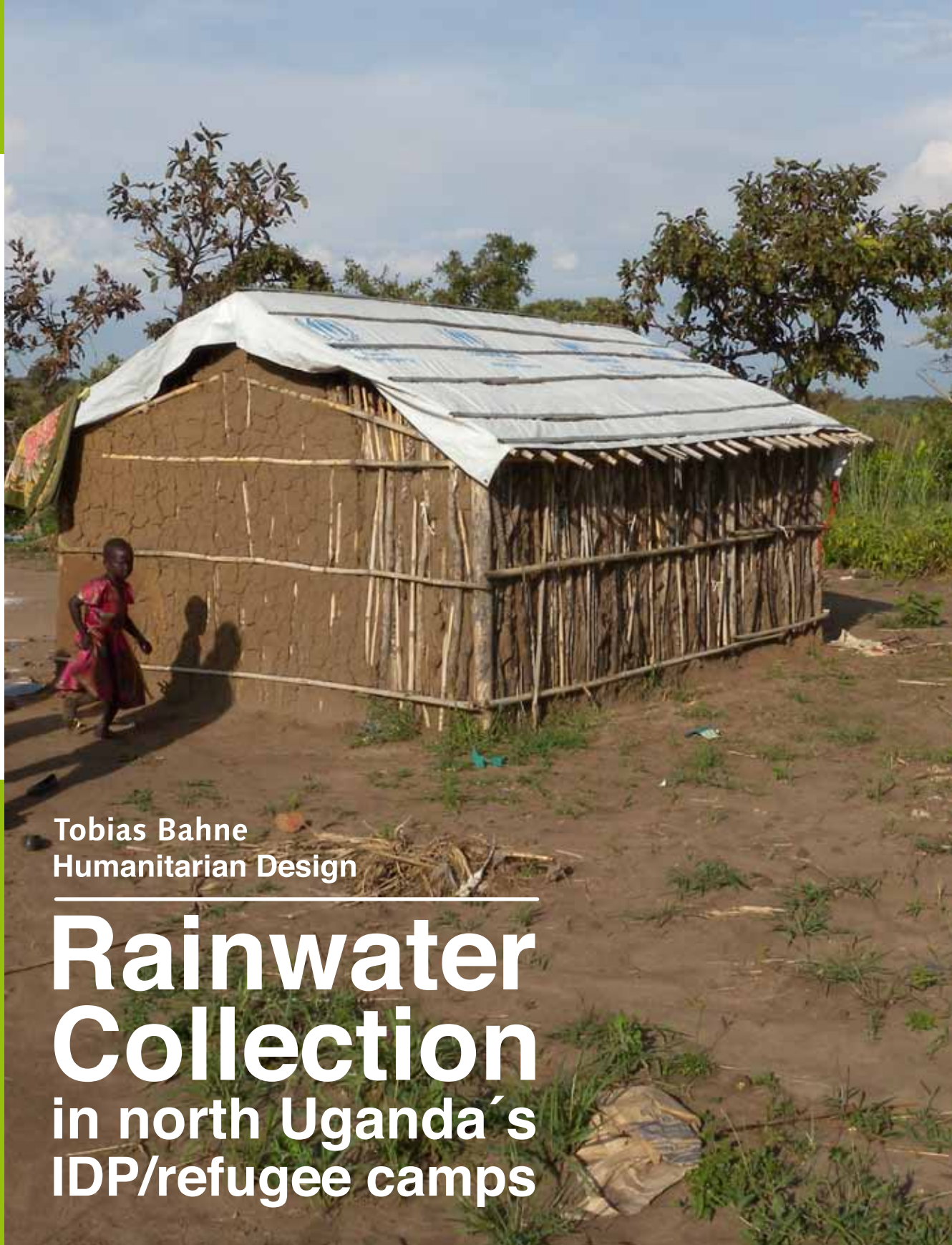

Tobias Bahne
Humanitarian Design

Rainwater Collection
in north Uganda´s IDP/refugee camps

Caritas Gulu Archdiocese

D-Lab

Bauhaus-University Weimar

(P1) House in Ayilo refugee camp
(P2) Location Uganda
(P3) Political map of Uganda

UGANDA

D-Lab

Bauhaus-University Weimar

Caritas
Gulu Archdiocese

U.S.GLOBAL
DEVELOPMENT
LAB Powered by USAID

Tobias Bahne
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Rainwater Collection in north Uganda´s IDP/refugee camps

Product Design
Bachelor of Fine Arts
Matrikelnr.: 100151
Final Work

Bauhaus University Weimar

Weimar, 15.12.2014

In collaboration with
Rethink Relief
Massachusetts Institute of Technology
D-Lab
Caritas Uganda

Sponsors
International Development Innovation Network
U.S. Global Development LAB Powered by USAID
Massachusetts Institute of Technology - Mechanical Engeneering Department
Information Technology University, Lahore, Pakistan
Schmittmann Wahlen Foundation

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Prof. Gerrit Babtist, Stefan Jungklaus

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Acronyms and lexicography

AU	African Union Alliance of 54 African states. Morocco is the only african state that is not a member.
AU-RTF	African Union Regional Task Force
CAR	Central African Republic
COPAW	Ugandan Coalition for Political Accountability to Women
DRC	Democratic Republic of the Congo
GIZ	Gesellschaft für Internationale Zusammenarbeit
HDI	Human Development Index
ICC	International Criminal Court
IDDS	International Development Design Summit
IDIN	International Development Innovation Network
IDP	Internally Displaced Person Person who fled his or her home but who remains within his or her country‘s borders. They do not fall within the current legal definition of a refugee.
LRA	Lord‘s Resistance Army
MIT	Massachusetts Institute of Technology
MITMECHE	Mechanical Engeneering Department of MIT
NAWOU	National Association of Women Organizations in Uganda
NFI	Non Food Items
NRA	National Resistance Army

NGO	Non-governmental Organization Organization that is neither a part of a government nor a conventional for-profit business. May be funded by governments, foundations, businesses, or private persons.
OHCHR	United Nations´ Office of the High Commissioner for Human Rights
OPM	Office of the Prime Minister
PAFO	Parliamentary Advocacy Forum
PRA	Popular Resistance Army
Refugee	Person who is outside their home country because they have suffered or feared persecution on account of race, religion, nationality, or political opinion; because they are a member of a persecuted social category of persons; or because they are fleeing a war.
UPDF	Uganda Peoples Defense Force
UFF	Uganda Freedom Fighters
UN	United Nations
UNDP	United Nations Development program
UNHCR	United Nations High Commission for Refugees Also known as the UN Refugee Agency. UNHCR is a United Nations´ agency mandated to protect and support refugees at the request of a government or the UN itself and assists in their voluntary repatriation, local integration or resettlement to a third country.
UNRWA	United Nations Relief and Works Agency
USA	United States of America
USAID	United States Agency for International Development

Abstract

This work was acquired in Northern Uganda in November 2014 during the Rethink Relief conference and further developed as a product design final work at Bauhaus-University Weimar.
It focuses on the product as a result, the analysis of the design process in the humanitarian field and it´s documentation including personal impressions. It is meant as a field report for other designers interested in working on similar topics.
Rethink Relief is an intense design workshop and hands-on event dedicated to creating technologies for humanitarian relief that specifically address the gap between short-term relief and long-term sustainable development. To achieve a holistic approach we worked in an interdisciplinary team including a resident from the Ayilo I refugee camp in Adjumani district, Uganda and with local communities who witnessed 20 years of conflict situation of northern Uganda - and in partnership with Caritas Gulu Archdiocese.
Beginning with a definition of Humanitarian Design and the description of the refugees´ situation in north Uganda, this reflective summary will continue with the course of the project. Guided by the International Development Design Summit (IDDS) Design Workbook, the workshop identified that rainwater collection can produce relief to the stressed water supply in the camps. It ended with a field trip to the refugee camp Ayilo I.
Then I continued to build and test real size models. Hopefuly, these results are implemented as a pilot batch in mid 2015.
I also write about conflicts and the refugees´ situation because I think it is nevertheless essential in this context. At the same time I am aware of that I as a product designer can not fulfill the needs of an academic work dealing with this topic. Please consider that while reading.

Key words

Product Design
Social Design
Humanitarian Design
Uganda
IDP/refugee camp
Rain water harvesting/ collection

What is Humanitarian Design?

Humanitarian Design can be understood as a sub-category of Social Design. Accepted that designers have a responsibility and are able to cause change, Social Design can be defined as a process that contributes to improve human well-being and livelihood.

Sub-category of Social Design

Humanitarian Design is design activity in context of Humanitarian Relief and Development Cooperation. Humanitarian Relief addresses victims of crisis and disaster. It´s aim is to save lives and relief human distress. (T1) Humanitarian relief is based on the Human rights defined by the United Nations´ Office of the High Commissioner for Human Rights (OHCHR) as following.

Based on Human Rights

Human Rights are inherent to all human beings, whatever our nationality, place of residence, sex, national or ethnic origin, color, religion, language, or any other status. We are all equally entitled to our human rights without discrimination. These rights are all interrelated, interdependent and indivisible. (T2)

Sphere Standard

Humanitarian organizations use the Sphere Standard as sets of common principles and universal minimum standards for the delivery of quality humanitarian response. The minimum standards cover four primary life-saving areas of humanitarian aid.

- ***Water supply, sanitation and hygiene promotion***
- ***Food security and nutrition***
- ***Shelter, settlement and non food items***
- ***Health action*** (T3)

Humanitarian Design in relief situation at best is strongly linked with Development Cooperation and therefore tries to support positive development without doing harm. Humanitarian relief and Development Cooperation both rely on professionals with diverse specializations which work together to achieve a holistic approach. Therefore the Humanitarian Design process, too, requires a multidisciplinary and integrative collaboration, in which the end users play a major role. The concept of co-creation is better to provide communities with the skills and tools to become innovators and develop new technologies themselves rather than just to provide the technologies. (T4)

(T2) OHCHR
(T1) Humanitarian Congress Berlin
(T3) Sphere Project
(T4) IDDS

Why is design advantageous for humanitarian purposes?

High complexity

Development work is highly complex and has to deal with many external and internal difficulties. There are no simple solutions. The success of a project depends on the quality of the collaboration between the participators. The results can not be measured in the quality of a solution, but by the popular adoption of the idea or solution. Convincing a significant percentage of people to embrace and invest their time and even resources in something, is part of the skills most professions are unfamiliar and somewhat uncomfortable with. This skills lie at the heart of the design profession. The design profession can bring some much needed insight and innovation, as well as implementation of tools, to this problem. (T5)

Designers´ skillset

- ***Design is user centred*** (T5)
- ***Design drives innovation*** (T5)
- ***Designers make things affordably and practically*** (T5)
- ***Design is a transferable skill*** (T5)
- ***Design is about impact*** (T5)
- ***Design is a powerful communication tool***
- ***Designers are co-creater***

Additional possibilities

Working in this field means working to ensure basic human needs. I want to make my position clear. I don´t want to change the common/mainstream design rather than try working on additional possibilities offered by the design occupation.

Design for the real world

I believe very strongly, that design has the ability to change. Victor Papanek wrote about the possibilities for designers to work for the needs of developing countries in his book Design For The Real World. The ideal is that the designer moves to the country to really understand the local circumstances and really design for the local people. At the same time he should teach designers and bring up an infrastructure that these designers can teach designers. The people in development countries are experts of their environment, something a foreigner maybe can never become. I keep that in mind, when designing in co-creation. This concept is best to provide communities with the skills and tools to become innovators and develop new technologies themselves rather than to simply offering solutions. Like many geniuses were polymath, I think that interdisciplinary work has a bigger impact.

(T5) Leif Steven Verdu-Isachsen, Design without Borders

Co-creation

The whole is more than the sum of its parts. Aristoteles.

Know-how transfer

As mentioned above the Know-how transfer is one of the main points when working in the humanitarian context. Keep in mind, that this transfer is working in both directions! It is important to offer opportunities and tools for solving problems, but at the same time let them be adopted and developed. In the ideal case the endusers commitment directly leads to adoption and further development. That at the same time is an evaluation of the quality of the work. Of course development happens in steps.

Special requirements

There are special requirements faced when working in the humanitarian context. But a product designers skillset contains skills to cope with these. One of those is the ability to adapt easily to very different filed of the design practice. E.g. working on a chair has totally different requirements than working on a breathing mask for fire fighters. But a designer is able to work in both fields due to the ability of getting incorporated into the topics. The fine sense for the problem and solution circumstances are helpful. At the same time a designer can easily cope with limitation in availability of materials. A designer should be used to work in group based projects, and therefore able to handle different interest groups and attitudes. When including end users and other occupations it is important to pay attention to the different skills of the team members. Not everybody will be able to communicate his/her ideas by sketching, a common process to designers. Designers are used to work together with a variety of occupations - depending on the field of the project.

Special results

Especially these arguments empower designers to be beneficial for a humanitarian project. The problem solving process is quite the same, but these special requirements cause a different result that is often not comparable to common product design results. (T5)

(T5) Leif Steven Verdu-Isachsen, Design without Borders

Personal expectation/motivation/explanation

Gaining work experience in a product design office, I realized that I lack social commitment with the work I am doing. Having done some voluntary work in the social sector before I now wanted to combine my interests in this project.
Of working in the field of Social Design and Humanitarian Relief as a final work of my product design studies I expect to really work in the field and to be in the real life practice of Humanitarian Design. I want not just work on a close to reality project, I want to work in reality and discover the borders of design. In the beginning I wanted to organize a workshop by my self in Za´atari refugee camp in Jordan with support of Morethanshelters. But I lacked knowledge and experience of organizing humanitarian and interdisciplinary workshops. I realized that I can not organize a workshop in a foreign country without the necessary experience and without a network supporting me with direct contacts. So I wanted to take part in the Rethink Relief conference, to gain that experience and to become part of a network. I think that the Rethink Relief conference will be especially advantageous for the final work because it is a hands-on event and can come up with a product as a result. Further I want to get in contact with people from all over the world having gained experience in such projects. I am also very excited to be chosen for a project which is set up by a very famous, and worldwide known university and to connect it with my university and my final work. Rethink Relief itself will be described in detail in a following chapter.
But more important to me seems the hope that the final result is adopted by many users because this is a sign for the final success of the work. In the end I hope to do no harm, rather than really develop relief for many people. The saying “helping people to help themselves” shall be my guiding theme.

Individual questions

• How can I personally, as a product designer, work in an humanitarian context and bring relief to people?

• Can I imagine to work in this field in future or do I prefer a product design job?
• Does it have to be an either or?

• How does an interdisciplinary team work in a design project?
• Does each other benefit from the experiences?
• Can my current, not Social Design related practices contribute to the project?

• Is there a new working style?
• Are there new challenges?

Quick facts - Republic of Uganda

Africa is diverse in it´s natural richness of peoples, cultures, languages and is very heterogenous in it´s politic, economic and ethnic aspects. Of course many areas have in common, that they suffer under the colonial Heritage, difficulties in structural development and a marginally industrialization, but besides these similarities it is important to make a sophisticated analysis of the specific regions. These Quick fact scheme shows current data from the CIA world factbook, the UNDP and the Bundeszentrale für Politsche Bildung (bpb).

Inhabitants (T6)
35 918 915

Human Development Index (HDI) (T7)
ranking 161 from 186

Ethnical groups (T8)
Uganda is Home to over 50 diverse ethnical groups.
50% Bantu groups
(17% Buganda, 10% Banyankore, 9% Basoga, 7% Bakiga, 5% Bagisu et al.)
26% west- und east nilotic groups
(7% Iteso, 6% Langi, 5 % Acholi et al.)
5% sudanese groups (4% Lugbara et al.)
Indian, european and arabian minorities

Religions (T8)
42% Catholics
42% Protestants
12% Muslims
Indigenous religions

Languages (T8)
Official language
English
Mainly spoken languages
English; Swahili, languages of the ethnical groups

Geography (T6)
East Central Africa

Landlocked by (T6)
Democratic Republic of the Congo
Kenya
Rwanda
South Sudan
Tanzania

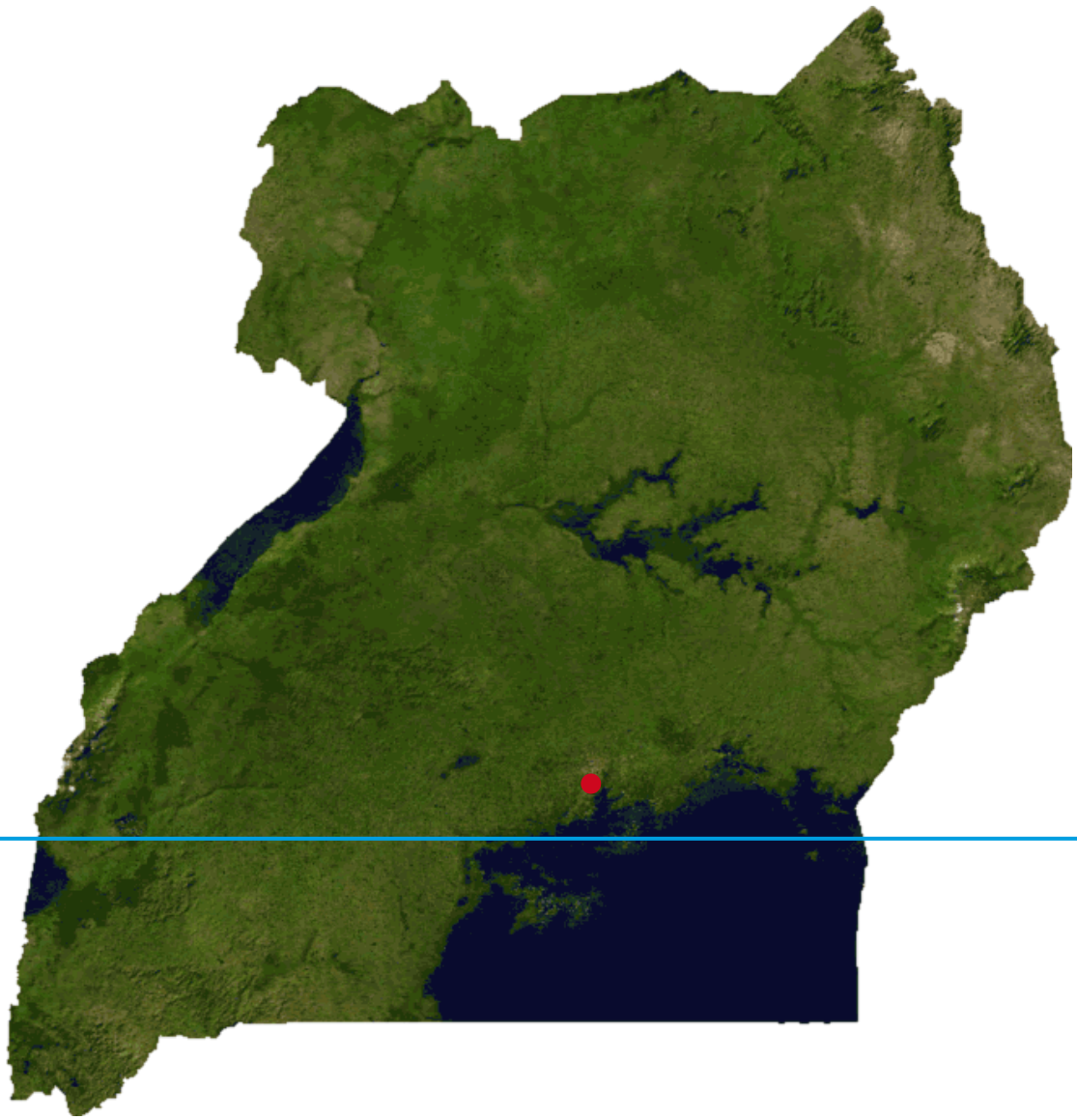
Capital (T6)
Kampala

Administrative divisions (T6)
four regions
111 districts

Climate (T6)
equatorial; tropical
generally rainy - two dry seasons
semiarid in northeast
fertile

