Deutsche Post DHL Group

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Analysis and evaluation of a Disaster Response Team deployment of Deutsche Post DHL Group

Bachelor thesis

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Statutory declaration

I hereby confirm that I am the author of the Bachelor Thesis presented. I have written the Bachelor Thesis as applied for presently unassisted by others, using only the sources and references stated in the text.

Date: December 05, 2015

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Abstract

The objective of this Bachelor Thesis is to develop a measuring tool to analyze and evaluate a deployment of a Disaster Response Team of Deutsche Post DHL Group. Disaster Response Teams are deployed after natural disaster. With their expertise they help ensuring a high flow of relief goods at the disaster-site airport through the initial response phase. To analyze and evaluate the deployment, key performance indicators are defined and a way to measure them is shown. If they can't be measured they will be documented to gather data for further research. The information will be documented and evaluated with the help of an Excel-document, which is part of this thesis. The key performance indicators are the time until arrival at the airport, the amount of relief goods, the skills and numbers of the team members, the equipment used to handle the relief goods, customer satisfaction and team satisfaction. To measure these key performance indicators a score system based on a maximum score of five, was implemented. The Excel document consist of daily to answer questions and predetermined tables to fill in the gathered information. A single deployment score is calculated automatically by the Excel document using the filled-in information. The deployment score can also differ between a minimal score of one and a maximum score of five. The score can be used to evaluate the deployment or compare different deployments. Because of the lack of reliable data about the logistical situation at the airport after natural disasters the thesis highly rely on the team filling in the information and assessing the team itself. The thesis recommends that the information documented and data gathered with the help of the Excel-document is used for further research and to improve the evaluation tool provided by this thesis.

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Glossary

CoRe	Corporate Communications and Responsibility
CR	Corporate Responsibility
DRT	Disaster Response Team
DPDHL	Deutsche Post DHL Group
GARD	Get Airports Ready for Disaster
GBS	Global Business Services
GSE	Ground Support Equipment
LogIK	Logistics Tracking of In-Kind Donations
MHE	Mechanical Handling Equipment
MoU	Memorandum of Understanding
NGO	Non-governmental organization
KPI	Key Performance Indicator
ULD	Unit Load Devices
UNDAC	United Nations Disaster Assessment and Coordination
UN OCHA	United Nations Office for the Coordination of Humanitarian Affairs

1. Introduction

When natural disasters like earthquakes, floods, droughts and storms hit, they can have a devastating effect on the infrastructure, the people and the land of the affected country. The impact relates on the strength of the disaster. Over the past years there had been a lot of destructive disasters all over the world. There had been for example, the 2004 Indian Ocean earthquake with the following tsunami, the earthquake in Haiti in 2010, the tsunami in Japan 2011 and most recently the earthquake in Nepal in April 2015. Over the time and process more and more organizations, countries and companies have implemented teams which are trained and equipped to respond to those disasters. One of them is the Disaster Response Team (DRT) of Deutsche Post DHL Group (DPDHL Group). In the recent year there had been so far three deployments for the DRT [1]. The first deployment was to Vanuatu in response to the Tropical Cyclone PAM in March 2015, second deployment was to Chile after flooding in the Atacama region also in March 2015 and third and biggest deployment was after the earthquake in Nepal in April 2015 [1]. According to the book “Im Zentrum der Katastrophe” written by Richard Munz, the humanitarian community responding after such natural disasters is developing successively into a more professionalized working environment [2]. With the rise of the internet more people than ever have access to just-in-time information about situations all over the world. The media sector is more interested into natural disaster, no matter where they happen, according to Munz [2]. With the media covering more stories about the first phase of response after a natural disaster, the humanitarian sector is getting more popular with every deployment. They eyes of the world are lying on the humanitarian community and their work, after the world experiencing a catastrophic natural disaster. With the technological progress offering more possibilities for disaster preparedness for countries and their people, the disaster response is although growing. No matter how good the preparation, natural disasters can still be more devastating and destructive as it was imagined when those preparation was implemented years or decades ago. The last of those tragic examples was the tsunami that hit Japan, a disaster-prone country with lots of experience from recent disasters and precautions against those natural disaster, in 2011. The United Nations Office for the Coordination of Humanitarian Affairs (UN OCHA) has a leading role in the humanitarian community. About ten years ago, UN OCHA started a humanitarian reform to improve the way disasters can be dealt with [3]. With a better financing structure, an implementation of the cluster system and strengthening partnerships with various organizations [3]. One of them probably being the partnership with Deutsche Post DHL Group formed in 2005 [4]. The DRTs of DPDHL Group also improved since the implementation about ten years ago. After witnessing a chaotic airport management after an earthquake in Iran in 2003, employees of Deutsche Post DHL Group

started to develop and implement a team to respond to such disasters and contribute their expertise in the logistics sector to people in need [4]. Up to today the DRT had been deployed over 30 times to several countries [1]. The experiences made during these deployments started a constant process of improving the work of the DRT. The analyzing and evaluation tool developed with this Bachelor Thesis is another step to improve the performance and outcome of future deployments of the Disaster Response Team of Deutsche Post DHL Group.

2. Basics and methodology

2.1 Deutsche Post DHL Group

Deutsche Post DHL Group (DPDHL Group) is the largest postal service provider in Europe and the leading logistics Group of the world [5]. In 2014 it generated a revenue of €56 billion [5]. The Group provides logistics services in more than 220 countries and territories [6]. DPDHL Group represent the brands Deutsche Post and DHL [6]. The company is divided into four operating division [5].

- PeP (Post – eCommerce – Parcel)
- Express
- Global Forwarding, Freight
- Supply Chain

Each division has its own divisional headquarters [5]. Management functions and internal services, like finance and IT, are centralized in the Corporate Center, the administrative division of DPDHL Group [5]. The board of management consists of seven persons, the chairman of the board and six board members. The head of each division represents his division as a member of the board [5].

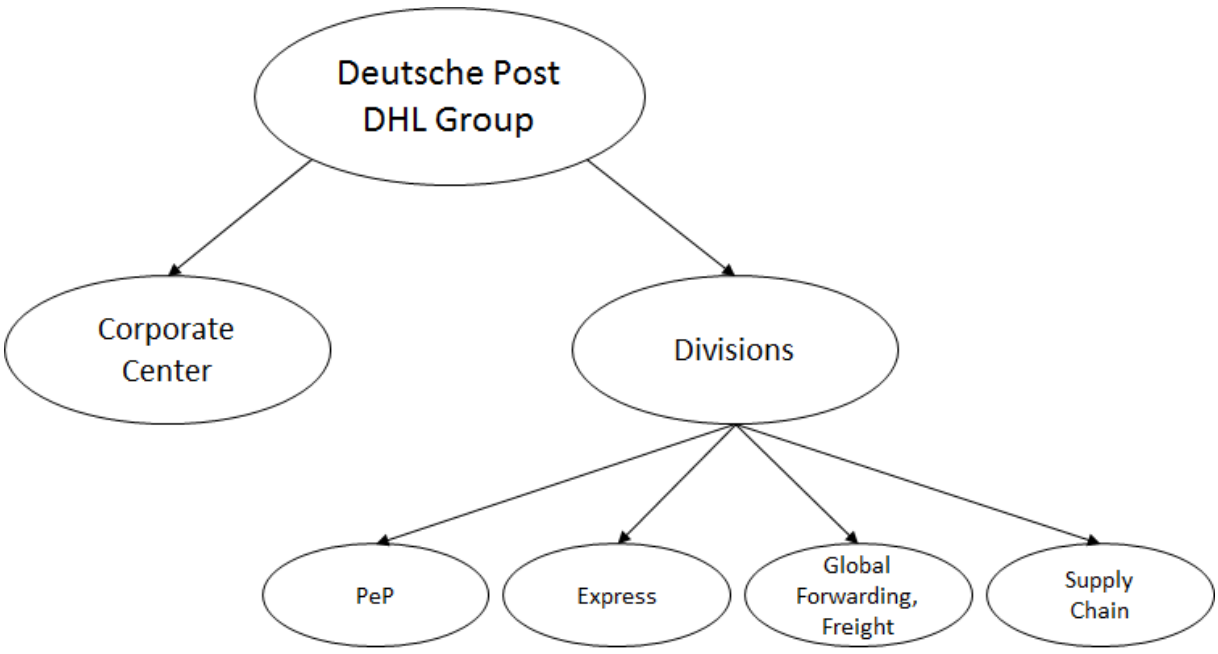

Fig. 1: DPDHL Group structure with operating divisions (source: author)

Four board members for four operating division leaves two board members and the chairman of the board in the Corporate Center. The Corporate Center of Deutsche Post DHL Group itself is divided into three divisions [7].

