accessible within the system.

While humanitarian organizations, NGO stakeholders and many enterprises want to help, they are not aware of the extent and the significance of systemic and contextual problems inherent in the refugee's situation. Humanitarian customers do not have a routine method for providing this information. Refugees do not know how to get out of their situation in the constructed refugee camp reality; one that promises personal development but rejects real opportunities. Humanitarian staff in the refugee camps want to help but cannot because of lack of power, lack of influence in decision making and lack of information access and knowledge.

This research has provided a way to understand humanitarian action on a small and large scale. Depending on which part of humanitarian action one wishes to effect, Agenda Spaces can be useful when desiring to affect longer term products and services within humanitarian action. The resulting framework helps distinguish design for humanitarian action focusing on low resource settings from other design challenges such as design for the bottom of the pyramid or design for marginalized populations.

9.1 Research questions revisited

The main conclusion of this thesis is that the backdrop of humanitarian action as a system is constructed by power/knowledge relations. The balance between knowledge that is collected, not collected, shared and the knowledge that is kept – consciously or subconsciously- by the humanitarian system, is what shapes the distance between each

stakeholder's agenda. Based on this insight, the findings have been interpreted with the aim to find an effective response to this complex issue. The result is a proposed framework for understanding humanitarian action.

From the realization that stakeholders are unable to understand how their individual efforts can affect humanitarian *values,* it was deduced that it is more useful to view humanitarian action as *Agenda Spaces*. Mapping agendas can provide insights into how the design of products and activities within the humanitarian system can last longer and have a self-sustaining future. In order to achieve sustainability in products and services that target the refugee, *the refugee must be a considered part of this Humanitarian Action Agenda Spaces model.* The Seven Steps to safety - model for refugee motivations has shown one way of understanding refugees' motivations. *Motivations* tie the agenda spaces together as a holistic and dynamic entity. Finally, the contextualization process provides a methodic approach to how motivations can be included and applied by designers and other product/service developers. The checklist has exemplified what the framework would imply for the case of designing off-grid energy product-service systems.

As explained in the theory chapter, a theoretical frame based on design thinking requires that the suggested 'how's' lead to an intended 'value' through the suggested framework. A central 'value'is a change in the knowledge/power issue that creates this distance between stakeholders. The conceptual frames capture both the earlier undefined *values* –of refugees as well as the other included stakeholder groups – and the *how's* : of a conscious use of knowledge on different levels that can achieve value through a more integrated inclusion of stakeholder motivations.

This thesis has answered the first research question ("How humanitarian action can be framed in a meaningful way") by presenting a framework based on the interpreted findings. The Agenda Spaces figure shows how designers and innovators need to understand each stakeholder's agenda and the relationships between these in order to affect their intended goal. As for the refugee, the refugee's 7 Steps to safety has shown how the refugee's motivations are limited partly due to the lack of impact, which is linked to the power structures of humanitarian action. The more a designer wishes to affect the longer term goals of humanitarian action, the closer she or he is to inclusion in the motivation of the involved parties. A central problem of the diagnostic study was how products can be contextually appropriate within a supply chain system which favors short term solutions stock-piled for unpredictable settings. A way of understanding contextualization of products and solutions was explained through the Sustainable Contextualization model and the checklist.

The second research question ("What target groups should be the focus of technologies designed and introduced in humanitarian relief?") was answered by presenting an approach for local anchoring of interventions. A conclusion from the stakeholder workshops was that the closer the workshops were held to the local stakeholders the

more concrete and rationale were the requirements for the technologies. The knowledge gap between field offices and headquarter offices further indicated that while the 'grassroot' stakeholders had clear ideas of solutions, they depended on information from headquarters on what should be selected. At the same time, technologies that were available locally were not considered. The objectives should carefully assess the local stakeholder knowledge about the technology. From the Ethiopian context, stakeholders needs illustrated by the Agenda Spaces frame and the Knowledge/Power backdrop explain how this can be achieved through a better information flow between local partners and technology designer/supplier, and how contextualization needs to become an objective. For technologies aiming at refugees, this means including the host community motivations in addition to refugee motivations, pushing the technology design towards something that is anchored in local needs and aspirations. For technologies aiming at other end users in refugee camps such as operational staff, the longer term objectives are an increased insight into user patterns and 'real' data on energy use. This also requires a stronger focus on the information flow between stakeholders in the humanitarian action system.