Form of government (T6)
Presidential republic (Commonwealth)
Parliament (National Assembly) (election every five years)
head of state (direct election every five years)
Yoweri Museveni (since 1986)
1995 Constitution
1962 Independence from the UK

(T6) CIA world factbook
(T7) UNDP
(T8) Bundeszentrale für Politische Bildung (BPB)



(P5) Uganda Satellite Picture

Quick facts - Adjumani district

Inhabitants (T9)
232 813

Bordering South Sudan
In the north (P6)

Mainly spoken languages (T10)
Madi
Lugbara
Acholi

Main economic activity (T10)
Agriculture

Refugees hosted (P6)
90 531

(T9) City population
(T10) Uganda Travel guide
(P6) UNHCR - map of refugees in Uganda (September 2014)
(P7) Adjumani District

(P8) UNHCR - Refugees queue to be registered

IDPs/refugees - Worldwide / Uganda

The average lifespan of a refugee camp today is close to 20 years, the average length of stay up to 12 years. (T11)
In the mid of 2013 UNHCR counts 51,2 million forcibly displaced persons worldwide. 33,3 million of them are uprooted and displaced within their own country, so called Internally Displaced Persons (IDPs); 1,2 million are asylum-seekers, and 16,7 million are refugees - 50% of them under 18 years old. (T12, T13)
At the end of 2012 there were 15,4 million refugees, that means an increase of 1,3 million refugees in just one year. (T13, T14)
At the same time, the 2013 level of displacement was the highest on record since comprehensive statistics on global forced displacement have been collected. (T13)
From the 16,7 million refugees worldwide 11,7 million are under the mandate of UNHCR. The other 5 million Palestinian refugees are registered with the UNRWA. Over 86% of the world´s refugees are hosted by developing countries. (T12)
As per UN definition Uganda is one of the least developed countries. (T15) Continuity of conflicts and instability of peace forces refugees into the country. E.g. Renewed fighting in the Democratic Republic of Congo displaced close to one million people, and as well caused outflows of tens of thousands of Congolese into Uganda. (T13) A total of 405 593 people of concern are now hosted there and 90 531 of them live in the northern Adjumani district´s settlements. (P6)

Average length of stay up to 12 years

51,2 million displaced persons in 2013

Highest number on record ever

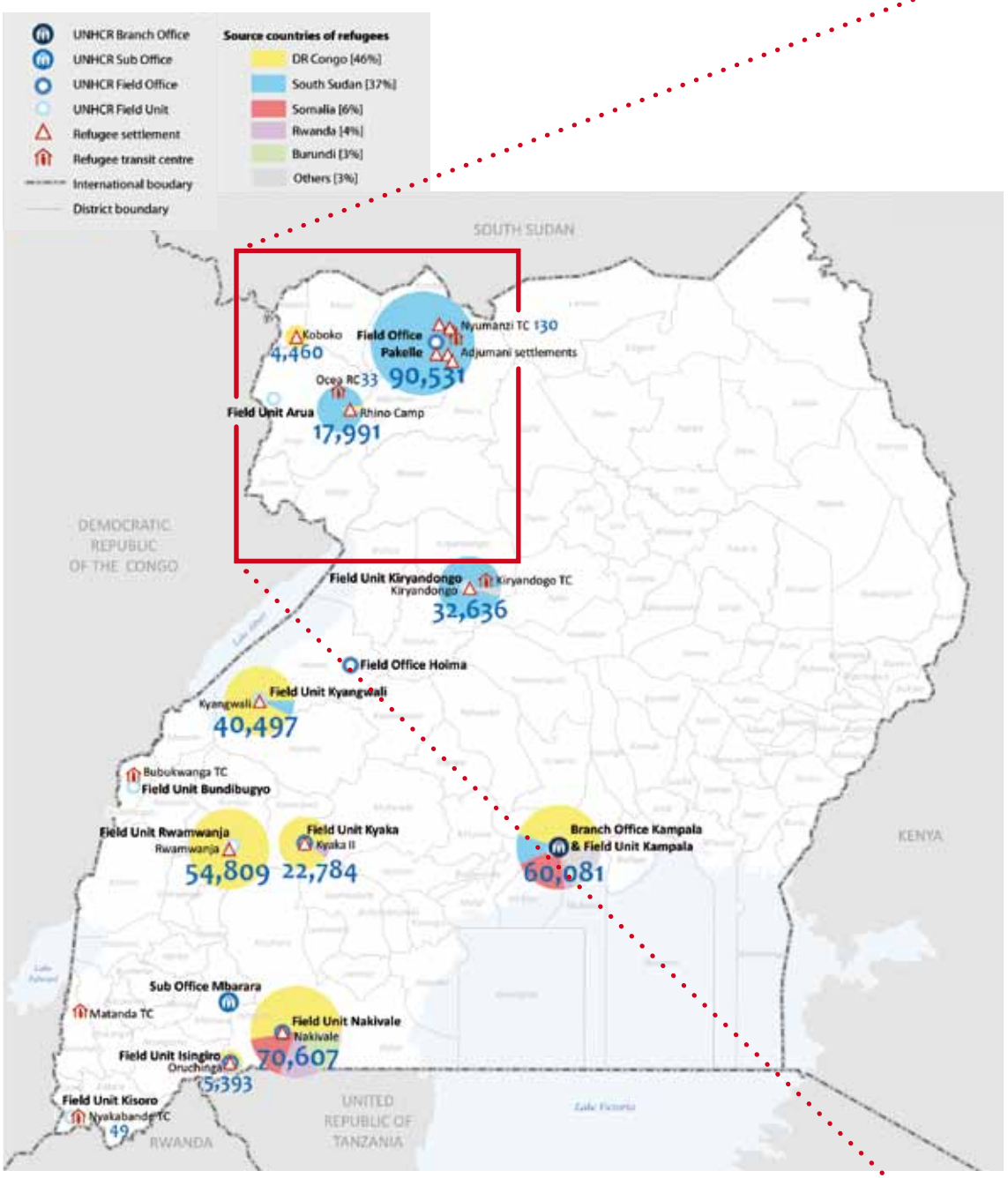
86% hosted by developing countries

Continuity of conflicts

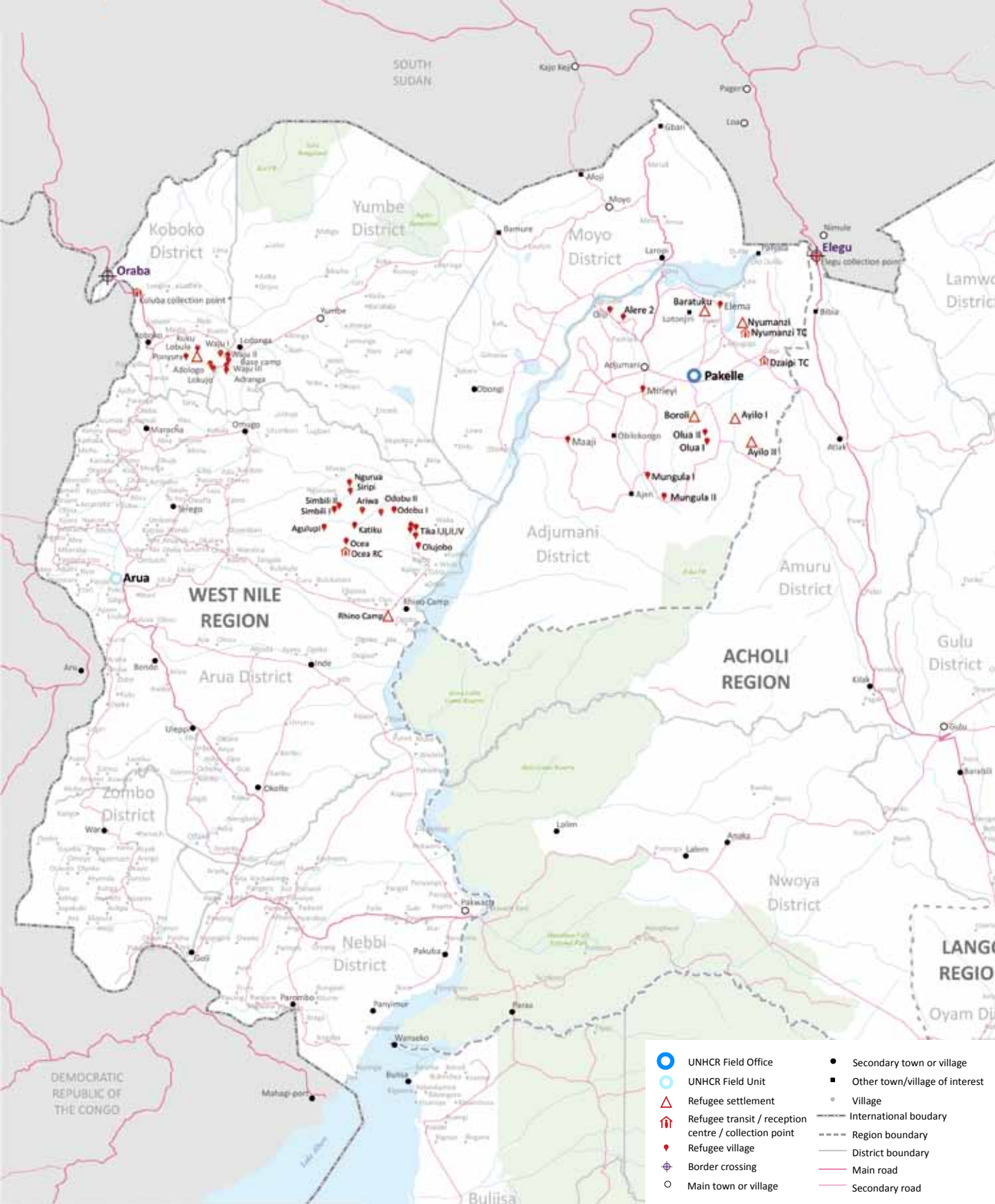
Refugees in Uganda - Countries of origin (T16)

DRC	***186 177***
South Sudan	***150 206***
Somalia	***247 86***
Rwanda	***161 90***
Others	***282 34***
Total	***405 593***

(T11) More Than Shelters
(T12) UNHCR
(T13) UNHCR - Global Trends
(T14) UNHCR - Global Trends 2012
(T15) United Nations Statistic Division
(P6) UNHCR - map of refugees in Uganda (September 2014)
(T16) UNHCR - Uganda factsheet (October 2014)



(P6) UNHCR - map of refugees in Uganda (September 2014)
(P4) UNHCR - map of refugee settlements in north Uganda (August 2014)


SOUTH SUDAN
Kajo Keji
Pagerr
Loa
Gbari
Aloi
Moyo
Namule
Elegu
Elegu collection point
Yumbe District
Moyo District
Koboko District
Oraba
Koluba collection point
Bamure
Laropi
Alere 2
Baratuku
Elema
Nyumanzi
Nyumanzi TC
Bibia
Yumbe
Koboko
Kuku
Lobule
Waju I
Lodonga
Ponyura
Waju II
Base camp
Adologo
Waju III
Lokujo
Adranga
Adjumani
Pakelle
Dzaipi TC
Mirieyi
Boroli
Ayilo I
Olua II
Olua I
Ayilo II
Maaji
Obiekongo
Atiak
Mungula I
Mungula II
Ajen
Omugo
Maracha
Ngurua
Siripi
Simbili II
Simbili I
Ariwa
Odobu II
Odobu I
Jirego
Agulupi
Katiku
Tika I,II,III,IV
Ocea
Ocea RC
Olujobo
Adjumani District
Amuru District
Arua
WEST NILE REGION
Rhino Camp
Rhino Camp
ACHOLI REGION
Gulu District
Arua District
Bondo
Inde
Ulepi
Gulu
Zombo District
Okollo
Arua
Barabili
Lalen
Anaka
Nwoya District
Pakwach
Nebbi District
Pakuba
Goli
Paranbo
Panyimur
Paraa
Wanseko
Buliisa
DEMOCRATIC REPUBLIC OF THE CONGO
Mahagi port
Lake Albert
LANGO REGIO
Oyam Di
UNHCR Field Office
UNHCR Field Unit
Refugee settlement
Refugee transit / reception centre / collection point
Refugee village
Border crossing
Main town or village
Secondary town or village
Other town/village of interest
Village
International boudary
Region boundary
District boundary
Main road
Secondary road

Conflicts affecting IDP/refugees in Uganda

Long history of Mass movements

Mass movements

Whether forced or otherwise – They have long been a phenomenon in the borderlands of northwest Uganda and southern Sudan. Civil conflicts both in Uganda and Sudan have continued to create forced migratory movement in addition to ongoing migration for trade and other purposes. Given the somewhat arbitrary nature of the Uganda/Sudan border, there is considerable linguistic and cultural overlap between much of the Ugandan and South Sudanese population. (T17)

Overview of conflicts

Because of intense and long lasting conflicts Adjumani district has experienced the effects of subsequent displacement for many decades. (T18) The following section gives an overview about the following conflicts affecting refugees in Uganda because I think it is important, this background information should prove useful in understanding the context of the project. At the same time this is not the focus of the work and i can not fulfill the scientific needs due to my occupation.

- ***Civil wars***
- ***LRA and the UPDF***
- ***Great lakes***
- ***Fightings in South Sudan***

The main references used in this section include the websites of Caritas international, the german Bundeszentrale für politische Bildung, the UNHCR internal information sharing portal, the LIPortal from the german Gesellschaft für internationale Zusammenarbeit (GIZ), Ms. Sahra Meyer´s research paper - New issues in refugee research – from the University of Oxford, United Kingdom, the Refugee Law Project working paper – Invisibly displaced persons in Adjumani district, with supplement from Wikipedia encyclopedia.

(P9) Medicins Sans Frontieres - South Sudanese Refugees on their way to Uganda

(T17) UNHCR Policy Development and Evaluation Service

(T18) Refugee Law Project

Civil wars

After the president was banished in 1966 by Milton Obote he declared his self as head of government. The kingdoms were suspended or the royalists fled to exile. A part of the economies was nationalized. Both resulted in bloody protests and massacres. Despite Milton Obote tried to lead Uganda to national unity he soon got unpopular, especially in the south. (T19)

Milton Obote
Bloody massacres

Idi Amin, the former commander of the army committed a coup in 1971 and lead Uganda into dictatorship until 1979. He was responsible for the murder of about 300 000 opposition members. (T20) People of other tribes were killed and asian immigrants were relegated and many people fled.