- The chairman of the board of management
- Finance, Global Business Services (GBS)
- Human Resources

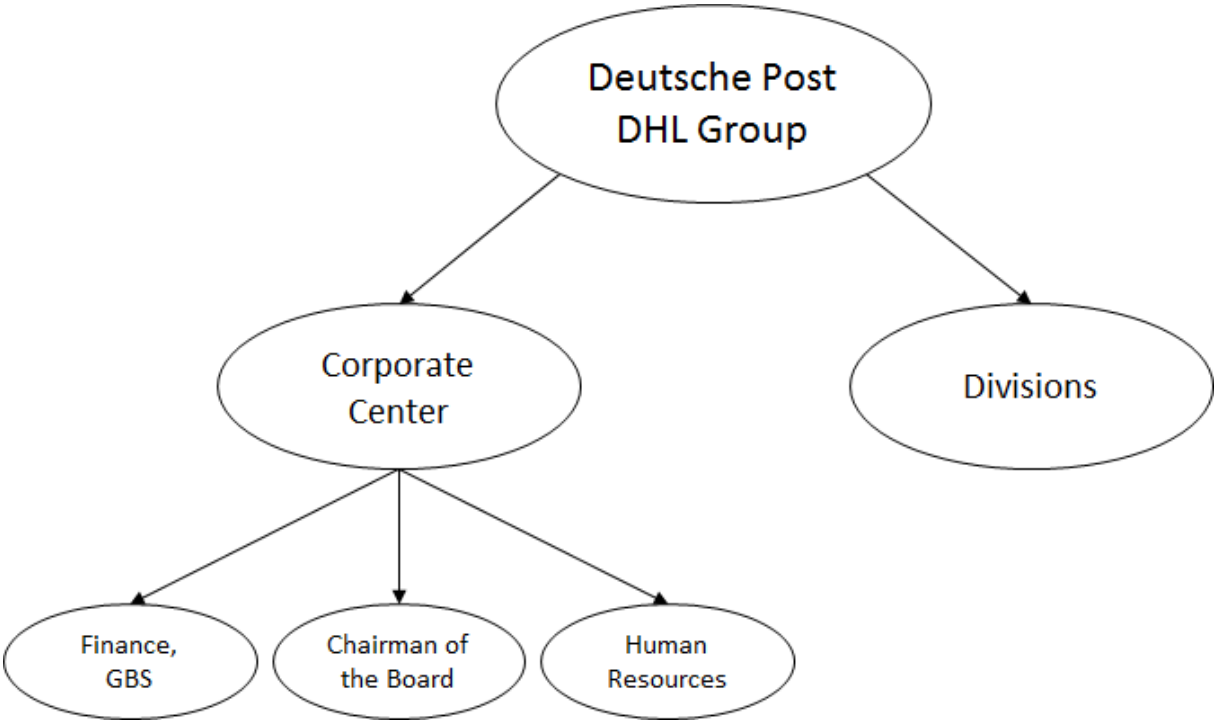

Fig. 2: DPDHL Group structure with Corporate Center (source: author)

The chairman of the board of management is responsible for several corporate departments. One of them is the Corporate Communications and Responsibility (CoRe) department [7]. CoRe itself is also divided into several departments, among others there is the Corporate Citizenship department [8]. Corporate Citizenship is running three programs. The GoTeach program improves education and employability for young people around the world [9]. The community involvement program supports social and environmental projects in which employees of DPDHL Group are involved [9]. The GoHelp program is the disaster management program of DPDHL Group [9]. It provides free-of-charge logistical support for disaster preparedness with GARD (Get Airports Ready for Disaster) and disaster response with the DRTs (Disaster Response Teams) [1].

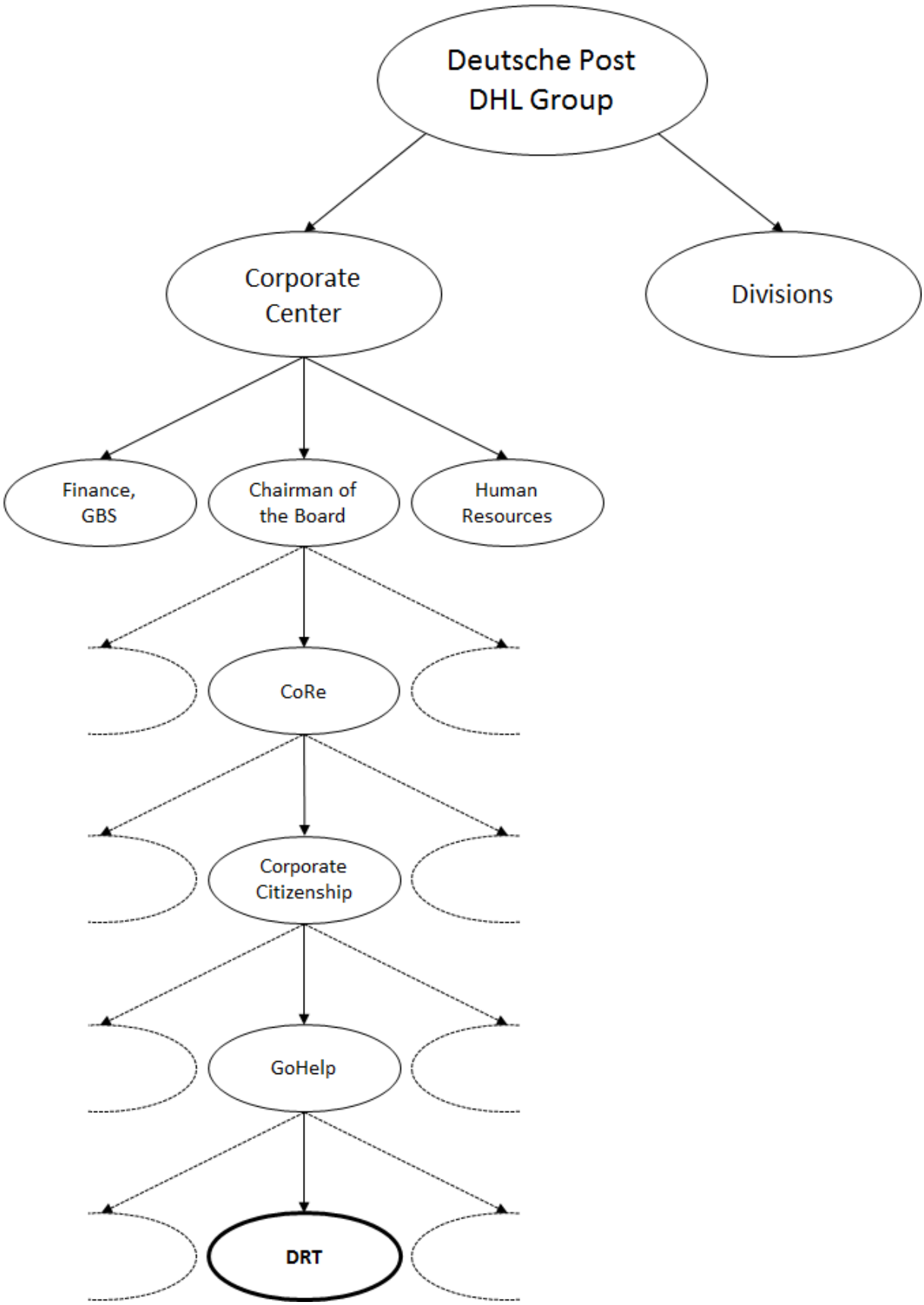

Fig. 3: DPDHL Group structure with the affiliation of the DRT (source: author)

The Corporate Communications and Responsibility department's task is to coordinate and oversee the group's Corporate Responsibility (CR) strategy [8]. The CR strategy's goal is to ensure sustainable management practices at DPDHL Group [10]. The group's core business objectives are to become the Provider, Employee and Investment of Choice [10]. Establishing a balance between economic, social and environmental interest plays a key role in the group's Corporate Strategy [10].

2.2 Disaster Response Team

About 400 of the 480.000 employees of DPDHL Group have volunteered to be a member of one of the three Disaster Response Teams [6] [1]. These volunteers are working for one of the operating divisions of DPDHL Group in countries all over the world.

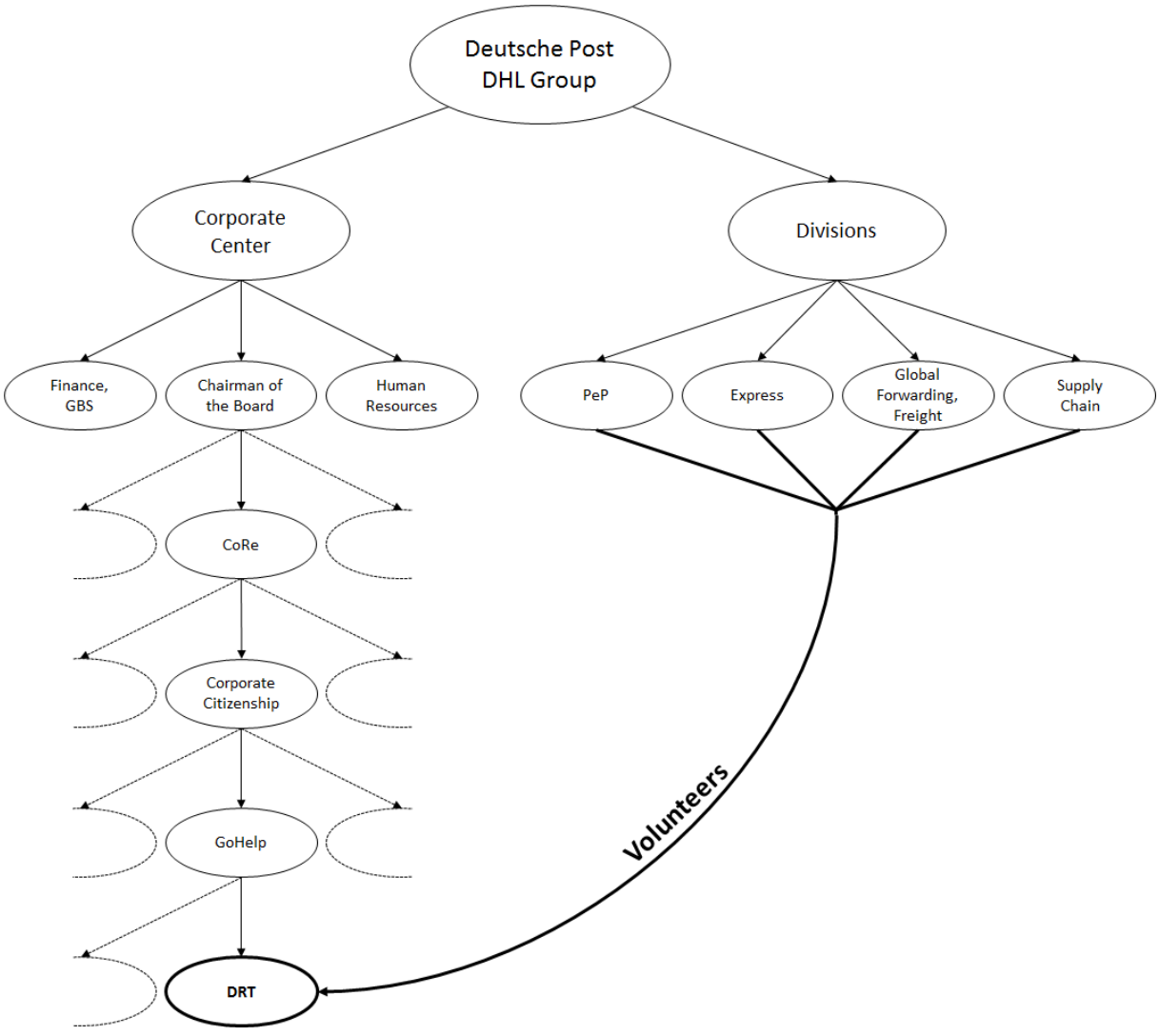

Fig. 4: DPDHL Group employees from the operating divisions volunteer for the DRT (source: author)

Every DRT volunteer is a member of one of the three regional teams [11]. Each team has one regional manager responsible for the volunteers in his regional team [5].