The third and final research question asked how design thinking can deduce relevant information from complex stakeholder systems, which that can lead to more appropriate design practice and decision making (in humanitarian action).

The described research process has shown how designers work through synthesis to solve problems, the way scientists work through analysis. Scientists first discover the rules, while the designer discovers guiding rules *while* trying out solutions (Cross, 2001). In the case of humanitarian action, the diagnostic study showed that stakeholders within the system were unable to articulate the rules in a useful way due to the complexity of the system. From the humanitarian side it was difficult to understand the needs of enterprise product development, while suppliers requirements of humanitarian customers were inaccessible. From the side of the refugee, the rules of the refugee camp did not make sense, in that they are given the frames towards a future with a dead end, and a lack of information which decreased their sense of safety. Trying out solutions in a collaborative way made it possible to develop a better understanding of these rules.

It is possible to comprehend and illustrate the rules that govern humanitarian system/refuge; grassroots/decision making and enterprise/humanitarian customers which consist of subconscious and conscious power relationships.

This means that the separate Agenda Spaces where NGOs, local governments, enterprises and educational institutions are visible. The mapping helps identify the different ideas of not only who the refugee is, but also what the local priorities should be. this describes their role in the humanitarian system and how they can achieve their agendas within the rules of humanitarian action.

The design thinking approach allowed me to continuously ask new questions and reconsider my research approach. The diagnostic study showed that the problem was more systemic than expected. This forced the question of how to understand the structure of humanitarian action. The elements mentioned by participants, including host governments, camp managers and refugees provided methods which can be used to study the system through a participatory stakeholder approach. The comparison between Norway and Ethiopia further inspired questions on what these stakeholder relations mean to the goals of humanitarian action and longer term development. Revisiting the same original concerns through different angles, those of the the participants', was a valuable way to portray the misalignment between power, agendas and objectives.

The approach allowed the abduction of four frames ranging from broad to narrow; framing the stakeholder agenda system, the refugee motivations, an approach to achieve a more contextually attached designs and finally a checklist for energy designs for refugee camps.

More widely, the mapping of Agenda Spaces as an approach to include vulnerable user groups into design spheres with multiple stakeholders will be of relevance to any actor aiming at long term impact within complex systems. Designers will increasingly be faced with challenges where public-private partnerships are necessary and where multiple stakeholder interests need to be met. In welfare-states, the designer, policy maker, entrepreneur or other 'problem solvers' could work in teams with county representatives, researchers, policy makers in order to find effective solutions to current problems. The complexity of meeting multiple-stakeholder wishes and at the same time creating solutions that make the end-user experience of vulnerable user groups better makes this research experience transferable also to situations with less geographic span. While the presented research project takes as a starting point humanitarian action and design of off-grid energy devices, the research design as well as the developed framework for Agenda Spaces is of wider relevance due to its composition and general nature.

9.2 Discussion

The research approach included methods ranging from individual semi-structured interviews to participatory stakeholder workshops which require interaction analysis and the assessment of vast amounts of data and communication processes. The stakeholder workshops required an intense and continuous methodological reflection. This reflection has been documented during the process through a digital research diary, as well as through e-mail correspondence with my supervisor and conversations with my co-facilitators. These reflections were key to the overall project as they affected the choice of stakeholder workshops as a method for framing a (design thinking) problem. A few reflections from the research diary that have not been presented earlier in the dissertation remain and will be presented below.

One topic is whether the use of narratives reduces individuals to single stories. There is a danger that, if interpreted incorrectly, the Safety pyramid could do this. Designers have a natural way of understanding others by reducing their experiences to stories (Langellier, 2011). The workshops demonstrated how people tend to have a static and simplistic view of 'groups of people' they don't know. Designers also use storytelling as a tool; through the construction of persons we communicate with (Guðjónsdóttir and Lindquist, 2008). Humanitarian organizations do the same thing; they know the power of connecting a problem to the story of a single child. Our empathic responses also rely on relationships, constructed or real, with faces. Stories about refugees and people in development design retain a very singular picture of refugees. Refugees are either 'people looking for something to do', 'victims' or 'dependent'. The need to translate individual stories into such small categories may stem from our distance from them, as well as our need to reduce complexity. The differences between 'them' and 'us' were very small when the workshops were held closer to the refugee populations. This seems obvious. But during the workshops and the interviews, it was clear that this is actually a problem that affects the entire humanitarian system.