Idi Amin
30 000 murders

1978 Idi Amin´s troops attacked Tanzania to annex the north-western Kagera-area. Tanzania responded with an counter attack and conquered the Ugandan Capital Kampala with help of Ugandan rebel groups. The current President of Uganda Yoweri Museveni was part of them. Those forces freed Uganda from Idi Amin´s dictatorship in 1979. (T20)

In the elections of 1980 Milton Obote, the former president again seized power until 1986. This despotism exceled in brutality. About one million people were killes beween 1981 and 1985. Many of them were victims of horrible torture. (T19)

Milton Obote
1 000 000 murders

In that time the National Resistance Army (NRA), which was formed in 1981 when the current president Yoweri Museveni´s Popular Resistance Army (PRA) merged with ex-president Yusuf Lule´s group, the Uganda Freedom Fighters (UFF) seized power after a guerilla war. (T20)

NRA

1986 Yoweri Museveni took over the presidential power without elections. First in 1996 presidential elections took place and Yoweri Museveni was elected with 75% of the votes. In 2001 again Yoweri Museveni was elected with 69%. But these elections took place under the ban of the activity of political parties, in fact a single political party system. In 2005 other political parties were licensed. In the 2006 elections Yoweri Museveni could become president again only because a change of the constitution allowed him to candidate again after two presidential terms. (T20)

Yoweri Museveni

(T19) Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
(P10) GIZ LIPortal - 1986 after the Civil war: Skulls and bones in Luwero
(T20) Wikipedia encyclopedia

LRA and the UPDF

Conflict started in 1988

Child soldiers

War crimes

90% of the population was forced to live in camps

In about 1988 the conflict started between the LRA and the UPDF (Uganda People´s Defence Force) in north Uganda. UNICEF estimates between 35 000 and 66 000 children and youth being abducted, recruited as soldiers, enslaved for sexual purposes and tens of thousands civilians were murdered, dismembered or raped. The ugandan army committed crimes against the civilian population, too. The infrastructure of the region was destroyed. and more than 90% of the population lived in IDP/ camps under degrading circumstances. At the worst time up to 2 million people, particularly Acholi people were displaced within their own country. In 2009 the camps were closed officially. (T21)

UDPA and HSM formed the UHSA

renamed UDCA

renamed LRA

The NRA under Yoweri Museveni took over the power in 1986. At the same time two armed groups were founded in the north; The Uganda People´s Democratic Army (UPDA) based on the former governmental army; and the Holy Spirit Movement (HSM). In 1988 Joseph Kony formed the United Holy Salvation Army (UHSA) with parts of the UDPA which refused a peace treaty with the government and the leftovers from the HSM. The UHSA was renamed United Democratic Christian Army (UDCA) In 1999 and Lord's Resistance Army (LRA) in 1992. (T21)

LRA manifesto

Apart from the original LRA manifesto, in which Joseph Kony proclaimed that he wanted to overthrow President Yoweri Museveni's government and replace it with one governed by the Ten Commandments, little else is known of the LRA's philosophy. (T22)

Failed negotiations in 1993/94

After negotiations failed between both sides in 1993/94 the LRA withdrew to South Sudan and operated from there with support of the Sudanese government. (T21) The rebels began to target civilians, mutilating those they thought to be government sympathisers. Most LRA activities at this time were concentrated within the three districts comprising Acholiland: Gulu, Pader and Kitgum. However, the violence sometimes reached into Apac District, which borders Gulu and Pader to the south. (T20)

1998 support from the USA

Since end of 1996 the main part of north Uganda´s people were forced by the government to move to IDP camps. (T21) In 1998 the USA started to support Uganda militarily and logistically. The Uganda Peoples Defense Force (UPDF) which is the armed forces of Uganda, launched "Operation Iron Fist" against LRA rebels in northern Uganda in 2002 and conducted operations

(T21) Bundeszentrale für Politische Bildung (bpb)
(T22) IRIN news
(T20) Wikipedia encyclopedia

against LRA sanctuaries in southern Sudan with the permission of the Sudanese Government. (T22)

Renewed fightings

Accordingly many combatants returned to north Uganda and the government forced the rest of the population to move to IDP camps to better control the area militarily. (T21)

After some more fightings the LRA direction withdrew to eastern Congo and started peace talks with the Government of Uganda in 2006 (T21), which should last until 2008, but could not come up with a peace contract. (T22) A long and difficult peace building process could start after the LRA was pushed out of Uganda. (T21)

LRA pushed out of Uganda

(T22) IRIN News
(T21) Bundeszentrale für Politische Bildung (bpb)
(P11) Buzz Kenia - LRA child soldier

Great lakes

Africa´s World War in 1994

There are various reasons for the outbreak of the so called Africa´s World War in 1994. Under Mobutu Sese Seko instability lasted for years in Zaire (today Democratic Republic of Congo (DRC)) and lead to chaotic status. This was an ideal possibility for retreat of rebel groups from neighboring countries, so for the ADF (Allied Democratic Force) which was causing terror in west Uganda. (T20)

Genocide in Ruanda 1994

The 1994 genocide in Ruanda caused a huge refugee influx into neighboring countries. In 1998, Uganda deployed a sizable military force to eastern DRC, ostensibly to prevent attacks from Ugandan rebel groups operating there. There were widespread allegations that Ugandan military and civilian officials were involved in the illegal exploitation of DRC natural resources. After much international pressure, Uganda withdrew its troops from DRC in June 2003. On 14 November 2004 it was reported that the President had declared truce with the rebels that was to begin the following day. (T20) All states involved in the conflict officially withdrew their troops. (T19)

Explotation of natural recources

Tense situation until now

Until now there are riots in east DRC causing a tense situation for Uganda and there is a continuously influx of refugees into Uganda. The oil occurrence around the great lakes might play a big role in that area´s conflicts. (T19)

Fightings in South Sudan

Civil war and independence

A civil war predated the independence of South Sudan in 2011. Now South Sudan is the youngest state in the world. But soon, in December 2013, a political power struggle broke out between President Kiir and his ex-deputy Riek Machar. Both have supporters from across the South Sudan‘s ethnic groups, however the rebels are targeting members of Mr Kiir‘s Dinka ethnic group and government soldiers attacking Nuers. (T20)

2013 political power struggle

Great danger of civil war

The greatest danger is that these conflicts develop to inter-ethnic civil war. Ugandan troops are also fighting alongside South Sudanese government forces against the rebels. South Sudan has large oil occurrence and therefore is from great political and economical interest to USA and China. (T23)

More than 1,000,000 people have been displaced inside South Sudan and more than 400,000 people have fled to neighboring countries, especially Kenya, Sudan, and Uganda. (T20)

(T20) Wikipedia encycolpedia
(T19) GIZ LIPortal - Uganda
(T23) TAZ - Civil war in South Sudan

(P12) BPB - Rebels´ weapons beeing destroyed

North Uganda´s IDP/refugee camps

Constitution of Uganda

Article 189 Schedule 6 of the 1995 constitution of Uganda reserved the refugees protection functions to the central government. This constitutional provision mandates the Department of Refugees to protect and coordinate the refugees programs in the country Mission Statement. (T24)

Assuring welfare and protection

To manage the response to refugees in Uganda by assuring the welfare and protection within the framework of national policy, international laws and standards, while safeguarding the local and national interests. (T24)

Refugee settlements and villages

UNHCR counted 90 531 refugees hosted in the northern Adjumani district in the five refugee settlements named Baratuku, Nyumanzi, Boroli, Ayilo I and Ayilo II and nine further, smaller refugee villages. (T25)

Process of refugee assistance

But how is the process of refugees assistance working? The refugees arriving to Adjumani district cross the Ugandan border through Nimule in South Sudan and are received at the Elegu Collection Center. Once received at the collection center, refugees are mobilized to the transit centers.

Transition centres

Refugees are taken from the border to a UNHCR-run transit centre. From here they are evenly spread to refugee settlements or villages.If they are taken by truck to Ayilo I refugee settlement, lying some 50 kilometers from the border, relief items such as food, blankets, mats and kitchenware as well as a plot of land from the government on which to build a shelter is given to the new arrivals. Uganda is one of very few countries that give plots to refugees, but unlike IDPs, refugees can not buy this plot and live like local citizens. The size of the plots are about 15m by 20m. (T24)

Relief items

Plot of about 15 by 20m

(T24) Republic of Uganda - Office of the Prime Minister - Department of Refugees
(T25) UNHCR - Uganda - Country operations
(P13) Main road of Ayilo I refugee camp

The resettlement process

At the point of return, refugees are allowed 50kg per person, and are allowed to take their livestock with them, except for cows, due to logistical constraints. Before boarding a convoy to go to Sudan, they hand over their refugee attestations and ration cards. They indicate their place of origin to UNHCR and, based on this destination, are assigned to one of the repatriation convoys that go up to one of the reception sites in Sudan. (T17)

50Kg per person

Repatriation convoy

Here they receive three months of food rations, non food items (NFIs), a reintegration cash grant of 50$ per person (paid in Sudanese pounds), information on mine clearance and a travel grant based on the distance to their final destination. They then arrange for their travel independently. (T17)

Three month of food rations
50$ per person

Unofficially, however, a far broader and more flexible process is taking place. In practice, return is happening in multiple ways. For some it takes place through officially repatriating to Sudan with the assistance of UNHCR, for others it means returning to Sudan by their own means – or a bit of both, and for others it means staying in Uganda – either temporarily of permanently. In practice, people are ending their exile in multiple creative ways so as to minimize loss of livelihoods, ensure that their children have ongoing access to education and make sure healthcare and other basic needs can be met. The resettlement process spreads in time and geographically. Indeed the number of people who choose not to accept free assistance in order to have a different approach to repatriation is very high. (T17) Many refugees do not wish to return at all, often because they even expect more trouble and challenges.

Unofficially a far broader process is taking place

Multiple creative ways

No wish to return at all

- ***Land conflicts***
- ***Pandemic, rare or unknown disease outbreaks***
- ***Staggeringly high youth unemployment***
- ***Unsustainable resource extraction***
- ***Severe alcoholism, drug abuse and gambling***
- ***Sexual and gender-based violence***
- ***Rising spate of suicides*** (T26)

(T17) UNHCR Policy Development and Evaluation Service
(T26) Rethink Relief 2014 - Oloya Aliker Tebere

RETHINK RELIEF

BEYOND EMERGENCIES

Rethink Relief Workshop

Rethink Relief is an intense design workshop dedicated to creating technologies for humanitarian relief that specifically address the gap between short-term relief and long-term sustainable development. This hands-on event is an unique opportunity for practitioners, designers and recipients of humanitarian aid to engage and develop a holistic approach to relief that considers the transition from emergency response to post-disaster self-sufficiency as an integral part of the planning and implementation process. (T27)

Hands on event

Holistic approach

The 2014 summit is held in Pader, Uganda in partnership with Caritas Uganda, and takes place in a post-conflict area. (T27) Pader is about 10 hours drive from Kampala through Lira. This region was devastated by a long war between the Lord Resistance Army and the government. This war harmed many Acholi communities, disrupted families and their homes. After several years living in displaced camps the Acholi people could go back but faced a difficult return and resettlement as coming back meant facing the devastation and the past fears. (T28)

Pader, Uganda
Post conflict area

Most local participants from Pader grew up in those IDP camps during the conflict which lasted about 20 years.

Most local participants were victims of the war

Teams work in co-creation with local communities to design technologies that ease the transition from relief camps to resettlement in their villages. Residents from the Adjumani refugee camps also participate in the summit to help identify and address current challenges from their lives in the camps. The 2014 Rethink Relief conference brings together participants from overall 16 nations. (T27)

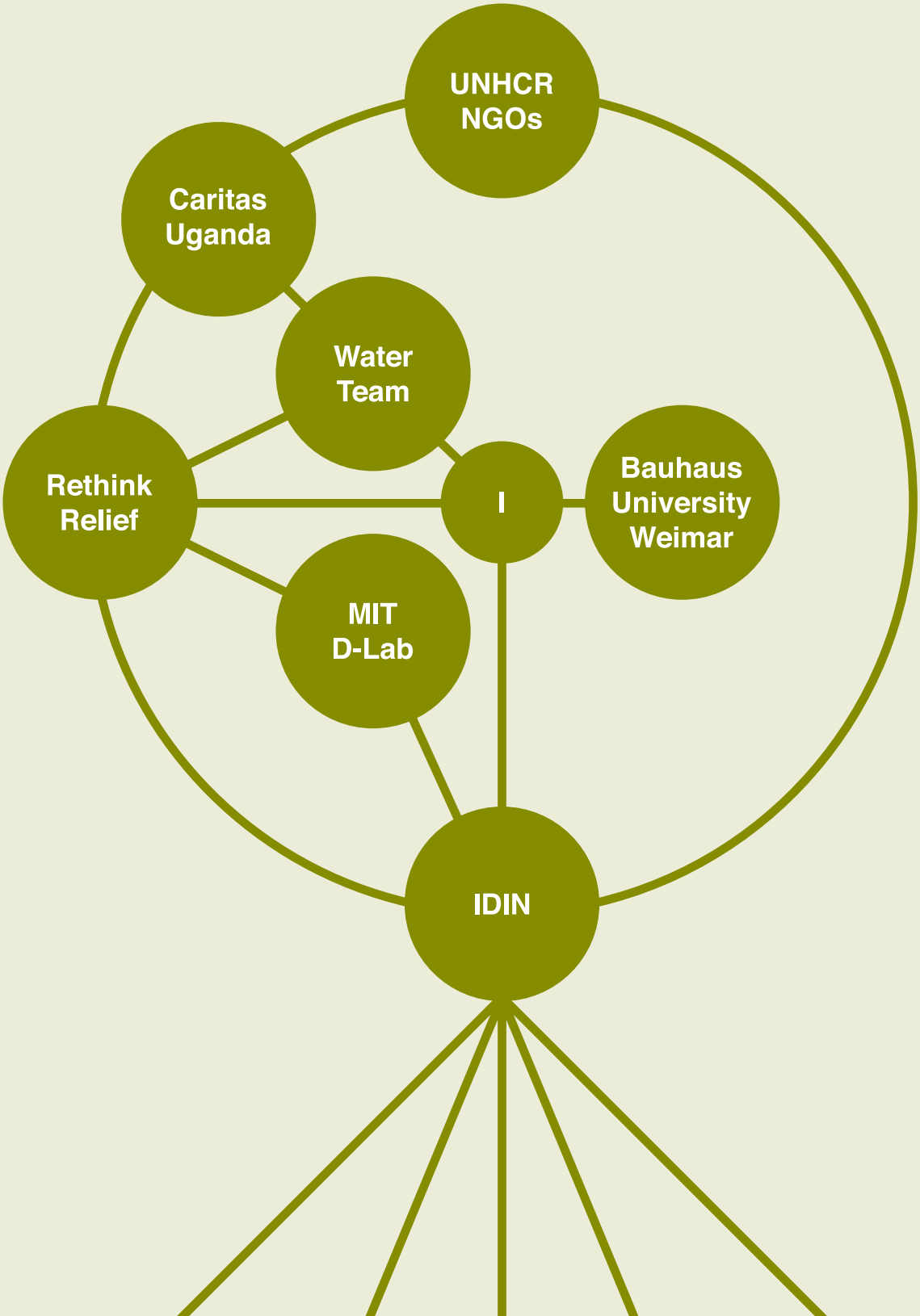
Co creation with local communities

Participants from 16 nations

Each of five groups works on one of the topics cooking, agriculture, health, light or water. (T27) The workshop lasted only for one week, and in addition some of the participants stayed for another week to further work on the projects.

Two intense weeks

(T27) Rethink Relief
(T28) Emergent Agency - Ana Laura Santos


UNHCR
NGOs
Caritas
Uganda
Water
Team
Rethink
Relief
I
Bauhaus
University
Weimar
MIT
D-Lab
IDIN

Network, People, Institutions

This final work is strongly cross-linked in a network of people and Institutions. This network serves as an area of criticism, knowledge exchange and implementation support. The Main contacts are the 2014 Rethink Relief summit´s members and especially the interdisciplinary team of seven members which worked on the water topic, but of course also the organizations play an important role.

- ***Rethink Relief***
- ***Rethink Relief Water team***
- ***IDIN Network***
- ***Caritas Uganda***
- ***UNHCR***

Rethink Relief

Rethink Relief Design Workshops started in 2011. Rethink Relief is „dedicated to creating technologies for humanitarian relief that specifically address the gap between short-term relief and long-term sustainable development. The first workshop was co-organized in October 2011 by Industrial Design faculty at the Delft University of Technology and D-Lab of MIT, and then took place in Boston in 2013. Rethink Relief brings together people from relief organizations, development organizations, designers and refugee camp residents to explore unmet needs in this sector. Groups work in co-creation throughout a week to create concepts and prototypes to address challenges in relief work. These address different topics as clean water availability, re-purposing of aid materials, transportation challenges, and first aid supply logistic. It is organized by D-Lab at the Massachusetts Institute of Technology (MIT). Trough long time experience in the field it has good contacts e.g. to UNHCR, NGOs and other major organizations in the field. It is sponsored by IDIN, U.S. Global Development Lab - which is powered by the U.S. Agency for International Development (USAID), the Mechanical Engineering Department of MIT (MITMECHE) and the Information Technology University in Lahore, Pakistan. (T27)
See also the chapter Rethink Relief.

Rethink Relief Water Team (T27)

Aizaz Anwar
is a research assistant at Innovations for Poverty Alleviation Lab (IPAL) and Computer Science graduate student at ITU. He holds a degree of BS in Computer System Engineering from GIKI. He is currently working on various projects including Preservation of Clean Drinking Water, Digitization of Child Vaccination Records and Provision of Cellular Network facility to off the grid communities. His research interests include ICT4D and Influence Maximization in speech-based mobile social networks.

Nyeko Baptist Alwera
is a teacher of agriculture at Alarm Technical and Peace Building center Pader, Uganda. He holds a Diploma in Agriculture Engineering from Busitema University. He is interested in research on agricultural technology and machinery. He enjoys listening music and associating with each to share ideas.

Pial Gai Buol
is a carpenter from South Sudan living in Ayilo I refugee camp in Uganda. There he works for the Caritas workshop. Before coming to Uganda he worked as a fisher man in South Sudan. Apart from being a carpenter, he is also good at welding and driving as well. He likes playing chess and enjoying music.

Lise Capet
Co-founder of Rethink Relief
is an industrial designer who has always had an interest in design for development. For her masters project, she worked on design for disaster relief, and has since developed broad industrial design experience, working in London, Reykjavik and Brussels. She now lives in Boston, where she works as designer at the Institute for Human Centered Design.

Nicola Greene
is the most passionate person about toilets that you are likely to meet. She is a sanitation engineer with an interest in innovation, training, communication and improving access to sanitation around the world. She has international experience in Brazil and Nepal, and is currently working in Blantyre, Malawi. She has a degree in Biosystems Engineering from University College Dublin, and holds a PhD in Civil Engineering from Loughborough University in which she explored the realities of year round access to water and sanitation in the Himalayas. Her ambition is to help business' make money through improvement of sanitation services in low income areas, and to bring D-lab to Dublin! She loves learning about other cultures, cycling, mountains and rubber ducks.

Flora Tracy Ayee

Tobias Bahne
currently studies product design at the Bauhaus-University-Weimar in Germany. His background in wood building and construction was developed during basic studies at the University of Applied Science Rosenheim. Product design combines both interests and in his work he connects product development and usability. His projects focus on sustainability and his final project´s topic is social design and humanitarian relief. He developed a broad work experience at internships in a product design agency and social services like public workshops and youth houses. Further he organizes social projects e.g. summer camps for children and art workshops. He held a speech at the Japan Society for Interiour Studies´ meeting during an exchange at Nagoya Zokei University.
Institutions/organizations

IDIN Network

IDIN is led by the Massachusetts Institute of Technology´s D-Lab, implemented by a global consortium of academic, institutional, and innovation center partners; and a part of the United States Agency for International Development´s (USAID) Higher Education Solutions Network in the U.S. Global Development Lab. (T29)
USAID is committed to the President's Open Government initiative (PDF), upholding the values of transparency, participation, and collaboration in tangible ways that benefit the

(T29) IDIN
(P14) Water team

American people. It is an U.S. Government agency. U.S. foreign assistance has the twofold purpose of furthering America's interests while improving lives in the developing world. USAID carries out U.S. foreign policy by promoting broad-scale human progress at the same time it expands stable, free societies, creates markets and trade partners for the United States, and fosters good will abroad. (T30)

The IDIN Network is made up of more than 450 dynamic innovators from around the world who all share a common experience: attending an Rethink Relief or International Development Design (IDDS) summit to co-create technologies with communities in developing countries. After a design summit, Network members pursue innovative projects, some from a summit and some of their own creation. IDIN provides several kinds of support to its growing network, including mentorship, funding, training, and more. (T29)

IDIN supports the creation of local chapters, which currently exist in Brazil, Ghana, Kenya, Tanzania, Uganda, and Zambia. Local chapters are comprised of Network members who live in a specific country. Small funding is available for local chapters to host events and meetings to enable collaboration on innovative projects. (T29)

IDIN's innovation centers are maker spaces connecting network members to resources and training to develop technology with a social impact. IDIN innovation centers are currently running in Brazil, Tanzania, and Uganda. (T29)

Each month, IDIN aggregates a list of upcoming external and internal opportunities for grants, contests, scholarships, and more in its regular newsletter. The IDIN plays an important role for connection between the members. You have opportunities to get feedback on your work and you can ask for anything you need from the network in a weekly IDIN email.