- DRT Americas with regional manager in Panama
- DRT Middle East / Africa with regional manager in Dubai
- DRT Asia Pacific with regional manager in Singapore

2.2.1 Mandate

The DRT has concluded a strategic partnership with the United Nations Office for the Coordination of Humanitarian Affairs (UN OCHA) [4]. For that, Deutsche Post DHL Group and UN OCHA signed a Memorandum of Understanding (MoU) in 2005. In case of a disaster UN OCHA can request the DRT which will then be deployed to a disaster-site airport [4]. So far the DRT have also signed bilateral MoUs with eleven countries in disaster-prone regions [1]. The MoU regulates, for example, the entry of the DRT volunteers into the disaster-site country [1]. These MoUs are the basis for DRT deployments and allow the respective countries to directly request the DRT [1].

2.2.2 Request and activation

In case of a natural disaster United Nations Disaster Assessment and Coordination (UNDAC) teams can be deployed upon the request of the United Nations Resident or Humanitarian Coordinator and/or the affected government [12]. The UNDAC team can be deployed very fast (12-48h) and will then assess, coordinate and manage information in the emergency response mission [12]. Based on the assessment of the UNDAC team, or based on an own assessment, the government of the affected country can make a request of assistance. If the government make a request of assistance the humanitarian community is asked to help and will start deploying to the country, which requested help. The UNDAC team will then coordinate the humanitarian response and manage information [12]. The UNDAC system compromises staff, equipment, procedures and methodology to effectively respond to natural disasters [12]. To improve the UNDAC system, UN OCHA has partnered with various organizations, Governmental agencies, non-governmental organizations (NGOs) and the private sector [13]. One of them being the DRT of DPDHL Group. When the DRT is requested by UN OCHA or one of the countries, which have signed a MoU, Deutsche Post DHL Group has to approve the deployment. After that, the regional head responsible, put together a team which will then

deploy to the disaster-site airport. The airport the DRT will deploy to will be part of the request by UN OCHA or the requesting government. The DRT only have minor influence on the decision. The airport will be chosen on the assessment made by the UNDAC team / government and the situation of the available airports near the disaster-site region.

2.3 Methodology

The objective of this thesis is to analyze and evaluate a DRT deployment. Depending on various circumstances of a disaster each deployment is different. Starting with the natural disaster itself and its impacts on local infrastructure, nature and inhabitants of the affected region. An earthquake, a tsunami or a storm are completely different disasters and have a completely different impact on the affected country and its environment. Even the same category of natural disaster can have a different impact depending on the strength and origin location. The infrastructure, nature, and people of the affected countries also play a huge role regarding the impact and outcome of a natural disaster. This on the one hand, and the fact that a DRT deployment is almost every time in a different country on the other hand, it is challenging to compare and evaluate these deployments. A common way to measure complex situations is by defining key performance indicators (KPIs) and measure them instead. KPIs focus on the most critical aspects of organizational performance [14]. As the KPIs focus on specific parts, they are easier to measure as the whole complex situation as one. This thesis will define some KPIs for DRT deployments, and show a way to measure and evaluate them, if possible. Afterwards the collected KPIs will be used to create a score-based formula to calculate one single score for the deployment. All scores in this thesis follow a “five-score-rule”, meaning that every response and correlating score can have a maximum score of five, and a minimum score of one. Usually there are five options to choose from with correlating scores of one to five.

2.4 General information

The author of this thesis made an internship in the GoHelp department from February to July in 2015. During that time the DRT was deployed three times, once to Vanuatu in March, once to Chile also in March, and once to Nepal in April/May. Some of the information on the following pages rely on experiences made by the author during this internship, and can therefore not be stated.

3. Key performance indicators

3.1 Time until arrival

First KPI is the time until arrival of the DRT. Before the DRT is not on the ground of the airport of the affected country, it is unable to work and keep relief goods moving. The DRT commits, that it can be deployed to any disaster-site airport within 72h worldwide, anytime [1]. However this is supposed to be a maximum timeframe for the travel time. For obvious reasons, the DRT has to be on the ground before the airport becomes a bottleneck. The question which has to be answered now is, when is this going to happen?

The point when an airport becomes a bottleneck depends on different variables.

- Size of the airport and available parking slots for aircrafts
- Available staff and mechanical handling equipment (MHE)
- Available space for storage of relief goods
- Degree of destruction

The airport becomes a bottleneck at the time when the amount of incoming relief goods exceeds the capacity of the airport. The capacity of the airport depends among other things on the key points above.

The DRT has been deployed over 30 times since the establishment of the DRTs in 2005 [1]. Most of the deployments had been to developing countries in South and South-East Asia as well as in Middle and South America. There are some exceptions like the deployment to the US Air Force Base Little Rock (Arkansas) in 2005 after Hurricane Katrina, or the deployment to New Zealand in 2011 after an earthquake near Christchurch [1]. All deployments can be found on the world map, the so called DRT Footprint.

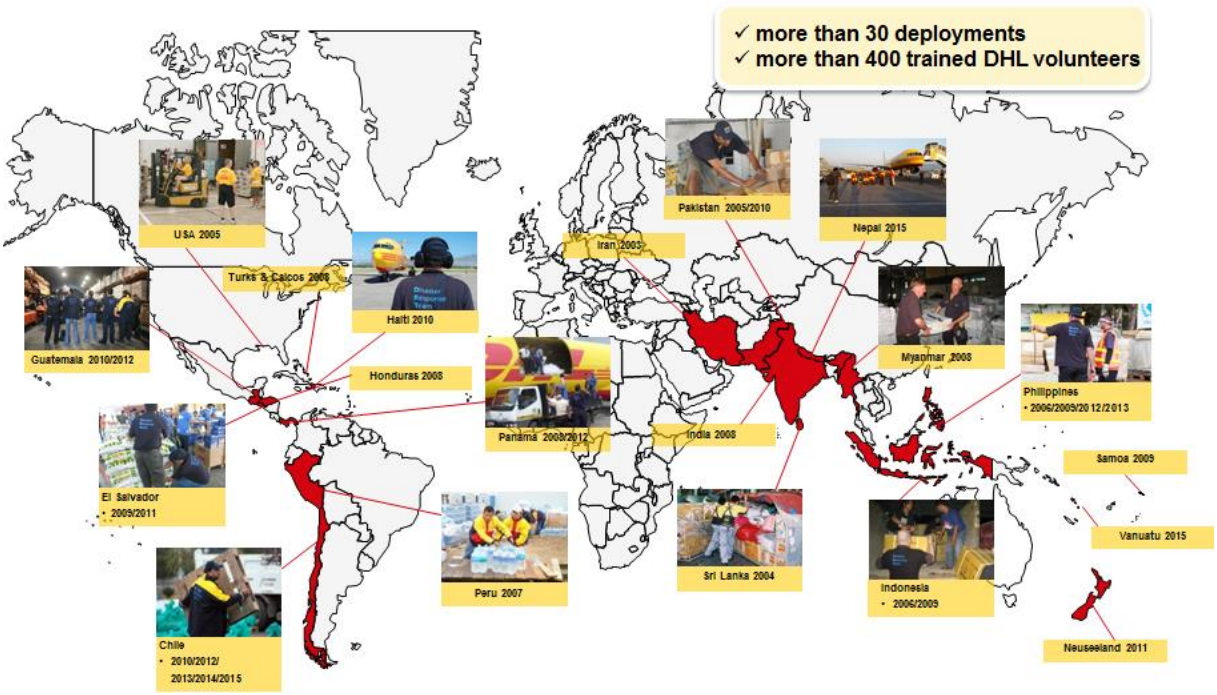

Fig. 5: DRT Footprint (source DPDHL Group) [1]

Size of the airport and available parking slots for aircrafts:

As written in 2.2.2 Activation and Request, the airport the DRT will be deployed to, is decided by the UN or the government of the affected country. The DRT has only minor influence on that. A look at the last deployments shows that the chosen airport often is a rather small one.

April 2015: DRT deployment to Kathmandu, Nepal [1].

Tribhuvan International Airport in Kathmandu is the only international airport of Nepal [15]. Even it is the biggest airport of Nepal it has only nine parking slots for international aircrafts and 17 parking slots for domestic aircrafts [16]. Compared to other airports like, for example, Cologne/Bonn Airport with 107 parking slots, this is very little [17]. Cologne/Bonn Airport itself can again be considered quite small compared to big airports like Frankfurt International Airport or the London Heathrow Airport.

