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# **Agricultural and Syrian refugees in Jordan: current situation and opportunities ahead**

*Methodology*

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*The commissioned study seeks to create baselines of beneficiaries in selected locations and to identify target households residing outside camps and living on households, while ensuring that the livelihoods and socio-economic profile of these populations are understood.*

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## Revision History

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1.0	09-March-2017	Boundia Alexandre Thiombiano	Quang Bao Le, Enrico Bonaiuti	Qualitative and quantitative assessment
1.1	23-March-2017	Boundia Alexandre Thiombiano	Quang Bao Le	Improve citations, correct terminologies, language



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## Acronyms

DFID	Department for International Development
DoS	Department of Statistics
FGD	Focus Group Discussion
ICARDA	International Center for Agricultural Research in the Dry Areas
IFAD	The International Fund for Agricultural Development
SIP	Small-ruminants Investment Project
SLF	Sustainable Livelihood framework
SWOT	Strengths, Weaknesses Opportunities, Threats analysis
UNHCR	United Nations High Commissioner for Refugees



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## 1. Introduction

The Jordan population is estimated to be 9,814,995 in 2017 with an unemployment rate 15.8 per cent at the end of the year 2016 (DoS, 2017b). Jordan agriculture represents 2.8% of economic sectors (MoA, 2015). It employs around 9 per cent of the active population and 70 per cent of them are women. Female employment in agriculture was 0.90 per cent while the male employment was estimated to 2.30 per cent in 2012. The agricultural labour is dominated by non-Jordanian. For instance, the permanent Jordanian employees in livestock production were estimated to be 1,140 in 2015 while the non-Jordanian employees were 11,420 in the same year (DoS, 2017c). Arable land represents only 6 per cent of the total surface area. Agriculture which receives relatively very low national or international investments is challenged by low and uneven distribution of precipitation (less than 200 mm for 90 per cent of the country), population growth and related pressure on natural resources. The livestock sector plays an important role in food security and poverty alleviation as it contributes for around 55 per cent to the national agriculture product. It employs in total (permanent, seasonal and casual employees) around 39,960 Jordanian and 17,590 non-Jordanian (DoS, 2017c). The livestock sector contributed for around 2.1 per cent to the country export in January 2017. The export value Free On Board (FOB) of live animals was estimated to be 5,616,700 JD while meat and meat offal amounted to 1,751,100 JD (DoS, 2017a).

The Syria crisis, now in its 6<sup>th</sup> year, has brought about an influx of 659,957 refugees (UNHCR, 2017). Around 80 per cent of Syrian refugees in Jordan live outside camps. Many work mainly in agricultural sector; their presence increases the pressure on agricultural resources and may challenge the contribution of the sector to development.

To date, there are no comprehensive socio-economic studies of Syrians in the agricultural sector in Jordan that allow for a clear understanding of refugees assets and strategies and how these have evolved since their arrival. Nor is there a systematic analysis of options available to them to make a living through agricultural activities, preserve and build assets.

The aim of the study is to better understand refugees' agricultural livelihoods (assets, strategies, and shocks/risks) and to identify best options for improving them guiding interventions targeting refugees.

The specific objectives of study are:

- To put the analysis into context, consider policies, institutions and process develop in-depth understanding of the socio-economic status of Syrian refugees engaged in agriculture;
- To determine the wealth breakdown (Ranking wealth groups), profiling of livelihood strategies of the potential beneficiaries of the project in the identified geographical areas;



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- To assess livelihood options and constraints, identify assets of the different groups;
- To explore gender issues, identify potential risk factors that influence work of refugees in agriculture and especially the involvement of children in agricultural work;
- To provide a robust basis for targeting, identify HH to be targeted, measure baseline socio-economic situation of participants identified (target) so as to be later able to measure the impact of programmatic decisions on refugees' livelihoods.

