Received 9 October 2017
Revised 15 December 2017
Accepted 16 December 2017

Developing a camp performance indicator system and its application to Zaatari, Jordan

Anna-Mara Schön
Fulda University at House of Logistics and Mobility (HOLM), Frankfurt, Germany
Shahad Al-Saadi
Regional Research Unit, Ipsos, Amman, Jordan
Jakob Grubmueller
Department of Business,
Fulda University at House of Logistics and Mobility (HOLM), Frankfurt, Germany, and
Dorit Schumann-Bölsche
School of Management and Logistics Sciences,
German-Jordanian University, Amman, Jordan

Abstract

Purpose – The purpose of this paper is to present the initial results of the Camp Performance Indicator (CPI) system to illustrate the importance of self-reliance of refugee camp dwellers with regard to infrastructure and service investments.
Design/methodology/approach – Data, derived from a field trip to Zaatari in autumn 2016 and thorough literature research, were taken to develop a new CPI system. The findings from the literature research were merged with available camp data to validate each other.
Findings – Self-reliance is a fundamental human right and anchored in the UN sustainable development goals. Yet, presented findings reveal that even in one of the most modern refugee camps in the world – Zaatari – the level of self-reliance is rather low. However, organisations and humanitarian logisticians can influence self-reliance by identifying clearly where challenges are.
Research limitations/implications – Data from a diverse range of reports were extracted. As most of these reports lack reliable and comparative quantitative data, the limitation of the study must be taken into account. So far data were only validated on one case study. To develop the tool further, more data need to be taken into account.
Originality/value – To this point, there is no performance measurement tool available focusing on self-reliance of encamped refugees. In addition, no academic research has measured the interrelation between the level of investments in infrastructure and services and the improvement of the lives of camp residents, especially regarding the level of self-reliance.

Keywords Humanitarian supply chain, Performance measurement tool, Refugee camps, Self-reliance, Zaatari camp

Paper type Research paper

1. Introduction

In the wake of the Asian tsunami in 2004 and the ensuing humanitarian crisis, scholars all over the world started to look more intensively into the performance of humanitarian logistics and supply chain management (Jahre and Heigh, 2008; Kovács and Spens, 2011; Leiras *et al.*, 2014; Natarajarathinam *et al.*, 2009; Thomas and Kopczak, 2005). To date, many scholars in the field of disaster relief economics and logistics have had a rather narrow focus on short-term emergencies (Bealt *et al.*, 2016; Hong *et al.*, 2015; Krejci 2015; Tatham and Houghton, 2011). A smaller group of

Journal of Humanitarian Logistics and Supply Chain Management
Vol. 8 No. 3, 2018
pp. 346-373
Emerald Publishing Limited
2042-6747
DOI 10.1108/JHLSCM-10-2017-0047

academics has analysed relief chains of longer-term disasters, such as food crises (Haile, 2005; Wood *et al.*, 1995) or protracted refugee camps (Kovács *et al.*, 2010; Olivius, 2014). Taking into account that an estimated 14.2 million people reside in refugee camps for an average of 17 years (UNHCR, 2004, 2016a), researchers might be interested in taking a closer look at the situation of refugee camps, their dwellers and their structures (Betts *et al.*, 2017).

Governments and host communities often consider refugees a burden to the economy, environment, infrastructure, and security system (Betts *et al.*, 2017; Hartmann, 2013; Jacobsen, 2005; WANA and FES Jordan and Iraq, 2017). They claim that refugees increase the pressure on resources like land and water, especially since human crises intensify and refugee influxes increase. As a consequence – and sometimes only to silence political opponents – host governments frequently impose restrictions on the treatment of refugees by limiting their rights, including freedom of movement or access to the local labour market (Betts *et al.*, 2017; Kibreab, 2003; UNHCR, 2016c), leaving encamped refugees feeling "warehoused" (Betts *et al.*, 2017). Nevertheless, donors, as well as organisations like the Office of the United Nations High Commissioner for Refugees (UNHCR), aim to improve lives of encamped refugees as well as host communities, and thus invest in infrastructure and services (KfW Development Bank, 2017; JRP, 2017). The aims of such investments are – according to international donors – to save costs in the long run, to reinforce local capacities and sustainability, to prevent conflicts, and also to increase refugees' self-reliance and resilience (JRP, 2017). Different entities, like Joint IDP Profiling Service, Solutions Alliance or Global Knowledge Partnership on Migration and Development (KNOMAD), engage in data and performance management regarding displaced persons. However, there has been no academic research which measures the interrelation between the level of investments in infrastructure and services and the improvement of the lives of camp residents regarding the level of self-reliance. To analyse this interrelation, a view only on logistics and supply chain management would not give satisfying results. Research in this field must also include views from fields like economics and management as well as politics and social sciences.

In the following sections, the development of the so-called Camp Performance Indicator (CPI) system is described based on a visit to Zaatari camp in Jordan in autumn 2016. In Section 2, after a short description on self-reliance in refugee camps, an overview of performance measurement in humanitarian aid is given. The research method behind the CPI is introduced in Section 3, followed by the key findings of six rounds of data acquisition (Section 4). A case study of Zaatari Camp is presented in Section 5. Section 6 offers a discussion on this topic, relating human rights and the sustainable development goals (SDGs) to present research. Conclusions are drawn in Section 7.

2. State of the art: self-reliance and performance measurement

The state of the art of performance measurement is taken to develop a CPI system regarding self-reliance. Thus, both topics are introduced in this section.

2.1 Self-reliance in refugee camps

Policies of keeping refugees in designated areas, typically camps, can be found in most refugee-hosting countries in the south (Betts *et al.*, 2017; Kibreab, 2003). A refugee camp is defined as a place where refugees reside and, generally, host governments and/or humanitarian actors provide assistance and services in a centralised manner. They often include reception centres, public housing and tents or containers (UNHCR, 2014). Even if most refugee camps are managed by the UN organisation UNHCR, camps vary heavily in size, quality, type of equipment, location, etc., as the setup usually depends on the funding the camp receives and on the hosting country's policies. Just as there is a wide variety of policies regarding refugees and camps, there are also great differences in the level of

self-reliance in camps. Hereinafter, we use three categories of camps, related to different levels of self-reliance: the traditional camp, the urban camp, and the city-like camp:

- Traditional camps have a minimum level of self-reliance. These camps only provide the basic needs at a minimum standard, so people can survive but do not have the opportunity to choose which commodities and/or service they need. Market activities exist, but are limited through the unavailability of opportunities and resources.
- Urban camps have a medium level of self-reliance as shown in Section 5. Urban camps provide fixed infrastructure and services, like pre-fabricated houses (instead of tents), schools, hospitals, and a working security system. The camps also offer water, sanitation and hygiene (WASH), sewage, garbage, and electricity systems as well as a market, where people can buy the goods they need and prefer. Market opportunities in urban camps are more abundant, but still too many refugees depend on external aid.
- City-like camps do not yet exist, but would have a maximum level of self-reliance. They have all benefits urban camps offer along with better education systems, well-paid job opportunities and decent working conditions for refugees and host community members seeking work. In this utopian settlement, residents are able to care for themselves and have the financial means to pay for the services they use.

Denying refugees to work affects their dignity and their well-being. If refugees remain unemployed in the long-term, dependent on external aid, or are generally unable to participate in social structures, they tend to develop associated problems. Those problems include psychological and health problems, down-skilling (meaning the loss of obtained qualifications), and socio-cultural as well as social isolation including stigmatisation, familial tensions and conflicts, feeling of guilt, aggressiveness and poverty (Oschmiansky, 2010; Rawlence, 2016; UNHCR, 2016c; Kibreab, 2003). Thus, increasing the level of employment should be a priority to camp managers, host governments, and the international community.

2.2 Performance measurement

Performance measurement can be defined as "the process of quantifying the efficiency and effectiveness of action" (Neely *et al.*, 1995). In the commercial field, including logistics and supply chain management, such actions are usually supposed to help either to reduce cost or to increase services in order to meet customer requirements (Pfohl, 2010; Schulte, 2013; Bölsche, 2009). Translated into humanitarian terms, this would mean to help either more beneficiaries or to be able to help them faster (Bölsche, 2009). These goals – to be efficient and effective in order to increase aid for beneficiaries – are not only important for humanitarian organisations, but in addition they also are often requirements set by donors (Kovács and Spens, 2007; Haavisto and Goentzel, 2015). Only few organisations have set up a consistent and thorough performance measurement system (Davidson, 2006; Blecken, 2010). Especially smaller organisations, which often work project based, do not evaluate their actions after finishing their work. In discussions with the authors, project operators of non-governmental organisations have often cited tight budgets as a reason, stating that there is no money available to go back to the project's location to see the long-term outcomes for the beneficiaries. Beside financial restrictions, the factor of "urgency" also plays an important role: while gathering accurate data, lifesaving actions stand still (Haavisto and Goentzel, 2015). Conversely, academics emphasise in various publications how important it is to measure the performance regarding costs, flexibility and efficiency, and other factors (Abidi *et al.*, 2013; Blecken, 2010; Davidson, 2006; Haavisto and Goentzel, 2015; Lu *et al.*, 2016).

Further, Haavisto and Goentzel (2015) pointed out the benefits of measuring indicators for humanitarian assistance: connecting the performance with the objectives of both – the organisation and the individual operation – could shed light to the actual impact of the latter, including its quality.

3. Research method

In order to achieve the level "city-like camp", it is important to identify which investments in infrastructure and services help refugees to become more self-reliant. Such measurement and systems are lacking in both literature and research. Thus, three different assessments (Figure 1), including six reviews on literature and online data (cf. findings 1-6), were executed to evolve a first version of a performance measurement system, denoted as CPI system.

The research started in autumn 2016 and will continue for about two more years. Each assessment was and is resumed repeatedly to widen the findings.

As can be seen in Figure 1, the authors conducted two literature reviews to approach the topic: a literature review on academic papers (findings 1) and one on reports and studies from organisations and institutes (findings 2). The findings are explained in the next section. After the first assessment, no indicator systems measuring self-reliance in camps were found (only the well-being index of the Women's Refugee Commission for refugees in general, which is not yet fully elaborated and has different objectives as the CPI). The idea was to create a measurement tool to support camp managers in assessing the level of self-reliance of encamped refugees. The next necessary assessment (2) was related to the creation of the tool. Again, as non-descriptive research for refugee camps is lacking (most research emphasises on examining processes of organisations), the authors reviewed existing indices regarding development, poverty, well-being, etc. (findings 3), and handbooks/guidelines to the matter to adapt dimensions from other authors and learn how existing performance measurement tools were built (findings 4). As the tool is supposed to help camp managers, it needs to include mainly performance indicators which can be improved by the international community and their executers – the international organisations (e.g. UNHCR, cf. Figure 2). Thus, the researchers tried to figure out existing interrelations between humanitarian logistics and self-reliance of refugees in order to decide on which aspects to focus on. Findings 5 show that the indicators usually used by humanitarian logisticians are not useful for present research. The first CPI draft was established.

