

# Niche Markets and Growth Sectors in Northern Iraq

Fresh flowers, fruit processing and fresh herbs



**Iraqi displaced women working on a farm in Banislawa, Erbil.**

© Linda Fawaz/UNDP Iraq/2017

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Manufactured in Iraq

## Content

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<b>Executive Summary</b>	<b>4</b>
<b>Section 1. Introduction</b>	<b>6</b>
Outline	6
<b>Section 2. Methodology and market selection</b>	<b>8</b>
Scope of research	8
General methodology	9
Market identification phase	9
Market research phase	10
<b>Section 3. Economic environment for livelihoods development</b>	<b>11</b>
Current crisis	11
Structural issues	12
Local resources available and enabling institutions	13
Characteristics of the target conflict-affected population	14
<b>Section 4. The fresh flower market system</b>	<b>16</b>
Current market situation	16
Future targeted situation	20
Financial considerations	21
<b>Section 5. The fruits processing market system</b>	<b>23</b>
Current situation	23
Future targeted situation	28
Financial considerations	30
<b>Section 6. The fresh herb market system</b>	<b>33</b>
Current situation	33
Future targeted situation	34
Financial considerations	36
<b>Section 7. Conclusion and summary of key recommendations</b>	<b>38</b>
<b>Annex 1. Relevant sources</b>	<b>40</b>
<b>Annex 2. List of actors interviewed</b>	<b>42</b>



## List of tables

<b>Table 1</b> Population currently residing in the Kurdistan Region of Iraq	11
<b>Table 2</b> Primary source of income of households in Erbil Governorate	15
<b>Table 3</b> SWOT for cut flower market	19
<b>Table 4</b> Fruit consumption and origin in the KRI, 2015	23
<b>Table 5</b> Fruits cultivation areas in the KRI	24
<b>Table 6</b> Product variations from fresh fruits	25
<b>Table 7</b> SWOT for fruit processing market	27
<b>Table 8</b> Projected income statement of small scale fruit processing plant	31
<b>Table 9</b> SWOT for the fresh herb market	34
<b>Table 10</b> Herb production	35
<b>Table 11</b> Key recommendations and response analysis for niche market development	39

## List of figures

<b>Figure 1</b> Geographical scope of the study	8
<b>Figure 2</b> Work status of individuals aged 15 to 64 by population group in Erbil Governorate	14
<b>Figure 3</b> Current value chain of cut flowers in the KRI	18
<b>Figure 4</b> Future value chain of cut flowers in the KRI	22
<b>Figure 5</b> Current value chain of fruit processing in the KRI	26
<b>Figure 6</b> Future value chain of fruit processing in the KRI	32
<b>Figure 7</b> Future value chain of herb farming in the KRI	37

## List of acronyms

DTM	Displacement Tracking Matrix
EMMA	Emergency Market Mapping and Analysis
ICRRP	Iraq Crisis Response and Resilience Programme
IDP	Internally displaced person
IOM	International Organization for Migration
IQD	Iraqi dinar
ISIL	Islamic State of Iraq and the Levant
KRG	Kurdistan Regional Government
KRI	Kurdistan Region of Iraq
NGO	Non-governmental organization
UNDP	United Nations Development Programme
USD	United States Dollar
WFP	World Food Programme



## Executive Summary

This study evaluates the performance and potential of three niche markets in Northern Iraq, specifically the Kurdistan Region of Iraq (KRI): fresh cut flower production, fruit processing, and fresh herbs farming. The aim of the evaluation is to map the value chains, identify activities that can be established or expanded locally for the benefit of the target populations (internally displaced people (IDPs), Syrian refugees and host community) and, finally, recommend further tailored livelihood interventions to be undertaken related to the selected niches in the KRI. This study is part of UNDP's Iraq Crisis Response and Resilience Programme (ICRRP) and contributes to the broader objective of developing local economies that can provide livelihood opportunities for the most vulnerable, crisis-affected population. This study has been made possible by the generous support of the Government of Japan.