March 2015: DRT deployment to Port Vila, Vanuatu [1].

Bauerfield International Airport in Port Vila, the capital of the island nation Vanuatu, is even smaller than the airport in Kathmandu. There is no parking slots information available, but the airport managed only 55 cargo flight movements and 311.000 passengers per year [18]. In

comparison to that, the Cologne/Bonn airport is handling more than 9.4 million passengers and more than 120.000 flights per year, passenger and cargo flights combined [17].

With these examples the size of the usual airport for DRT deployments can be considered as small. The number of available parking slots is low. Simple explanation for that can be the fact that in most of the countries where natural disasters happen, no bigger airports exist. If these countries would have a big international airport, the airport would probably be able to cope with the incoming relief goods by itself. The DRT would not be needed, and for that would not be deployed.

Available staff and mechanical handling equipment:

For obvious reasons, the smaller the airport, the less staff and less MHE can be considered available. The MHE will further be discussed in 3.4 equipment.

Available space for storage of relief goods:

The available space for storage of relief goods, besides the number of available parking slots, is the most crucial thing to determine when the airport becomes a bottleneck. If there is no space left to store the aid the airport is unable to receive more aircrafts with more cargo and has to close.

A satellite picture of the apron of Tribhuvan International Airport of Kathmandu taken on May 03, 2015 and provided by Google Crisismap shows the problem. Cargo has been dumped right on the apron and has not been transported to a further storage place. If the cargo on the apron won't be removed quickly the airport has to close some of the parking slots, or even the whole airport until flight operations can be proceeded safely. The earthquake struck Nepal on April 25, 2015 so the picture was made eight days after the earthquake. The DRT arrived on the 27th of April starting to work on the 28th. The picture shows the situation after five days of work by the DRT. It is hard to say what it would have looked like without the DRT. The air cargo complex of Tribhuvan International Airport with its 10,200 square meters has a capacity of 24,000 tons for export and 12,000 tons for import [19]. According to an UN OCHA LogIK (Logistics Tracking of In-Kind Donations) file for the Nepal deployment, there has been more than 8,500 tons of relief goods coming into the country [20]. On the one hand, the combined 36,000 tons of the air cargo complex could have been capable of managing the incoming relief goods. On the other hand, those cargo facilities are usually stuffed with other regular cargo, and for that can't be used for the incoming relief goods.

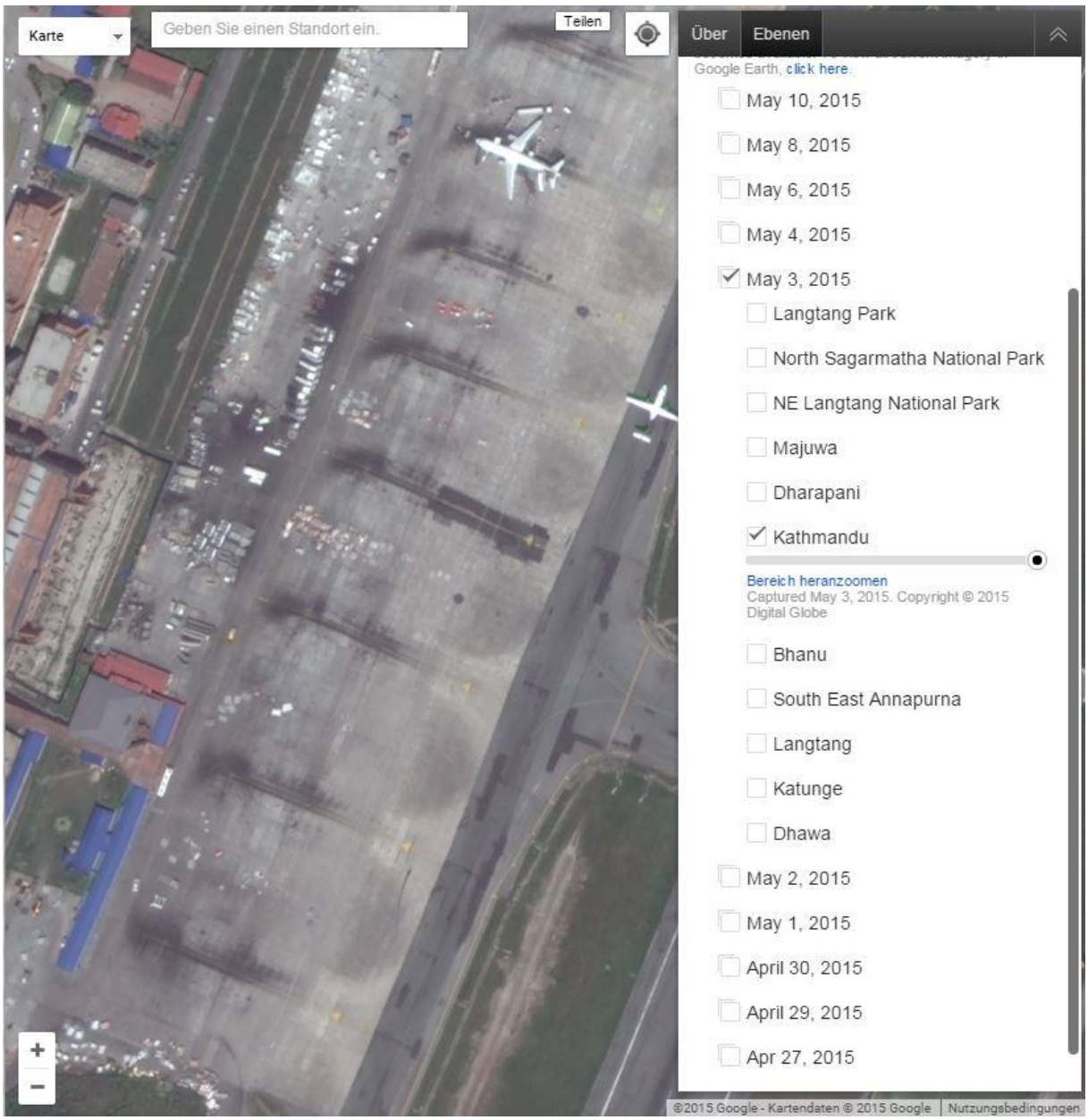

Fig. 6: Apron of Tribhuvan International Airport of Kathmandu on May 03, 2015 (source: Google Crisismap) [21]

The LogIK file also provides information about the date of the relief flights. Though the file is by no means exhaustive, it is the only compilation available. For this thesis it is sufficient to determine the time when the amount of incoming relief goods will increase. DRT's goal must be to be on the ground by the time incoming flights increase. The list shows the so called "decision dates" of the transports. The earthquake struck on April 25 around 12p.m Nepal time [22]. The actual arriving date will be assumed to be one day after the decision date.

The following table shows the combined numbers of submitted transports and vehicles for the given date. Some transports consisted of several vehicles.

Table 1: Number of flights on the first days after the Nepal earthquake in April 2015 (source: author) [20]

Date	Number of transports	Number of vehicles	Comments
April 25	7	12	Mostly flights by Pakistani Military
April 26	12	25	13 of the 25 flights were submitted as one transport by Indian Military
April 27	36	37	Mostly civil flights, 35 out of 37
April 28	20	24	5 military, 19 civil
April 29	12	13	
April 30	4	4	
May 01	4	4	

Considering that most of the flights on the first two days came from neighboring countries like Pakistan and India the big wave of international help started on April 27 and likely reached Kathmandu on April 28, three days after the earthquake. According to the Nepal Earthquake Situation Report No. 03 provided by the Office of the Resident Coordinator in Nepal on April 26, the Government of Nepal officially requested international assistance on April 26, 2015 [23].

Based on this example the increase of incoming relief goods can be expected in about two to three days after a disaster.

Degree of destruction:

The airport might be functional even if it's destroyed and not usable at some points. If there is any other airport available, the destroyed airport will not be declared as humanitarian hub for incoming relief, and for that will not be the airport DRT is working at. A fully destroyed airport can't be used as the entry place for relief workers and relief goods. At least the runway, the apron and some kind of air traffic control have to be usable. If there is no other airport available there is of course no other choice but to deal with the destroyed one as good as possible. Destroyed terminal and storage facilities will have an impact on the logistics operation, but will not bring it down completely.

Summarized it can be said that, because of the airport being so small and the amount of incoming relief goods after a catastrophic natural disaster being very high compared to the regular amount of incoming cargo, it usually does not take long for the airport to become a bottleneck. Even though the airport can be expected as a small airport with few staff and few MHE it also can be expected to be functional. Other options for transport will play a minor role in the first phase of relief. The big increase of the incoming relief goods can be expected two to three days after the disaster. As mentioned in 2.2.1 Request and Activation the DRT can be requested by UN OCHA or the government of the affected country. For that, the request of the DRT can be expected to get through around the time of the official request of assistance. The goal of the DRT must be to be on the ground before the increase of incoming aid starts. Due to the statistics of the Nepal deployment, this should be two days after the request by UN OCHA or the government. A time until arrival of more than two days, but less than three days will also be good and the DRT will still be able to deal with the situation. There might be some delays due to a possible crowded airport. Three days are equal to the 72 hours, which is the maximum time DRT claims they need to get to a disaster-site airport, worldwide [1].

3.1.1 Definition

The time until arrival will be defined as the time period between request for deployment by UN OCHA or a government and the time when the team is on the ground at the disaster-site airport.

3.1.2 Measurement

Date of arrival of the first team minus date of request for deployment

$$d_a - d_r = t_a$$

$d_a = date\ of\ arrival$

$d_r = date\ of\ request\ for\ deployment$

$t_a = time\ until\ arrival$

Table 2: Scores for time until arrival (source: author)

Time until arrival	Scores
$t_a \leq 2\ days$	5
$2\ days\ <\ t_a\ \leq 3\ days$	3
$t_a\ > 3\ days$	1

3.1.3 Comments and Restrictions

It's up to the team leader to decide at which time the team is ready to work, even if there are more DRT volunteers to arrive. That time is the time of arrival (day of arrival).