In order to prove the validation of the first CPI draft, Zaatari camp was chosen as a case study. As mentioned in Section 1, data were acquired online and on the field trip to compare the performance of the camp from 2013 to 2016 as well as statistics from Jordan. The main purpose at this step was to analyse the impact of investments made in infrastructure and services on the camp dwellers' lives using the timeline of the camp. A setback for the research team was the revelation that most organisations only conduct assessments once and do not regularly follow up. Many reports tend to quote each other, which makes it difficult to understand how the stated data were assessed. Thus, the authors could not gather all required data for the first draft of the CPI (e.g. information about micro loans) and had to adjust it, as indicator fields should not be left blank (second draft of CPI). Further, the researchers found data which were not included in the first place. After evaluating a relation to self-reliance (e.g. women-led households) new indicators were inserted. Adjusting the CPI again (third and here published draft), the authors have gathered 27 indicators for six dimensions. Data for Jordan could not be collected for all indicators. Thus, the tool and its application are not completely elaborated and a comparison of different data cannot be provided yet. But still this paper gives an overview on the CPI and the application to a first case from Jordan. The next section reveals the main findings and sheds light to some major decisions the authors have made regarding the CPI.

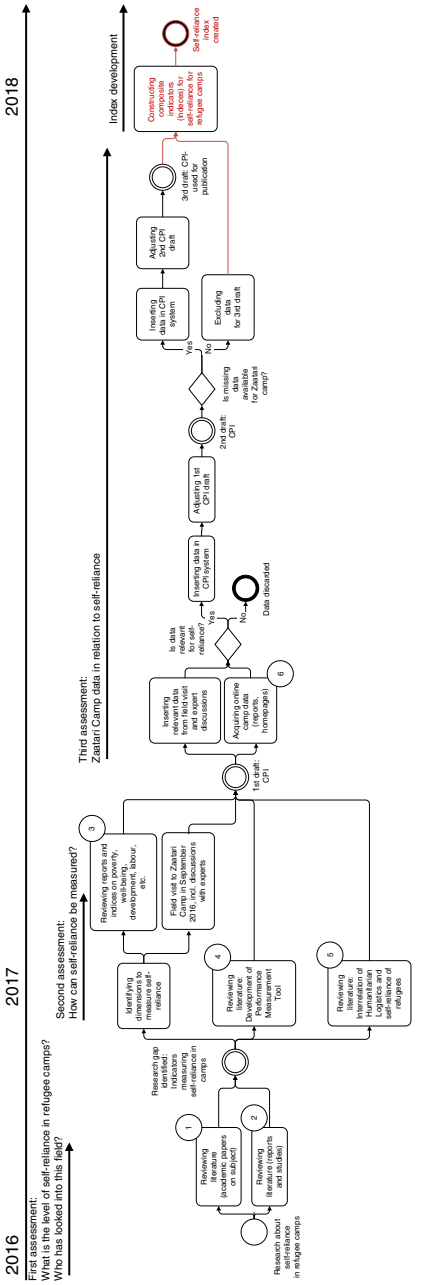

Figure 1.
Overview of research method

4. Findings – development of research tool

As mentioned in Section 3, the most relevant findings of the six reviews/data acquisitions are described hereafter. Each finding is accompanied by a table with the most important papers, reports, or studies, used for analyses. The numbering is according to the encircled figures in Figure 1.

4.1 Findings 1 – self-reliance not yet in focus of academic research (Table I)

Mainly scholars from research areas like anthropology (Agier *et al.*, 2002; Harrell-Bond, 1986), politics/social sciences (Bowles, 1998; Achilli, 2015), and urban planning/architecture (Misselwitz, 2009) have addressed refugee camp residents. Apart from a few exceptions (Werker, 2007; Jacobsen, 2005), economists have only recently started to take a closer look at the situation of refugee camps, their dwellers and their structures (Betts *et al.*, 2017). To date, scholars have only dealt with similar topics, like economics of refugees (Betts *et al.*, 2017; Werker, 2007), economics of host country members (Whitaker, 2002; Zetter *et al.*, 2012; Zetter and Ruaudel, 2014), or innovations in the humanitarian sector (Betts *et al.*, 2015; Ramalingam *et al.*, 2015). Concerning the methods used, the majority of research regarding refugees is based on interviewing the beneficiaries (Betts *et al.*, 2015; Werker, 2002; Abdi and Awa, 2008; Achilli, 2016; Holzer, 2012).

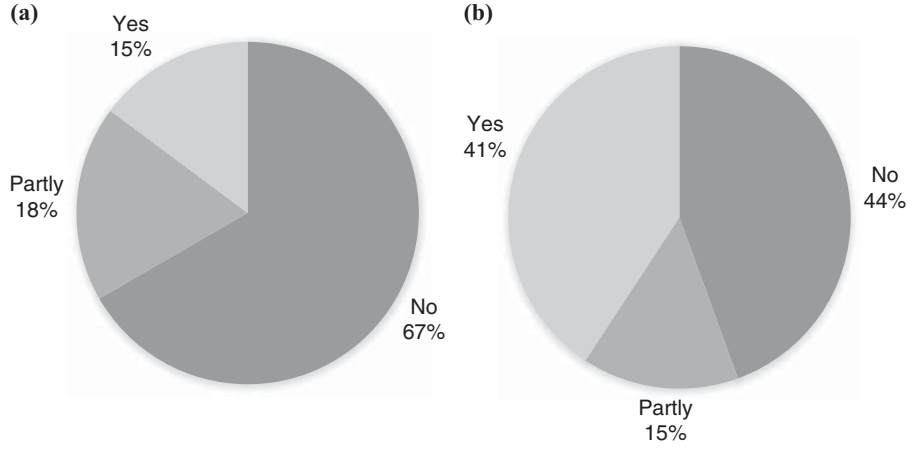

Figure 2.
Share of indicators related to humanitarian logistics (a) and to organisations/ donors (b)

Notes: (a) – Share of indicators, which is related to humanitarian logistics (yes: 6, 10, 16, 17, 22, 28; no: 1-5, 8, 9, 11, 12, 15, 18, 21-27; partly: 7, 13, 14, 19, 20) in comparison to ; (b) – share of indicators, which can be influenced by organisations/donors (yes: 10, 13-21, 27; no: 1-5, 8, 12, 22-26; partly: 6, 7, 9, 11

Main paper	Summary
Jacobsen (2005)	In-depth, qualitative and descriptive analysis of economics of refugees (camps and urban)
Werker (2007)	Description of economy of encamped refugees presented using a case study of Kyangwali Refugee Settlement in Uganda
Betts *et al.* (2015)	Case study-based analysis of innovative efforts in refugee environments
Betts *et al.* (2017)	Systematical exploration of urban and encamped refugees' economic lives. Comparatively analysed and state of the art

Table I.
Findings 1 – academic papers concerning self-reliance in refugee camps

4.2 Findings 2 – self-reliance not new to humanitarian organisations (Table II)

The term "self-reliance" can be read in a vast range of organisational and institutional documents and reports. The most important ones of the findings are mentioned henceforth. UNHCR developed a "Handbook for Self-Reliance" in 2006, which was based on the millennium development goals (MDGs). The MDGs were created in 2000 and are succeeded by the SDGs. UNHCR defines self-reliance as following:

> Self-reliance is the social and economic ability of an individual, a household or a community to meet essential needs (including protection, food, water, shelter, personal safety, health and education) in a sustainable manner and with dignity. Self-reliance, as a programme approach, refers to developing and strengthening livelihoods of persons of concern, and reducing their vulnerability and long-term reliance on humanitarian/external assistance (UNHCR, 2006).

But even before developing the Handbook on Self-Reliance, UNHCR mentioned self-reliance in different reports, e.g. Jamal (2000) and Kelley *et al.* (2004). Kelley *et al.* (2004) emphasised the international collaboration on the topic with partners like IMF and the World Bank. In addition, other organisations mention the term (or synonyms), like the Norwegian Refugee Council in its Norwegian Refugee Council (2008) as well as Crisis Report Plans regarding the Syrian situation (Government of Lebanon and United Nations, 2017; International Crisis Group, 2016; JRP, 2017).

Not only UNHCR bases its goals on the MDGs or SDGs, but this paper also uses the SDGs' Knowledge Platform, as it summarises the understanding of all United Nations members to improve lives of all human beings. The SDGs were adopted on 25 September 2015 and although they were not explicitly created for refugees, they aim to "end poverty, protect the planet, and ensure prosperity for all".

4.3 Findings 3 – dimensions for CPI identified on base of literature review (Table III)

Before choosing or creating indicators, the researchers had to agree on categories (dimensions) in order to provide a framework for the measured data. First, the authors focused on the more obvious categories, which humanitarians define as basic needs and which are mentioned in the definition of self-reliance: protection, food, water, shelter, personal safety, health, and education. Not only health, education, and security, but also food and water were included in a closer selection, as the authors have come across these categories in all reports regarding development and poverty alleviation. These are categories which are also mentioned by a diverse range of reports, like the Human Development Index by the United Nations Development Programme 2016 and indicators gathered in the World Bank (2017) database. Further, the authors had a close look on the aforementioned SDGs. SDGs 1 (No Poverty), 3 (Good Health and Well-being),

Table II.
Findings 2 – reports and studies with respect to self-reliance in refugee camps

Main report/Study	Summary
Sustainable Development Goals (2017)	SDGs aim to "end poverty, protect the planet, and ensure prosperity for all". All goals are supposed to be achieved in the next 15 years
UNHCR (2008)	A tool for UNHCR staff and partners to implement self-reliance strategies. Integrated employment-oriented strategies were developed with the support of the International Labour Organisation (ILO)
Norwegian Refugee Council (2008)	A document created to share key guidelines, standards and best practices in order to alleviate the suffering of beneficiaries, but aimed to build self-reliance in protracted situations
Women's Refugee Commission (2017)	An easy-to-use tool to assess refugees' level of self-reliance through interviews. The objective is to come up with common indicators for global use in order to facilitate services to refugees to become self-reliant. The tool is currently elaborated and not (or only partly) related to refugee camps

4 (Quality Education), 6 (Clean Water and Sanitation), 8 (Decent Work and Economic Growth), 11 (Sustainable Cities and Communities), and 16 (Peace, Justice and Strong Institutions) were especially considered. As self-reliance is strongly related to employment or paid work in general, the authors further looked into existing indicators regarding labour (Eurostat, 2017) as well as quality of employment (Expert Group on Measuring Quality of Employment, 2015). The objective is not only to increase the employment rate of encamped refugees, but employment should also be "good"– free of exploitation and serving one's well-being.