The three niche markets are related directly or indirectly to the agricultural sector in the KRI. This sector has been neglected for decades: it is not focused on high value-added crops and it cannot compete with imported agricultural products. The sector has long been unable to generate new employment opportunities and, instead, has been losing workers and landowners in favour of more valued jobs in urban areas. Farmers and producers are therefore dispersed throughout the region, poorly advanced both in terms of advocacy, technology, and economic infrastructure. Support for finance services is hardly known or existent and a policy of heavy subsidies for wheat production discourages farming diversification. However, the agriculture sector in the KRI still possesses potential thanks to the availability of resources, local know-how and expertise, and institutional commitment.

Taking this into consideration, the analysis of each market provides valuable information in terms of the existing constraints and potential opportunities to boost market performance in the KRI, either by establishing a new activity within the value chain that currently relies on imports, or by supporting and expanding existing activities. The following points summarise the niche market study:

Regarding the market for **fresh flowers** and potted plants, consumer preferences in the KRI have been gradually changing in a positive sense, with an increased demand for cut flowers in the last few years. This sector has greater potential than any other product within the floriculture sector in the region, as most is imported from abroad. Florists in Erbil and Sulaymaniyah see high potential for fresh flowers as a niche market, with an additional opportunity to see an increase in demand in other cities in Iraq such as Baghdad. As roses are the main high value flower sold in florist shops, a quick impact project has the ability to provide immediate jobs and income. The recent expansion of greenhouse construction in the KRI facilitates the development of local flower production. Different techniques can be applied for their large-scale production, primarily in pruning and climate control, but this know-how is available in the public domain.

The gap analysis indicates that the **fruit processing** sector has good potential to improve and expand currently limited opportunities. The availability of fruits and human resources, as well as the sector's long tradition are the major assets. However, while its success strongly depends on the availability and competitiveness of locally produced fresh produce, which will determine the competitive edge of the processed fruit products market, fresh fruit production has lost significant economic relevance in the KRI since the early 2000s. The size and structure of the businesses producing fresh fruit is dominated by smallholdings of families and individual farmers, which tend to use conventional and artisanal agricultural practices with limited extension services or support to improve the production of fresh fruits. The products of small farmers are mainly destined for local sale and tend to be of relatively low and inconsistent quality. Therefore, the analysis suggests to promote appropriate varieties in the fruit growing phase and, especially, promote improved technology and processes in the fruit processing phase in order to meet the market quality requirements and boost opportunities in the supply chain.

The potential in **fresh herb** growing can be realised in a short time. Although different varieties of herbs grow in the KRI, commercial cultivation of such crops is still minimal. Most of the herbs consumed in the KRI are wild crops found in the mountains. Only a few types are cultivated commercially. Therefore, the herb value chain should be set up to cater first to the domestic market. Sound agronomic practices constitute the foundation for establishing the herbs value chain in the KRI, especially if it aims to become an export-oriented subsector in subsequent phases. Setting up herb farms is not a difficult undertaking as the necessary know-how is in the public domain. The success of the strategy lays on raising awareness of good production and handling practices, as well as on providing continuous, practical vocational training programmes to farmers. Packing and packaging are essential in the value chain of large scale herb production, especially when it comes to supplying fresh herbs to a discerning market. Establishing packing facilities is a requirement for successful distribution.







Inside the Erbil Bazaar selling locally made dried fruits, spices, deserts, syrups, and honey. © Adam Jones/Creative Commons/2011

## Section 1. Introduction

In response to the mass wave of conflict-related population displacement that began in Iraq in 2014 and the damage that both this conflict and population movement has had on social and economic structures in the country, UNDP developed the Iraq Crisis Response and Resilience Programme (ICRRP). One of the main targets of this programme is to strengthen the resilience of both displaced families and host communities through promoting new livelihood opportunities. With this objective in mind, ICRRP decided to undertake a study that identifies potential new niche markets and value chains that could be supported and developed in the KRI in particular, for the benefit of the target populations (IDPs, Syrian refugees and host communities).