Caritas Uganda

Caritas Uganda´s subdivision Gulu Archdiocese is the Emergency Relief and Development wing of the Catholic Church in the Archdiocese of Gulu, Northern Uganda. It is a commission with a pastoral obligation to offer charity and hope to the most disadvantaged members of society. (T31) The overall goal is to contribute to the emergency and the humanitarian needs of the refugees in northern Uganda through an integrated approach by improving welfare and food security to ensure a minimum living condition by provision of immediate relief and assistance to the refugees of Ayilo I camp, providing basic shelter construction materials and construction of hygiene facilities, training and sensitization on environmental protection, basic agronomic practices, disaster risk reduction, provision of fruit and tree seedlings and horticultural inputs. That can be achieved by Non Food Items (NFI) packages distribution, latrine construction, hygiene kit distribution, livelihood support package distribution and program Emergency Aid. At the time of Ayilo II camp being constructed Caritas delivered building materials for the shelters, that are self build by the refugees like in Ayilo I. E.g. Bamboo Poles, Assorted Nails, Tarpaulins and Eucalyptus poles. (T31)

(T30) USAID
(T29) IDIN
(T31) Cordaid - Caritas Gulu

UNHCR

Established 1950 by the UN

The Office of the United Nations High Commissioner for Refugees was established in 1950 by the United Nations General Assembly. The agency is mandated to lead and coordinate international action to protect refugees and resolve refugee problems worldwide.

Safeguard the rights of refugees

Its primary purpose is to safeguard the rights and well-being of refugees. It strives to ensure that everyone can exercise the right to seek asylum and find safe refuge in another State. (T33)

Mainly funded by member states

The United Nations High Commissioner for Refugees is almost entirely funded by voluntary contributions from member States. In ten years, from 1995-2005, the ten largest donors have accounted for approximately 77 percent of the contributions. Contributions are also received from non-governmental organizations, enterprises, foundations and individuals.

Private sector contributions have incresing impact

These private sector contributions have had an increasing impact on the funds available to UNHCR, with US$ 21.7 million being raised in 2006. A very limited subsidy (approximately 3 percent of the total), used exclusively for administrative costs, is received from the Regular Budget of the United Nations. In-kind donations also contribute to UNHCR's programs in the field. (T34)

Many factors influence UNHCR funding. Each October, the UNHCR Executive Committee, a body comprising some 70 Member States in 2006, reviews the programs for the following calendar year. Programs, however, may not be fully funded at the start of the year. The actual receipt of funds from the donors depends on national legislation and fiscal cycles. New refugee requirements may also engender funding requirements not originally foreseen. UNHCR launches special appeals throughout the year to meet emergencies as they arise. Donors may decide to earmark their contributions to meet only specific requirements of a particular program. Thus, a program may not be evenly funded, distorting its implementation. Finally, the material requirements of a refugee operation change constantly, depending on political developments. It is not uncommon that funds, for example, foreseen for agricultural self-sufficiency in the country of asylum are used for repatriation, if by the time the agricultural project starts, political developments in the refugee's country of origin are such that the refugees can return home. (T34)

(T33) UNHCR - About us
(T34) UNHCR - Doing business with UNHCR

Input/research

For research I visited the Zentrumstage at University Marburg from october, 29th to 31st of 2014. The topic „Authority/ies in Conflict“ arise the question under which conditions actors and institutions will gain or lose authority in conflicts and what are the relevant characteristics (knowledge, gender, socio-economic status, representation). Why is authority attributed to them? The talk from Dr. Ulrike Krause “From conflict to camp” was of particular interest. (T35)
Another event that equipped me with basic knowledge was the exhibition “The good cause: Architecture of peace – Divided cities” from July, 17th to october 19th 2014 at the Pinakothek der Moderne, Munich. It dealt with war and conflict that are remaining a constant across time. To confront this reality, peace missions, rebuilding operations and international law have been developed as tools to help create stability and peace after conflict. This is very impressive indeed, but the road to sustainable peace is arduous and difficult. This exhibition showed through inspiring case studies from Afghanistan, Kosovo, South Africa, Rwanda, Israel and Palestine, what reconstruction could look like if it were designed with an eye for local conditions. (T36)
Further I visited the Gesellschaft für Designgeschichte e.V. conference at the the Museum für Kunst und Gewerbe, Hamburg. The 2014 conference with the topic “Social Design: history, practice, perspectives” was co-organized by the former dean of the Bauhaus-University Weimar´s faculty of art and design. It re-examined the conceptual content of the term, and questions its current practical relevance in society. From a critical, historical and theoretically based perspective it aims to contribute to a better assessment of the future perspectives for socially orientated design. (T37)
At this conference I got the chance to meet Daniel Kerber, founder of Morethanshelters. Morethanshelters offers innovative architecture and Social Design concepts for humanitarian needs. The mission is the development, the production and the marketing of product solutions and consulting services for humanitarian assistance. Due to the parallel marketing of services in the non-humanitarian sector, the social business development is financially secured in the sense of the social entrepreneurial thought which aims to create and sustain social value. (T11)
Because Morethanshelters worked together with a Landscape Architecture Msc student at Wageningen University, I could get direct contact and insight in how a student worked in the humanitarian field via Skype calls.
Meeting those people and getting such input helped me gaining background information of a field which was new to me.
Due to the late decision in which of the five topics of the Rethink Relief workshop I would work on, I was not able to make detailed region related research about the water supply in the refugee camps and in the rural settlements. Instead I could get an overview of water and design related projects in development countries.

(T35) Phillips University Marburg - Zentrumstage
(T36) Pinakothek der Moderne - The good cause
(T37) Gesellschaft für Designgeschichte e.V. - Social design
(T11) More Than Shelters

Course of the project

Official Opening

The workshop took place in Pader Town, Pader district, Uganda, a post-conflict area and was officially opened by:

David Okello
Works for Caritas Gulu Archdiocese in Northern Uganda as a Programme Manager for, social services and, an Administrator for Caritas in the districts of Pader and Agago.

Joseline Dradusile
Official of the Office of the Prime Minister (OPM)

John Bosco Komakech Aludi
Director of Caritas Gulu Archdiocese

Hon. Robert Komakech Obina
LC5 Pader

Guest speakers

For introduction and to gain knowledge of the IDPs´ and refugees´ situation Guest speakers were invited. They could impart background and basic knowledge and give an emotional impression.

Oloya Aliker Tebere
Technical Advisor to the Office of the District Chairperson Gulu
The Return, Resettlement and Reintegration of IDPs in Northern Uganda: Challenges Faced by Local Governments

Paul Oloya and Coreen Auma
Life in the IDP camps, the return process, Challenges faced during and on return, lessons learned

Alfonse Omona Lukilamoi
talked about child soldiers in Uganda and land conflicts during resettlement.

Amy Smith
Co-founder of Rethink Relief
gave an introductory talk about the project.
The Rethink Relief principals are Design Thinking, a holistic approach by interdisciplinary innovation and collaborative co-creation with the focus on transition, inclusion and well-being. The effect of this co-creation workshop is that the participants learn one approach how to solve problems. In other talks she explained the IDIN network opportunities.

Further talks

The workshop process was continuously backed by further talks.

Martha Thompson
Manager of UUSC's Rights in Humanitarian Crises Program
The talk gave an overall description about IDP/refugee camps in the world. Regional informations were given about Pader district and Ayilo I camp in Adjumani district. Further she introduced Dadaab in Kenia, where the world´s largest refugee camps. Kanyaruchi-nya in DRC is sorrounded by woods and therefore well located to collect firewood. The inner city refugee settlement in Port au Prince in Haiti deals with many intense problems, because

the refugees are not protected by barriers and are generally wanted to move outside the city. She held another speech about inclusion and linked it with the Social Design process.

Odokonyero Augustine
Project Officer at Caritas Gulu Archdiocese
Gender-Based Violence: Consequences on Women and Girls During and After the Conflict in Northern Uganda

Flora Tracy Ayee
Women in Development project, peace building which helped them to recover from the war

Excursions and field trips

Excursions and field trips were also part of the workshop process. We visited the following places.

TET Centre
The TET Innovation Center is located in Pader Town. It is run by Caritas and supported by IDIN. The TET Center empowers people through the promotion of technology transfer and creative capacity building as an effective mechanism for positive social transformation. The TET Centre extends the capacity of IDIN's network to support local innovators and projects focused on social impact in developing economies. Ben Lakony is the TET Centre Manager. (T29)

Ayilo I refugee camp
Druing the field trip we could make detailed research about available materials and construction methods. We were invited to our team member´s house. We could get an short personal insight of how camp life in Ayilo I is like. This opportunity was best to look at the house, Pial Gai Buol was building for his brother. He explained how he wants to collect rainwater from the roof due to the input of the Rethink Relief workshop.

Former IDP housings
We went down to the neighboring settlement - a former refugee housing, built in 2002 during the conflict. Flora Tracy Ayee asked the inhabitant to let us have a look at the construction and setting of the houses.

Structure of the event

The event overall was well structured and managed. It included morning design exercises, introductions to techniques as problem framing, sketch modeling, evaluation and of course team work sessions. Every participant had the chance to take part in the evenings participants presentations to share their background and to present their personal projects.

(T29) IDIN

(P15) TET Centre
(P16) Guest speakers at Rethink Relief 2014

Methodology

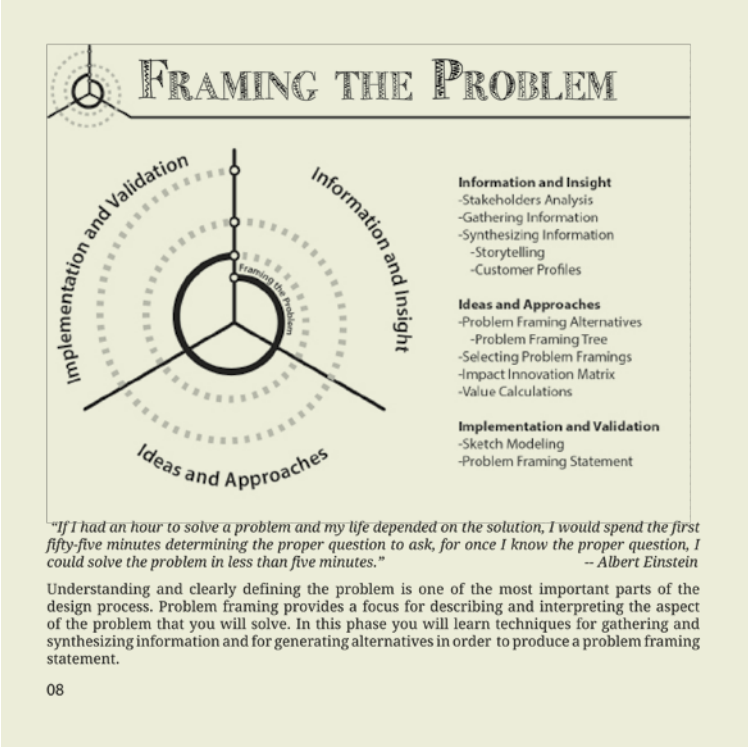
Then we were introduced to the IDDS Design Workbook which is shared publicly and can be downloaded at the IDIN website. This Booklet has been adapted from design course materials from MIT and Olin College and was written by Amy Smith and Ben Linder. The second edition was prepared by the organizing team at IDDS 2014 in Arusha, Tanzania. We used this workbook as a guideline for the workshop. This methodology is similar to the IDEO Human Centered Design (HCD) Toolkit published in 2011. Both methods are divided in three steps. HCD names them hear, create, deliver and offers various detailed techniques and examples, and the IDDS Design Workbook is divided in the categories framing the problem, creating a solution, developing a product. Due to the shortage of time we were not able to take every step of the process. The methods and steps were chosen by the team facilitator. (T38, T39)

IDDS Design Workbook
Amy Smith and Ben Linder

Guideline

IDEO HCD

Devided in three steps



(T38, P17) IDDS Design Workbook
(T39) IDEO Human Centered Design Toolkit

Framing the problem

Storytelling

Introduction to water supply

NFIs delivered by NGOs

IDP camps in north Uganda

We sat down in the team for the first time and introduced each other, shared our occupation and life story which was sometimes very emotional. Every team member introduced their experiences with water supply in refugee/transit camps and other water realted projects. We exchanged personal experiences and knowledge about Ayilo I camp life. This camp was opened in the area in 2013 to host South Sudanese refugees. Every refugee family or group gets a plot of 20m by 15m for own use. But they can not buy the land because they are not Ugandans. They get building materials for houses from UNHCR and NGOs, including a 4m by 5m plastic sheet.

We also heard some experiences from Flora Tracy Ayee and Nyeko Baptist Alwera who lived through the northern Uganda conflict in Pader and nearby areas for which IDP's Camps were set up between and 1996 and 2007.

In this way, all team members learn broadly about stakeholders and begin to select out interesting and potentially important information as the team moves forward. (T38)

(T38) IDDS Design Workbook
(P18) Working on the stakeholder analysis
(P19) People lined up for water in Uganda

Stakeholder analysis

Then we did a stakeholder analysis to understand all the key players who are affected by and involved in the problem. It is especially useful in identifying groups that are negatively affected by the project and for determining approaches for involving people or groups who are often marginalized or overlooked in the project development process. (T38)

Identify the Key players

Determine approaches to involve marginalized or overlooked people

Therefore we draw a value chain of water supply. This method serves to gain knowledge about the stakeholders and how they are involved. At first we mixed different situations though this was found to lead to an abundance of information which overcomplicated the situation. I suggested to look at the three main settings of the refugee camp, the transition and resettlement process, and in the settled development process, separately.

Division in three settings
- **Refugee camp**
- **Transition**
- **Development**

In the refugee camp the water is first collected from a river, filled in trucks, treated with chlorine and then delivered to big tanks from where the refugees fetch it.

Water collected from river
Trucked into the camp

A total of six water containers each 20l is given to a four people household, but due to inconsistent and non-sustainable trucking a four people household can not fetch the minimum of 15l/p/d, the total basic water needs. (T45) The water is then only available at certain times of the day and the refugees have to queue in line for a long time to get it. We learned of more efficient ways to provide water e.g. drilling boreholes, but NGOs can not do that in an emergency setting because the land owner will not allow it.

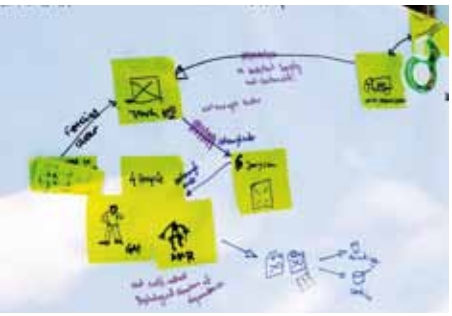
Inconsistent and non-sustainable water supply

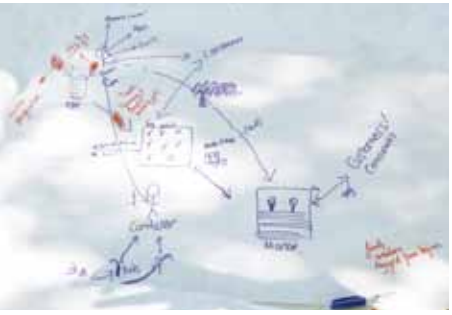
In the Transition situation, here focussed on the satellite camps, smaller camps installed near the IDP´s villages to prepare their return, we described the context of borehole drilling financed by the government or NGO. People then finance a borehole mechanic together who is responsible for it´s maintenance. One of the huge problems is the long distance to the borehole to fetch water and the threat on safety for the women collecting it.

Long distance to fetch water
Threat on safety

And in the settled development/ideal situation we saw an opportunity for someone owning a water pump and a piece of land to create a small business growing vegetables and selling them on the market.

(T38) IDDS Design Workbook
(T45) Sphere handbook 2011





Due to lack of time and possibility of research (slow, impermanent internet connection) we were not really knowing about the situations and a lot of suggesting found it´s way to the value chains. The best based on experience recourse was our team member Pial Gai Buol, because he lives in a refugee situation and Flora Tracy Ayee and Nyeko Baptist Alwera because they lived or worked with the people who lived in the Pader IDP camps between 1996 and 2007.

Now we could name the main problems in the three water supply situations. I think this method came to the wrong time because the results were not that helpful to the process and further this method is listed in the IDDS Design Workbook in phase two under create a solution.