The decision about the dimensions was made when the authors came across the Stiglitz *et al.*'s (2009) report and their categorisations regarding well-being: material living standards, health, education, personal activities including work, political voice and governance, social connections and relationships, environment (present and future conditions), insecurity, of an economic as well as a physical nature. For the third draft of the CPI, these dimensions were reduced to material living standards, health, education, personal activities including work, and insecurity, because no relevant figures could be found for Zaatari camp related to the other dimensions. The dimensions were expanded to demographics, as this category is necessary to (later) compare different camps and to calculate ratios and percentages. However, the excluded dimensions will not be discarded, as they will be useful for further research. The authors are aware that some indicators could be categorised in different dimensions (e.g. access to electricity is not only part of material living standards, but could also be part of education or well-being – cf. column "Objective and examples for relation to self-reliance and/or other dimensions" in Table VII).

4.4 Findings 4 – main challenge: balancing degree of complexity of CPI (Table IV)

The ambition to measure performances is not new to the humanitarian organisations, as displayed by the Logistics Operational Guide by LOG Cluster (2015). But, instead of measuring processes and operational flows on the part of the humanitarian organisations, the CPI is created to assess the status quo of a camp, mainly but not only, regarding the camp's

Main report/Study	Summary
Sustainable Development Goals (2017)	17 different goals to improve life for all, identified as relevant for CPI: SDGs 1, 3, 4, 6, 8, 11, 13, 16
Human Development Index (2016)	Index which concentrates on country data regarding development, gender equality and poverty
Expert Group on Measuring Quality of Employment (2015)	Indicators and guidelines for compiling quality of employment statistics with strong regard to well-being
Eurostat (2017)	EU survey regarding labour market, including general employment indicators
Stiglitz *et al.* (2009)	Elaborated work about measuring people's well-being
Worldbank database (2017)	A database which has gathered thousands of indicators from different sources, regarding development, poverty, education, gender, etc.

Table III. Findings 3 – reports and indices about poverty, well-being, development, labour, etc.

Main report/Study	Relation to development of performance measurement tool
OECD/OCDE (2008)	In-depth guideline for creating composite indicators/indices. Useful when data available on country level
Statistical Commission and UN Economic Commission for Europe (2005)	Useful guideline regarding developing indicators regarding employment/paid work as well as general information
Bandura (2011)	Detailed and updated overview of existing country indices

Table IV. Findings 4 – reports and studies concerning developing measurement tools

infrastructure in relation to the level of self-resilience of the encamped refugees. The difficulty here is to find the balance between creating an easy-to-use tool, and one that assesses the camp deeply enough for valuable results. As the CPI is divided into different dimensions, each one has to be developed by itself, again without producing too much complexity (OECD/OCDE, 2008). Bandura (2011) provided a good overview for different indices, which are used as inspiration on how to build a performance measurement tool for a refugee camp.

Examples from humanitarian logistics do not meet these research objectives, as they mainly focus on the part of measuring processes of organisations (Widera and Hellingrath, 2016; Abidi *et al.*, 2014). Further, researchers used and adapted existing methods, like SCOR (Lu *et al.*, 2016) or the balanced scorecard (Davidson, 2006; McLachlin *et al.*, 2009; Lin Moe *et al.*, 2007). These methods are not appropriate for present research due to the different dimensions (findings 3). Thus, the authors used the Handbook on Constructing Composite Indicators (OECD/OCDE, 2008), which was inspired creating the framework in Table VII. Studying the working paper of Statistical Commission and UN Economic Commission for Europe (2005) showcased the complexity of developing a useful tool. Which factors should be inserted? Which data can camp managers realistically assess? Which indicators do increase the quality of the CPI, which overcomplicate the tool? Which information gives answers to the question of self-reliance and which are interesting, but irrelevant for the scope? As these questions are not easy to answer, the authors started – simultaneously to the choice of alleged fitting indicators – an online search for data of Zaatari camp in order to validate the findings of the tool. This approach allowed us to create a first validated CPI version (Table VII). Initial results of identified constraints regarding the indicators are presented in column "Constraints" in Table VII.

4.5 Findings 5 – increasing self-reliance is also task of humanitarian logisticians (Table V)

Humanitarian logisticians have understood the importance of measuring the performance of their processes; however, existing tools majorly are neither yet applied nor applied properly (Widera and Hellingrath, 2016; Abidi *et al.*, 2014). Reasons therefore are the challenges illustrated by Abidi *et al.* (2014), among others: the achievement of results-based management, especially in terms of input and short-, mid- and long-term outputs, and the disappointment standard indicators evoke as they often cannot meet special cultural nuances which influence humanitarian activities. These challenges can be adapted to the CPI. First, for instance, by measuring a low school-children ratio the answer to the camp manager could be to build more schools, without investing in the improvement of the schools' quality. Further, it is difficult to assess if the number of schools for the children of today really improve the self-reliance of the adults of tomorrow or if other measures would have improved their situation to a higher degree. Second, as the CPI system is supposed to be able to assess different camps worldwide, more general indicators need to be used ignoring cultural differences. Moreover, to validate the system, it is created on basis of existing indicators, even if adapted for the purpose of assessing self-reliance.

The authors support the call made by Aubone and Hernandez (2013) for a refugee camp database in order to cross-analyse camps. This would not only facilitate analyses as conducted for this research, but also improve transparency and visibility regarding

Table V.
Findings 5 – interrelation of humanitarian logistics and self-reliance of refugees

Main report/Study	Summary
Widera and Hellingrath (2016)	Assessing that existing performance measurement approaches do not fit nor function properly yet regarding logisticians in humanitarian organisations
Abidi *et al.* (2014)	Performances of humanitarian supply chains are not yet managed and measured as common practice
Maghsoudi and Pazirandeh (2016)	Visibility of resources in supply chains is important to humanitarian organisations

information, assets, infrastructure, and overall performances. These visibility gaps were also uncovered by Maghsoudi and Pazirandeh (2016) for humanitarian supply chains. Again, the researchers draw parallels between humanitarian logistics and its need for performance measurement and the CPI, also because 33 per cent (yes + partly) of the indicators are related to logistics (Figure 2).

4.6 Findings 6 – state of available camp data is lacking (Table VI)

Many reports about the situation in Zaatari camp are descriptive, neither present figures in tables, nor reveal sources of data, which make it hard to reproduce. If sources of data are demonstrated, many figures derive from interviews with a non-representative number or were taken from a previous report. Most of the organisations elaborating reports do work on their own – each concentrating on different challenges (e.g. education, health, labour). Even if regular meetings take place in a camp, the reports reveal that there is room for improvement regarding exchange of data and reporting. The data material is lacking, which decreased the number of indicators to be included in the CPI and makes it impossible to come up with answering the question of which investments in infrastructure and services improve the self-reliance of refugees at this stage. The reports which the authors could use best were Kattaa (2015), Stave and Hillesund (2015), and REACH (2014) for data regarding employment and work in the camp; Human Rights Watch (2016) and UNICEF, Save the Children (2014) for data about children's condition (education, child labour); and Castro Serrato (2014) for shedding light on security and safety. The UNHCR (2016a, b) factsheet gave a short, but detailed overview of demographic data and current infrastructure.

5. Case study: Zaatari camp

The purpose of this case study was to validate the 27 indicators presented in Table VII and to give background information for a deeper understanding about Zaatari camp. Each dimension (demographics, material living standards, personal activities including work, health, well-being, education, and insecurity) are shortly described after giving an overview of Jordan's legal treatment of refugees and general camp information.

5.1 Current context

Jordan is not part of the 1951 Convention on Refugees or its 1967 Protocol (Saliba, 2016). Thus, it treats its refugees as "visitors" or "guests", not having a legal meaning under domestic law. Nevertheless, UNHCR and Jordan signed a memorandum of understanding in 1998 in order to provide international protection to persons being defined as refugees according to UNHCR. Jordan also provides land for the two Syrian refugee camps Zaatari and Azraq. In the beginning, the Jordanian Government was quite restrictive with handing out working permissions, but the pressure of donors as well as the increasing problem of

Main report/Study	Summary
UNICEF, Save the Children (2014)	Assesses problems regarding child labour in the camp, including effects on education
Human Rights Watch (2016)	Shows effects on education of Syrian refugee children
Kattaa (2015)	Presents findings on employment in Zaatari camp
Stave and Hillesund (2015)	Presents in-depth findings on Syrian refugees' labour situation
REACH (2014)	Presents in-depth findings on encamped refugees' labour situation
UNHCR (2016b)	Gives short but precise overview of Zaatari camp in November 2016
Castro Serrato (2014); UNICEF, Save the Children (2014)	Presents figures regarding safety/security

Table VI. Findings 6 – camp data acquisition

Table VII.
CPI system

Dimension	No.	Indicator	Variable/ Illustration	Objective and examples for relation to self-reliance and/or other dimensions	Constraints	Related to SDG	Zaatari	Jordan
Demographics	1	Camp inhabitants all	Number of inhabitants (in total numbers)	To compare differently sized camps; to calculate ratios		/	80,000[a]	
	2	Camp inhabitants women	Percentage of women (in %)	To compare differently sized camps		/	50%[b]	
	3	Camp inhabitants men	Percentage of men (in %)	To compare differently sized camps		/	50%[b]	
	4	Camp inhabitants 0-14 years	Percentage of minors age 0-14 (in %)	Demographics: To compare differently sized camps Education: to assess the no. of inhabitants in need of an education Well-being: to assess no. of vulnerable inhabitants		/	49%[c]	30%[c]
	5	Camp inhabitants in working-age (15-64 years)	Percentage of inhabitants aged 15-64 (in %)	To compare differently sized camps	Setting the age between 15 and 64 years implies that adolescents should work and not pursue secondary/tertiary education	/	48%[d]	58%[e]
Material living standards	6	Access to next market	Time to get to next market (in hours)	To assess external business opportunities refugees have	Time to get to closest city and thus market is only one indicator for external business opportunities, as, e.g., refugees working as taxi drivers do not have to go to market	8 decent work and economic growth	30 min[f]	
	7	Inhabitants-shop-ratio	No of shops in relation to inhabitants (as a ratio)	To assess the level of material living standards through the availability of different commodities Material living standards: high no of commodities	This indicator does not indicate the quality of shops or type of commodities available. It can just be assumed that a high number of shops offer a high variety of commodities. It also does not	8 decent work and economic growth	27 inhabitants per shop[g]	

(*continued*)

Table VII.