Still, stories are always subject to interpretation and seen in conjunction the stories successfully allowed the mapping of Agenda Spaces. The relativity aspect added by comparing stories can therefore reduce the simplification and generalization of each story.

The research indicates that in order to appropriately implement design approaches in humanitarian relief settings in developing countries, not only refugees' but also multiple stakeholders' views must be solicited. To do so, we need to keep in touch with the refugee through as many of the phases of our designs as possible. Only this can stop designers from making assumptions about people and reducing people to single-stories. One way to do this is keep the problem close to the holders of the problem, as was done in some of the stakeholder workshops, such as the one in Ethiopia. The workshops demonstrated that even participants within the same region can have little knowledge of refugee and humanitarian needs. Yet, they will have greater insight into the regional priorities and intentions to solve the problems needed for long term effects than stakeholders looking at issues (such as energy generation) from a global perspective.

The Safety pyramid can easily be interpreted as a model that applies to all refugees. Yet, this model was developed based on qualitative interviews with refugees from only one refugee camp in Ethiopia, as well as a Bhutanese refugee family resettled in Norway. It is important that this pyramid is read as *an example* of how the refugee camp experience can affect an individual's thinking and why it is important to do *research in context*, rather than viewing the refugee experience as a 'single story' about the refugee end-user where we stop investigating and reflecting.

Allowing complexity can be seen as something that prevents a 'creative process'. 'Problem-solvers' might get hung up on the many challenges and not 'see' innovations

for humanitarian action that could 'jump hurdles' as one participant wished during the first workshop. Often, it is a designer's task to reduce and communicate complexity in a simpler way. A challenge then becomes how to clarify what is a communication tool from what is a process or solution. Agenda Spaces and the other frames presented in this thesis are meant as communication tools and it will take practical implementation and use to show their worth and refine them. The suggestion to move all design stages closer to the context would increase known complexity about the refugee, while reducing the complexity of the humanitarian bureaucracy. This means that designers must be willing to test their solutions, in the field, and realize the potential of insights acquired during testing.

Another question that I have dwelled with several times during my research and briefly touched upon a few places I this thesis, is how did my role as 'design thinking researcher' influence the way the workshops progressed and which stories were shared? By taking the 'design thinking' approach I was interested in seeing which insights could be derived from facilitating a participatory workshop with 'designerly' tasks. As a facilitator it is important to understand the facilitator's power to affect the outcome. For each workshop, I provided a briefing and invitation explaining the topic, and I had assistance from students at the department of product design at NTNU. I was doing the overall facilitation of the workshop and introduced the tasks; however the students were given directions for facilitation. This allowed me to play the part of observer during the task performance. From the 'design thinking' perspective, the manner in which the participants solved the tasks of bridging challenges and solutions was more important than the solutions they found. The facilitation was focused on increasing the flow of information and understanding each participant's point of view and mapping those.

Being an observer, but also the 'director' of the sessions, I also influenced and stimulated the processes. How input and preparations are carried out can affect participatory processes, as well as how the observing position is communicated. As a designer by profession, I was looking consciously or subconsciously for input that would be relevant for designers. Perhaps this affected my directional decisions during the sessions. How the participants receive the information given and how they perceive my role and my expectations, probably also affected the outcome.

Speaking about roles, it was also evident that the composition of people, place and cultural identity affected what was listened to and how the communication flowed.

"Participatory research" is designed to be context-specific, emphasizing local conditions and local knowledge, and producing situated, rich and layered accounts. Objectives commonly include researching the relationships between people and their accounts of people, place and environment. Cultural identity is also a central issue. (Pain, 2004). The clear hierarchy of the humanitarian system and my interest in understanding the power structure and affects thereof, rather than developing an 'empowering process' made my stakeholder workshops somewhat different from pure participatory research.