Refugee camp situation

- Inconsistent/non-sustainable water supply - trucking problems
- Insufficient amount of water
- Dependency on NGOs

Transition situation

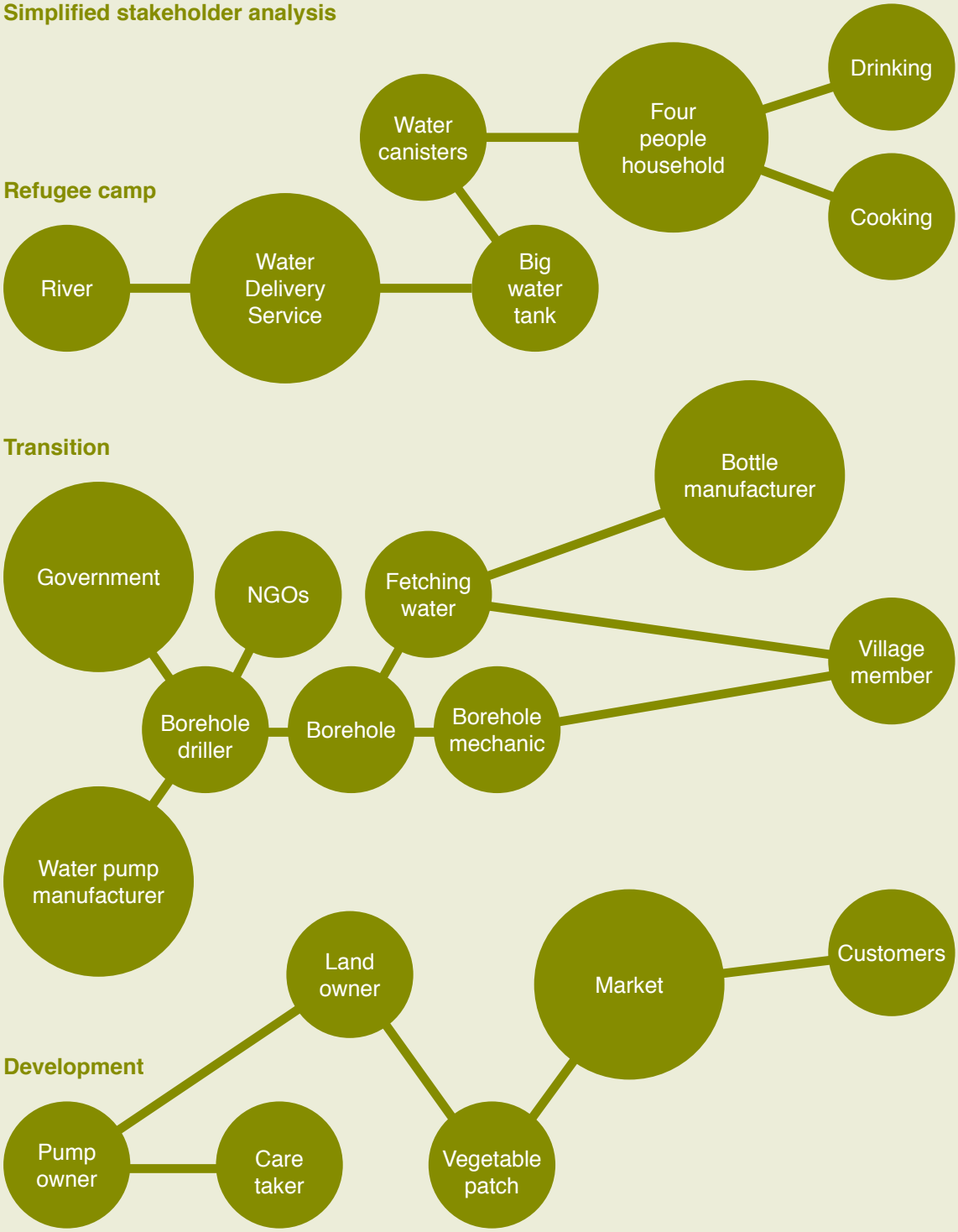
- Insufficient amount of boreholes
- Long distance to carry water

Development situation

- Need for water purification system due to dirty rivers
- Need for affordable means to get water
- Land owning issues

(P20) Refugee situation
(P21) Transition situation
(P22) Development situation

Simplified stakeholder analysis



Problem framing

Now that we have a good understanding about the challenge, we need to frame the problem. Therefore we took the following three steps.

- ***Problem framing tree***
- ***Value matrix***
- ***Value matrix results***

You can find the digitlally updated graphics on the next pages.

Problem framing tree

Explore different framings

We made a problem framing tree to explore different framings and discovering new ones. The tree was headlined with:
Making safe water supply in relief camps self sustainable
As branches we wrote five different approaches with problem solving suggestions in sub-categories. The branch Increase income generation is not specified because we noticed it could work hand in hand with other categories later.

Value matrix

Validate framings

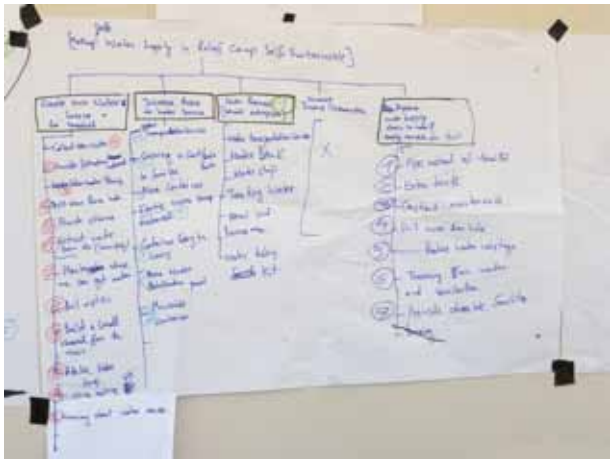
Then we validated the framings from the problem framing tree with a value matrix. This method helps to compare different problem framings on the basis of potential for impact and feasibility that the solutions to that framing have. Some solutions may be very feasible, but likely to have a low impact, or while other have a high potential for impact with a low level of feasibility. The most powerful solutions tend to be both highly feasible and highly impact-ful, so they emerge in the top right of the matrix. (T38)

Impact / feasability

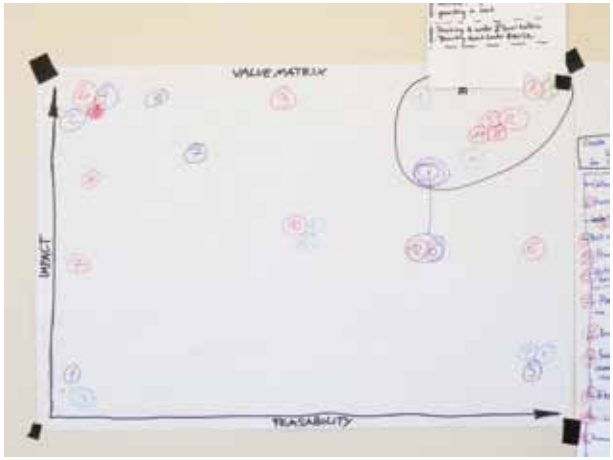
Transcripted to numbers

To make this step easier to draw, each suggestion was marked with a number and then placed in the matrix. We simplified the green branch (Improve water supply chain) to keep more space for ideas. Afterwards we transcripted those clustered numbers in words again to get the value matrix results.

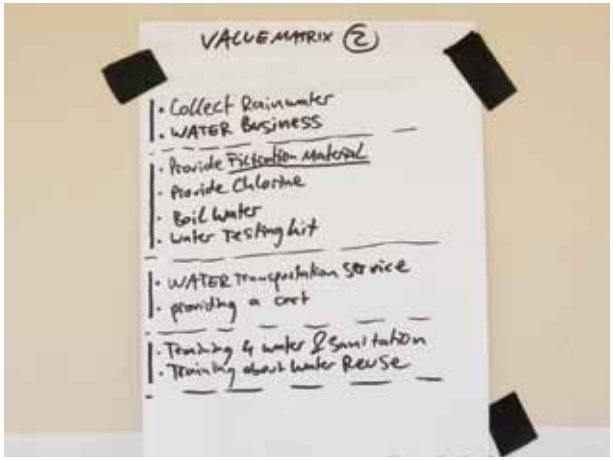
(T38) IDDS Design Workbook
(P23) Problem framing tree
(P24) Value matrix
(P25) Value matrix results



Problem framing tree



Value matrix



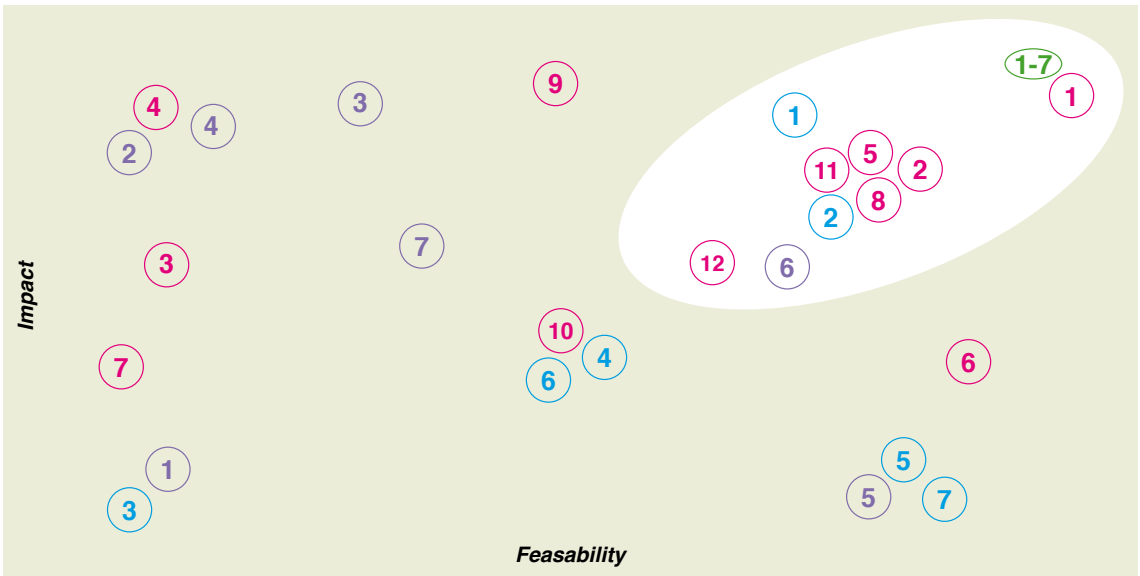
Value matrix results

Problem framing tree

Making safe water supply in relief camps self sustainable

Create own water source for households	***Increase Access to water source***	***Improve water supply chain to make it easily runable***
1 Collect rain water	1 Transportation service	1 Pipes instead of trucks
2 Provide filtration material	2 Giving a cart to families	2 Extra tanks
3 Solar water pump	3 More water containers	3 Constant maintenance
4 Drill new borehole	4 Water pump mechanical	4 Drill more boreholes
5 Provide chlorine	5 Easy to carry containers	5 Reduce Water wastage
6 Extract water from humidity	6 More distributional points	6 Training water/sanitation
7 Water spening plants	7 Moveable containers	7 Provide durable facilities
8 Boil water		
9 Build small river channel		
10 Electric water pump		
11 Water testing		
12 Training about water reuse		

Value matrix



Increase income generation	*Water businesses (small enterprises)*
	1 Transportation service
	2 Water bank
	3 Water shop
	4 Treating water
	5 Attract local people
	6 Businesses
	7 Water testing kit

Value matrix results

- ***Collect rainwater***
- ***Water Businesses***

- ***Provide Filtration Material***
- ***Provide Chlorine***
- ***Boil Water***
- ***Water testing kit***

- ***Water transportation service***
- ***Providing a cart***

- ***Training for water and sanitation***
- ***Training about water reuse***

Validate rainwater collection

To validate the rain water collection approach we researched the average rainfall data of north Uganda on the web. (T40)

Rainfall data of north Uganda

All perception data is listed in liter per square meter per month. Blue lines show the average rainfall in north Uganda, enlarged by 10 for visualization. Grey lines represent the amount of rainwater collected with a 20 squaremeter collection area of a 4m by 5m tarpaulin with a collection efficiency of 80% . The single green line show the monthly minimum requirement of 15 liter per day per person in a four person household. In comparison you can see that in eight of twelve month there could be collected more rainwater by a tarpaulin than the monthly minimum requirement. Rainy season does not mean that it is raining all the time, rather than sometimes very heavily.

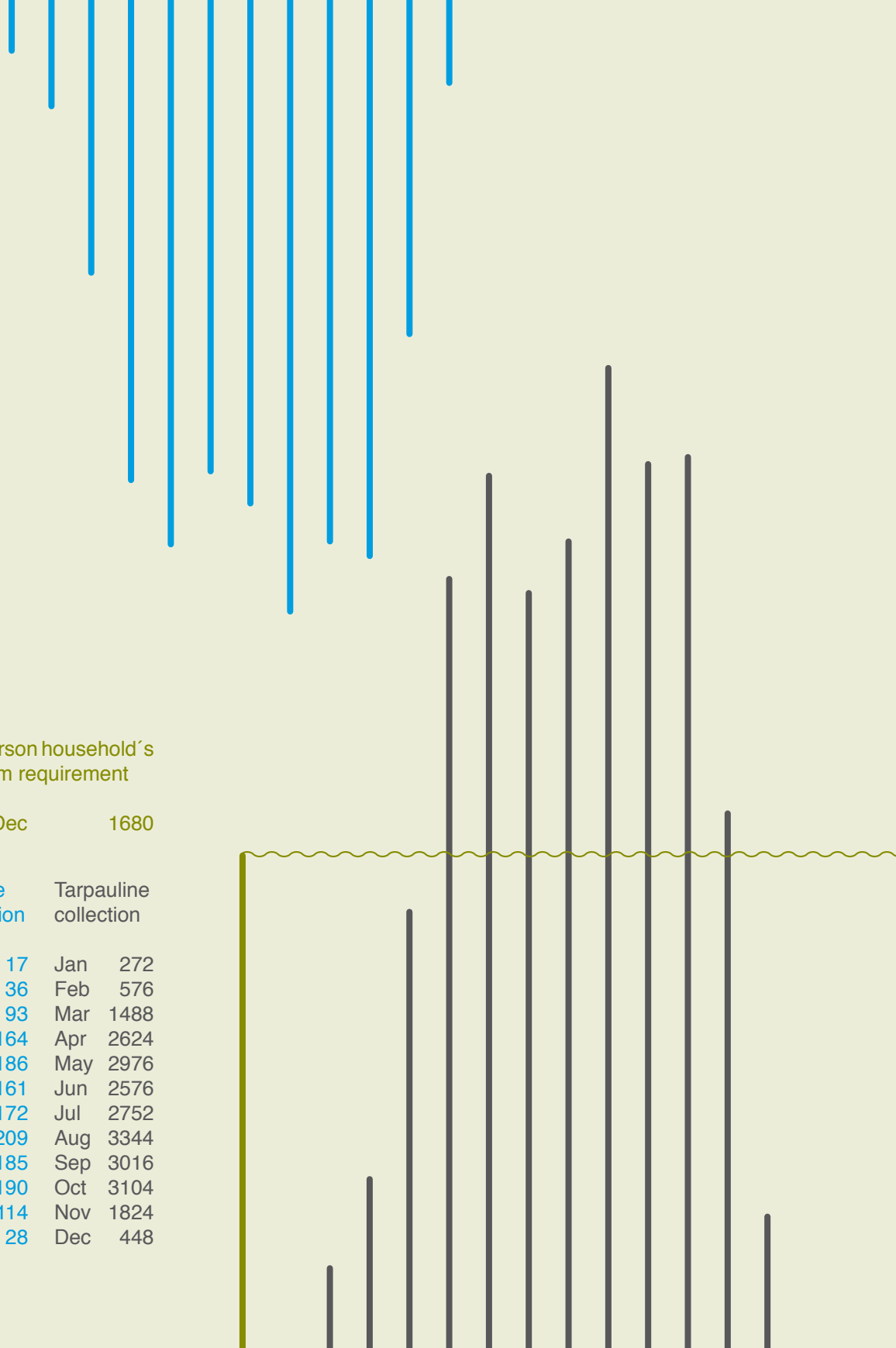
Tarpaulin 4m by 5m 20 squaremeter

High collection values for nine from twelve month

Now we gained an overview of the context and the problem framing. Like the phases to follow, framing the problem narrowed our focus. We gained deep awareness through research and interactions with users, customers, and experts, as well as through the idea generation and refining, tools such as the problem framing tree and the impact-feasibility matrix. This helps our project to find a direction for the future. The problem framing statement was phrased later in the process and we proceeded with the second chapter of the project - Creating a solution.

Take the next step

(T40) Climate Data - Uganda - Gulu



Four person household´s minimum requirement

Jan to Dec 1680

Average perception		Tarpauline collection	
Jan	17	Jan	272
Feb	36	Feb	576
Mar	93	Mar	1488
Apr	164	Apr	2624
May	186	May	2976
Jun	161	Jun	2576
Jul	172	Jul	2752
Aug	209	Aug	3344
Sep	185	Sep	3016
Oct	190	Oct	3104
Nov	114	Nov	1824
Dec	28	Dec	448

Creating a solution

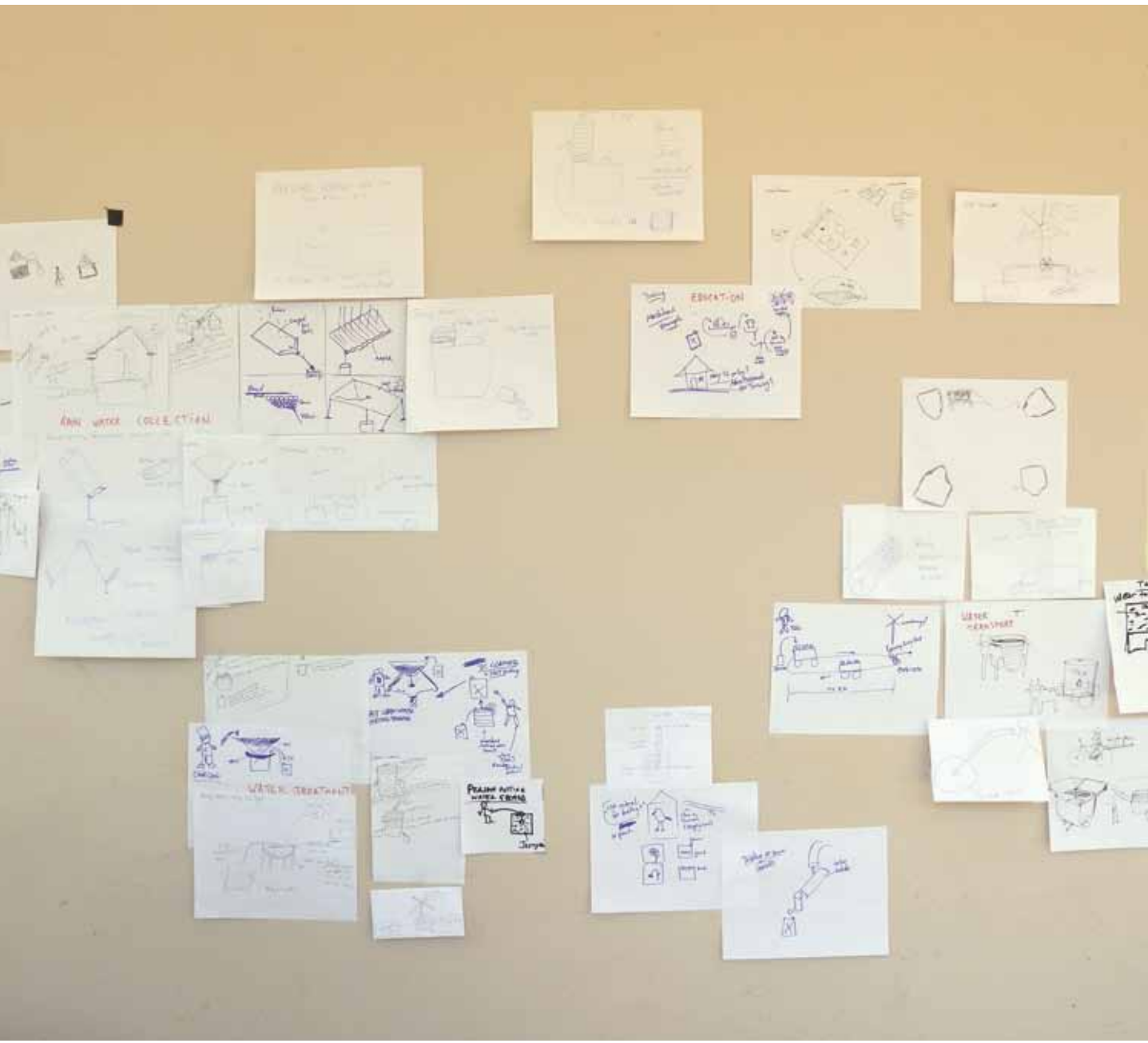
Idea sketching

We proceeded with sketching the ideas of how the results from the value matrix could work and look like. Every team member sketched a lot of ideas. Then we put them together to clusters to get an overview and to figure out our matching ideas.