Dimension	No.	Indicator	Variable/ Illustration	Objective and examples for relation to self-reliance and/or other dimensions	Constraints	Related to SDG	Zaatari	Jordan
				Personal activities: no. of available jobs Well-being: no. of shopping opportunities and thus choices to make which increases dignity, time needed to run errands	indicate the time inhabitants need to run their errands; it can just be assumed that if number of shops is high, shops are located more decentralized			
	8	No of shops owned by refugees	Percentage of shop owners in camp (in %)	To assess level of self-reliance.	Does not indicate the number of people working in a shop or their salaries	8 decent work and economic growth	2%[h]	
	9	Refugees with sufficient income to meet basic needs	Percentage of refugees who can meet basic needs (in %)	To assess the income refugees have (incl. remittances and aid) to meet basic needs.	Including remittances and aid does not objectively display level of self-reliance	1 no poverty	60%[i]	
	10	Access to electricity	Hours per day a household has electricity	To assess market and job opportunities Material living standards: the longer people have electricity the more market opportunities they have as they can set up a higher variability of businesses than without Education: children can also learn when dark, schools with electricity are of higher quality Well-being: domestic work is facilitated (by, e.g., usage of white goods)	Indicator does not imply that all households have this amount of electricity per day, how it is generated (e.g., environmental friendly – SDG 7) or who pays for it (refugees or organizations); facilitated domestic work only if further appliances are available (white goods, etc.)	4 quality education; 8 decent work and economic growth	8[j]	

(*continued*)

Table VII.

Dimension	No.	Indicator	Variable/ Illustration	Objective and examples for relation to self-reliance and/or other dimensions	Constraints	Related to SDG	Zaatari	Jordan
Personal activities including work	11	Camp inhabitants with income	Percentage of working-age refugees earning any kind of income	To assess income generating inhabitants, incl. self-employed, formally and informally employed as well as employed by organizations (cash for work) People engaged in work earn at least some kind of income, even if not able to live self-reliantly	This indicator does not indicate the type or quality of work, if employees are exploited, the amount of income is sufficient, nor if the source of income is related to the employee's level of education	8 decent work and economic growth	60%[k]	84%[k]
	12	Camp inhabitants with job permit	Percentage of working-age refugees with job permission (in %)	The more people are engaged in legal work, the higher the level of self-reliance in the camp People with legal work permit can more easily find a job suitable to their education; this has an impact on their well-being; do not have to use negative copying mechanisms (e.g. child labour for their children)	The indicator does not state if refugees with work permission also have found an appropriate job	8 decent work and economic growth	10%	100%
Health	13	Hospital-inhabitants ratio	No. of inhabitants per hospital (as ratio)	To assess quantity of health facilities Physical health is important to be able to engage in work	Indicator does not provide information about quality of hospitals	3 good health and well-being	40,000 inhabitants per hospital[l]	
	14	Health care centre-inhabitants ratio	No. of inhabitants per health care centre (as ratio)	To assess quantity of health facilities Physical health is important to be able to engage in work		3 good health and well-being	8,888 inhabitants per health care centre[l]	

(*continued*)

Table VII.

Dimension	No.	Indicator	Variable/ Illustration	Objective and examples for relation to self-reliance and/or other dimensions	Constraints	Related to SDG	Zaatari	Jordan
	15	Neonatal mortality rate	No. of death that occurs in the first 28 days of life per 1,000 lives (as ratio)	To assess the level of health within the camp The overall level of health can be assessed by the number of babies born healthily – the healthier a camp, the more working-age people can engage in work	A vast variety of indicators could help to assess the level of health in a camp, e.g. the no of malnourished or undernourished children, maternal mortality rate, etc.	3 good health and well-being	26.6[m]	14.7[m]
	16	Waste water removal and treatment	Percentage of waste water collected (in %)	To assess the situation of waste water, as uncollected and untreated waste water increases water-borne diseases, which affects people engaging in work	Also not collected waste can increase water-borne diseases as can the quantity and quality of sanitation facilities	11 sustainable cities and communities	80%[n]	
Well-being	17	Available drinking water	Litres of drinking water per person (in l)	To assess the amount of drinking water available per person; to assess time needed for domestic work Health: a certain amount of drinking water per day is necessary for a person's state of health; an abundance of water facilitates domestic work, like washing clothes and dishes (if white goods available) Education: availability of drinking water improves quality of schooling	Assessment of time for domestic work difficult to assess, as also influenced by other factors (e.g., washing machine available, time necessary to fetch water)	3 good health and well-being; 4 quality education; 6 clean water and sanitation	35+[o]	

(*continued*)

Table VII.

Dimension	No.	Indicator	Variable/ Illustration	Objective and examples for relation to self-reliance and/or other dimensions	Constraints	Related to SDG	Zaatari	Jordan
	18	Child labour	Percentage of children aged 5-14 engaged in work (in %)	To assess level of negative copying mechanism within the camp; to assess children who do not attend school; to assess level of vulnerability of households Education: children who work, do not attend school or only occasionally Well-being: households sending children to work do this usually to cope with poverty	Does not include children (usually girls) engaged in domestic work (SDG 5 indicators)	8 decent work and economic growth	13%[p]	2%[p]
	19	Community centre-inhabitants ratio	No. of inhabitants per community centre (as ratio)	To assess opportunities for psychosocial support and recreational activities Psychological health (well-being) is important to be able to engage in work	Indicator does not provide information about quality of centre or about quantity of offers Indicator does not assess no. of traumatized or vulnerable people – not everybody traumatized or vulnerable goes to centre		2,962 inhabitants per centre[q]	
Education	20	Children-school ratio	No. of children per school (as ratio)	To assess quality of schools Education can raise aspirations, set values, and enrich lives	Indicator does not provide information about quality of school, e.g. Zaatari: only 9 schools are formal schools	4 quality education	865 children per school[r]	
	21	Children-teacher ratio	No. of children per teacher (as ratio)	To assess quality of schools Education can raise aspirations, set values, and enrich lives	In order to really assess quality of school, more information would be necessary, like training of teachers, hours of schooling, abilities of children per class etc., which are partly difficult to assess	4 quality education	50 children per teacher[s]	

(*continued*)

Table VII.

Dimension	No.	Indicator	Variable/ Illustration	Objective and examples for relation to self-reliance and/or other dimensions	Constraints	Related to SDG	Zaatari	Jordan
Education (adults)	22	Camp inhabitants without education	Percentage of inhabitants who never attended school (in %)	To assess level of education of inhabitants to create suitable jobs Education: to assess the level of additional training needed Well-being: the closer a job is to the skills one has, the higher the degree of feeling self-worthy	Does not indicate which non-educational skills a person has achieved before	4 quality education	10%[t]	7%[t]
	23	Camp inhabitants completed only elementary school	Percentage of inhabitants who completed only elementary school (in %)	To assess level of education of inhabitants to create suitable jobs Education: to assess the level of additional training needed Well-being: the closer a job is to the skills one has, the higher the degree of feeling self-worthy	Does not indicate which non-educational skills a person has achieved before	4 quality education	51%[t]	19%[t]
	24	Camp inhabitants completed basic or intermediate school	Percentage of inhabitants who completed basic or intermediate school (in %)	To assess level of education of inhabitants to create suitable jobs Education: to assess the level of additional training needed Well-being: the closer a job is to the skills one has, the higher the degree of feeling self-worthy	Does not indicate which non-educational skills a person has achieved before	4 quality education	25%[t]	33%[t]
	25	Camp inhabitants completed secondary or vocational training	Percentage of inhabitants who completed secondary or vocational training (in %)	To assess level of education of inhabitants to create suitable jobs Education: to assess the level of additional training needed Well-being: the closer a job is to the skills one has, the higher the degree of feeling self-worthy	Does not indicate which non-educational skills a person has achieved before	4 quality education	10%[t]	20%[t]

(*continued*)

Table VII.

Dimension	No.	Indicator	Variable/ Illustration	Objective and examples for relation to self-reliance and/or other dimensions	Constraints	Related to SDG	Zaatari	Jordan
	26	Camp inhabitants completed college or university	Percentage of inhabitants who completed college or university (in %)	To assess level of education of inhabitants to create suitable jobs Education: to assess the level of additional training needed Well-being: the closer a job is to the skills one has, the higher the degree of feeling self-worthy	Does not indicate which non-educational skills a person has achieved before	4 quality education	5%[t]	22%[t]
Insecurity	27	Safety (perceived or real)	Percentage of inhabitants feeling safe (in %)	To assess if inhabitants feel safe in the camp People not feeling safe, try to stay at home and are more cautious in terms of engaging in work and setting up businesses People not feeling safe, try to stay at home and are more cautious in terms of engaging in work and setting up businesses	Indicator has to be assessed by interviews and do not automatically display reality, only perceived safety	16 peace, justice and strong institutions	80%[u]	

Notes: [a]UNHCR (2016c); [b]UNHCR (2016b); [c]UNHCR (2016b); [d]UNHCR (2016c); [e]Department of Statistics, Jordan (2016); [f]Field visit (2016); [g]Field visit (2016); [h]Kattaa (2015); [i]Obeidat (2014), WFP, Unicef, UNHCR (2014), Women's Refugee Commission (2017), [j]Field visit (2016); [k]UNHCR (2015b), UNHCR (2016b), [l]UNHCR (2016b), [m]UNHCR (2013), Department of Statistics, Jordan (2015), [n]UNHCR (2016b), Field Visit (2016); [o]Lahn *et al.* (2016), SDG Report (2017), [p]UNICEF and Save the Children (2014), Save the Children (2014), Kattaa (2015); [q]UNHCR (2016b); [r]Human Rights Watch (2016), LIVED (2017), The Jordan Times (2016), The World Bank (2017); [s]Human Rights Watch (2016), [t]Stave and Hillesund (2015), REACH (2014), [u]Castro Serrato (2014), UNHCR (2015a)

illegal work and thus precarious working conditions, supported the decision of the Jordanian Government to open their labour market to Syrians (ILO, 2017).