## 2. Methodology

### 2.1 Study locations

The present study is performed in Jordan which comprises four agro-ecological zones (MoA, 2015):

- the Jordan Rift Valley which stretches from lake Tiberias in the north to the Dead Sea and to Gulf of Aqaba in the south. The main crops are vegetables, fruits and wheat;
- the highlands, that lie next to the Jordan Rift Valley. Field crops, vegetables and fruit trees are cultivated in this area;
- the marginal Lands (steppe) mainly used for traditional livestock grazing border Syria on the north, Azraq and Wadi Sirhan Basin on the east, Ras El -Naqab on the south;
- the Badia Zone (desert) located to the east of the steppe, and extending toward the Saudi Arabian and Iraqi borders.

The range lands and agricultural lands used for livestock and agricultural production occupy 91.4 per cent and 5.7 per cent of the total land area, respectively.

The choice of the locations for the present study was guided by the targeted intervention areas of IFAD project under the Small ruminant project (SIP). This IFAD project in support to Syrian refugees target Syrian refugees working in agriculture. They were found more vulnerable, mainly in rural areas (FAO, 2014). Using statistics provided by UNHCR Jordan (2017) the study locations were then selected among governorates with highest registered Syrian refugees living outside camps and working in agriculture and livestock production. This choice was also based on the representativeness of the wider area as well as previous investments of IFAD. Four governorates were selected: Amman (Amman outskirts), Madaba, Irbid and Mafraq. These four governorates host 79 per cent of registered Syrian refugees living outside camps (UNHCR, 2017).