After a natural disaster it can be hard to get a flight to the airport in the affected country. Airports can be closed for a short time due to weather, environment or safety issues. In this case and if there are no other available flights, neither cargo nor passenger flights for the DRT to catch, the time of arrival can still be good even if it will take more than the two or three given days. If there are no flights, there won't be any relief good flights either and so the airport won't become a bottleneck. It's up to the team leader to decide whether the team was on the ground in time compared to the incoming aircrafts loaded with relief goods, or not.

3.2 Relief goods

The amount of relief goods handled by the DRT, both, the one coming into the airport and the one going out of the airport, plays an important role in the matter of when an airport becomes a bottleneck. The difference between incoming and outgoing relief goods will be explained in 3.3.1 Definition of the 3.3 Equipment part of this thesis. On the one hand, if there is less cargo, the airport won't become a bottleneck too easily. On the other hand, if there is too much cargo, the airport will become a bottleneck very quickly. Relief goods can be transported in many different ways. During the last deployments of a DRT, some changes about the way how incoming relief goods are packed had been noticed by the members of the DRT. In previous deployments relief goods often came on wooden pallets with loose packages which could be handled easily without or with small equipment like pallet jacks. During the latest deployments most of the incoming relief goods were packed on air freight pallets or air freight containers. Pallets and containers combined are called Unit Load Devices (ULDs) [24]. Those ULDs can come in various sizes and with different maximum gross weights [25]. All ULDs have in common, that they can't be moved without heavy equipment like fork lifts, high loaders or dollies. The weight of the ULDs can differ between the tare weight of usually several hundred kilograms and up to more than ten tons maximum gross weight [25].

Fig. 7: DHL aircraft, ULDs, dollies and high loader (source: DPDHL Group) [26]

The down right corner of the picture above shows some air freight containers on dollies. Beneath the red boxes on the left side are air freight pallets on dollies. The high loader can be found in front of the cargo hatch of the aircraft behind the stairs.

The following pictures show some examples of how relief goods were packed in various deployments over the last years. All pictures were made from DRT members during the deployments. The first picture (Fig. 8) shows some relief goods after the earthquake in Haiti 2010. Figures 9 and 10 show some relief goods after Typhoon Haiyan hit the Philippines in 2013. The air freight pallets with relief goods in figure 11 were pictured during the deployment in Vanuatu in 2015. Figure 12 was made during the deployment in Nepal in 2015. The difference between the deployment in Haiti and the one in Vanuatu or Nepal is obvious. Heavy MHE is needed to move the air freight pallets, which leads to a higher use of equipment and less manpower. The team members instead have to be trained in the use of MHE. Looking back at the picture made in Haiti, manpower was key to handle the supplies.

Fig. 8: Relief goods in Haiti 2010 (source: DPDHL Group)

Fig. 9: Relief goods in the Philippines 2013 (source: DPDHL Group)

Fig. 10: Relief goods in the Philippines 2013 (source: DPDHL Group)

Fig. 11: Relief goods in Vanuatu 2015 (source: DPDHL Group)

Fig. 12: Relief goods in Nepal 2015 (source: DPDHL Group)

Depending on the needs assessment of the UNDAC team, the amount and type of incoming relief goods will be different in every deployment. For that it doesn't make any sense to measure and evaluate the amount or type of relief goods handled by the DRT and try to transform it into any comparable number. Instead of evaluating it, it is however very valuable to document it, so it can be used for lessons learnt and further research to develop and improve this evaluation system. For the documentation the weight, quantity, size, and type of the relief goods should be gathered as well as the origin and the destination. Origin and destination can be a country or an organization. Because of the sometimes chaotic situation at the airport after a natural disaster it can be difficult to gather all of that information, nevertheless the information and documentation should be as complete as possible. Due to the named variables and different situations in every deployment, the DRT has to adapt its team members and equipment to the amount and type of the relief goods. The fact whether the DRT is able to cope with the amount and type of relief goods or whether it has to adapt its team members is the only valuable and useful thing which can be measured. It's up to the team leader on the ground to answer that question.

3.2.1 Definition

Relief goods are the total weight, size and quantity of the relief goods coming into the airport. It also includes the type of the relief goods and the sending organization. DRT has to adapt its team members and equipment to these variables.

Incoming relief goods are all relief goods coming into the airport and either will be brought to storage facility/place on/near the airport, or leave the airport directly without being stored. It does not make any difference whether the storage facility/place is managed by the DRT or someone else. Outgoing relief goods are only those goods which will be stored at a storage

facility/place managed by the DRT, as the objective of this evaluation system is to evaluate the DRT. If relief goods are stored in a DRT-managed facility/place the DRT has to handle the goods twice and for that need twice the time, manpower and equipment. First handling will be from the incoming vehicle to the storage facility/place, second handling will be from the storage facility/place to the outgoing vehicle. This differentiation recognizes the double handling as double work.

3.2.2 Measurement

The question whether the DRT is able to cope the incoming and outgoing relief goods should be answered daily.

"The DRT was able to cope with the amount of incoming and outgoing relief goods."

The single choice responses are:

- *Strongly agree* *5 score*
- *Agree* *4 score*
- *Neutral* *3 score*
- *Disagree* *2 score*
- *Strongly disagree* *1 score*

The objective of this question is to evaluate if the number of team members has been adequate to deal with the amount of relief goods handled during that day. Skills and efficiency of the team members should not have influence on the response to that question, as this will be covered by the next question.

If, for example, the amount of relief goods double on one day and the DRT isn't able to cope with this high amount, the score of this question should decrease. This is all about the relation between number of team members and amount of cargo.

The documentation part for transports will be gathered day by day. Incoming and outgoing relief goods are documented separately.

Table 3: Documentation part for incoming and outgoing relief goods (source: author)

Incoming relief goods:

Sender	Origin	Air/Road /Ocean	Type	Quantity	Weight	Size	Consignee	Destination

Outgoing relief goods:

Sender	Origin	Air/Road /Ocean	Type	Quantity	Weight	Size	Consignee	Destination

3.3 Team members

There are about 400 trained DRT volunteers almost all over the world [1]. DRT volunteers are regular Deutsche Post DHL Group employees who have volunteered to be part of a DRT. The DRT volunteers have regular jobs within DPDHL Group, commonly at warehouses or logistic hubs at airports. In case of a natural disaster and a following DRT deployment they get alerted, and then travel to the determined location in the affected country where they will work. It's because of the fact that the volunteers are spread all over the region working in many different countries, cities and DPDHL Group workplaces, the deployed DRT will usually meet at the airport they are being deployed to. Some team members of course may have the same travel route, and therefore meet at their origin airport or workplace, but this is not the default procedure. As already exemplified in 2.2 Disaster Response Teams, there are three different DRT region teams [1]. One team covers the Americas region, another deploys to the Middle East / African region and the third team covers the Asia Pacific region [1]. Each region team has a pool of DRT trained employees who can be alerted and deployed.

Each DRT volunteer has specific skills, depending on her/his experience, regular job, working environment and training. In case of a deployment it is up to the GoHelp region manager to pick the most suitable and available volunteers for the specific deployment. It is also up to the GoHelp region manager to determine the number of volunteers for the team. According to their skills volunteers can fill in a specific role with different tasks during the deployment. There are for example experts in warehouse management, forklift drivers or DRT members who know how to handle a high loader. It depends on the situation which skills are needed and which are not. Finance and communications experts can also be valuable.

As well as in 3.2 relief goods, it doesn't make any sense to measure and evaluate the number of team members or their skills. It is necessary to ensure, that the number of team members and their skills is able to deal with the given situation during the deployment. The question whether the team is able to do so or not, can and should be answered. The names of the team members as well as their corporate division and origin country should be documented.

3.3.1 Definition

The team members of a DRT on the ground are the deployed people and their specific skills.

3.3.2 Measurement

The question whether the team was able to deal with the given situation should be answered daily.

"The DRT members and their skills were sufficient to deal with the given situation."

The single choice responses are:

- *Strongly agree* *5 score*
- *Agree* *4 score*
- *Neutral* *3 score*
- *Disagree* *2 score*
- *Strongly disagree* *1 score*

The objective of this question is to add up to the question before. The question of the relief aid part covers the relation between the number of team members and the amount of relief goods. This question covers the relation between the amount of relief goods and the skills of the DRT members. The fact whether der skills are sufficient or not is the crucial part in this question.

The documentation of the team members should include the names, division, origin countries, the number of the team, the day of arrival, the day of departure and, if there is one, the specific role of the team member.

Table 4: Documentation part for the team members (source: author)

Team 1 Team leader:	Division and Origin	Arrival	Departure	specific role
Team member:				

3.3.3 Comments

Specific roles which can be noted are for example:

- Team leader
- Media & PR
- Finance
- Various Liaisons
- Etc.

For a better and more complete documentation as well as evaluation every special role, task or responsibility should be documented.

3.4 Equipment

Equipment for the DRT is basically the mechanical handling equipment (MHE), which has been mentioned before. The team member will of course bring some personal stuff like working gloves, shoes, clothes, sun cream, etc., which can also be seen as equipment. The personal stuff however, won't have a big impact on the outcome of the deployment. As already explained in 3.2 relief goods MHE was getting more important in the last time, and will probably get even more important in the future. Forklifts, pallet jacks, high loaders, dollies and tow tractors are essential to move cargo quickly on the airport.