Zaatari camp opened on 29 July 2012 and covers some 5.3 square kilometres (km^2). The camp is located 10 km from the Syrian border and is near the city of Mafraq. Currently, it hosts about 80,000 refugees, but more than 460,000 people have cumulatively passed through the camp (UNHCR, 2016a). Thus, Zaatari camp is one of the biggest refugee camps in the world. Over the years, it has faced various challenges, ranging from violent riots to the development of unique infrastructural improvements, like a water and recycling system as well as the implementation of an iris-scan payment system and innovative projects like a "Fab Lab" (IPA | switxboard (2017); Kleinschmidt, 2015). Its shelter conditions have improved significantly since its beginning. Every household has received a pre-fabricated caravan/container and tents are only used as canopies or to provide shade (Field Visit, 2016). Additionally, the average number of people housed has decreased from 8.2 to 3.31 per household per caravan (UNICEF, Save the Children, 2014; UNHCR, 2016b, 2017).

5.2 CPI and its application to the case Zaatari camp

Demographics. Camp inhabitants (pp. 1-5, cf. column "Indicator", Table VII): in comparison to Jordan, the number of children is significantly higher in Zaatari camp, decreasing the percentage of working-age inhabitants. About 57 per cent of the refugee population are adolescents and almost 20 per cent are under the age of 5. Women head approximately 20 per cent of all households, and each week about 80 children are born (UNHCR, 2016b).

Material living standards. Access to next market (6): the camp is well connected with other cities, like Amman (time to commute: approx. 75 min.) and Mafraq (time to commute: approx. 30 min.) through a new, tarred road (Field Visit, 2016).

Inhabitants-shop-ratio (7): over the last years, Zaatari's inhabitants set up about 3,000 (illegal, but tolerated) shops using the provided containers (Field Visit, 2016). These shops are supplied by Jordanian mass traders, which are allowed to center the camp to supply the shops with a vast variety of goods. Even if the shop owners do not pay taxes to the Jordan Government, their businesses are tolerated, as it helps to create some income and keeps the flexibility of the Syrian population. In addition to the 3,000 shops and a daily bread distribution, two supermarkets of different brands are based on the camp ground ("Tazweed Commercial Solutions" and "Jordanian Investment and Supply LLC"). The supermarkets are allowed to sell 300 different necessary food items, like chicken, vegetable, oil, rice, etc. including variations, e.g. different tastes of sauces, the total number of different sold items is 500. One supermarket has 45 employees; around 30 per cent are Syrians from the camp, earning around JD200 per month. The other 70 per cent are Jordanians, earning around JD300 per month. Its turnover is approx. JD80,000 per month. The prices of the supermarkets' goods are comparable to the ones outside. Every registered Syrian refugee in Jordan receives JD20 (approx. USD28) per person per month instead of receiving food rations. Since October 2016, this money can be spent via iris scanning in the supermarket as well as in 200 shops outside the camp. Within seconds, the system confirms the identity of the refugee, checks the bank account with Jordan Ahli Bank and the Middle East Payment Services, confirms the purchase and prints out the receipt (WFP, 2016). By getting the choice what to consume, there is no urgency in selling unwanted food. The greater choice given to refugees increases their dignity and reduces misuse.

No. of shops owned by refugees (8): only 1.5-3 per cent of the 3,000 shops within Zaatari camp are owned by refugees (Kattaa, 2015).

Refugees with sufficient income to meet basic needs (9): despite receiving JD20 per person per month, over 40 per cent of Zaatari camp dwellers have a monthly deficit of some JD84 (WFP, Unicef, UNHCR, 2014).

Access to electricity (10): a solar power plant is planned for construction in 2017, funded by KfW Development Bank (Lahn *et al.*, 2016). At the time of the Field Visit (2016), UNHCR provided eight hours of constant electricity in the afternoon/evening to all camp residents, at a cost of USD500,000 per month. Apparently, the solar power plant will be the largest electricity grid ever built in a refugee camp. Benefits are to reduce the pressure on the existing grid, to save costs long term and to provide constant electricity to the camp residents.

Personal activities including work. Income generating inhabitants (11-12): of the 60 per cent engaged in work, 6,500 refugees have found some kind of labour opportunity (like cash-for-work (CfW) activities). About 8 per cent participate in CfW activities (UNHCR, 2015b). In total, 74 per cent of those working under these activities are carrying out semi-skilled labour, like committee volunteering, cleaning, or guarding; they earn 1.0 Jordanian Dinar (JD) per hour as an incentive rate. A far smaller proportion (26 per cent) of those working in CfW earn JD1.5 per hour since they work at skilled levels, e.g. as tailors, hairdressers, or teachers. CfW jobs, with the exception of guards and cleaners, rotate regularly on a weekly, bi-weekly, or monthly basis. The rest of the 60 per cent of the working-age refugee population either have legal work permits (this amounts to an estimated 10 per cent of Syrian refugees across Jordan) or work illegally outside of the camp (Stave and Hillesund, 2015) (Table VIII).

When considering the indicators 25-28 with the employment situation (Table VIII) the encamped refugees had in Syria, the figures are put into perspective since only a small proportion of these jobs requires better education. It reaffirms the reason why 23 per cent earned their living in agricultural production, 12 per cent in agricultural waged labour, 23 per cent in skilled daily labour, and 11 per cent unskilled non-agricultural daily labour. Only 11 per cent worked in teaching and public service. Most people in Zaatari camp come from the Dara'a region, which is considered Syria's "breadbasket". Back in Syria, the rather low level of education did not seem to have been a problem in comparison to their current living situation – living in a camp, situated in a desert (Stave and Hillesund, 2015; REACH, 2014). Now, their job situation changed dramatically. For instance, of the 23 per cent who formerly were farmers, only 1 per cent currently works in agricultural production. This small percentage working in the agricultural sector (1 per cent instead of 35 per cent) is due to the lack of farms within the camp as well as to the lack of land possession in and outside of Zaatari (REACH, 2014; Human Rights Watch, 2016).

Health. Availability of health facilities (13-15): patients find health support in two hospitals with 55 beds and nine health care centres as well as one delivery unit. In total, 120 community health volunteers support these facilities. The neonatal mortality rate is slightly higher than in Jordan (26.6 vs 14.7).

Waste water (16): on a daily basis, sewage trucks collect some 2,100 cubic metres (m^3) of sludge and approximately 80 per cent of this wastewater is treated in a treatment plant.

Table VIII. Employment situation of camp dwellers

Employment situation in 2014 of Zaatari inhabitants (Stave and Hillesund, 2015; REACH, 2014)	In Syria (%)	In Zaatari (%)
Agricultural production	23	1
Agricultural waged labour	12	0
Teacher or public servant	11	2
Skilled daily labour	23	2
Unskilled non-agricultural daily labour	11	2
Begging (incl. Relying on friends and family)	0	23
Dependent on cash from charities	1	32
Shop owner	7	3

Well-being. Available drinking water (17): every camp dweller receives 35 litres of water per day. The infrastructure of the camp counts three internal boreholes, providing an estimated 3.2 million litres of drinking water daily, which are distributed by 82 trucks (UNHCR, 2016b; Field Visit, 2016).

Child labour (18): about 13.3 per cent of all Syrian refugee children work (whereas the number of working Jordanian children (aged 9-15) is 1.6 per cent). Usually, child labour is part of households' coping mechanisms when money is scarce. Of the percentage of working Syrian refugee children, 94 per cent are boys and only 6 per cent are girls. Nevertheless, girls frequently work up to 17 hours on household chores or get married off at a very young age (UNICEF, Save the Children, 2014; Save the Children, 2014; Kattaa, 2015).

Community centre-inhabitants ratio (19): 27 community centres provide psychosocial support and recreational activities.

Education. Quality of school (20-21): in terms of education for youth, the number of available schools has greatly improved in the last three years. In Zaatari camp alone, the number of schools has increased over the last three years from 3 to 24 schools. Nine of them are formal schools (Human Rights Watch, 2016; LIVED, 2017; The Jordan Times, 2016). Still, this does not seem to be enough with each teacher taking care of an average of 50 students and schools working double shifts to cover all children. This has also led to a lower quality of education, as children have less school hours (Human Rights Watch, 2016). Schools in the camp cover primary and secondary education, but tertiary education is unavailable in the camp (UNHCR, 2016b).

Educational level of adults (22-26): see details above in "Income generating inhabitants (11-12)".

Insecurity. Safety (27): the camp has a police station (Field Visit, 2016). In addition, the number of security staff increased from 37.7 stationed per area in 2013 to 42.8 in 2016, which influenced the perceived security in percentage terms from 64 per cent in 2013 to 80 per cent in 2016. The intimidation of humanitarian staff has decreased by 83 per cent between 2013 and 2014, according to UNHCR (Castro Serrato, 2014; UNHCR, 2015a).

6. Discussion

Humanitarian logistics' and humanitarian supply chain management's main objectives are to provide goods in a flexible, efficient, and effective manner to "the customer" (here beneficiary/refugee) (Scholten *et al.*, 2018). The meaning of self-reliance, though, insists on not serving the beneficiary – at least not by delivering daily/basic goods. Does this make humanitarian logisticians dispensable? Is humanitarian supply chain management useless for protected refugee situations? The authors negate this; however, services provided by humanitarians must change if the long demanded request for more self-reliance is to be taken seriously. Three main areas are proposed hereafter: first, the more protracted crises become, the more humanitarian organisations need to shift from being providers of basic needs' to service-oriented partners, accompanying processes towards more self-reliance. Second, in order to create self-reliance, hence jobs, camp managers could become "urban developers" and "business persons" through advocating the establishment of necessary infrastructure and the attraction of suitable, non-exploiting businesses and corporations. Third, organisations should become (more than ever) the "voice" of the camp dwellers regarding the compliance of human rights.