When conducting a stakeholder workshop with representatives of institutions, one is creating an artificial space for sharing experiences. The merging of different cultures and the workshop environment surely affected the input and is therefore important to reflect upon. For example, expectations towards NTNUs participants and me as the director of the process probably affected the input. We could also be perceived as "Norway's" representatives as some quotes show that we were spoken to as being donor representatives and therefore partly responsible for the failures of the humanitarian system. It was also pointed out in the process discussion of the first workshop in Norway, that people acted differently when the one participant left. The composition of people in the first and last workshop in Norway was homogenous in terms of culture, as most participants were Norwegian; the communication flow was therefore different from the more multicultural one in Ethiopia where we had German, Ethiopian, Norwegians and a participant from Trinidad. The degree, to which a participatory stakeholder approach can frame and transform a problem-solution relationship, depends upon the participants' closeness to the challenge. This closeness, together with perspectives unique to each group and individual ownership of their own experiences explains why the process led to insights on regarding multiple issues and that these issues were more specific in the Ethiopian workshop. This became clear when statements made in Norway were compared to the Ethiopian workshop. The organizational image of agenda spaces and different angles of the comparison model suggest that this might be due to different attitudes about contributing to the process- through clear and understandable statements (the Norwegian workshop produced mostly redundant and difficult-to-approach problems such as 'they are conservative', 'it is undemocratic').

The research process in itself also influenced or changed the perspectives of the participants. As in any other intervention, the research object changes during the process. With the transformative agenda of design thinking, this may occur more frequently than it would in other research designs. As the workshops continued, the participants had ongoing discussions with participants that had relevant input to their own knowledge about the topic. This would mean that the participant's knowledge about and even their agendas might have been transformed and were not the same at the end of the research project as they were at the beginning. Many humanitarian customer participants had for instance never discussed design and implementation processes with private enterprises. Examples of agendas and experiences that shape understanding can be compared to 'narrative knowledge' in human sciences. 'Narrative knowledge' argues that storytelling does not only influence how one person relates (Polkinghorne, 1988b) to their own experiences and goals. It also shapes how the personal narrative, ('narrative knowledge'), informs that person's understanding of another person's stories. The understanding of 'narrative knowledge' can be a useful tool for participatory processes and problem framing.

Learning processes cannot be easily evaluated. Participatory approaches do not take place in a closed lab. External issues can affect people's knowledge and understandings, including their own reasoning around the topic once broached. As soon as people leave the closed experiment of a workshop, the participants move into a reality where they are influenced by endless external factors and experiences. For the learning process of individuals, (Quist, 2007) it is recommended to use a spin-off or follow up of backcasting workshops after five to ten years to investigate the learning effect of backcasting processes.

In order to understand the long term effect such workshops may have on the humanitarian system, a follow-up interview should be designed with the individual participants. Asking people to find common goals can influence the cooperation that is needed to move towards them and at the same time shape a decentralized, bottom-up action in an area. The follow up interview with an Ethiopian participant specifically focused on finding out what these workshops meant for the participants. During each workshop, there were clear indications of learning from each type of stakeholder. In the combining perspectives workshop, it was clear that many of the participants that had taken part in one of the previous workshops had brought something with them and made statements based on what they had learned earlier. The participants also managed to move from a situation with very different disciplines and experiences, to discussing and making sense of the humanitarian system, and pinpointing central challenges of design for the humanitarian system. This demonstrates a reciprocal learning process. One might further ask if whether the goal of this type of workshop was just as much the reciprocal learning as it was the building of the framework. Before the task of creating an ideal process, I tried to bring in some priorities from the Norwegian and Ethiopian workshop by asking each participant to pick a note from the previous workshops that they felt strongly about. However, during the design process, they quickly forgot about these notes and even if I reminded them, they still ignored them or could not find a way to incorporate them. The transcript of the recordings contains examples of questions and the flow of information between stakeholders that indicated learning in several areas. Participants in the last workshop did however bring insights they had achieved in earlier workshops. One interpretation of this observation is that the presence and gathering of people with experience and their sharing of their experiences was much more relevant to individual learning, than my stimulating this by introducing priorities from other workshops.

Moreover, whether end-user insights can be achieved without travelling to assess the situation of the end-users has been a returning issue of reflection. Remaining questions about, "what is a refugee camp like?"were still raised by many participants at the end of the workshops. The examples given by the participants with experience in the refugee camps were related to particular stories and were not directly useful for product designers and enterprises. Some designers who were developing technologies for use in refugee camps had never been to a refugee camp or in a relief setting. This was also true

for technology developers within the Ethiopian context. While Ethiopian participants regarded the refugee camps as unsafe, the Norwegian participants were curious about how refugee camp workers could communicate their context to them. Working with a contextualized information portal was discussed on many occasions during the workshops and product designers should be a part of this discussion. Still, as we experienced, many issues were only possible to discover through *being there.* This is perhaps the only way the actual problems, as seen from end-users and local stakeholders, can be identified and thereby contextualized.