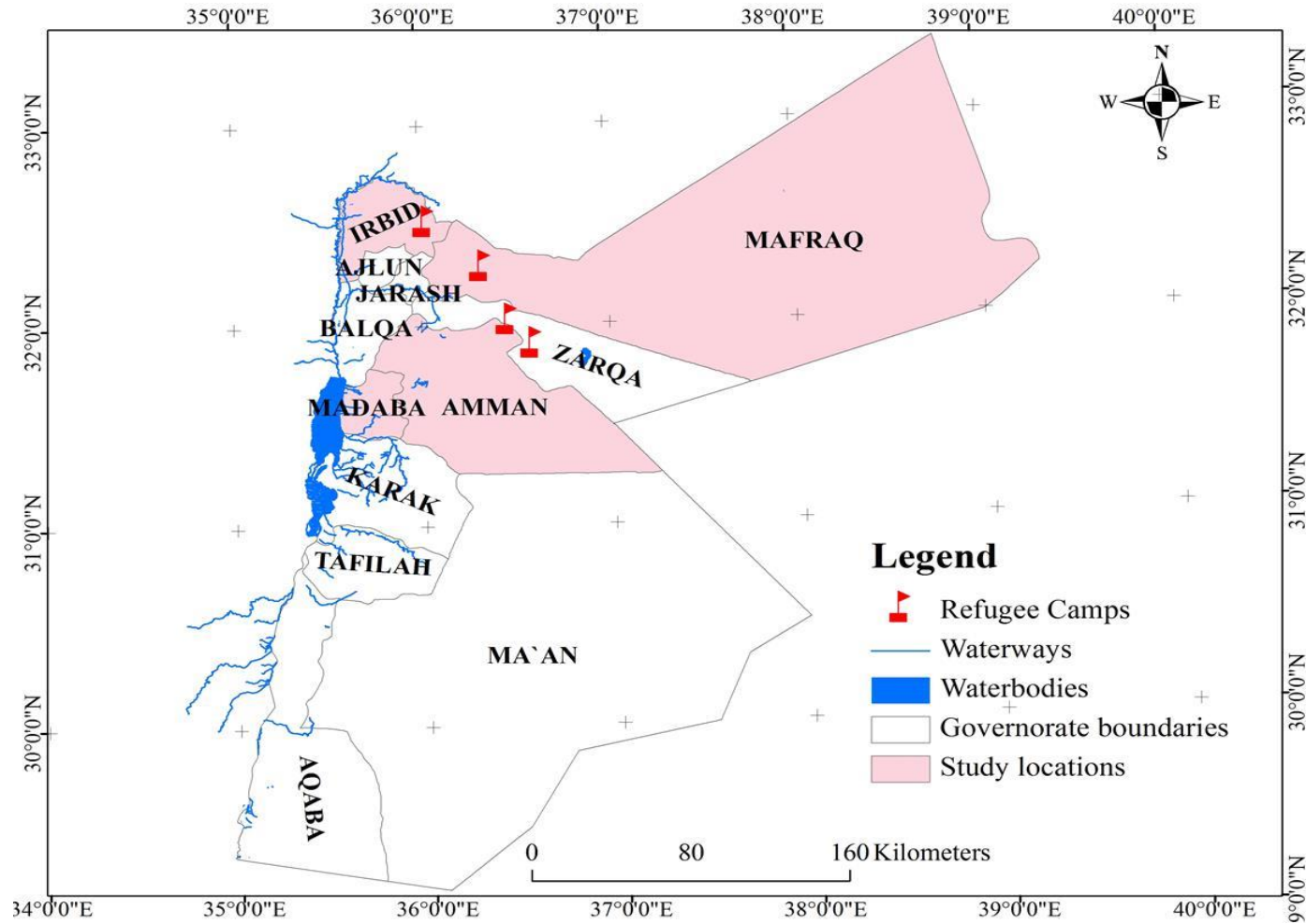


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### **2.1.1. Amman Governorate**

Amman is the most urbanized governorate of Jordan. Urbanized areas cover up to 94 per cent of the governorate. Amman governorate (Fig.1) is also the most populated of the Hashemite's kingdom. Indeed, up to 42.0 per cent of the kingdom population is found in this governorate. With 4,019,100 inhabitants in 2015 the population density is second highest and was estimated to be 530.3 inhabitant/km<sup>2</sup> (Department of Statistics, 2015). The poverty incidence is the lowest of the country and is was estimated to be 9 per cent by FAO (2014, Department of Statistics and World Food Program, 2016). The governorate is hosting the most important community of Syrian refugees. A population of 7,462 Syrian refugees, meaning 1.1 per cent of the total registered refugees in Jordan leaves in the Emirati Jordanian refugee camp. At the time up to 27 per cent of the refugees (180 774 Syrians) live outside camp (UNHCR, 2017). Agricultural and livestock production are practiced in Amman outskirts, the rural area of the governorate. Livestock production represents 18 per cent of the national production and is dominated by Sheep production (DoS, 2017). This Amman Outskirts faces the highest rate of food insecurity (FAO, 2014).



**Fig. 1. Location of the study sites.** Source: Construction of the authors. GIS data extracted from <http://www.diva-gis.org/gdata>, and <http://download.geofabrik.de/asia/jordan.html>, accessed on March 21, 2017. The refugee camps layer was provided by UNHCR.



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### **2.1.2. Madaba Governorate**

The Madaba Governorate has an area of 2,008 Km<sup>2</sup>. It is located in the mid-southern region of Jordan. The population of Madaba governorate was estimated in 2015 to be 189,700 inhabitants for a population density of 201.9 inhabitant/km<sup>2</sup> (Department of Statistics, 2015). Around 59 per cent per cent of the Governorate population lives in urban areas and 41 per cent reside in rural areas (The Wolrld Bank, 2005). The land cover is mostly shrub lands. The sloping is comprised between 9.3 and 9.7 degrees. Around 70 per cent of the total area of Madaba Governorate is cultivable land (The World Bank, 2005). Fruits and olive are produced in the northern part of the governorate. Agriculture relies mainly on foreign labor. Like for the rest of Jordan, one of the major constraints to agricultural development in Madaba is water stress due to low and fluctuating rainfall. High cost of production and land fragmentation are also major constraints to agriculture in the governorate. Livestock production is practiced in the Governorate and the main raised species are sheep, goats and cattle. Amongst the four governorates under this study, Madaba has the lowest contribution (7.7 per cent) to national livestock production (DoS, 2017)