The first and second proposals are related with each other. As Jacobsen (2005) suggested, education, health, and financial services should remain in the hands of organisations, including special attention to the most vulnerable regarding nutrition and psychological services to treat mal-/undernourishment and traumas, etc. The main tasks of the organisation would not be to execute all these tasks, but to seek best fitting staff for

the different purposes – mainly from camp dwellers and the surrounding community. If suitable staff cannot be found, the organisations could facilitate trainings and thus create jobs, raising the level of self-reliance. Hence, managing organisations would function rather as employers. The CPI tool could support these tasks by detecting gaps regarding self-reliance and thus reveal which fields to tackle first. As Figure 2(b) shows, 56 per cent (yes + partly) of the CPI indicators can be – at least partly – influenced by organisations or donors. In order to create jobs, the right infrastructure must be available. Building infrastructure demands logistical activities, such as resource and process management, coordination and information management, prevention and management of backlogs and delays, streamlining procedures and processes (Scholten *et al.*, 2018). These rather coordinating and managing than operational tasks are not new to humanitarians, especially not to logisticians. As presented in Figure 2(a), 33 per cent of the current CPI indicators are related to logistics. Camp managers, as already happening in Zaatari camp, become "mayors" of the camp, deciding on which infrastructure needs to be built and which businesses are allowed or even attracted to the camp environment. For a camp like Zaatari, these tasks are easier to fulfil than for camps situated in remote areas, like many African camps. It is difficult to attract businesses if neither enough water nor electricity is available. The same applies if the state of the roads connecting the camp with the next bigger markets does not allow a predictable flow of goods. This makes the third proposal even more important. Too often refugees are refused to enjoy the basic human rights, especially the rights to work and the rights to move freely. Without these rights, it can be argued that none of the efforts made by humanitarian organisations to accomplish a higher level of self-reliance will ever bear fruits. This might also be the reason why the level of self-reliance is also, in a state of the art camp like Zaatari, rather low. Thus, organisations could negotiate more firmly with the host countries to grant refugees their rights.

In 1948, the United Nations General Assembly proclaimed the Universal Declaration of Human Rights as a common standard of achievements for all peoples and all nations (United Nations, 1948). As these rights include "all members of the human family", they also include refugees. The SDGs were built upon these rights and were used as main material to establish the CPI. For example, SDG 4 encourages efforts to achieve universal education goals, e.g., including more children in higher education. SDG 8 promotes the rights of working people to be able to live decently from their salaries, too. It requests that societies create conditions for people to have quality jobs, so the economy can be stimulated without harming the environment. People – including refugees – should obtain job opportunities along with decent working conditions. To gain development, a country needs industrialisation. To gain industrialisation, technology and innovation are necessary according to SDG 9. Innovation does not only apply to organisational response (Noori und Weber, 2016; Ramalingam *et al.*, 2015; Betts *et al.*, 2017), but can and should also be applied by refugees themselves (Kleinschmidt, 2015; Miller and Kleinschmidt, 2016; Betts *et al.*, 2015). For refugee camps, this could mean on the one hand to increase the opportunities of vocational trainings. On the other hand, the implementation of innovative ideas through handing out micro credits and necessary resources and infrastructure to start a business, like electricity, transportation, telecommunications, and the internet (Betts *et al.*, 2017) could be facilitated to approximate the definition of a city-like camp.

7. Conclusion

Refugee camps are not yet places where "ambitions, aspirations and other intangible aspects of life are realized" (UNHABITAT, 2012), a city-like camp – as defined in Section 1 – is a rather utopian concept. It is a place for refugees where they can obtain the level of

education and employment they seek, provide for themselves and their families, pay for the services they use, and lead fulfilled lives. In these camps, aid organisations and commercial stakeholders create quality jobs and build infrastructure, like roads, hospitals, enough schools for all educational levels, and provide electricity for all so people have the opportunity to take care of themselves (Aleinikoff, 2015). To facilitate the decision of which of these tasks challenge first, the authors develop the so-called CPI system.

Given the burden organisations face by collecting and measuring data (Dunlop, 2011) as well as the growing number of measurement tools (Kelley *et al.*, 2004), the question concerning the development of yet another measurement tool is justified. The purpose of the CPI is not to make life more difficult for camp managers, but to create an efficient and effective tool, which is quickly filled out (in case all required data for other tools were assessed at that point). The inserted data are then supposed to tell the camp manager the camp's level of self-reliance including its major gaps. Thus, the following steps of this research project are to construct composite indicators based on the aforementioned dimensions and to test it on two case studies. Expert interviews will be used to validate the choice of indicators, which must be based on existing indicators with available data sets (e.g. country data). In addition, this approach is supposed to decrease the current constraints of the indicators (Table VII). Data sets from the World Bank database and the SDG indicators might make computing indices, using methods like the principal component analysis, possible. This work would be simplified if performance measurement based on implemented projects was already state of the art for every organisation, making data accessible and comparable for scholars and other organisations. This would avoid the duplication of projects, help to make better decisions on investments and support research projects like the development of the CPI.

Acknowledgements

The authors are grateful for comments on the paper received from Ekram el-Huni, member of the World Food Programme. The authors would like to thank Martin Ohlsen, former WFP member for his comments and support during the entire research phase. To add, the authors thank a WFP staff member, who wishes to remain anonymous, for giving us an insight in his work (Rome/Italy, 7 July 2016). The authors express thanks to UNHCR, UNICEF, and International Relief & Development staff as well as to youth committee members who the authors talked to on 18 September 2016 in Zaatari Camp. The authors special thanks go to World Food Programme members in Jordan who received the authors in their headquarter in Amman as well as in the Al-Mafraq office.

References

Abdi, H. and Awa, M. (2008), "In Limbo: dependency, Insecurity, and Identity amongst Somali refugees in Dadaab camps", *Bildhaan: An International Journal of Somali Studies*, Vol. 5, pp. 17-34, available at: http://digitalcommons.macalester.edu/cgi/viewcontent.cgi?article=1043&context=bildhaan (accessed 5 February 2017).

Abidi, H., de Leeuw, S. and Klumpp, M. (2013), "Measuring success in humanitarian supply chains", *International Journal of Business and Management Invention*, Vol. 2 No. 8, pp. 31-39, available at: www.ijbmi.org/papers/Vol(2)8/Version-1/E0281031039.pdf (accessed 3 August 2017).

Abidi, H., de Leeuw, S. and Klumpp, M. (2014), "Humanitarian supply chain performance management: a systematic literature review", *Supply Chain Management: An International Journal*, Vol. 19 Nos 5/6, pp. 592-608, available at: https://doi.org/10.1108/SCM-09-2013-0349

Achilli, L. (2015), *Palestinian Refugees and Identity. Nationalism, Politics and the Everyday*, I.B. Tauris, London and New York, NY (Library of Modern Middle East studies, 158), available at: http://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&AN=1424563 (accessed 3 August 2017).

Achilli, L. (2016), "Back to Syria? Conflicting patterns of mobility among Syrian refugees in Jordan", *Orient*, Vol. 57 No. 1, pp. 7-13, available at: http://hdl.handle.net/1814/38826 (accessed 5 February 2017).

Agier, M., Nice, R. and Wacquant, L. (2002), "Between war and city: towards an urban anthropology of refugee camps", *Ethnography*, Vol. 3 No. 3, pp. 317-341.

Aleinikoff, A. (2015), "From dependence to self-reliance: changing the paradigm in protracted refugee situations", Ed. TransAtlantic Council on Migration, Migration Policy Institute (Policy Brief), Washington, DC, available at: www.migrationpolicy.org/research/dependence-self-reliance-changing-paradigm-protracted-refugee-situations (accessed 13 December 2017).

Aubone, A. and Hernandez, J. (2013), "Assessing refugee camp characteristics and the occurrence of sexual violence: a preliminary analysis of the dadaab complex", *Refugee Survey Quarterly*, Vol. 32 No. 4, pp. 22-40, doi: 10.1093/rsq/hdt015.

Bandura, R. (2011), "Composite indicators and rankings: inventory 2011", technical report, United Nations Development Programme – Office of Development Studies.

Bealt, J., Barrera, F., Camilo, J. and Mansouri, S.A. (2016), "Collaborative relationships between logistics service providers and humanitarian organisations during disaster relief operations", *Journal of Humanitarian Logistics and Supply Chain Management*, Vol. 6 No. 2, pp. 118-144, doi: 10.1108/JHLSCM-02-2015-0008.

Betts, A., Bloom, L. and Weaver, N. (2015), *Refugee Innovation: Humanitarian Innovation That Starts With Communities*, Humanitarian Innovation Project, University of Oxford, Oxford, available at: www.rsc.ox.ac.uk/files/refugee-innovation-humanitarian-innovation-that-starts-with-communities/refugee-innovation-web-5-3mb-1.pdf (accessed 16 August 2017).

Betts, A., Bloom, L., Kaplan, J.D. and Omata, N. (2017), *Refugee Economies: Forced Displacement and Development*, 1st ed., Oxford University Press, Oxford.

Blecken, A. (2010), "Supply chain process modelling for humanitarian organisations", *International Journal of Physical Distribution & Logistics Management*, Vol. 40 Nos 8/9, pp. 675-692, doi: 10.1108/09600031011079328.

Bölsche, D. (2009), *Internationales Katastrophenmanagement. Logistik und Supply-Chain-Management*, Vol. 3, 1st ed., Nomos, Baden-Baden, Weltwirtschaft und internationale Zusammenarbeit.

Bowles, E. (1998), "From village to camp: refugee camp life in transition on the Thailand-Burma border", Forced Migration Review (FMR 2), Oxford, August, available at: www.fmreview.org/camps/bowles.html (accessed 3 August 2017).

Castro Serrato, B. (2014), "Refugee perceptions study: Za'atari camp and host communities in Jordan", available at: www.oxfam.org/sites/www.oxfam.org/files/file_attachments/rr-refugee-perceptions-study-syria-jordan-020614-en.pdf (accessed 6 February 2017).

Davidson, A.L. (2006), "Key performance indicators in humanitarian logistics", available at: www.fritzinstitute.org/pdfs/findings/xs_davidson_anne.pdf (accessed 3 August 2017).

Department of Statistics, Jordan (2015), "Mortality rate – neonatal (per 1;000 live births) in Jordan", available at: www.tradingeconomics.com/jordan/mortality-rate-neonatal-per-1-000-live-births-wb-data.html (accessed 6 February 2017).

Department of Statistics, Jordan (2016), "Jordan unemployment rate | 2007-2017 | data | chart | calendar | forecast", available at: www.tradingeconomics.com/jordan/unemployment-rate (accessed 6 February 2017).

Dunlop, E. (2011), "New issues in refugee research: indications of progress? Assessing the use of indicators in UNHCR operations", Research Paper No. 214, available at: www.unhcr.org/4e15bb2a9.pdf (accessed 13 December 2017).