As part of Iraq's early recovery agenda, ICRRP interventions are focused on developing the local economies, so that they are able to yield sustainable livelihood opportunities for the general population while responding to the need to secure income access for the most vulnerable crisis-affected beneficiaries. Since market forces play an important role in helping people withstand and recover from shocks and thus become more resilient, the proper functioning of markets and employment creation channels is a necessary condition for beneficiaries to return to a situation where they can provide for their essential needs in a sustainable manner. Thus, it is important to identify and understand niche markets as a way to open new channels for creating employment and diversifying the economy.



A niche market is a market segment which responds to consumers' demand by offering products or services that are overlooked by mainstream markets. A niche market is characterised as narrowly targeted, low on competition, large enough to be profitable and offering products and services that are not available in current markets.

Therefore, through field visits to Erbil, Duhok and Sulaymaniyah and meetings with various stakeholders, the study identified three niche markets with good potential to offer income-generating employment or business opportunities to the target communities of IDPs, refugees and host communities:

- Fresh flowers
- Fruit processing
- Fresh herbs

A series of meetings with various international and local NGOs, UN officials, and representatives from the business community, combined with desk research on financial cost data, brought an overall understanding of the trends, opportunities, bottlenecks and viability issues in these market systems. With this information, this study provides recommendations to tailor future interventions that both government and development organizations could support.

## Outline

The report is organised as follows:

- **Section 2** defines the scope of the research and describes the process used to identify the three niche markets as well as the methodology for the market assessment.
- **Section 3** provides the background and context on the KRI, with a particular focus on the economic situation, including an overview of the targeted population (host community, IDPs and refugees) and the enabling environment for the agriculture sector.
- **Sections 4, 5 and 6** assess the niche markets of fresh flowers, fruit processing and fresh herbs, respectively, with a discussion of the current market performance and supply chain, the market potential, and a targeted market situation attainable through livelihoods interventions.
- **Section 7** concludes the report by providing a response analysis.
- **Annex 1** gives a list of bibliographies that were consulted in this study and which are relevant for livelihoods programmatic purposes in the KRI, especially in the field of agri-business.
- **Annex 2** gives a list of stakeholders consulted during this study and linked with the programs recommended.

## Section 2. Methodology and market selection

This study took a collaborative approach with several stakeholders in order to both identify key niche markets within the scope of the project, and analyse their performance and potential for further development. The methodology, further developed below, combined qualitative research and quantitative data around financial cost estimates that provide a comprehensive idea of business development strategies for the niche markets as described in the following sections.

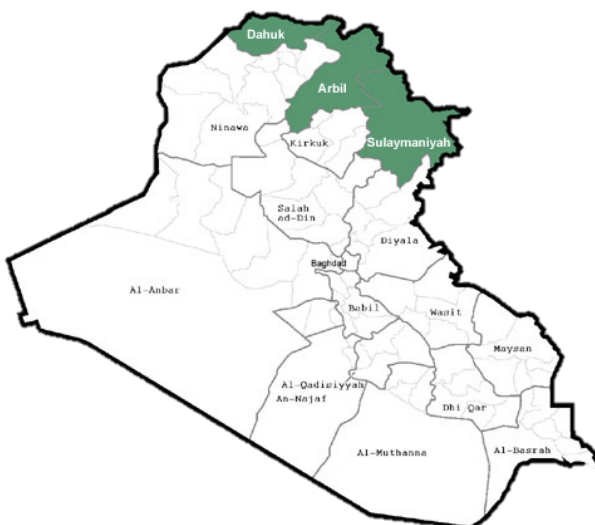
### Scope of research

In order to support the objectives and livelihood programming of UNPD's ICRRP, the research for this study covers the following elements:

- Identification of niche market systems in the KRI as well as broad understanding of the trends, opportunities and bottlenecks of the selected markets.
- Mapping of potential value chains within the selected niche markets where target populations can be included as market actors.
- Recommendation of further tailored livelihood interventions to be undertaken within the selected niche markets in the KRI, while exploring ways to better integrate gender and social cohesion considerations in the market assessment process.