"Being there" and designing things in the end-user context or designing things from far away, also becomes an ethical concern. Ethics is particularly important to consider both before, during and after visiting vulnerable user groups. The ethical dilemmas and sensitivities of the visits to Kebri Beyah were discussed as a group activity after the study (Nielsen, 2014a) and showed how different individuals weigh aspects of ethical conduct differently. A few questions remain to be reflected upon:

The first is; how do we approach vulnerable end-users as designers? A discussion with my supervisor and the students travelling to Ethiopia with me centred on ethical conduct during the encounters with refugees, but also about the ethical perspectives on conducting research with stakeholders and what they expect in return. Regarding the encounters with refugees, our experience was that the camp structure and management hierarchy made it difficult to ensure ethical conduct. For example, all available translators were male and were entering the women's areas without asking. We also were not allowed to spend sufficient time with the women in order to build trust and create a less intrusive atmosphere. The interview with the Bhutanese included a much less controlled environment in which I could plan the approach and follow it though the way that I had intended. There were no 'gate keepers' and I could enter the home of the refugees in a safe situation, with only one interpreter next to me. There was also an authorized interpreter while in Kebri Beyah. We had to use interpreters that were also UNHCR staff and we could not choose freely. The interview with Bhutanese refugees in Trondheim also gave indications of how migration affects people's motivation and prospects. Some of these effects were visible during the interviews. However due to the controlled environment and planning that was restricted by camp authorities, it was difficult to separate language challenges, interpretation of facial expressions and necessary ethical precautions in Ethiopia as I had attempted in the interview with Bhutanese refugees (Nielsen, 2014c). From this experience I learned that if we want to build trust, we also need to dwell upon what is expected of us as designers and/or (design) researchers in a development setting. This question is a large yet important topic to address particularly as the restrictions towards doing research in emergency situations are being increased. Designers need an increased understanding as compared to social scientists whose ethics and reflective practices have been increasingly addressed and become complimentary. In design, it can be argued that, ethics have in

some areas been pushed into the background of 'creative', 'bold' and 'effective' processes; leaving the ethics to the intention of the product.

As for the workshops, *expectations* were central to the ethics discussion, as were the *social hierarchies* revealed during the workshops. Participants may have expected particular technology offers or suggestions, as it became clear that some regarded our team as 'donor representatives' rather than researchers. They may also expect that we would return to Ethiopia to finish solving the problems that we encountered in the Somali region. The issue of expectations was partly taken into account by providing a survey prior to the workshop and trying to make sure that the expectations described were met. Also, I intend to travel to Ethiopia to present the final results to the participants. Furthermore, the Department of Product Design and I are actively looking for opportunities to continue the positive relationship we established with the stakeholders and individual participants in Ethiopia.

The students who completed a design project based on the visit to Kebri Beyah did also not agree about whether one has an ethical responsibility to the environment or to the humans in this context. This discussion showed the subjectivity of 'Ethics' and how its practical application in field is a result of theoretically defined yet also depends upon the researcher's or designer's awareness of this, together with inherent values and reflections.

During the workshop facilitation in Ethiopia I observed that the end-user representative seemed uncomfortable. It is possible that the social power structure of the participants or Ethiopia in general had made her feel as if she was forced to participate and not that she had consented. This is difficult for us as researchers to investigate when we step in to a setting that includes participants from this setting whom we do not know well. As designers we are not ethnographers, and are rarely experts of the culture in which we operate. I attempted to solve this problem during the workshop by not pushing the vulnerable participant in any way once I realized she seemed uncomfortable. For future workshops, I would make sure that the matter of consent is also considered and better accounted for when conducting stakeholder workshops. This could be achieved either by requiring a day to meet with each participant beforehand for a conversation or by including a social scientist to assist. However, can we really know what informed consent means in a different cultural setting and with 'passive' stakeholder groups such as refugees? A reflective research practise and contributing to building ethically based frameworks for designers is probably our safest bet.

A final contemporary issue (Nussbaum, 2015), is whether humanitarian design approaches are simply another imperialist discipline (Company, 2015). Can we really say that we understand sufficiently the social power structures of a foreign setting, with us included, when conducting participatory research and designing 'humanitarian' products and services?