### **2.1.3. Irbid Governorate**

The Irbid Governorate is located at the border with Syria in the North-West of Jordan. It lies between the Yarmouk River basin and the Jordan Valley. The total population was estimated to be 1,775,200 at the census in 2015. Irbid is the most densely populated governorate in Jordan with 1,129.4 inhabitant/km<sup>2</sup> (Department of Statistics, 2015, FAO, 2014). He is hosting one of the most important Syrian refugee communities. About 20.80 per cent of the registered Syrian refugees live in Irbid governorate (UNHCR, 2017). It hosts the King Abdullah Park one of the four official refugee camps in Jordan. The general poverty amongst the population in Irbid is estimated to be 17 per cent. Most of the populations of the governorate are farmers. The governorate I considered as the most active region for agricultural production(ILO, 2014). Around 40 per cent of smallholder farmers from northern Jordan are found in Irbid Governorate. Irbid governorate lost more than 30.000 ha of agricultural lands in the past decades for the greater Irbid Expansion (MoA, 2015). The governorate produces 10 per cent of livestock in Jordan (DoS, 2017).

### **2.1.4. Mafraq Governorate**

The Al-Mafraq government is located at the north-east of Amman. The governorate comprises 4.5 per cent of Jordan's population. The total population was estimated to be about 551,500 in 2015. The population density is very low: 20.8 inhabitants / km<sup>2</sup>. It is the



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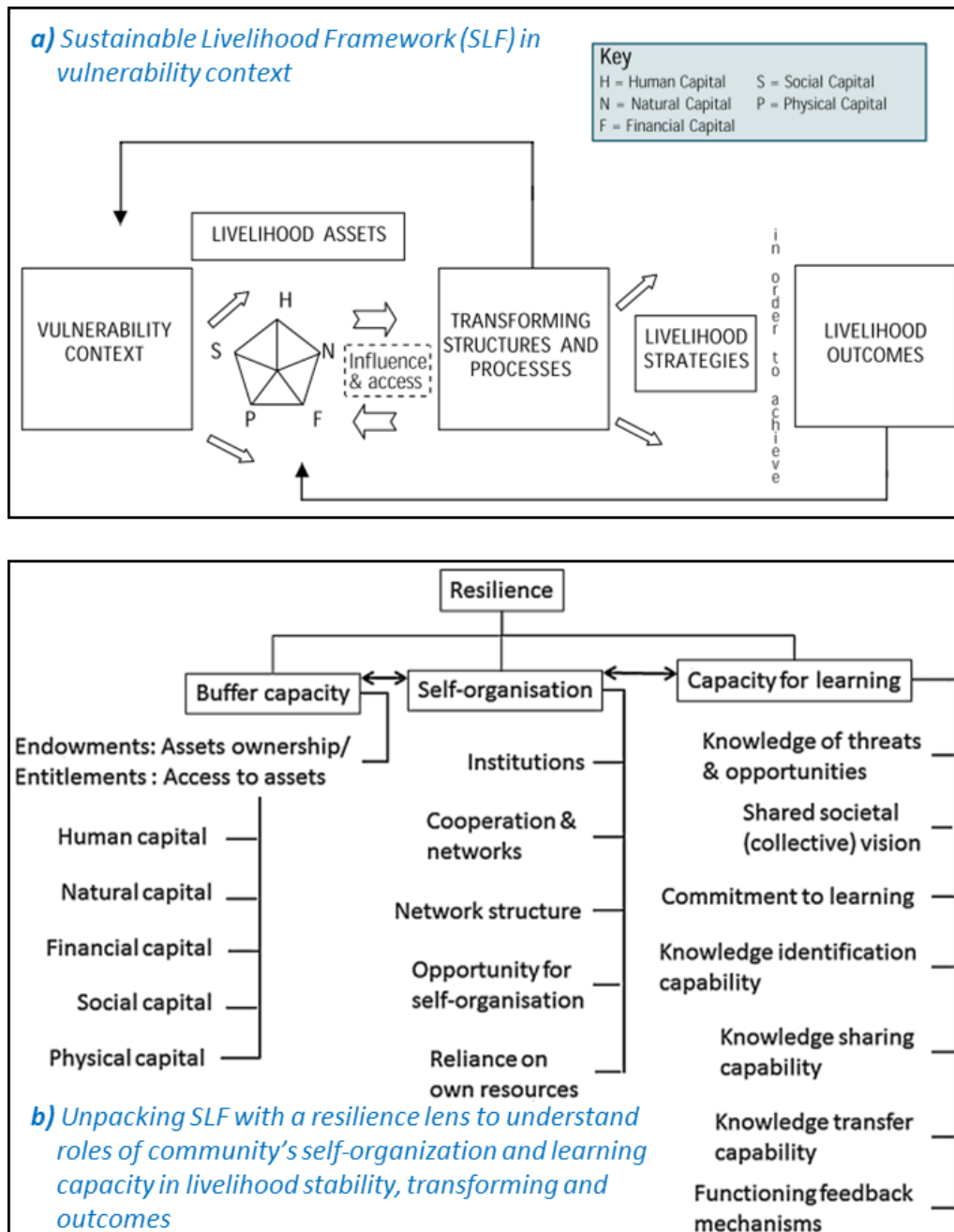