As noted above, this evaluation of niche markets is focused on the KRI, more specifically on the governorates of Duhok, Erbil and Sulaymaniyah (Figure 1). In these areas, the target population to benefit directly or indirectly from the interventions includes not only the host community, but also the population of IDPs and Syrian refugees currently hosted in the KRI.

Figure 1 Geographical scope of the study



## General methodology

The research methodology took a mix of components from two methodological frameworks: value chain analysis on one side, and emergency market mapping and analysis (EMMA) on the other. The process contained two steps: a market identification phase followed by a market research phase. In both phases, interviews and meetings were held with a cross-section of public and private actors in the KRI, mainly NGOs participating in the Emergency Livelihoods and Social Cohesion (ELSC) Cluster and in the Food Security (FS) Cluster, as well as the business community. Meetings with local private actors explored their interest in activating local production for the markets under discussion, as well as their ideas on how to mitigate market constraints.

Field research was also conducted at a sunflower oil factory in Sulaymaniyah governorate and several village livelihood projects in Duhok governorate, in addition to public markets and hypermarkets, flower shops and plant nurseries throughout the three governorates of Erbil, Sulaymaniyah and Duhok.

## Market identification phase

Consultations with members of the ELSC and FS clusters helped to produce a shortlist of products and market systems to take into consideration in the KRI. These included: fresh flowers, sunflower oil, fruit processing, quail eggs, storage and transportation for fresh fruit, food processing (dairy, cheese, meat or vegetables), ingredients for sweets, fruit drying, storage for fresh produce, olives, mushrooms, packing and packaging of agricultural produce for transportation from farm to market, and finally, the communications sector.

Following the consultations, it became clear that the sectors with the highest potential in the KRI are mainly related with the agricultural sector. Following the evaluation, the markets selected for a final in-depth examination of their potential and opportunities were fresh flowers, fruit processing, and fresh herbs. The selection was based on the following observations:

- **Fresh flowers** can be grown in low risk, small scale projects in localities near IDP and refugee camps.
- **Fruit processing** also offers the opportunity for low risk, small scale production in localities close to fruit orchards and IDP camps.
- **Fresh herbs** are a good potential market with low risk, and small scale projects could be established in localities near IDP and refugee camps; there might even be export opportunities. Medicinal herbs and plants should be included in this as there is local know-how and demand.

The markets that were discarded presented higher challenges, ranging from a longer break-even point for investments, lack of demand, high transition costs or lack of skills that would make the livelihood interventions more costly.<sup>1</sup>

<sup>1</sup> The following points provide further explanation for discarding other markets:

- Sunflower oil: lack of locally produced raw materials (sunflowers are mainly grown as wind-breaks for fields and not as commercial crop); projects to create a value chain would need to start with setting up a full production line with farmers.
- Packaging materials: although its potential was confirmed by private sector actors, it would require a proper feasibility study by technical experts before any decision could be made.
- Dairy products would be a medium-term project of up to five years, involving high investment and requiring a thorough livestock survey. Additionally, considerable hygiene training would be required before setting up properly managed collection centres.
- Quail eggs are not an important part of the local diet, and small livelihood projects already exist.
- Local sweet ingredients cannot compete with imports; for example, walnuts and pistachios.
- Mushroom production can be covered by a livelihoods project in a small-scale production scheme.
- The communications sector requires skills building and could be part of vocational training programs.



## Market research phase

For the three niche markets identified, the market research phase aimed to gain a deeper understanding of the performance, trends, opportunities and bottlenecks of the whole market system, from the raw materials to final consumption. The research explored and mapped the current value chain of the niche through data from interviews carried out with stakeholders and market participants.<sup>2</sup> This approach facilitated a gap analysis, identified the desired value chains that would provide more and better business development and employment opportunities, and finally, provided a foundation for future interventions in this regard.