Sketching session and idea explanation / discussion

Sketch idea clustering

(P26) Sketching
(P27, P28) Sketch clustering


EDUCATION
RAIN WATER COLLECTION
WATER TREATMENT
WATER TRANSPORT

Idea sketch modeling

Additional we built sketch models to learn what the ideas could look like three dimensional and validate the assumptions we made in our value propositions. These models were meant to give a sense of the context of the problem.

Special working conditions

I was not used to the special working conditions due to the location at all. There were only instable plastic tables, a small material box where everything stuck together soon. Due to many movements of the working space and many breaks it was difficult to keep all the materials and tools together. A good time was wasted with looking for those things. A constant location for the team related stuff would have been advantageous.

Wasted time looking for tools

Excursion to an old IDP camp house

To get some more information and insight we could visit a neighboring house that was part of the IDP camp built during the conflict in 2002. It was a circular house with a grass covered roof. The houses in Ayilo I are build the same style, but build in a rectangular shape. When the houses are build by the refugees they cover the roofs with a tarpaulin in the first step, because that is the material provided at arrival in the camp. Due to the climate it is getting very hot inside the huts, so the people will soon buy dried grass to cover the tarpaulin in order to get a thermic isolation. Houses outside the refugee camps put more grass and therefore don´t use a tarpaulin. You can not put a tarpaulin on top of the grass roof permanently because it will rot underneath.

Tarpaulin covered roofs only in the first phase

Grass covered roofs due to climate

Presentation to not involved people

Then we discussed the idea models in the team and presented them to another team in order to get feedback. It was helpful to hear the questions and comments from peoplenot involved in the process. It helped us to identify the strength and weakness of the projects. At this moment it would have been from essential need to make some more research to projects already existing. It was not possible due to lack of time and instable internet connection. But the feedback was helpful to rate the ideas in an objective way.

Ideal to get good feedback

No possibility to make further research

(P29, P30) Sketch modeling and discussion
(P31, P32) Exkursion to an old IDP camp house
(P33, P34) Presentation

Workshop impressions

Pugh chart method

Objective judging of ideas

Additionally, to finally choose the project to work on we used the pugh chart method. A pugh chart is a tool that helps evaluate ideas by setting up a list of characteristics and judging each idea in terms of the individual criteria. This helps to create a more objective and structured selection process. One idea is chosen as the datum, or the idea to which all others will be compared. It is good to choose a fairly simple idea as the datum, as it will be easier to do the comparisons. (T38) We took a look at the problem framings again to determine the criteria and characteristics that judge our potential solutions. For each of the criteria and each potential solution to be evaluated we decided if the option is the same (0), better (+) or worse (-) than the datum. (T38)

We divided our project ideas in the two main categories

- ***Water collection***
- ***Water storage***

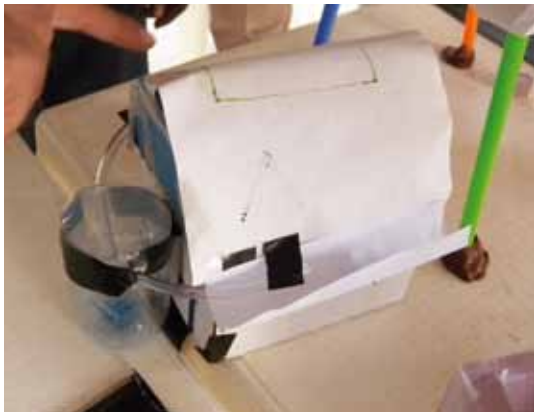
What are the ideas to be evaluated?

You can find the digitlally updated pugh chart graphics on the next pages.
But first we have a closer look at each of the ideas.

(T38) IDDS Design Workbook
(P35) Tea break
(P36) Bridging the gap between relief and development
(P38) Presentation
(P39) Sketch modeling explanation
(P40) Sketching
(P41) Sketch discussion

No.1 - Iron sheet (datum)
The rainwater is directly collected from the iron sheet.

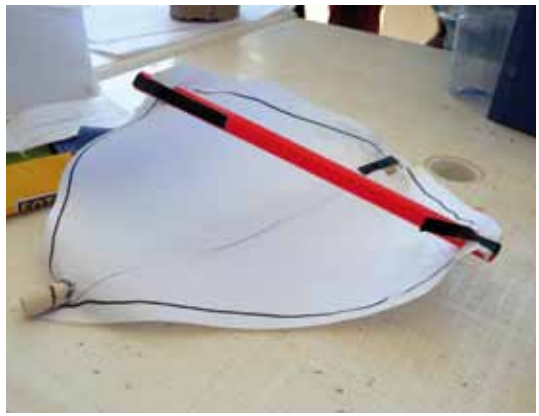
No.2 - Between house sheet + shaded area
4m by 5m tarpaulin arranged tautly in hight of about 2m. It collects but not stores the rainwater and offers a shady space when it is not raining.
Expected weaknesses are wind, first flush may be dirty due to dust on the sheet.
Expected strengths are the possibility of a rainwater collection kit including explanation distributed by NGOs/UNHCR. The idea and material can be taken to transition and resettlement.



No.3 - Tarpaulin gutter - use of roof area
Expected weaknesses are that this idea is only suitable for the arriving situation due to the roofs are soon covered with grass and that contaminates the water. The first flush may be dirty due to dust on the sheet.
Expected strengths are that it is still useful for bigger houses in the camp that are not covered with grass - huge amount of water, Possibility of rainwater collection kit - idea can be taken to transition and resettlement.

No.4 - Community tarpaulin - extra large

It is provided and run by NGOs/UNHCR. Expected weaknesses are that the knowledge would not be transferred and could not be taken to transition and resettlement. Strong wind might be a huge problem. Due to large area there might be risk of contamination.
Expected strengths are the very huge amount of water collected.

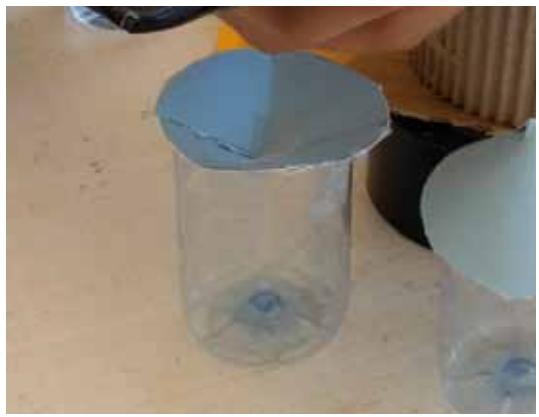


No.5 - Water collection kit

This is a kit that is handed to the refugees when they arrive at the camp. Including explanation it allows them to build a collection interface by their own.
Expected weaknesses are that the material might be used for other purposes.
Expected strength is that the idea and material can be taken to transition and resettlement.

No.6 - Independent water collection

This is a foldable funnel that can be put on to a standard 20l water container in order to collect rainwater.
Expected weaknesses are the little amount of water. It needs to be installed during rainfall. What to do if not at home/over night?
Expected strengths are that is would be small and easy to use.



No.7 - Standard 20l container (datum)
The rainwater is directly stored in the water container.

No.12 - Timber, mud and tarpaulin storage
A mud container build in the same style as the houses - woven timber poles covered with mud. A Tarpaulin is put inside to ensure the water storage.
Expected weaknesses: Construction method might be not strong enough. Process of getting the water out again might be difficult and cause contamination.
Expected strengths: Already known construction process - easy to adopt. Great amount of water.

No.8 - Bricks and tarpaulin storage
Same technique as No.12 but made from bricks
Expected weaknesses: Process of getting the water out again might be difficult and cause contamination. Bricks are expensive and hard to get in the camp.
Expected strengths: Great amount of water.

No.9 - Hole and tarpaulin

It is a hole dug in the ground with a tarpaulin put inside to collect and store rainwater. It also can be used to store water fetched from the source.

Expected weaknesses: Environmental hazard through many holes in one area. Holes are dangerous for children playing around. Totally rainy season reliant. Contamination, Mosquitoes breeding.

Expected strengths: Very cheap. Contaminated water still has use for washing and bathing.

No.11 - Hole and tarpaulin + cover

Same solution as No.9 but with a tarpaulin cover. The base area of the hole is covered with half of the plastic sheet. The other half is used to cover the storage and to avoid contamination.

Expected weaknesses: Environmental hazard through many holes in one area. Holes are dangerous for children playing around. Totally rainy season reliant.

Expected strengths: Not so much contamination compared to No9.

No.10 - Large plastic container

Ready made container of about 100l-200l capacity.

Expected weaknesses: Very expensive and hard to get in the camp. Difficult to clean.

(P51, P52) Ideas
(P53) Lare plastic container

Pugh chart - rain water collection

Datum: Iron sheet collection

We chose the iron sheet water collection as datum for the water collection. Some criteria were weighted more heavily than others, because they are more important, and therefore we chose to double them.

Some criteria weighted more

Here you can find the detailed evaluation of the main concepts and ideas including weaknesses and strengths gathered from discussions and feedback.

Pugh chart - Water collection

	No.1 Iron sheet (datum)	No.2 Between house sheet (shaded area)	No.3 Tarpaulin gutter (use of roof)	No.4 Community tarpaulin (extra large)	No.5 Water collection kit	No.6 Independent water collection
Cost (Times two)	0	+	+	-	+	+
Water quantity (Times two)	0	0	0	0	0	-
Transition	0	+	+	-	+	+
Durability (Times two)	0	-	-	-	-	-
Material availability (Times two)	0	+	+	+	0	+
Adoptability	0	-	0	-	+	0
Ease of construction	0	+	-	-	+	0
Contamination free	0	0	0	0	0	-
Usability	0	0	0	0	0	0
Evaluation	0	+3	+2	-5	+3	0

Pugh chart - rain water storage

Datum: 20l water container

We chose a standard 20l water container as datum for the water storage chart. We double weighted some other criteria in this chart.

Detailed evaluation

Here you can find the detailed evaluation of the main concepts and ideas including weaknesses and strengths gathered from discussions and feedback.

Pugh chart - Water storage

	No.7 20l water container (datum)	No.8 Bricks and tarpaulin	No.9 Hole and tarpaulin	No.10 Large plastic container	No.11 Hole and tarpaulin + cover	No.12 Timber, mud and tarpaulin
Cost (Times two)	0	-	+	-	+	0
Water quantity (Times two)	0	+	+	+	+	+
Transition	0	0	+	-	+	0
Durability	0	+	0	0	0	+
Material availability	0	0	+	-	+	0
Adoptability	0	+	+	0	+	+
Ease of construction	0	0	+	0	+	-
Contamination free (Times two)	0	-	-	-	-	-
Usability (Times two)	0	+	-	0	-	0
Evaluation	0	+2	+4	-4	+4	+1

This concept evaluations helped us to decide to work on the strongest concepts and ideas:

The strongest concepts and ideas

3 points	**Between house sheet (4m by 5m)**
3 points	**Water collection kit**
2 points	**Tarpaulin gutter**

Decided to only work on water collection

Because of the team´s feasibilities we decided to only work on the rain water collection, starting in the refugee camp setting. Of course it is strongly related to each other and so we can refer to the 2014 IDDS summit´s result from the water team. They worked on rain water collection as well, but focussed on first flush devices and storage. The project summary can be found on the IDIN website as free download.
We continued with phrasing the problem framing statement.

Problem framing statement

Shortage of clean drinking water

Dependency on NGOs/UNHCR

Heavy weight

Long distance

Inconsistent availability

No self-reliancy

Outbrakes of diseases

Shortage of clean drinking water is a quite common and serious problem in IDP/refugee camps in north Uganda. The People living in the camps are dependent on water provided by UNHCR and NGOs. Because of cultural or everyday structures the household´s tasks are separated by gender, and therefore it is often up to the women to fetch water and it is their responsibility to look out for the children. They transport the water from the source to the home in canisters at 20l, which equates 20kg. The approximate daily need of an household of four people is about 60l. They struggle with walking long distances, and they - of course - can not carry three canisters at the same time. Additional the water is not available 24-7 and sometimes even not enough for everybody´s need of 15l (T45) per person per day. So it is often impossible to bring enough water. Being not self-reliant and dependent can mean psychological depression. These problems can cause the use of dirty or contaminated water for drinking purpose and leads to outbreaks of diseases. This deteriorates the healthcare situation in the camps.

(T45) Sphere handbook 2011

The rainy season in Uganda spans for around 8 months in a year, however, the rain water is not collected despite its abundance and the fact, that it does not require treatment before drinking. Keeping in view the situation in camps and and opportunities, we are building a rain water harvesting tool/material kit to be distributed in IDP/refugee camps. It can be deployed by the refugees and easily adapted to fit changing needs (e.g. growth of the family) and transported when leaving the camp.

Rainy season for around eight month

No treatment requirered

Rainwater collection kit

Rainwater collection kit

Kit - explanation

A kit is a set of equipment and items selected and assembled to meet the requirements of a specific situation during an emergency operation or to fulfil certain standard functions. (T42) These kits are easily deployable and are handed to the IDPs/ refugees in the camp (on arrival or later). Kits are easily deployable and affordable. As mentioned in the Oxfam Peer Review of Plastic Sheeting Guidelines - adding further construction materials to charters could reduce the most critically needed materials. (T43)

Easily deployable

Affordable

Advantages of plastic sheeting
• low value to discourage plundering
• easy to ship
• get lots, cheaply (T43)

After having framed the problem we phrased the product requirements.

(T42) MSF
(T43) Oxfam

Product requirements

- ***The water collection solution will be offered in a kit***
- ***Kit will be given to the IDPs/refugees in the camp (on arrival or later)***
- ***Easily deployable***
- ***Affordable***
- ***Durable***
- ***Fits almost every type of house/plot composition in the camps and resettled situation***
- ***Easy construction and easy to set up***
- ***Material and construction knowledge is easy to take along the transition phase***
- ***Can be further developed and individualized***
- ***Materials limited to the ones available in the camps***
- ***Easy to use***
- ***Match the consumer´s preferences***
- ***Ease the water supply***
- ***Reduce the dependency of IDP‘s/refugees on water distribution organization***
- ***Brings relief to the refugees and the water supply distributing institution***

trough:
Step 1 roof collection
Step 2 between house tarpaulin (Also suitable for roundhouse settings)

or

Camp´s big buildings roof collection (NGO/UNHCR relied)

Final public presentation

Build final concept models

Locals from Pader town

Anew feedback

Because the final public presentation was coming up we built the final concept models for visualization. For us it was very helpful to break down the whole process so we can present it to people who have never heard from it before. Locals from Pader town were invited to that event.
After the presentations of each team the audience had the possibility to walk through the exhibition and ask questions to the teams next to the presentation models. The anew feedback from different people confirmed the concept decision, and aroused great interest.

(P56) Building the final presentation model
(P57 - P59) Final pulic presentation

Conference Closing

The conference was officially closed with talks of the participating organizations, organizers, international participants and refugees, supported by a parade with cultural dances and live music. A Rethink Relief certificate was handed to every participant.

Parade of cultural dances

Participant certificate

Final presentation model

Debriefing - Team

Good feedback from the audience

On the same evening we sat together in the group again to debrief. We evaluated the feedback from the audience. They confirmed that it is useful to collect rainwater not just in the camps but at common houses. Their main concerns were the ease of construction and usability and the quality and availability of the materials. People were also concerned about water quality wnd contamination with the container at the floor level.

Good team spirit

The feedback of the group praised the quality of the team spirit and interdisciplinary work with multi hierarchic structure. Everybody was an expert in his field and was taken seriously.
We raised the idea of adding a water testing kit, included in a greater context with a person paid by NGO/UNHCR to conduct water testing. This is not one of the next steps but could be included in concept in future.

Importance of manual

We thought that designing the construction manual which is needed for the implementation could be a great project for graphic design students.
The point of capital importance is to keep the three different projects separated.

- ***Water collection***
- ***Water storage***
- ***Water testing***

Further we saw the following challenges: **Challenges**

• Usability
• Ease of construction
• Material durability/quality (prototype testing will show)
• Contamination, filtration (not working on in this project)
• Usability of mud storage (not working on in this project)

The next steps we decided to take: **Next steps**

• Material research – what is available in the camps?
• Build section of roof to prototype the ideas

or/and

• Testings at neighbors´ houses
• First work on the roof collection (phase 1)

then proceed with

• Between house sheet

We decided to prototype the following: **Prototyping**

• Plastic sheet gutter
• Gutter storage interface
• Between house sheet

Debriefing - organizers

Contact to UNHCR Developing Unit

The debrief in the team was followed by another debrief with the organizers Amy Smith and Débora Leal. They offered the possibility of contacting UNHCR Developing Unit and NGOs for a presentation of a ready to implement product. But that at the earliest this could happen when the whole project is finished, I think even after the pilot testing. They supported us to make detailed research in Ayilo I. We still have the opportunity that Flora and Baptist could work in the filed using the TET centre.

Communication infrastructure

They referred to the main importance of forming a good communication infrastructure, and the intense use of it.

Rethink Relief revisited

Maybe in may 2015 there will be a chance to make a Rethink Relief revisited. This is going to be a meeting where technology demonstrations, pilot testings or even implementations can take place and it can be seen as a kick off event. Therefore the next steps have to be making a continuity plan for the next six month. You can look at it in the chapter continuity plan/outlook.

After the workshop

Documentation pictures

Short report

Six month continuity plan

Gutter experiment

After the workshop we were working on basic documentation. We took pictures of the concept models that we showed at the final presentation. We wrote a short report and were recording videos to explain the project´s concepts. We then worked on framing the six month continuity plan. The only action we could do was the experiment of how to adjust a tarpaulin to a circular grass roofed house. That was nonsense as the researched in Ayilo I settlement showed that there are rectangular houses built and the grass roof water collection does not make sense because of the strong contamination of the water. Because we made a quite spontanious field trip to Ayilo I refugee camp some of the work time of the project was spend to make essential research there. We decided not to make testings in the refugee camp to avoid raising expectations over something that is not ready yet.