second to last less densely populated governorate in Jordan (Department of Statistics, 2015). The governorate comprises the Zaatari camp. Syrian refugees living outside camps form 12.1 per cent of registered refugees (UNHCR, 2017). The Mafraq governorate is 60 per cent rural (FAO, 2014). It presents the highest poverty incidence estimated to be 23 per cent. Food insecurity prevalence is high as more than half of the households in the Governorate received food assistance (Department of Statistics and World Food Program, 2016). Vegetables are the main agricultural production of the governorate. The area of irrigated vegetables has significantly increased between 2011 and 2012. Lands and water availability limit agricultural production in the governorate (FAO, 2014). Compared to the Governorates of Amman, Madaba and Irbid, Mafraq is the biggest production of livestock (Sheep, goats and cattle). Its contribution to the national production is estimated to 22.0 per cent (DoS, 2017).

## **2.2 Study design**

### ***2.2.1. Conceptual framework of the study***

The study is built on the conceptual framework of household/farm livelihood sustainability, including its adaptability and resilience in the vulnerability context (Fig. 2). The Sustainable Livelihood Framework (SLF) describes the essential resources at household/farm disposal and livelihood strategies built from these resources in coping with the vulnerability context (DFID, 1999) (see Fig. 2a). These resources comprise five types of assets: human assets (labor, health, education and capabilities), natural asset (e.g. lands, livestock and water resources), financial asset (e.g. incomes and savings from different sources), physical asset (e.g. housing conditions, access to infrastructure and equipment for agricultural production), and social asset (e.g. supports from social network, positions and projects/programs). The livelihood assets are used to achieve households' or community's livelihood outcomes.



**Figure 2. Conceptual framework of the study being based on Sustainable Livelihood Framework (DFID, 1999, figure 2a), and livelihood resilience (Speranza et al., 2014; Figure 2b). Source: Figure taken from Le et al. (in prep.)**

From the resilience approach, the five livelihood assets are interactively determining the buffering capacity of the livelihood systems. Furthermore, the adaptability and