Therefore, for each niche market analysed in the following sections, the following steps apply:

- Current market situation, describing the demand dynamics for the product and the composition of the supply chain in the KRI, with a focus on identifying and discussing the constraints, obstacles or bottlenecks that limit an efficient performance of key steps in the chain within the KRI. A key aspect of this is to understand the reasons for local production to have lost competitiveness in front of imports.
- Discussion of the market potential, based on a gap analysis of the needs and challenges for the sector to further develop. This part includes a comprehensive SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) for each niche market.
- Targeted market situation, pointing to the aspects within the market supply chain that requires of intervention in order to develop or increase production capabilities within KRI, including which actors should be involved. This part includes a general financial overview of the potential to increase profitability and encourage participation in the market, based on data collected through fieldwork.

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<sup>2</sup> A list of contacts interviewed and for further reference are given in Annex 2.

## Section 3. Economic environment for livelihoods development

This section illustrates the complexities of the environment in the KRI in relation to economic development and livelihoods promotion. The information contained here further provides a rationale for the agricultural focus in this study and a baseline for the overall agriculture capabilities in the region to help build programs upon. It is important to understand how this background relates to the target population for livelihoods programming, specifically host community, IDPs and refugees.

### Current crisis

The KRI has been affected by three shocks within a short time period, namely the Syrian civil war, the Islamic State of Iraq and the Levant (ISIL) insurgency and the Kurdistan Regional Government's (KRG) budget crisis.

The ongoing conflict with ISIL created more than 3 million IDPs in the whole of Iraq at its peak, with nearly a million seeking refuge in the KRI since 2014.<sup>3</sup> This is in addition to the previous influx of 250,000 Syrian refugees prior to 2014. Currently, about 17 percent of the population residing in the KRI are displaced persons from both Syria and the rest of Iraq, a sudden population increase that took place in just two years (Table 1). A severe economic impact resulted due to increased insecurity, which affected trade routes and decreased investment confidence, and increased competition for scarce jobs. According to a World Bank and KRG Ministry of Planning report in 2015, economic growth rates in 2014-2015 decreased by roughly five percentage points.<sup>4</sup>



Zainab Ahmed Maolod, a returnee to Jalawla, Diyala, appears in her nursery selling flowers and shrubs that she has grown through business grant support from UNDP's ICRRP. © Ayser Al Obaidi/UNDP Iraq/2017

<sup>3</sup> International Organization for Migration (IOM) Iraq, Displacement Tracking Matrix (August, 2017)

<sup>4</sup> World Bank and Ministry of Planning, Kurdistan Region of Iraq: Economic and Social Impact Assessment of the Syrian Conflict and ISIL Crisis (Washington, D.C., 2014).

Table 1 Population currently residing in the Kurdistan Region of Iraq

POPULATION TYPE	NO. OF POPULATION	PERCENT OF TOTAL
IDPs	1,030,938	14.7%
Refugee	228,567	3.3%
Host community	5,765,043	82%
Total	7,024,548	100%

Source: Kurdistan Region Statistics Office, July 2017

In parallel to the impact of the conflict, the KRI experienced a severe economic downturn since early 2014, which has persisted through the time of this report's writing (early 2017), albeit with less intensity. Both a decrease in the international oil prices and a dispute between the KRG and the central government in Baghdad over the share of oil resources led to a 90 percent drop in the public budget available to the KRG. Government salaries have been cut by rates between 25 and 75 percent and delays of five or six months are common. Many public-sector employees have second jobs upon which they rely financially. Farmers, on the other hand, have not been fully paid for wheat harvests from 2014-2015 so some have left their land fallow in 2016 rather than incur expenses to plant wheat again for an uncertain payment. Finally, due to the extreme dependence of the KRI's economy on government hand-outs, the fiscal crisis quickly trickled down, negatively affecting private sector development and putting a halt in the expansion of the activities of existing companies.