Eurostat (2017), "Labour market (including labour force survey)", available at: http://ec.europa.eu/eurostat/web/labour-market/overview (accessed 13 December 2017).

Expert Group on Measuring Quality of Employment (2015), "Statistical framework for measuring quality of employment. handbook", Ed. United Nations Economic Commission for Europe, available at: www.unece.org/fileadmin/DAM/stats/publications/2015/ECE_CES_40.pdf (accessed 22 November 2017).

Field Visit (2016), "Visit, Incl. Conversations with UNHCR", UNICEF, World Food Programme, International Relief & Development, Youth Committee, Zaatari, 18 September.

Government of Lebanon and United Nations (2017), "Lebanon-crisis-response-plan-2017-2020", available at: www.3rpsyriacrisis.org/wp-content/uploads/2017/01/Lebanon-Crisis-Response-Plan-2017-2020.pdf (accessed 13 December 2017).

Haavisto, I. and Goentzel, J. (2015), "Measuring humanitarian supply chain performance in a multi-goal context", *Journal of Humanitarian Logistics and Supply Chain Management*, Vol. 5 No. 3, pp. 300-324, doi: 10.1108/JHLSCM-07-2015-0028.

Haile, M. (2005), "Weather patterns, food security and humanitarian response in sub-Saharan Africa", *Philosophical transactions of the Royal Society of London: Series B, Biological Sciences*, Vol. 360 No. 1463, pp. 2169-2182, doi: 10.1098/rstb.2005.1746.

Harrell-Bond, B.E. (1986), *Imposing Aid: Emergency Assistance to Refugees*, Oxford Univ. Press (Oxford Medical Publications), Oxford.

Hartmann, J. (2013), "Local Integration as an alternative to encampment – lessons from Tanzania's refugee settlements", *TRIALOG – A Journal for Planning and Building in a Global Context*, Vols 1-2 Nos 112/113, pp. 82-88.

Holzer, E. (2012), "A case study of political failure in a refugee camp", *Journal of Refugee Studies*, Vol. 25 No. 2, pp. 257-281.

Hong, J.-D., Jeong, K.-Y. and Feng, K. (2015), "Emergency relief supply chain design and trade-off analysis", *Journal of Humanitarian Logistics and Supply Chain Management*, Vol. 5 No. 2, pp. 162-187, doi: 10.1108/JHLSCM-05-2014-0019.

Human Rights Watch (2016), "We're afraid for their future", 16 August, available at: www.hrw.org/report/2016/08/16/were-afraid-their-future/barriers-education-syrian-refugee-children-jordan (accessed 6 February 2017).

ILO (2017), *Work permits regulations and employment outcomes of Syrian refugees in Jordan. Towards the formalisation of Syrian refugees*, International Labour Organisation, Regional Office for Arab States, Beirut, available at: www.ilo.org/wcmsp5/groups/public/—arabstates/—ro-beirut/documents/publication/wcms_559151.pdf (accessed 18 August 2017).

International Crisis Group (2016), "Turkey's refugee crisis: the politics of permanence", Europe Report No 241, Ankara and Brussels, available at: www.crisisgroup.org/europe-central-asia/western-europemediterranean/turkey/turkey-s-refugee-crisis-politics-permanence (accessed 13 December 2017).

IPA | switxboard (2017), "Projects, examples of change: disruptive technologies", available at: www.switxboard.net/projects/ (accessed 6 February 2017).

Jacobsen, K. (2005), *The Economic Life Of Refugees*, Kumarian Press, Bloomfield, CT.

Jahre, M. and Heigh, I. (2008), "Does the current constraints in funding promote failure in humanitarian supply chains?", *Supply Chain Forum – An International Journal*, Vol. 9 No. 2, pp. 44-55, available at: www.supplychain-forum.com/documents/articles/SCFvol9%202%202008_Jahre_Heigh.pdf (accessed 2 August 2017).

Jamal, A. (2000), "Minimum standards and essential needs in a protracted refugee situation", A review of the UNHCR Programme, Ed. UNHCR (EPAU/2000/05), Kakuma, available at: www.unhcr.org/research/evalreports/3ae6bd4c0/minimum-standards-essential-needs-protracted-refugee-situation-review-unhcr.html (accessed 27 November 2017).

JRP (2017), "The Jordan response plan for the Syria crisis. 2017-2019", Ministry of Planning and International Cooperation, Amman, available at: http:/jrpsc.org (accessed 3 August 2017).

Kattaa, M. (2015), "Social protection and employment for Syrian refugees in Jordan", available at: www.rdw2015.org/uploads/submission/full_paper/20/Social_protection_and_employment__the_case_of_Syrian_refugees_in_Jordan.pdf (accessed 6 February 2017).

Kelley, N., Sandison, P. and Lawry-White, S. (2004), "Enhancing UNHCR's capacity to monitor the protection, rights and well-being of refugees", EPAU/2004/06, UNHCR.

KfW Development Bank (2017), "Support in the area of international financing", available at: www.kfw.de/KfW-Group/Newsroom/Press-Material/Themen-kompakt/Fl%C3%BCchtlingshilfe/International/ (accessed 3 August 2017).

Kibreab, G. (2003), "Displacement, host governments' policies, and constraints on the construction of sustainable livelihoods", *International Social Science Journal*, Vol. 55 No. 175, pp. 57-67, doi: 10.1111/1468-2451.5501006.

Kleinschmidt, K. (2015), "Weil es um die Menschen geht. Als Krisenhelfer an den Brennpunkten der Welt", Econ, Berlin.

Kovács, G., Matopoulos, A. and Hayes, O. (2010), "A community-based approach to supply chain design", *International Journal of Logistics Research and Applications*, Vol. 13 No. 5, pp. 411-422.

Kovács, G. and Spens, K.M. (2007), "Humanitarian logistics in disaster relief operations", *International Journal of Physical Distribution & Logistics Management*, Vol. 37 No. 2, pp. 99-114, doi: 10.1108/09600030710734820.

Kovács, G. and Spens, K.M. (2011), "Trends and developments in humanitarian logistics – a gap analysis", *International Journal of Physical Distribution & Logistics Management*, Vol. 41 No. 1, pp. 32-45, doi: 10.1108/09600031111101411.

Krejci, C.C. (2015), "Hybrid simulation modeling for humanitarian relief chain coordination", *Journal of Humanitarian Logistics and Supply Chain Management*, Vol. 5 No. 3, pp. 325-347, doi: 10.1108/JHLSCM-07-2015-0033.

Lahn, G., Grafham, O. and Elsayed Sparr, A. (2016), "Moving energy initiative, Amman: refugees and energy resilience in Jordan", available at: www.chathamhouse.org/sites/files/chathamhouse/publications/research/2016-08-03-refugees-energy-jordan-lahn-grafham-sparr.pdf (accessed 8 August 2017).

Leiras, A., de Brito, I. Jr, Queiroz Peres, E., Bertazzo, T.E. and Yoshizaki, H.T.Y. (2014), "Literature review of humanitarian logistics research': trends and challenges", *Journal of Humanitarian Logistics and Supply Chain Management*, Vol. 4 No. 1, pp. 95-130, doi: 10.1108/JHLSCM-04-2012-0008.

Lin Moe, T., Gehbauer, F., Senitz, S. and Mueller, M. (2007), "Balanced scorecard for natural disaster management projects", *Disaster Prevention and Management: An International Journal*, Vol. 16 No. 5, pp. 785-806, doi: 10.1108/09653560710837073.

LIVED (2017), "The Zaatari refugee camp", available at: www.livedprojects.org/zaatari-refugee-camp/ (accessed 6 February 2017).

LOG Cluster (2015), "Monitoring and evaluation – Logistics Operational Guide (LOG) - digital logistics capacity assessments", 7 August, available at: http://dlca.logcluster.org/display/LOG/Monitoring+and+Evaluation (accessed 13 December 2017).

Lu, Q., Goh, M. and de Souza, R. (2016), "A SCOR framework to measure logistics performance of humanitarian organizations", *Journal of Humanitarian Logistics and Supply Chain Management*, Vol. 6 No. 2, pp. 222-239, doi: 10.1108/JHLSCM-09-2015-0038.

McLachlin, R., Larson, P.D. and Khan, S. (2009), "Not-for-profit supply chains in interrupted environments", *Management Research News*, Vol. 32 No. 11, pp. 1050-1064, doi: 10.1108/01409170910998282.

Maghsoudi, A. and Pazirandeh, A. (2016), "Visibility, resource sharing and performance in supply chain relationships: insights from humanitarian practitioners", *Supply Chain Management*, Vol. 21 No. 1, pp. 125-139, doi: 10.1108/SCM-03-2015-0102.

Miller, M. and Kleinschmidt, K. (2016), "Refugee cities: a proposal for using special economic zones to expand options for displaced people", Concept Note, Refugee Cities, unpublished working draft, 3 March.

Misselwitz, P. (2009), "Rehabilitating camp cities: community driven planning for urbanised refugee camps", available at: http://dx.doi.org/10.18419/opus-65 (accessed 5 February 2017).

Natarajarathinam, M., Capar, I. and Narayanan, A. (2009), "Managing supply chains in times of crisis: a review of literature and insights", *International Journal of Physical Distribution & Logistics Management*, Vol. 39 No. 7, pp. 535-573.

Neely, A., Gregory, M. and Platts, K. (1995), "Performance measurement system design", *International Journal of Operations & Production Management*, Vol. 15 No. 4, pp. 80-116, doi: 10.1108/01443579510083622.

Noori, N.S. and Weber, C. (2016), "Dynamics of coordination-clusters in long-term rehabilitation", *Journal of Humanitarian Logistics and Supply Chain Management*, Vol. 6 No. 3, pp. 296-328, doi: 10.1108/JHLSCM-06-2016-0024.

Norwegian Refugee Council (2008), "The camp management toolkit", Norwegian Refugee Council and the Camp Management Project, available at: www.humanitarianresponse.info/system/files/documents/files/Camp%20Management%20Toolkit.pdf (accessed 13 December 2017).

Obeidat, O. (2014), "Third of Jordan's population lives below poverty line at some point of one year – study", *Jordan Times*, 2 july, available at: www.jordantimes.com/news/local/third-jordan%E2%80%99s-population-lives-below-poverty-line-some-point-one-year-%E2%80%94-study (accessed 22 February 2017).