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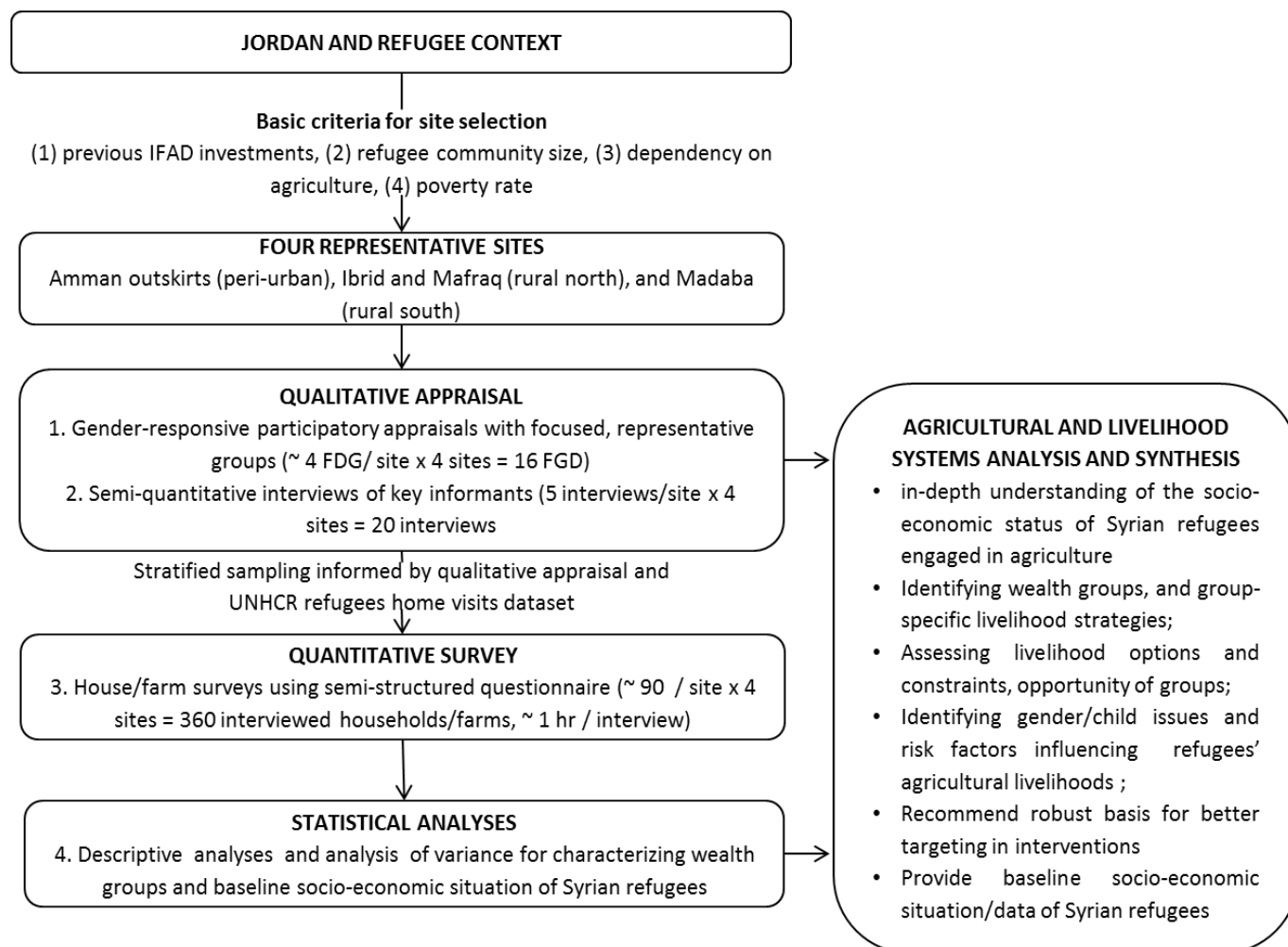
transformability of household livelihoods will be determined by its and community's self-organizing and capacities and learning capacities (Speranza et al., 2014). The essential elements for household's and community's self-organizing and learning capacities in relation with livelihood assets are showed in Figure 3b.