A Kurdish farmer returns daily to farm his land. The market is dominated by smallholdings of families and individual farmers, which tend to use conventional agricultural practices with limited extension services or support to improve production. © Ben Barber/USAID/2007

## Structural issues

The economic challenges of the whole of Iraq and the KRI in particular are, however, heavily rooted in the lack of sustainable development of the region. The overall economy is currently dominated by imported goods. Farming, which had once made Iraq a major exporting country, became a less valuable and unstructured industry with little diversification since the 1960s. People started migrating from the rural areas to work in cities and towns as civil servants. This trend was especially significant in the KRI, which was once considered the breadbasket of Iraq. While arable land accounted for 67 percent of the total land area in the KRI before the economic boom of 2007 onwards, according to data from the Ministry of Agriculture it now represents only 40 percent of the KRI's total land area. About 16 percent of the employed population are involved in farming.<sup>5</sup> As observed during the fieldwork phase of this study, wide stretches of land remain uncultivated throughout the KRI.

Due to agricultural policies that relied on a very subsidised wheat production, guaranteeing farmers a return of twice the global market price, local agriculture is not focused on high value-added crops and cannot compete with imported products. Regional neighbours have a strong position in supplying food and processed food products that are sold in small and large supermarkets in the country. Temporary banning of agricultural imports during harvesting season is a frequent measure to support the local economy and encourage the purchase of local products, despite the higher cost. The move is usually welcomed by farmers, but strongly opposed by local consumers already struggling to make ends meet. A black market of imported agricultural produce recently began to operate in response to bans, using Iraq as an intermediary; for this reason, imports have also been banned from Iraq unless the trader proves the product originated from Iraq.<sup>6</sup>

Several factors further undermine the agriculture potential. Farmers and producers are dispersed throughout the

<sup>5</sup> Arina Moradi, "Kurds to fill the bread basket once again by restoring agriculture", *Rudaw*, 11 July 2016.

<sup>6</sup> "Kurdistan bans imports of agricultural products from Iraq", *E Kurd Daily*, 30 July 2016.

region and have not yet established proper advocacy structures, which are needed to represent producers and work together with other stakeholders. In addition to this, support for finance services is hardly known or accessible in rural areas and there are heavy logistical challenges for producers. Humanitarian programmes have the potential to make this link, but only on a temporary basis (e.g., Zakho Small Villages Project in Duhok Governorate). Finally, policies such as subsidising wheat production or the existence of a Public Distribution System (a universal basic food distribution scheme) skews production towards these commodities and discourages farming diversification.

Key stakeholders, such as the KRI's Exports and Imports Union, have been calling for a shift in development strategies, demanding more attention to developing strategic factories and a focus on agricultural resources in the KRI.<sup>7</sup> Experts in the academic sphere, such as the College of Agriculture in Salahaddin University, have also pointed out that the KRI has the required elements to revive and run a robust agricultural sector – mainly experienced farmers, agriculture experts as well as fertile lands – and they point to a lack of a system or a value chain that is able to effectively hold these elements together.<sup>8</sup>

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7 "Produce imports remain high in the Kurdistan Region despite tax increase", NRTTV, June 2016.

8 Appropriate Agriculture International, *Agriculture and farmers in the Kurdistan Region*, vol. 73 (Tokyo, AAI News, 2012).





## Local resources available and enabling institutions

In effect, the aim of strengthening the agriculture sector is possible thanks to the availability of physical resources. Compared to southern Iraq, the northern areas, including the KRI, enjoy relatively fertile soil. Most of the KRI's topography is characterized by plains and gentle hills. Rain-fed grain cultivation is effective and predominant. In the areas with abundant water, vegetable cultivation using underground water irrigation is common. In the sloping areas, fruit cultivation is widespread. In this way, various forms of farming are practiced, making the most of the varied climate and topographical conditions.<sup>9</sup>