9.3 Recommendations

The presented framework provides a starting point for expanding literature on design and innovation for humanitarian action. It argues that both stakeholders and those affected by humanitarian relief should be included in the designers' or other 'problem solvers' work for the purpose of bridging short and long term concerns. The presented frames have begun to capture the target values and the 'how's' of humanitarian action based on stakeholder input. Central in the identified humanitarian action 'worldviews' is *knowledge* and in the case of off-grid energy designs for refugee camps particularly knowledge related to motivation flows between each stakeholder's *agenda*.

It will be necessary to expose the framework to re-interpretation and changes. There is a need to test the framework in order to prove its value and to gather lessons about its practical implementation. This would both include testing of the framework for humanitarian action specifically, and testing of the agenda space mapping as a general analytical tool for other systems of multiple stakeholder agendas and vulnerable or inaccessible user-groups.

For the humanitarian system in a holistic perspective, the presented understanding encompasses both the private sector and the end-user and will hence be of relevance to the recently emerging discourse on humanitarian innovation (Alexander Betts, 2014, Betts and Bloom, 2014, Bloom and Betts, 2013). The conclusions suggest that the humanitarian discouse will have to look closely at how to bring each other's agendas closer for a more managable future of humatitarian relief. This will require cross-disciplinary and cross-sectoral collaboration between academia, humanitarian relief organizations, NGOs and governments locally and internationally.

For researchers, this would entail suggesting and testing ways that knowledge can be used in order to increase meaning for each one of the relevant stakeholders (in a multi stakeholder environment or in humanitarian action specifically) and to reduce the distance between them. If technologies, services and systems are to be acceptable and to make a difference in the longer run, refugees and the host communities must also be considered integrated stakeholders in the new humanitarian system.

There will have to be an administrating part, designing the process, facilitating the wrokshops and 'pulling the strings' during this process. This will be the 'design thinker'. The 'design thinker' can either be a researcher, or someone else who's role is to understand the overall image and work towards meaning for all involved stakeholders. This person must in either case have the necessary resources to analyze and determine how to gather more data for the agenda mapping process. Ideally, there would be team of interpreters working together. This is because a team of more than one 'design thinker' would have the opportunity to compare different interpretations and structuring of observations and particularly of stakeholder interactions that can tell something about interest and power relationships.

By extracting knowledge and functioning as the communicator between the parties either through participatory workshops and/or through academic publications, examples of how complex, multi-agenda scenarios can be tackled will emerge. More evidence is needed on the agendas of donors, and on the differences between refugees in different geographical and cultural situations.

The main weakness of the framework for humanitarian action is that the donor's agenda and influence is not sufficiently represented due to their lack of participation in the workshops. Emphasis should therefore be on involving donors more in these types of activities. However, the effect of other stakeholder's perceptions of donors wants and how they prioritize has been evident.

Also, the motivational aspects suggested need to be tested with concrete design and implementation projects. Testing of the agenda mapping as a way of integrating the perspective of the affected in a stakeholder system would require extensive collaboration. Financial, research and humanitarian actors need to collaborate on integrated projects with a longer term perspective. Donors play a central role in setting terms and requirements for what donations are used for; increasing the number of stakeholders that have to be included in a project and requiring knowledge about how their agendas are linked. This could be an effective way of monitoring the foundations of a relief and/or development project.

For policy makers, who may listen to the humanitarian relief community experts, problems such as the introduction and design of stoves may at first glance appear to be a technical product design issue. Sometimes this process can be limited to include the designer, the manufacturer and the end-user. Listening to a social scientist perspective, it may look as if it has to do with training and acceptance. However this research has shown that system-related factors need to be dealt with as a part of the designer's *and* the decision maker's process. Case studies would ideally be long term focused and include stakeholders in different contexts: international decision makers and local implementers. Linking different initiatives together, from the user-centered design groups in-field to the top level of an organization, and making the top decision makers aware of the system dynamics will be a central challenge of these case studies.

For designers, there are currently not enough case studies clearly within the frames of humanitarian action/the humanitarian system to build upon. For design or humanitarian innovation, it remains a challenge to build longer term collaborations with humanitarian stakeholders instead of 'quick-and-dirty' approaches. More time is necessary in order to develop examples of how a clear flow of knowledge back to the project owners for evaluation can be achieved. Designers and other engineering practitioners, and 'humanitarian innovators' should therefore contribute by providing more case examples from within the humanitarian market.

Finally, the workshop discussions have shown how the easiest way to reduce complexity and to increase impact is that projects – from assessment and decision making to implementation and learning - must attempt to move closer to the actual end-user and host community context.

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