This conceptual framework will be used to guide the development of the contents of our livelihood surveys, analyses and assessments.

### ***2.2.2. Sampling strategy***

The study target the Syrian refugees' farm-households working in agriculture and living outside refugees camps in the four locations targeted by IFAD project: the Governorates of Amman, Madaba, Irbid and Mafraq. As shown in the work flow (Fig. 3), the sampling strategy is as follow:

- *Sampling for Focus group discussion and key informant interviews:* the selection of the sample for the focus group discussion was guided by information provided by UNCHR as to relevant resource persons within Syrian refugees' population and within Jordanian population. These resources persons are expected to have a very good understanding of the Syrian refugees' socio-economic context, their problems, needs as well as the social, economic and environmental context of a selected location;
- *Sampling for household survey:* The Focus group discussion and key informant interviews allowed identifying main wealth groups for each location. The criteria of each wealth group membership were defined by the focus group participants. A total number of 374 households were surveyed in the four locations.



**Figure 3. Work flow of the study**

### 2.3. Regional Context assessment

Focus Groups Discussions (FGD) and key informant interviews were used for the context assessment. The group discussions targeted Syrian refugees. Three main tools were used (ICRISAT, 2009): (i) wealth grouping to identify wealth groups among Syrian refugees; (ii) resources mapping and (ii) Strengths, Weaknesses Opportunities, Threats analysis (SWOT analysis). To better size gender aspects, separate group discussions were held for men and women for the SWOT analysis. Individual interviews were conducted with key informants.

### 2.4. Quantitative agricultural livelihood assessment

A randomly sampled, representative household survey was conducted in the selected target communities. The *Refugees Home Visits* dataset from UNCHR was used to select the



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sample. The survey collected information on households access to agricultural and livestock production resources (land, rangelands, fertilizers, feeds, etc.), production equipment, agricultural and livestock management capacities, supporting policies in agricultural development, and key constraints and needs. The household data was collected using a semi-structured questionnaire. This information helped triangulating the qualitative data collected in focus group discussions using cluster and descriptive statistical analyses.

## **2.5 Method for Cluster analysis**

The cluster analysis was used to build a wealth typology for triangulating the findings from the participatory wealth groups' identification by Syrian refugees. The K-mean Cluster Analysis (K-CA) was used. This method is usually preferred to hierarchical clustering methods for large sample (Le, 2005) like in the present study (360 households). Moreover, the entry variables which were derived from the participatory assessment of the wealth criteria and expert knowledge were all quantitative. The principle of the K-CA is finding a clustering structure minimizing the Sum of Squared Error (SSE) of the total squared Euclidean distance of observations to their class centers (Maimon and Rokach, 2010). The number of clusters was decided using the knee method. This method consists in plotting a curve representing the sum of distances to clusters' centre against the number of clusters. The optimal number of clusters is decided at the inflexion point (Thiombiano, 2015).





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## 2.6. Data collection strategy and training of enumerators

The data collection tools as well as the composition of informant are summarized in Table 1.

**Table 1: Data collection strategy**

<i>ID</i>	<i>Activity</i>	<i>Group</i>	<i>Composition</i>
1	Wealth ranking	FGD 1	4 males +4 females households heads
2	Resource mapping	FGD 2	4 males + 4 females households heads
3	SWOT analysis	FGD 3	8 males households heads
4	SWOT analysis	FGD 4	8 females households heads
5	Key informant interviews	KI	Syrian refugees community leaders, Agri-Jordan which is a private company in agricultural production, the International Labor Organization, the Ministry of Agriculture
6	Household survey	360 households	Household heads and other relevant members

A total number of 12 enumerators were hired and trained on the questionnaire to ensure that they fully understand the purpose of the study and the content of the questionnaire. The questionnaire were loaded on tablets and pre-tested.



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### **GIS data source**

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