(P70, P71) Gutter experiment
(P72) On the way to Ayilo I refugee camp

Material research in Ayilo I refugee camp

The material research in the camp proofed the availability of the so far used materials, but could not complement more.

- ***Tarpaulin***

The tarpaulin is delivered as a 4m broad roll of 50m length to the camps and cut to pieces of various size - max. 4m by 6m.
The expected life span is 2 years minimum in the strongest tropical condition. The life cycle of the material is long lasting through recycling and can be used as second hand raw materials for other products. Many usages have been observed, such as bags for recycled waste collection, car tarpaulins, raincoats, personal bags, etc. (T41)

- ***Bamboo pole***

Diameter of about 4cm at a length up to 3m

- ***Timber posts***

Diameter from 4cm to 10cm at a length up to 4m

- ***Roofing Nails***

- ***Wire***

- ***String***

(P73 – P75) Material research in Ayilo I refugeee camp
(T41) Procurement

(P76, P77) Buildings in Ayilo I refugee camp

Construction research in Ayilo I refugee camp

During the visit in the refugee camp we could make some construction research. Pial Gai Buol invited us to his house, so we could have a look at the roof construction used in the camp. It was the same like the one we saw in the old IDP housing before. We could have a look at the house that he was building for his brother at the moment.

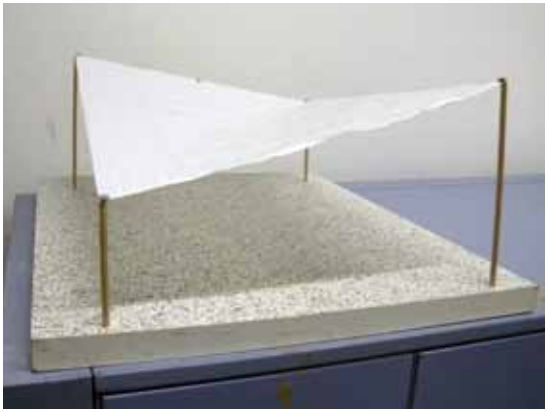
• Roof construction
The roofs are constructed with timber poles.

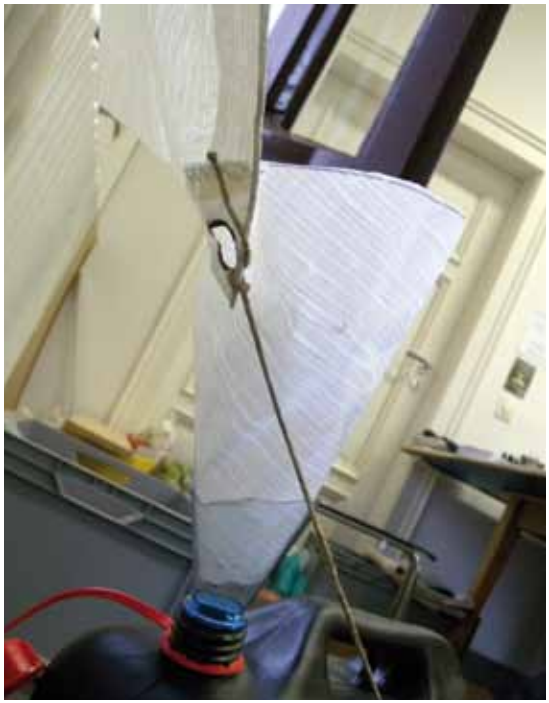
• Pole construction
The poles are just burried in the ground. They are very stable, because the ground is very clay-like.

(P81 – P84) Constructions in Ayilo I refugee camp

Prototyping

Now we first have to continue with building the prototypes based on the analysis & experimentation. Therefore we have to develop a detailed design and fabricate it. With this prototypes we can make testings and evaluate them. Before moving to the next step of developing a product, the prototype has to prove that it is working. This prototyping was made by me as part of the final work. I worked on the kits for the tarpaulin gutter rainwater collection and the tarpaulin rainwater collection.

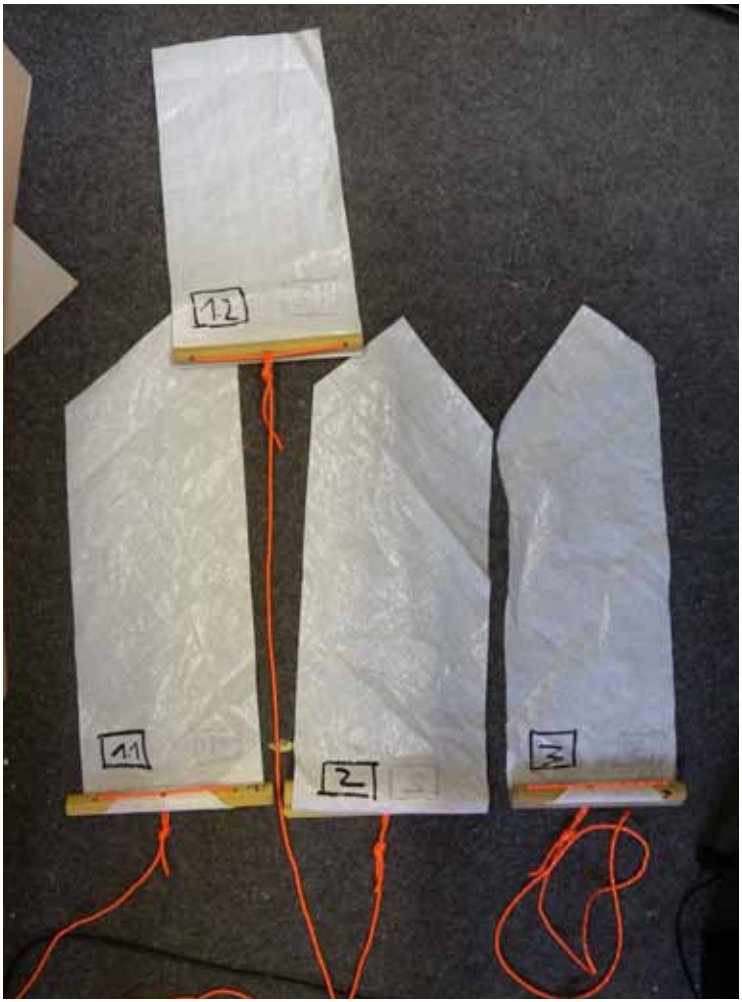


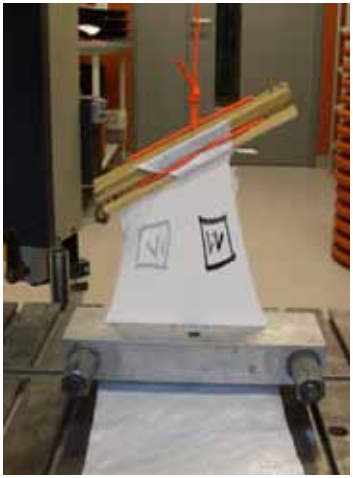


(P89 - P91) Tarpaulin cnister interface
(P92) Tapulin gutter

(93 - 97) Tarpaulin-string interface

Tests have shown that the eyelet connection hods about 22 daN maximumn which is about equaly 22kg. The connector holds 126 daN maximum, which is almost six times more, and about 56 more than the tarpaulin itself. But in this test the string ripped and the connector would have hold even more.





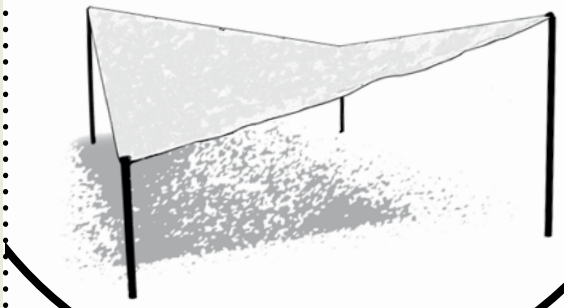
Construction manuals

Each rainwater collection kit contains all the needed materials for setting up one of the two rainwater collection methods.

- ***Tarpaulin rainwater colection***
- ***Tarpaulin gutter***

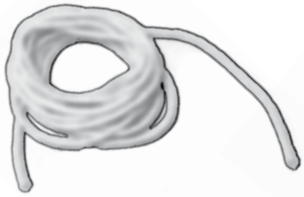
You can find both manuals on the next pages. They first list the needed materials and tools, and then proceed with explaining the setup in easily understandable steps. Words and illustrations work hand in hand so that the manual can be used without problems. It will be translated in the needed languages.

Tarpaulin rainwater collection Construction manual



1x - Tarpaulin 4m by 5m

1x - Pliers



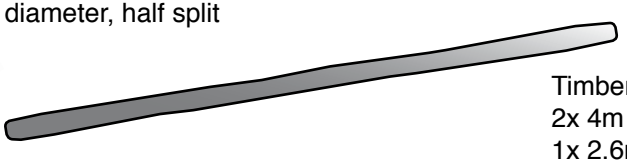
String
2x 4m
1x 3m
1x 2m

1x - 20cm wire

1x - Big nail

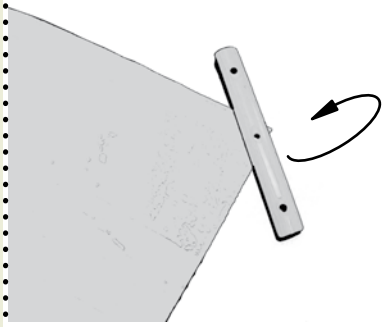
4x - bamboo 2cm diameter

4x - 20cm bamboo 4cm diameter, half split



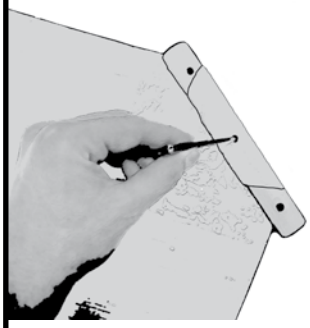
Timber posts
2x 4m
1x 2.6m
1x 1.4m

1x Shovel



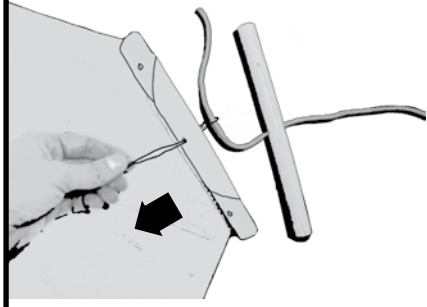
1

Put the split half bamboo in the corner on top of the tarpaulin and fold it two times into it.



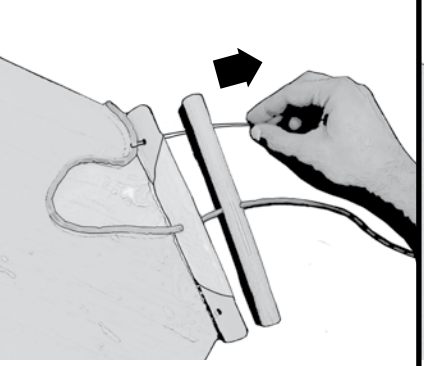
2

Use a hot nail to melt three holes in the tarpaulin.



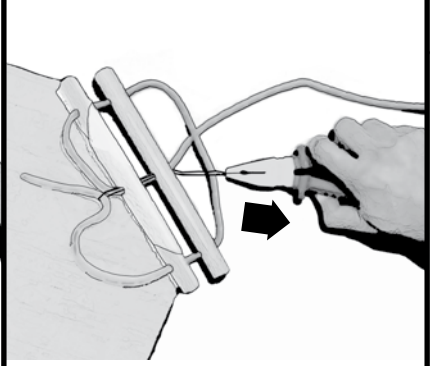
3

Use the wire to pull the end of the string through the middle hole of the whole bamboo and the middle hole of split half bamboo.



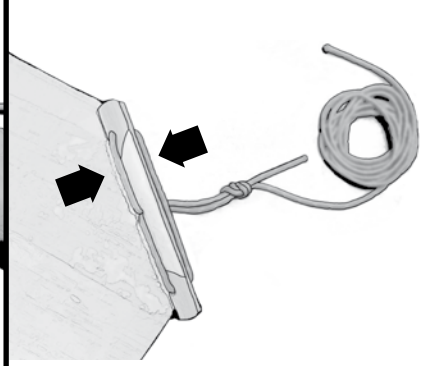
4

Use the wire to pull the end of the string through the outer hole of the split half bamboo and the same outer hole of the round bamboo. Repeat the same for the other outer hole.



5

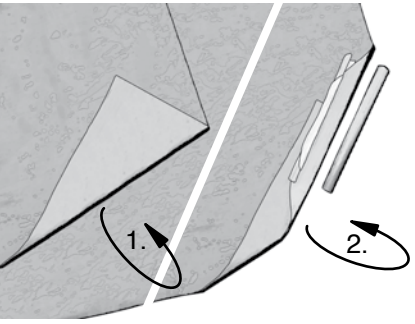
Use the wire and the pliers to pull the end of the string through the middle hole of the round bamboo and the middle hole of the split half bamboo again.



6

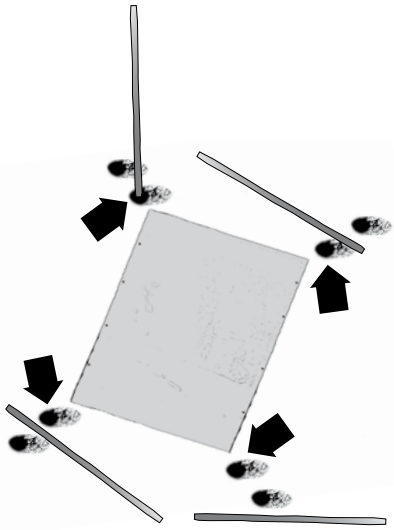
Pull the string tight and push the bamboos together. Make a tight knot.

+ You can make a tube out of a piece of another tarpaulin and connect it with a cut off bottle top to let the rainwater flow into your canister.



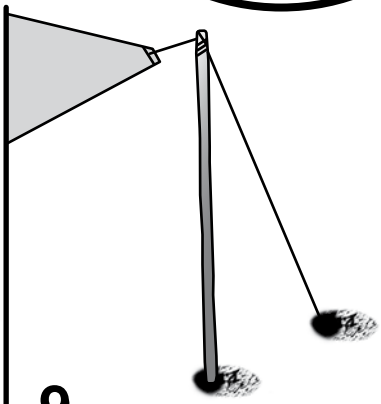
7

To form the outlet for the rainwater, fold the tarpaulin two times, and then connect it with the bamboo parts like before. You can tape another pice of tarpaulin under it to get ideal outflow into a water canister. Put this corner onto the lowest post.



8

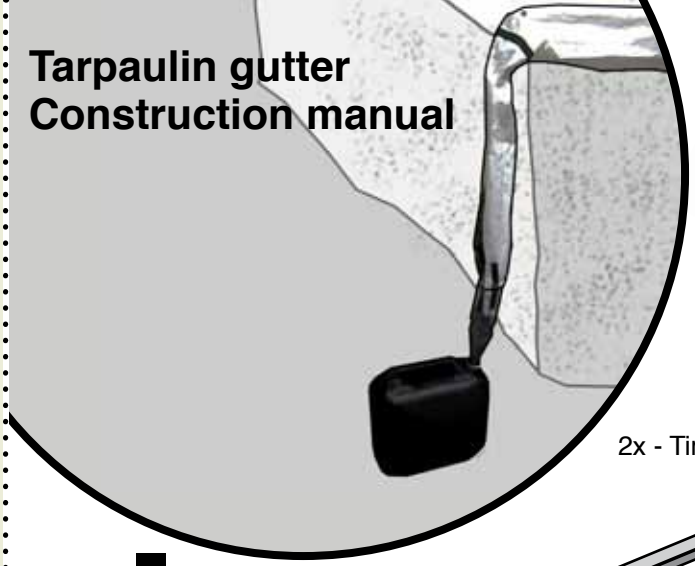
Digg eight holes at least 50cm deep, two at each corner of the tarpaulin. Put the posts inside. The four meter poles must be on the diagonal opposites. First, fill the post holes with earth and compact it.



9

Pull the tarpaulin tight onto the posts with binding the string around the posts. On the other side bind it to a big stone, or a bag filled with stones and burry it in the earth.

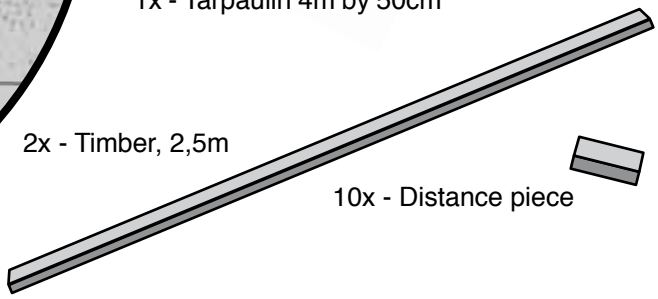
Tarpaulin gutter
Construction manual



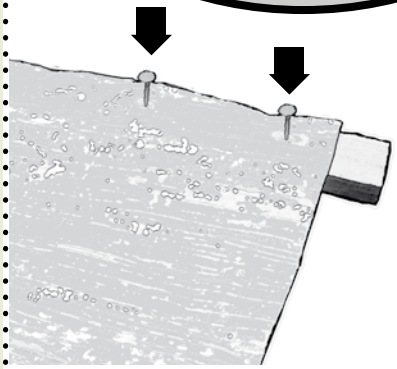
30x - Nail

1x - Tarpaulin 4m by 50cm

2x - Timber, 2,5m

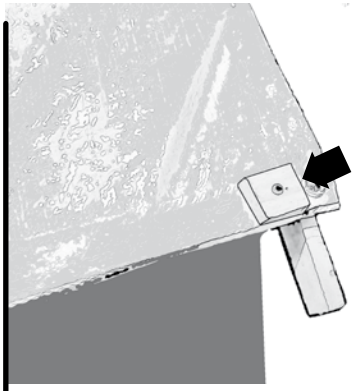


10x - Distance piece



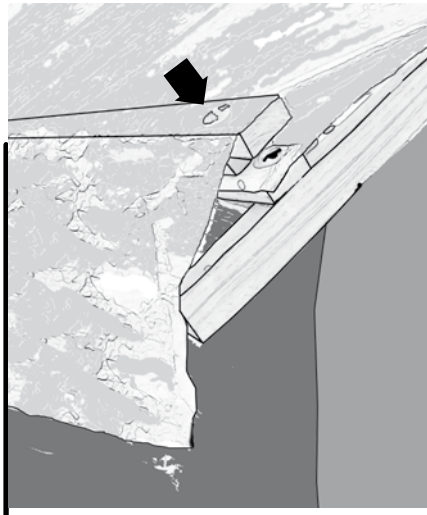
1

Nail the plastic sheet to the long side of the timber.