Forklifts and pallet jacks are common MHE, which can be found all over the world in many different locations like factories, warehouses, airports, or mechanic shops. High loaders, dollies and tow tractors are part of the ground support equipment (GSE). GSE is defined as "any piece of mobile equipment, whether or not powered or self-propelled, purpose designed, built, and used for ground handling, servicing, or field maintenance of civil transport aircraft on the ramp area of an airport" by the ISO 6966-2:2014 [27]. Hence GSE is exclusively used around aircrafts it can only be found at airports. If the existent GSE of the airport is broken or was destroyed during the disaster it can't be as easily replaced as forklifts and pallet jacks. It will probably take days, if not weeks to ship in new GSE. By then the incoming cargo had to be unloaded and handled without functioning GSE. In that case it is DRT's task to find and establish other feasible solutions. Because the Tribhuvan International Airport of Kathmandu was short on dollies during the deployment, the DRT rented some trucks to move the cargo off the apron. The DRT itself does not bring any MHE to the deployment by default.

Fig. 13: Dollies and high loader used for loading an aircraft [28]

High loaders are used to load or unload ULDs on or off an aircraft. The picture shows a loading process of an aircraft. The wagons on the left side, the dollies, are transporting the ULDs from all over the airport to the aircraft. As dollies are not powered vehicles they are pulled by a tow tractor, which can also be seen on the left side. It's the white vehicle almost covered by the ULDs on the dolly. The vehicle connecting the dollies and the loading hatch of the aircraft is the high loader. The right part of the high loader will be adjusted to the height of the aircraft's loading hatch. The left part, in the picture loaded with two ULDs, works as an elevator between the height of the dollies and the height of the aircrafts loading hatch. For unloading an aircraft the process has to be reversed.

3.4.1 Definition

Equipment for a DRT deployment is all MHE needed and used by the DRT.

3.4.2 Measurement

Although the equipment is important for the DRT to handle the relief goods quickly and efficiently it does not make sense to measure it. Because of the DRT does not bring its own equipment, it has to deal with the equipment available at the airport. If the equipment available is not sufficient it is DRT's task to find other feasible solutions. There are two questions which can and should be asked to gather information, so the DRT will be able to reevaluate its methods for future deployments.

First question is, whether the amount and condition of the available equipment was adequate to handle the relief goods. If the available equipment was not adequate, the second question has to be, whether the DRT was able to find appropriate replacements or to establish other feasible solutions. The equipment usually does not change as fast and as often as the relief goods or the team members and their needed skills, but equipment is likely to break. Broken equipment maybe can be fixed, but this can't be guaranteed. For that it is also advised to respond to these questions on a daily basis.

“The available MHE was adequate to handle the relief goods.”

The single choice responses are:

- *Strongly agree* *5 score*
- *Agree* *4 score*
- *Neutral* *3 score*
- *Disagree* *2 score*
- *Strongly disagree* *1 score*

If the MHE was not adequate to handle the relief goods (score of 3 or less) a second question has to be responded to.

“If not, the DRT was able to find a feasible solution for the lack of MHE.”

The single choice responses are:

- *Strongly agree* *5 score*
- *Agree* *4 score*
- *Neutral* *3 score*
- *Disagree* *2 score*
- *Strongly disagree* *1 score*

3.5 Customer satisfaction

In the broadest sense, customers for the DRT can be a lot of different groups and people. Customers can be the beneficiaries of the humanitarian response to the disaster, i.e. the population of the affected country. Customers can also be the executive board, the management or the GoHelp team in the headquarters of DPDHL Group, as the DRT represents the company while deployed. There can be a lot of other customers like the airport authorities, the national disaster management agency, governments, the United Nations or one of its sub-organizations. However the most important customers should be the organizations and agencies the cargo is handled for by the DRT as DRT's goal is to handle the incoming relief goods as fast as possible and keep the flow of the relief goods high. Other important customers can be the organizations and agencies working with the DRT on the ground at or around the airport, like members of the Logistics Cluster. Satisfaction is usually measured by questionnaires or personal interviews. Finding time for personal interviews during the deployment is not always possible. It is also better to give the respondent time after the deployment to rethink and see the whole picture, than answering questions in the heat of the moment. For that questionnaires are the recommended option to evaluate customer satisfaction for the DRT. These questionnaires however would go beyond the scope of this thesis and should be part of future research. Because of the various deployments these questionnaires have to be adapted to the specific deployment.

3.5.1 Measurement

Customer satisfaction should be measured with a questionnaire adjusted for the specific deployment. For better implementation into the measurement system provided by this thesis it is recommended, that the questionnaires also uses the five-score-rule as used in this thesis.

3.5.2 Comments

Possible questions for the questionnaires can be:

- I appreciate the service provided by the DRT
- The member of the DRT were able to quickly adjust to new situations
- I was satisfied with the total length of the deployment
- DRT has deployed fast enough to respond to the situation

- DRT helped me to improve my work for my organization

To adopt the five-score-rule, possible respond options to these questions can be:

Strongly agree
Agree
Neutral
Disagree
Strongly disagree

Far too short
Too short
About right
Too long
Far too long

The collected data can also be used to improve the measurement system provided by this thesis. The response to the question whether the DRT deployed fast enough to respond to the situation, can be a used to adjust or support the best time of arrival for the DRT.

3.6 Team satisfaction

As important as the customer satisfaction is the satisfaction of the team itself. The deployment can't be a total success without the team on the ground being satisfied with its own work. It is also recommended to evaluate the team satisfaction with a questionnaire adjusted to the specific deployments. As well as for the customer satisfaction, it is better to give the team member time after a deployment, so they can rethink it and answer with an appropriate distance to the experienced. Alternatively the team can also evaluate their satisfaction with interviews after the deployment. Whether this option is appropriate or not, depends on the number of DRT volunteers deployed, and the social cohesion inside the team. These questionnaires would go beyond the scope of this thesis too, and for that be also part of future research.

3.6.1 Measurement

Team satisfaction should be measured with a questionnaire adjusted for the specific deployment. For better implementation into the measurement system provided by this thesis it is recommended, that the questionnaires also uses the five-score-rule used in this thesis.

3.6.2 Comments

Contrary to the customer satisfaction the team is able to answer more specific questions about the environment or their work during the deployment. The satisfaction of the team with the organization of the deployment itself can be analyzed too. Team members also should have the opportunity for detailed feedback in form of free text. This feedback can and should be used to improve the methods during the deployment and to improve the internal organization process before, during and after a deployment.

Possible questions for the questionnaires can be:

- The transportation and accommodation arrangements were convenient
- I was able to adapt to the local culture and environment
- The team was able to adjust quickly to new situations
- The work of the DRT was appreciated
- Workload was managed well during the deployment with the team members

- I was satisfied with the length of my deployment

To adopt the five-score-rule, possible respond options can also be:

Strongly agree
Agree
Neutral
Disagree
Strongly disagree

Far too short
Too short
About right
Too long
Far too long

4. Evaluation

The evaluation of a DRT deployment will be executed with a Microsoft Excel sheet. There are many different reasons to support this decision. First and most important reason is the fact that Microsoft Office, including Excel, is the predetermined office suite of DPDHL Group and for that is preinstalled on every PC of DPDHL Group. With that in mind, it is obvious that the DRT is familiar with the software and knows how to use it. The adjustable cells and tables of Excel are perfect to use for the measurement system. Excel offers the ability of calculating and can provide enough space for free text as well. Cells in Excel can be linked together and for that it is easier for the DRT to fill in the forms. Information filled in, can be spread easily all over the sheet if needed and don't have to be filled in again. Excel can be used offline, without any connection to the internet or other devices. Even if the DRT is not able to bring a DPDHL notebook to the deployment, or the notebook has a malfunction, the sheet can be filled in on every other available device. Microsoft announced in 2014, that they are working on bringing office to everyone, on every device [29]. In today's world it is almost unimaginable to get to a country, where there is no such device available. If this will happen to the DRT in the future, or due to corporate data safety rules it is not allowed to use other devices than the corporate ones, the sheets can easily be printed and filled in by hand. The ability of calculating and data spreading over the sheet will then be lost, but the information can still be gathered and saved. For evaluation, the gathered information can be filled into the Excel sheet after the deployment, or calculated by hand. For better usability the sheet will be provided in A4 size, so it can be printed easily and suits the most document folders.

As mentioned before, the measuring includes two parts. Part one is the evaluation of the gathered scores and part two is the documentation of the KPIs that can't be measured or for which it does not make sense.

4.1 KPIs assessed by score

The KPIs which can be assessed by score are the following:

- Time until arrival

  The time until arrival (t_a) will be measured as the difference between day of arrival of the first team (d_a) and the day of request for deployment (d_r) in days.

$$d_a - d_r = t_a$$

The result will be scored with the following table.

Table 5: Score table for time until arrival response (source: author)

Time until arrival (t_a)	Score
$t_a \leq 2\ days$	5
$2\ days\ \leq\ t_a \leq 3\ days$	3
$t_a\ \geq 3\ days$	1

- Relief goods

For the relief goods the question to be answered daily will be scored with the following table.

Question 1:

"The DRT was able to cope with the amount of incoming and outgoing relief goods."

Table 6: Score table for relief goods response (source: author)

Response	Score
Strongly agree	5
Agree	4
Neutral	3
Disagree	2
Strongly Disagree	1

The score of the daily response of *question 1* will be defined as: $S_{ra,i}$

i = day of deployment, for which the question is answered

Because the situation can change day by day, every day will get a new score. Afterwards the average is calculated from all the scores of the responses. If the question won't be answered for one day of the deployment, this day will not be part of the calculation.

The average will be defined as: a_{ra}

$$a_{ra} = \frac{\sum_{i=1}^{n} s_{ar,i}}{n}$$

n = total number of deployment days, for which the question is answered

- Team members

For the team members the question to be answered daily will be scored with the following table.

Question 2:

"The DRT members and their skills were sufficient to deal with the given situation."