OECD/OCDE (2008), *Handbook on Constructing Composite Indicators. Methodology and User Guide*, OECD Publishing, Paris, available at: www.oecd.org/std/42495745.pdf (accessed 13 December 2017).

Olivius, E. (2014), "Displacing equality? Women's participation and humanitarian aid effectiveness in refugee camps", *Refugee Survey Quarterly*, Vol. 33 No. 3, pp. 93-117.

Oschmiansky, F. (2010), "Folgen der Arbeitslosigkeit", bpb. Bundeszentrale für politische Bildung, Bonn, 1 June, available at: www.bpb.de/politik/innenpolitik/arbeitsmarktpolitik/54992/folgen-der-arbeitslosigkeit?p=all (accessed 5 February 2017).

Pfohl, H.-C. (2010), "Grundlagen der betriebswirtschaftlichen Logistik", in Hans-Christian, P. (Ed.), *Logistiksysteme. Betriebswirtschaftliche Grundlagen*, Vol. 8, Springer, Berlin, pp. 2-65.

Ramalingam, B., Rush, H., Bessant, J., Marshall, N., Gray, B. and Hoffman, K. (2015), *Strengthening the Humanitarian Innovation Ecosystem*, ALNAP Overseas Development Institute, University of Brighton, London, available at: www.alnap.org/resource/22181.aspx (accessed 16 August 2017).

Rawlence, B. (2016), *City of Thorns. Nine Lives in the World's Largest Refugee Camp*, Portobello, London.

REACH (2014), "Al Za'atari camp population profiling: Al Mafraq Governorate, Jordan – camp population profile", available at: https://data.unhcr.org/syrianrefugees/download.php?id=5555 (accessed 6 February 2017).

Saliba, I. (2016), "Refugee law and policy: Jordan", Library of Congress, Washington, DC, 1 March, available at: www.loc.gov/law/help/refugee-law/jordan.php (accessed 18 August 2017).

Save the Children (2014), "Too young to wed: the growing problem of child marriage among Syrian girls in Jordan", available at: www.savethechildren.org/atf/cf/%7B9def2ebe-10ae-432c-9bd0-df91d2eba74a%7D/TOO_YOUNG_TO_WED_REPORT_0714.PDF (accessed 6 February 2017).

Scholten, K., de Blok, S. and Haar, R.-J. (2018), "How flexibility accommodates demand variability in a service chain: insights from exploratory interviews in the refugee supply chain", in Kovacs, G., Karen, M., Spens, U. and Mohammad, M. (Eds), *The Palgrave Handbook of Humanitarian Logistics and Supply Chain Management*, Palgrave Macmillan, pp. 359-393, available at: www.rug.nl/research/portal/publications/how-flexibility-accommodates-demand-variability-in-a-service-chain(3e1c591b-1ce6-49f2-8dae-62f76188f270)/export.html

Schulte, C. (2013), *'Logistik. Wege zur Optimierung der Supply Chain'*, 6th ed., Franz Vahlen, München.

Statistical Commission and UN Economic Commission for Europe (2005), "'Quality of work and employment in the European working conditions survey", Working Paper No. 4, Online verfügbar unter, Brussels, available at: www.unece.org/fileadmin/DAM/stats/documents/2005/05/labour/wp.4.e.pdf (accessed 13 December 2017).

Stave, S.E. and Hillesund, S. (2015), *Impact of Syrian Refugees on the Jordanian Labour Market*, ILO, Geneva.

Stiglitz, J., Sen, A. and Fitoussi, J.P. (2009), "Report by the Stiglitz commission on the measurement of economic performance and social progress", available at: http://ec.europa.eu/eurostat/documents/118025/118123/Fitoussi+Commission+report (accessed 22 November 2017).

Sustainable Development Goals (2017), "Sustainable development goals knowledge platform", available at: https://sustainabledevelopment.un.org/?menu=1300 (accessed 12 December 2017).

Tatham, P. and Houghton, L. (2011), "The wicked problem of humanitarian logistics and disaster relief aid", *Journal of Humanitarian Logistics and Supply Chain Management*, Vol. 1 No. 1, pp. 15-31, doi: 10.1108/20426741111122394.

The Jordan Times (2016), "Eight new schools established in Zaatari camp", 20 August, available at: www.jordantimes.com/news/local/eight-new-schools-established-zaatari-camp%E2%80%99 (accessed 6 February 2017).

The World Bank (2017), "DataBank of The World Bank", available at: https://data.worldbank.org/ (accessed 3 December 2017).

Thomas, A. and Kopczak, L. (2005), *From Logistics to Supply Chain Management: The Path Forward in the Humanitarian Sector*, Fritz Institute, San Francisco, CA.

UNDP (2016), "Human development report", available at: http://hdr.undp.org/en/2016-report (accessed 3 December 2017).

UNHABITAT (2012), "The state of the world's cities 2012/2013", Prosperity of Cities, UN-Habitat, Nairobi.

UNHCR (2004), "Protracted refugee situations (EC/54/SC/CRP.14)", available at: www.refworld.org/docid/4a54bc00d.html (accessed 5 February 2017).

UNHCR (2006), "UNHCR handbook for self-reliance", available at: www.unhcr.org/publications/operations/44bf40cc2/unhcr-handbook-self-reliance.html (accessed 13 December 2017).

UNHCR (2013), "At a glance: health data for Syrian refugees. Iraq, Jordan and Lebanon", available at: https://data.unhcr.org/syrianrefugees/download.php?id=5635 (accessed 6 February 2017).

UNHCR (2014), "UNHCR policy on alternatives to camps (UNHCR/HCP/2014/9)", available at: www.refworld.org/docid/5423ded84.html (accessed 5 February 2017).

UNHCR (2015a), "Major progress in camp security thanks to EU contribution", 29 December, available at: www.unhcr.jo/major-progress-in-camp-security-thanks-to-eu-contribution/ (accessed 6 February 2017).

UNHCR (2015b), "Cash for work – standard operating procedures Zaatari camp: endorsed by needs based working group", 28 July, available at: https://data.unhcr.org/syrianrefugees/download.php?id=9652 (accessed 6 February 2017).

UNHCR (2016a), "Global trends 2016", available at: www.unhcr.org/5943e8a34.pdf#zoom=95 (accessed 2 August 2017).

UNHCR (2016b), "Zaatari refugee camp factsheet November 2016", available at: http://data.unhcr.org/syrianrefugees/documents.php?page=1&view=grid&Settlement%5B%5D=176 (accessed 5 February 2017).

UNHCR (2016c), "Mafraq monthly coordination meeting – minutes", 15 December, available at: http://data2.unhcr.org/en/documents/details/53015 (accessed 14 August 2017).

UNHCR (2017), "Syria regional refugee response. Zaatari Refugee Camp", 1 January, available at: http://data.unhcr.org/syrianrefugees/settlement.php?id=176&country=107&region=77 (accessed 5 February 2017).

UNICEF, Save the Children (2014), "Baseline assessment of child labour among Syrian refugees in Za'atari Refugee Camp – Jordan", available at: www.unicef.org/jordan/ChildLabourAssessment_ZaatariCamp_2015.pdf (accessed 6 February 2017).

United Nations (1948), "Universal declaration of human rights", available at: www.un.org/en/universal-declaration-human-rights/ (accessed 17 April 2017).

WANA and FES Jordan and Iraq (2017), *From Politics to Policy: Building Regional Resilience in West Asia and North Africa – Mapping a New Regional Architecture for Peace, Development, and Human Dignity*, WANA Institute and Friedrich-Ebert-Stiftung, Amman.

Werker, E. (2002), "Refugees in Kyangwali settlement. constraints on economic freedom", Refugee Law Project Working Paper No. 7, Refugee Law Project, Kampala.

Werker, E. (2007), "Refugee camp economies", *Journal of Refugee Studies*, Vol. 20 No. 3, pp. 461-480, available at: https://doi.org/10.1093/jrs/fem001

WFP (2016), "WFP introduces Iris scan Technology to provide food assistance to Syrian refugees in Zaatari", 6 October, available at: www.wfp.org/news/news-release/wfp-introduces-innovative-iris-scan-technology-provide-food-assistance-syrian-refu (accessed 6 February 2017).

WFP, Unicef, UNHCR (2014), "Joint assessment review of the Syrian refugee response in Jordan", 8 January, available at: https://data.unhcr.org/syrianrefugees/download.php?id=4309 (accessed 6 February 2017).

Whitaker, B.E. (2002), "Refugees in Western Tanzania: the distribution of burdens and benefits among local hosts", *Journal of Refugee Studies*, Vol. 15 No. 4, pp. 339-358, doi: 10.1093/jrs/15.4.339.

Widera, A. and Hellingrath, B. (2016), "Making performance measurement work in humanitarian logistics: the case of an IT-supported balanced scorecard", in Ira, H., Gyongyi, K. and Karen, M.S. (Eds), *Supply Chain Management for Humanitarians: Tools for Practice*, Kogan Page, Philadelphia, PA, pp. 339-352.

Women's Refugee Commission (2017), "Well-being adjustment index", available at: www.womensrefugeecommission.org/wellbeingindex/ (accessed 13 December 2017).

Wood, D.F., Barone, A., Murphy, P. and Wardlow, D.L. (Eds) (1995), *International Logistics. Logistics of Famine Relief*, Springer Verlag, Boston, MA.

Zetter, R. and Ruaudel, H. (2014), "Development and protection challenges of the Syrian refugee crisis", *Forced Migration Review*, Vol. 47, September, pp. 6-10, available at: www.fmreview.org/sites/fmr/files/FMRdownloads/en/syria/zetter-ruaudel.pdf (accessed 15 August 2017).

Zetter, R., Vargas-Silva, C., Ruiz, I., Fiddian-Qasmiyeh, E., Stav, S.-E., Hoelscher, K. and Horst, C. (2012), *Guidelines for Assessing the Impacts and Costs of Forced Displacement*, World Bank, Washington, DC, available at: http://siteresources.worldbank.org/EXTSOCIALDEVELOPMENT/Resources/244362-1265299949041/6766328-1265299960363/SME338-Impac-Report_v8.pdf (accessed 17 August 2017).

Further reading

Hovil, L. and Werker, E. (2001), "Refugees in Arua district. a human security analysis", Refugee Law Project Working Paper No. 3, Refugee Law Project, Kampala.

Corresponding author
Anna-Mara Schön can be contacted at: anna-mara.schoen@w.hs-fulda.de