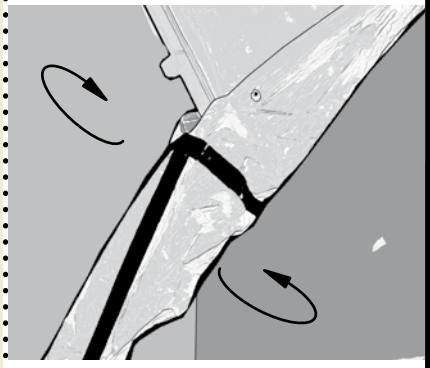
2

Nail the distance pieces on the roof construction.



3

Nail the timber with the plastic sheet onto the distance pieces. Then nail the overlapping tarpulin on the underside of the roof



4

Fold the overlapping tarpaulin to a tube and tape it.

5

Connect the tube with a cut off bottle top to let the rainwater flow into your canister.

Developing a product

This step of course could not be part of the workshop or the final work because it contains the steps taken and the direct preparation if the object is produced. So we stopped working at this point and framed the continuity plan/outlook. The design steps contained in this chapter are only making sense to be made at the Rethink Relief revisited conference due to their requirements. It contains the main points of getting user feedback the detailed Design and the Fabrication.

Continuity plan/outlook

In addition to an interesting overview of the process as integral part of my final work, the audience of the project presentation at Bauhaus-University Weimar in January 2015 can expect models of the two main concepts - roof collection including the gutter, and the between house sheet collection. Further I will give an example of how the building manual could look like.
The following six month continuity plan phrased by the team at the end of the Rethink Relief summit.

• ***The roles and responsibilities of each team member***

	Roles and responsibilities	Contact
Aizaz Anwar	External communication, documentation	Facebook, Skype, Email, Mobil
Tobias Bahne	Team facilitator, Prototyping, Design, Documentation	Facebook, Skype, Email, Mobil
Pial Gai Buol	Testing, implementation	Mobil
Nicola Greene	Design, technical support	Facebook, Skype, Email, Mobil
Lise Capet	Team facilitator, Mentor	Facebook, Skype, Email, Mobil
Nyeko Baptist Alwera	Community engagement, implementation	Facebook, Skype, Email, Mobil
Flora Tracy Ayee	Community engagement, implementation, field research	Facebook, Skype, Email, Mobil

• The role of the community after the summit
We believe in the importance of community members in the design process and they will be the key persons for field research, implementation and community engagement.

• The communication plan after the summit
We are creating a Facebook and Email group, where we will share updates. We will have a Skype meeting once a week. We will be in contact with Pial Gai through Mobile Phone.

• The main contacts for our project
Lise Capet and Tobias Bahne will be the contact persons for the team.

• Next steps of product development
We decided who will do what in the next six month and put it into a chart.

Next steps

	Person responsible	Time line
Research, idea generation	Tobias Bahne, Lise Capet, Nicola Greene, Aizaz Anwar	0-2 month
Real size prototyping and testing	Tobias Bahne	3-5 month
Implementation in the field	Flora Tracy Ayee, Nyeko Baptist Alwera, Pial Gai Buol	6 month

• Dissemination of the product

We will disseminate our product to intended users with the help of UNHCR and local NGO's in the camps.

Get help from local NGOs/UNHCR

• Partnership building

UNHCR and NGO's will be important partners for the project. We will try to have partnership with them after we finally developed a proven solution and present it to them.

• Fundraising

Fund raising is an important factor to continue our project. We seek help of IDIN network as well as different aid providing agencies that are our potential partners.

Seek help of IDIN

• Some anticipated risks and challenges

Quality of water can be a problem if it is not collected, stored and used carefully. We have to ensure the quality of water. The usage of multiple containers for collecting rainwater and fetching drinking water from the source can cause contamination.

Ensure the quality of water

We have to explain that and the different usage possibilities in the handbook.

Handbook/Manual

Dissemination the product to intended users might be difficult. We are dependent on UNHCR and NGOs to reach intended users. Therefore we try to get contacts.

• IDIN can help to support our project

We can be supported in technical and implementation process matters. Network Members can help us translating e.g. construction manuals into different languages. IDIN can help us in finding partners who can disseminate our product in the camps.

Implementation
Translation

At the end I am desperately hoping that the Rethink Relief revisited meeting can take place in mid 2015. It would be a unique chance to make some pilot testings in the field.

Rethink Relief revisited

Review and conclusions

This chapter is based on very personal impressions and because it was the first time for me to work in a project like this it might be a little bit too sensitive. Still I hope it is interesting for people who are interested in working in Humanitarian Design projects.

Team

As mentioned in the team debriefing our team made up from six different nationalities had a great team spirit. And everybody was taken seriously with his/her ideas. It was a productive interdisciplinary working atmosphere with a multi hierarchic structure. Everybody was an expert in his own field and was taken seriously. The workshop was held completely in english as an middle ground. Six team members being no english native speakers it was important to ask if everybody is knowing what we are doing very often. Often additional explanation was necessary so everybody could take part in the process. The other way around, precise communication was essential to get important information.

In an intense workshop like Rethink Relief where you spend time together 24/7 everybody´s personal private needs automatically influence the team work.

Time

It was shortly before the workshop when I got to know in which team I will be working. That was the reason why I could not make detailed research on the water topic. It would have been great to have known it earlier.

I think, the main time-criticism is that the workshop was not lasting long enough. I had the feeling, that the problem framing process was not based on fact sometimes due to lack of time. Generally I think there was not enough time for working on the project itself. Therefore the quality of the project framing suffered from rush produced by lack of time. But this problem could be tackled with a longer lasting workshop. As described above, time was limited because of the personal needs of the participants in a humanitarian project, too. To work in projects like this the process takes more time than a common design process.

I suggest that the Rethink Relief workshops should last about one month, like IDDS summits do. Design without borders say that three-week field trips followed by extended periods of work from home is the most cost effective use of the designer as a specialist, and results in beautiful and inventive products, but it misses the point of the exercise completely. To have a realistic chance of creating a lasting, self-sustaining change, we train our designers extensively to prepare them for the task, and deploy for no less than a full year, integrating them as a full participant for the duration of the project. Through this practice it is possible to appreciate the reality of the personal challenges that will derail a project if they are not handled at an early stage. [T5]

(T5) Leif Steven Verdu-Isachsen, Design without Borders

Structure of the event
The event was well structured overall. It was great that we could visit Ayilo I refugee camp spontaneously and without being scheduled. It would have been great to have made this field trip in the beginning to have a better insight in the camp situation. So it could not have an impact on the problem framing process.

Inconsistent project working process
For me, the guest talks were from main importance to get insight, background knowledge and insight in the conflicts and present problems people are dealing with. It was good to listen to them on the first days, at the beginning of the workshop. But some took place during the workshop and interrupted the group working sessions. Same did the knowledge transfer sessions. For me as a designer they were not interesting, because I already have knowledge about sketching, sketch modeling and other techniques. Of course I see that these sessions might be of main importance to those workshop participants having another occupation. And of course it is important to have a common basis to work on, but I would have put those sessions in the beginning, too. On the other hand it makes sense to explain techniques just right before using them. Therefore I think that the breaks in the team working process have only been difficult for me, because of the short overall time, and they would not disturb me so much if the workshop would last longer.

Location
I was important that the workshop took place in Uganda. Because it was possible to get a sense of the culture, see and experience and realize coherencies. To entirely be on site with all senses was helpful to better understand the endusers needs.
It was possible to make field trips and detailed research which would have not been possible without being on sight.
The conference bringing together people from 16 different countries was an unique opportunity to mingle with many people working on humanitarian topics. It was possible to share experiences with a lot of people which would have not been possible that easily otherwise. I think that one of the main important points of the conference was the networking and to get in contact with people.

Answers of individual questions

- ***How can I personally, as a product designer, work in an humanitarian context and bring relief to people?***

My personal experience in this project showed that I, as a product designer, can be advantageous for humanitarian purposes. The interdisciplinary approach can really develop a great team that can really change something.

• Can I imagine to work in this field in future or do I prefer a product design job?
• Does it have to be an either or?

Work in both fields simultaneously

I think I could work in that field but for me it does not have to be an either or, rather than working in common product design and humanitarian related projects. I hope that I can have the opportunity to work in both fields simultaneously.

• How does an interdisciplinary team work in a design project?
• Does each other benefit from the experiences?

Ideal approach

It is great to have different occupation in the team because the team members complement each other perfectly. As described in the chapter - Why is design advantageous for humanitarian purposes? - it is an ideal approach to fulfill the special needs of a humanitarian design project. I think everybody can benefit from the input from outside of their area.

• Can my current, not Social Design related practices contribute to the project?
• Is there a new working style?
• Are there new challenges?

Used to the project structure

The event was structured like I used to work. Research leads to insight and knowledge, and from this you can proceed to make a concept from which you can design a solution. I think I am strong in research related designing, so I think I could contribute to this project.

Sketch modeling phase was difficult

The working style during the sketch modeling phase was a little bit more difficult to me. This part was restricted not by limitation of materials, but the overall chaos in tools and materials and the constant movement of the instable plastic tables drove me crazy. I spent so much time looking for things - although time was so limited anyway. A constant place to keep all the tools and materials over the complete workshop phase would have been advantageous.

Unorganized working space

Roles of experts

Every organizer, participant, guest speaker or guest was profitable for the projects. Every conversation was interesting. Regardless which background someone has, every comment was taken seriously, which shows, that the multi hierarchic structure was working well. Everybody was an expert.

Everybody was an expert

Personal experience

It was very intense to be in a post-conflict area and to be surrounded by people that experience war. A thing that i even can not understand afer beeing there, and a thing that I really do not want to experience anybody. It was great to come together with people from so many different countries and backgrounds. To have had the chance to really work in a Humanitarian Design project rather than just imitate a project as final work was the best thing that could happen to me under this aspects. I could work in reality rather than just being close.

Intense experience

Great opportunity

Prototyping in Germany

Having had great experiences and having made detailed research it was easy to further work on the project in Germany. But I could not test the prototypes due to completely different surrounding conditions. Testing the between house sheet was not possible because it was snowing instead of raining. Getting equal materials was more difficult than I thought. But I still hope, that we can test the prototypes I built in Uganda in May 2015.

Difficulties because of different conditions

Final product description

Water is a critical determinant for survival in the initial stages of a disaster. Shortage of clean drinking water is a quite common and serious problem in IDP/refugee camps in north Uganda, too. The People living in the camps are dependent on water provided by UNHCR and NGOs. Because of cultural or everyday structures the household´s tasks are separated by gender, and therefore it is often up to the women to fetch water and it is their responsibility to look out for the children. They transport the water from the source to the home in canisters at 20l, which equates 20kg. The approximate daily need of an household of four people is about 60l. They struggle with walking long distances, and they - of course - can not carry three canisters at the same time. Additional the water is not available 24-7 and sometimes even not enough for everybody´s need of 15l per person per day. So it is often impossible to bring enough water. Being not self-reliant and dependent can mean psychological depression. These problems can cause the use of dirty or contaminated water for drinking purpose and leads to outbreaks of diseases. This deteriorates the healthcare situation in the camps.

Dependency on water provided

Difficult transport

Water is not always available

15 liter per person per day

The rainy season in Uganda spans for around 8 months in a year, however, the rain water is not collected despite its abundance and the fact, that it does not require treatment before drinking.

Rainy season lasts about eight month

Keeping in view the situation in camps and and opportunities, we designed a rain water collection kit to be distributed in IDP/ refugee camps. It can be deployed by the refugees, can be easily adapted to fit changing needs (e.g. growth of the family) and materials and construction knowledge is easy to take along the transition phase. It can be further developed and individualized.

Rainwater collection kit

With this kit it is possible to meet the minimum requirement of 15l per person per day for a four person household over eight month. Using the rainy season as a chance, and tarpaulin as a tool, rainwater is collected easily. Plastic sheeting has low value, is easy to ship and you can get lots easily. All materials needed are contained. Tools must be handed and shared on site. The use of materials is limited to the ones available in the area. It is an affordable solution.

Possible to meet the minimum requirements

The kit eases the water supply and reduces the dependency of IDP‘s/refugees on water distribution organizations trough the direct rainwater collection from the roofs of refugee houses or camp´s big buildings of NGO/UNHCR.

Eases the water supply

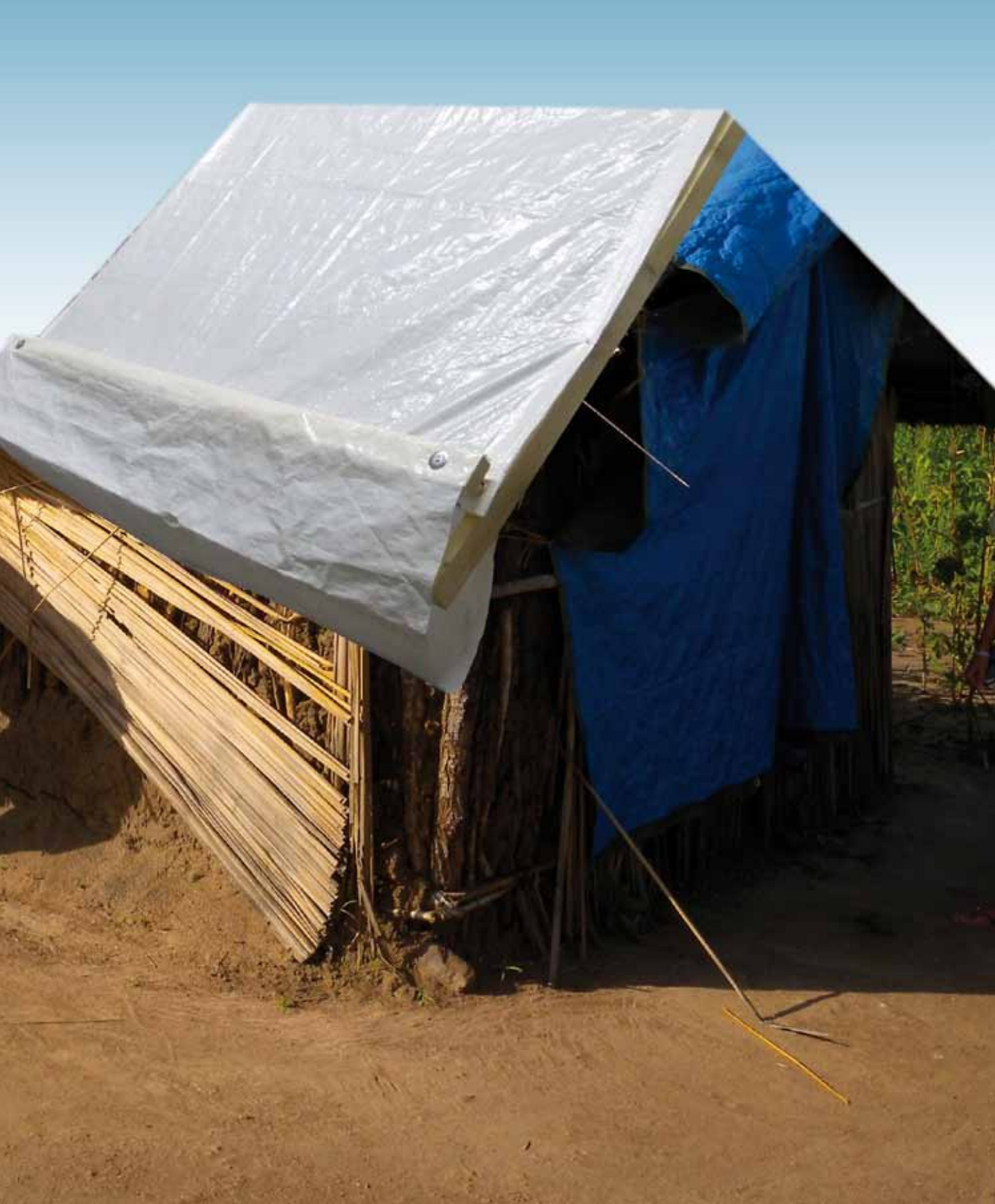
Final product description
Tarpaulin gutter rainwater collection kit

Kit suits
IDP/refugee houses
and
Bigger public buildings

With this kit you can collect rainwater directly from the roof of rectangle IDP/refugee houses and bigger public buildings in the camps. Due to the climate refugees will soon cover their roofs with grass and then it is not possible to collect rainwater anymore, because it gets contaminated while flowing through the grass. The bigger public buildings roofs are not covered with grass and offer a bigger collection space, which means that they collect way more rainwater.

Kit content:

- ***1x Tarpaulin - 4m by 50cm***
- ***6x distance ceepers***
- ***30x Nails***
- ***1x Tape, 3m***
- ***1x Construction manual***



Final product description
Tarpaulin rainwater collection kit

Independed setup

This kit fits almost every type of house/plot composition in the camps and resettled situation, because it is set up next to houses independently.

Increase the cpacity of buildings

Shaded space

A building can offer privacy and some security. There will be functions that require this, like storage of commodities and equipment. Many other traditional functions of buildings however can be transferred to an external shaded space. Provision of this flexible space should increase the capacity of the building. (T44)

Connector as a basic fixing

Tarpaulin-String connector

In the first phase of an emergency, plastic sheets are often loaded and sent before any assessment has been made on the ground. (T43) This connector can be added as a basic fixing. Tests have shown that it holds 126 daN maximum, which is about equaly 126kg, and about 56 more than the tarpaulin itself. But in this test the string ripped off and the connector would have hold even more.

Kit content:

• 1x Tarpaulin - 4m by 5m

• 4x Connectors á

1x Split half bamboo
~4cm diameter; ~20cm long, 3 off centered holes

1x Whole bamboo
~2cm diameter, ~20cm long, 3 centered holes

• 4x Strings - black, UV treated, 6mm diameter, minimum tensile strength of 140 kg

2x 4m
1x 3m
1x 2m

• 1x Construction manual

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Affirmations

I hereby declare that I composed this work independently and did not use any other references than the listed ones. Any explanation which is taken from other texts is declared. This work - in same or similar version - has not been a part of a study achievement before.

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