Table 7: Score table for team members response (source: author)

Response	Score
Strongly agree	5
Agree	4
Neutral	3
Disagree	2
Strongly Disagree	1

The score of the daily response of *question 2* will be defined as: $s_{tm,i}$

i = day of deployment, for which the question is answered

Because the situation can change day by day, every day will get a new score. Afterwards the average is calculated from all the scores of the responses. If the question won't be answered for one day of the deployment, this day will not be part of the calculation.

The average will be defined as: a_{tm}

$$a_{tm} = \frac{\sum_{i=1}^{n} s_{tm,i}}{n}$$

n = total number of deployment days, for which the question is answered

- Equipment

For the equipment, there are two question which will be answered on a daily basis. Those answers will be scored with the following table.

Question 3:

"The available MHE was adequate to handle the relief goods."

Question 4:

"If not, the DRT was able to find a feasible solution for the lack of MHE."

Table 8: Score table for equipment responses (source: author)

Response	Score
Strongly agree	5
Agree	4
Neutral	3
Disagree	2
Strongly Disagree	1

The score of the daily response of *question 3* will be defined as: $s_{ea,i}$

The score of the daily response of *question 4* will be defined as: $s_{es,i}$

i = day of deployment, for which the question is answered

As bevor, the average of both scores is calculated.

The average of the s_{ea} scores will be defined as: a_{ea}

$$a_{ea} = \frac{\sum_{i=1}^{n} s_{ea,i}}{n}$$

The average of the s_{es} scores will be defined as: a_{es}

$$a_{es} = \frac{\sum_{i=1}^{n} s_{es,i}}{n}$$

n = total number of deployment days, for which the question is answered

Both scores are important to analyze the situation and to use the gathered information for future deployments. Q*uestion 3* reflects the condition of the available MHE at the airport. If the equipment is in good shape and adequate to handle the relief goods, the DRT has no need to find other feasible solutions. If experiencing more and more deployments in the future with finding inappropriate MHE at the airport, the DRT should reconsider the option of bringing their own equipment to future deployments. If the equipment is in bad shape or missing and for that not adequate to handle the relief goods, the DRT hast to find other feasible solutions. As the DRT has no influence on the available MHE at the airport, in that case *question 4* becomes more important for the outcome of the deployment. When there is no appropriate MHE available it is up to the DRT to get other equipment to keep the cargo flow high. If the DRT is able to do so, the equipment score should reflect this.

Therefore, the higher score of both averages (a_{ea} and a_{es}) will be part of the formula to calculate the deployment score and for that will be defined as: a_e

$$if: \ a_{ea} > a_{es} \rightarrow a_{ea} = a_e$$

$$if: \ a_{es} > a_{ea} \rightarrow a_{es} = a_e$$

$$if: a_{ea} = a_{es} \rightarrow a_{ea} = a_e$$

If both are equal, it is implied that the DRT did not improve the situation with another feasible solution.

The score for the time until arrival (t_a) and the three average scores for relief goods (a_{ra}), team members (a_{tm}) and equipment (a_e) will be treated equally. From the present point of view all of these KPIs have the power to ruin the deployment completely. There is no statistical evidence of one being more important than others, and for that should be given more weight in the formula. The deployment score will be the average of the named scores (t_a, a_{ra}, a_{tm}, a_e).

The deployment score will be defined as: s_d

$$s_d = \frac{t_a + a_{ra} + a_{tm} + a_e}{4}$$

Should there be questionnaires for customer or team satisfaction available, which also provide a score of 1 to 5 the formula will be adjusted as following:

The average score of the customer satisfaction questionnaire will be defined as: a_{cs}

The average score of the team satisfaction questionnaire will be defined as: a_{ts}

If only the customer satisfaction score is available:

$$s_d = \frac{t_a + a_{ra} + a_{tm} + a_e + a_{cs}}{5}$$

If only the team satisfaction score is available:

$$s_d = \frac{t_a + a_{ra} + a_{tm} + a_e + a_{ts}}{5}$$

If both scores, customer and team satisfaction, are available:

$$s_d = \frac{t_a + a_{ra} + a_{tm} + a_e + a_{cs} + a_{ts}}{6}$$

The Excel-sheet provides the ability to enter the scores. If the scores are added the sheet will automatically use them for the calculation of the deployment score.

Table 9: Score overview and deployment score (source: author)

Score for time until arrival		0
Score for Question 1 (relief aid)		0
Score for Question 2 (team members)		0
Score for Question 3 (available MHE)	0	0
Score for Question 4 (MHE solutions)	0	
Score for customer satisfaction		(Fill in here)
Score for team satisfaction		(Fill in here)
Deployment Score:		**0**

The deployment score will be transferred to the outcome with the following table.

Table 10: Table converting the deployment score to an outcome (source: author)

Deployment score	Outcome
5 – 4.5	Very good
4.5 – 3.5	Good
3.5 – 2.5	Neutral
2.5 – 1.5	Bad
1.5 - 1	Very bad

The deployment score is the result of part one of the evaluation. It represents the KPIs which can be assessed by score. The deployment score and its components can be used to evaluate a specific deployment. Difficulties can be analyzed and processes can be improved more specifically and therefore, more efficiently, for future deployments.

4.2 KPIs assessed by documentation

The KPIs which are assessed by documentation, not by score, are the following:

- Relief goods

  The documentation of the relief goods will be divided in incoming and outgoing relief goods. The relief goods arrives at the airport by aircrafts and will then be handled by the DRT. If the DRT moves the relief goods to another facility like the Humanitarian Staging Area in Kathmandu, which is not managed by the DRT, it should only be documented as incoming relief goods. If the incoming relief goods will be stored in a warehouse or storage facility handled by the DRT and in that case will be handled again when leaving the airport it should be documented twice. First as incoming relief goods by the time of arrival at the airport, then as outgoing relief goods, when it leave the airport on trucks, helicopters, or other vehicles.

  In the case, where a storage facility or warehouse is handled by the DRT, the documentation also provides information about the warehouse management. Storage periods can be calculated afterwards as well as the total amount of relief goods stocked in the warehouse at a specific time.

  Information about the relief goods, like weight, quantity, type, time, sender with origin country of the flight and consignee with destination should be gathered as detailed as possible.

Table 11: Documentation part for the incoming and outgoing relief goods (source: author)

Incoming relief goods:

Sender	Origin	Air/Road /Ocean	Type	Quantity	Weight	Size	Consignee	Destination

Outgoing relief goods:

Sender	Origin	Air/Road /Ocean	Type	Quantity	Weight	Size	Consignee	Destination

- Team members

  All deployed team members have to be documented. The documentation has to include the full name of the team member, the day of arrival, the day of departure, the number of the team, the DPDHL Group division and the origin country of the team member.

  If the team member filled in a specific role during the deployment, this should also be documented.

Table 12: Documentation part for the team members (source: author)

Team 1 Team leader:	Division and Origin	Arrival	Departure	specific role
Team member:				

5. Critique

The fast developing process in the humanitarian community in recent years combined with media focusing on the destruction and loss of lives, left a significant gap for reliable data in the logistics sections after a natural disaster. The situation at the airport is often chaotic and not strictly structured as it usually would be expected at an airport. For the first days after a natural disaster it is almost impossible to find reliable data about cargo movements at the airport. With tourist trying to leave the country at the same airport that is used by humanitarian organizations and agencies to get relief workers and relief goods into the country the chaos is predetermined. If the authorities are able to organize that chaos and reinstall structured processes, which is highly unlikely during the first days of response, it is understandable that there is no time or manpower to analyze the flows of cargo or passengers. It is recommended that this data will be gathered by the DRT for further research and more statistically based evaluation. After a natural disaster there are many actors on the ground trying to coordinate a chaotic situation that have never worked together before. The team building process, the clear understanding of responsibilities takes time. This analyzing and evaluation tool can help gathering this data during future deployments. It should be used by the DRT to document the flows and structurally collect as much details as possible.

This thesis also leaves more room for further research in the fields of customer and team satisfaction. Because of the many possibilities how to measure satisfaction scientifically it is recommended for the DRT to find standardized adjustable methods to measure customer and team satisfaction after, or even during a deployment.

The evaluation excel document of this thesis, can only build the base of an ongoing developing process for DRT deployments in organizational and operative perspectives. It should be used in future deployments and evaluated and improved afterwards. With that, a more detailed and more statistically based evaluation tool can be made to measure the outcome of the DRT deployment and its effects on the disaster response.

The field of this thesis is the logistics operation of relief goods after a natural disaster at the airport. Because of the given very specific field of this thesis reliable data is rare. In case of a disaster normal airport processes and normal logistics processes won’t work. There is for example no time for scheduling flight plans or establish a fully functional warehouse

management system which will coordinate warehouses automatically with robots and IT infrastructure, as todays developed warehouse do. Compared to the whole humanitarian supply chain the part of the airport is, although crucial, not often documented. This can be explained with access restrictions and for that only a few people working at the airport able to gather that data. Main problem remaining the big change in the humanitarian community in the last years, as explained before. Because of the big changes in organization, packing, coordination and the simple increase of relief goods and relief workers on the ground, data older than five years can't reflect actual situations. Therefore it couldn't be used to gather information.

Another part of the critique is a consequence of the above. Because of the lack of useable data the evaluation tool of this thesis highly rely on the ability of the team / team leader to reflect themselves. With this evaluation tool, the team almost assesses itself completely. Because of these subjective opinions the results should be treated carefully. Every deployment from now on using this tool, will gather the information needed to improve the tool and make it a more statistically based, and for that a more objective one.

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A Annex

The following pages will present the full worksheet pages of the Excel document referred to in this Thesis.