However, apart from physical resources, it is important to stress the role that enabling institutions play in agricultural livelihoods. The KRG has recently stated its aim to enact an aggressive strategy to revive the agricultural sector and to increase its weight in the regional GDP from the current 10 percent to 30 percent in the future. This strategy aims to bring the education and agriculture sector together, linking the respective government ministries to enhance farmer skills and know-how. The Colleges of Agriculture are expected to become the main source for planning by policymakers as well as for advice to farmers.<sup>10</sup>

Local research centres and institutes, as well as associations for horticulture or botanical studies, can therefore provide agricultural support and research services. The following list provides key institutions that can help enable strategies for livelihoods support:

- Salahaddin University College of Agriculture's departments such as Plant Protection, Field Crops, Food Technology, Soil and Water, Forestry, Horticulture, Animal Resources, and Aquatic Resources.
- Koya University's Engineering Department, with a focus on agricultural processing.
- Duhok University College of Agriculture's departments such as Agricultural Extension and Rural Society, Animal Production, Basic Sciences, Ecotourism, Field Crops, Forestry, Horticulture, Plant Protection, and Soil and Water Sciences.
- Ainkawa Research Centre in Erbil.

Based on the context and agricultural history of the KRI, diversification can be achieved if starting from agriculture and, more specifically, creating value chains in niche sectors is possible and has a wide support from stakeholders.



Small farm and greenhouse owner in Erbil governorate. With an agricultural degree and experience operating a farm, she received a grant from UNDP's ICRRP to reactivate her farm, employing more than fifteen IDPs and host community members. © Linda Fawaz/UNDIP Iraq/2017

<sup>9</sup> Arina Moradi, "Kurds to fill the bread basket once again by restoring agriculture".

<sup>10</sup> Ibid.

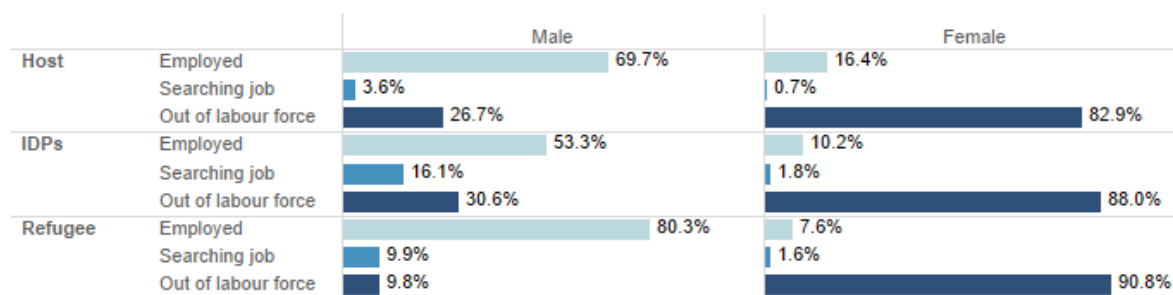


## Characteristics of the target conflict-affected population

With the conflict still enduring in both Syria and Iraq, it is expected that both IDPs and refugees might continue to face a protracted displacement situation. The context in the three governorates of Erbil, Sulaymaniyah and Duhok is quite complex and likely to remain so. Many international and local NGOs and UN agencies are still very heavily involved in humanitarian efforts. The majority of the displaced population are accommodated in urban, peri-urban and rural areas, rather than organized displacement camps, and therefore living beside and among the host community.

The main characteristic of households in the KRI, independently of being part of the host community, an IDP, or a refugee family, is the gradual weakening of their financial position as a consequence of the current economic crisis. Salaries in the public sector and remuneration for farmers were not fully paid in the preceding year, and wage earners are still in a delicate situation due to employment insecurity, high competition and a reduction of wages. There has been a 40 percent decrease in the average household monthly expenditure as compared to pre-crisis levels.<sup>11</sup> Although employment levels are relatively high for all population groups (Figure 2) and the main sources of income for families are still salary and wages (Table 2), for IDPs and refugees these are usually the earnings from sporadic jobs and informal employment, rather than full-time or permanent employment.