<u>Manual for this excel sheet:</u>

The objectiv of this excel sheet is to analyze and evaluate a DRT deployment.
To use this sheet properly <u>please read the following instructions.</u>

General information:
Cells with yellow shades will calculate automatically and for that should not be touched. Cells with black frames have to be filled in as detailed as possible.
Every worksheets has a note section offering space for notes or information not covered by the other cells.
All worksheets are made in landscape A4-format and can be printed easily. Make sure the printers properties are also changed to landscape format.
When printed the sheets can be filled in by hand, obviously the automatic calculation will get lost then. The formula for calculation by hand can by found in the thesis to this excel sheet.

Specific worksheet information:
The sheet has various worksheets. The first worksheet is this manual. The second worksheet gives an overview about the deployment with general information like the first and last day of the deployment, the country and location of the deployment and the teams. All this information has to be filled in.
The team overview can be found on the second page of the overview worksheet. The scores of the customer or team satisfaction can be filled in on the firs of the overview worksheet. If filled in they will automatically used for the calculation of the deployment score.
The rest of the worksheets are named "Day 1" up to "Day 30" and cover the first 30 days of the deployment. Each day has some cells on the top offering general information about the specific day, like the date, the working hours of team (e.g. 8-18h), the number of the team currently on the ground and the name of the current team leader. Beneath that general information there are four question which should be answered daily. All four questions have five possible responses. The responses are single choice, so there can only be one answer for one question. The score can differ between 1 and 5 depending the responses. The responses canbe marked with single click. Once a question is responded the score of the question will pop up at the end of the line. All these scorse will be used to calculate the deployment score on the overview worksheet. The incoming and outgoing documentation part should be filled in with as many details as possible. Incoming relief goods are all goods coming into the airport and either stay there in a warehouse or any other location managed by the DRT, or all goods coming into the airport and leaving them directly, for example to a humanitarian staging area not managed by the DRT. Outgoing relief goods are only the goods which stayed in a DRT-managed storage facility/place and therefore have to be handled again by the DRT. First handling after arrival at the airport, second handling from storage faciliy/place to a vehicle in which leaving the airport.
If the deployment will last longer than 30 days, the worksheets can be copy and pasted. Be aware that the automatical calculation of the scores is only preprogrammed for the first 30 days. If more worksheets are copy and pasted the formulas have to be adjusted.

Fig. 14: Excel-document, "manual" worksheet, page 1 (source: author)

EXAMPLES:

Example for the relief goods documentation:

Sender	Origin	Air/Road/ Ocean	Type	Quantity	Weight	Size	Consignee	Destination
German Red Cros	Germany	Air	Blankets	1000	2000 kgs	2m²	Nepal Red Cross	TIA (Airport)
WFP	China	Il 76	Rice	50 bags	1.102 lbs	1 wooden pallet	WFP	Pokahara
Shelterbox	GB	Air	Shelters	10 boxes	300 kgs	10 boxes	UNHCR	storage facility 1

Daily to respond questions:
There are four daily to respond questions. Question 1 - 3 should be answered for every day of deployment. Question 4 is only to answer for those days where the response to question 3 provides a score of 3 or less (Responses: neutral, disagree and strongly disagree). After clicking one of responses the equivalent score will pop up at the end of the line. By changing the response, the score will also change.

Score:

1 The DRT was able to cope with the amount of incoming and outgoing ○ Strongly agree ○ Agree ○ Neutral ◉ Disagree ○ Strongly disagree 0

All response are not activated by default. If one of the response has been selected the score will pop up and will be used for calculation.
For deactivating the response, click the cell with the score and put it in "0". The score and the black dot of the selected response will disappear.

Fig. 15: Excel-document. "manual" worksheet, page 2 (source: author)

DRT deployment in "country"

From "date" to "date"

DRT analyzes and evaluation sheet:

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Regional team:	
Country of deployment:	
Location of deployment:	

Day of request:	
First day of deployment:	
Last day of deployment:	
Number of deployment days	0

Score for time until arrival		0
Score for Question 1 (relief aid)		0
Score for Question 2 (team members)		0
Score for Question 3 (available MHE)	0	0
Score for Question 4 (MHE solutions)	0	

Score for customer satisfaction	(Fill in here)
Score for team satisfaction	(Fill in here)

Deployment Score:	**0**

General notes:

Fig. 16: Excel-document, "overview" worksheet, page 1 (source: author)

DRT deployment in "country"

From "date" to "date"

Deutsche Post DHL Group

Team 1 Team leader:	Division and Origin	Arrival	Departure	specific role
Team member:				

Team 2 Team leader:	Division and Origin	Arrival	Departure	specific role
Team member:				

Team 3 Team leader:	Division and Origin	Arrival	Departure	specific role
Team member:				

Team 4 Team leader:	Division and Origin	Arrival	Departure	specific role
Team member:				

Fig. 17: Excel-document, "overview" worksheet, page 2 (source: author)

Day of deployment: 1 Working hours (from/to): No. of Team:
Date: Team leader:

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Score:

1	The DRT was able to cope with the amount of incoming and outgoing relief goods.	○ Strongly agree	○ Agree	○ Neutral	○ Disagree	○ Strongly disagree
2	The team members and their skills were sufficient to deal with the given situation.	○ Strongly agree	○ Agree	○ Neutral	○ Disagree	○ Strongly disagree
3	The available MHE was adequate to handle the relief goods.	○ Strongly agree	○ Agree	○ Neutral	○ Disagree	○ Strongly disagree
4	If not, the DRT was able to find a feasible solution for the lack of MHE.	○ Strongly agree	○ Agree	○ Neutral	○ Disagree	○ Strongly disagree

Incoming relief goods:

Sender	Origin	Air/Road /Ocean	Type	Quantity	Weight	Size	Consignee	Destination

Fig. 18: Excel-document, "Day 1" worksheet, page 1 (source: author)

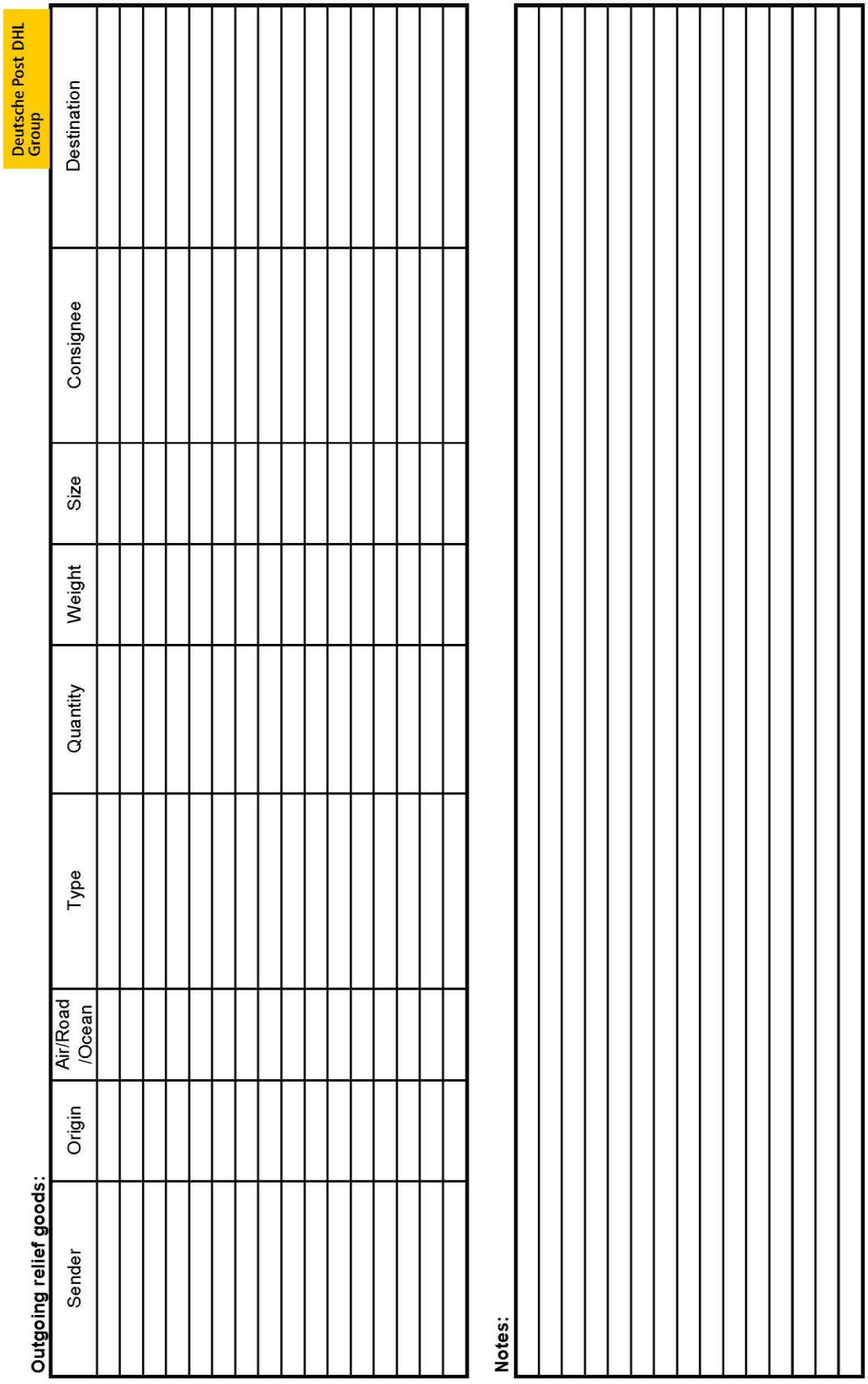

Fig. 19: Excel-document, "Day 1" worksheet, page 2 (source: author)

The worksheets “Day 2” to “Day 30” are the same as the “Day 1” with the “Day of deployment”-number changing. For that, they will not be shown here.