Figure 2 Work status of individuals aged 15 to 64 by population group in Erbil Governorate



Source: Erbil Statistical Office and UNHCR, July 2016

<sup>11</sup> Erbil Statistical Office and UNHCR, Displacement as Challenge and Opportunity: Urban profiles of refugees, internally displaced and host communities. Erbil Governorate, Kurdistan Region of Iraq (Erbil, July 2016).

Table 2 Primary source of income of households in Erbil Governorate

POPULATION	SALARY	WAGES	RENT INCOME	BUSINESS EARNINGS	REMITTANCES	PENSIONS	SUPPORT FROM GOVERNMENT NGOS	USING LOANS	NO INCOME
IDPs	49%	31%	2%	1%	1%	8%	5%	0%	3%
Refugee	32%	65%	0%	1%	0%	0%	1%	1%	0%
Host	61%	22%	0%	5%	0%	10%	2%	0%	0%
Total	57%	26%	1%	4%	0%	9%	2%	0%	1%

Source: Reach Iraq Quarterly IDP Camp Directory, Comparative Dashboard and Camp Profiles, April 2016.

On the other hand, access to sustainable livelihoods remains a challenge for the displaced population living in camps. For instance, 34 percent of the IDP households in camps reported that no members had earned an income in the 30 days prior to the assessment dated in April 2016. The most common source of income across the majority of camps was casual unskilled labour (22 percent of total households), with higher proportions reported in Sulaymaniyah (42 percent) and the lowest in Duhok (16 percent). As a consequence, the most common reported coping strategy in the 30 days prior to the assessment was the accumulation of debt (47 percent), followed by dependence on charitable donations (34 percent).<sup>12</sup>

In sum, the livelihoods situation of the conflict-affected population inside and outside of the displacement camps suggests that potential beneficiaries of this study are less likely to have their own resources to invest in a new livelihood activity, and that a project concept supporting the establishment of beneficiary-owned businesses should include either a grant or a component providing access to micro-finance.

<sup>12</sup> REACH Iraq, Quarterly IDP camp directory, comparative dashboard and camp profiles (Erbil, April 2016).





Wild flowers, like these hanar flowers growing on a hillside in Massif, Erbil, are very popular in the KRI. Wild flowers are harvested where they grow naturally and sold informally on streets and in parks. © Omer Faleh/Createive Commons/2017

## Section 4. The fresh flower market system

### Current market situation

Two flower shops and two nursery specialists provided insight on the first niche market, fresh flowers. The industry of floriculture does not only include fresh cut flowers, it also includes cut foliage and living plants (outdoor and indoor), among others. These are the specific products with growth potential in the industry.

#### a) Product demand

There are no statistics kept on local demand for cut flowers in the KRI or the rest of Iraq, but the qualitative data gathered in the study indicates that consumption of cut flowers in the KRI is still low. Flowers are not as significant to Kurdish culture as in Western countries, for example. Whereas flowers are a popular gift during hospital visits in Western countries, sweets are the preferred gift in Kurdish culture. Flowers are purchased mainly for special events such as graduations, birthdays, anniversaries, etc. In flower shops, roses and lilies are the flowers sold most, together with some greenery to make an arrangement. The Kurdish wild flower, nergis (narcissus), is very popular in the spring, harvested in the mountainous areas where it grows. They are, however, widely sold informally on the streets and in parks.

Demand, however, has reportedly grown in the last few years, as pointed out by some interviewees. It is becoming



more common to buy fresh cut flowers. Many florists have been established in Erbil and Sulaymaniyah as a response. The demand for cut flowers is constantly shifting in the KRI as consumers change their habits and start to purchase flowers either for gifts or for their own home decorative purposes.

Regarding potted plants, municipalities in the KRI increased their use thanks to the proliferation of a green public landscape between 2005 and 2014, just before the financial crisis. In addition, it is becoming more common for families to have potted plants in their houses and apartments. With the increase in condominium blocks in all major cities in the KRI, the demand is expected to increase, especially for small plants or flowers on balconies and railings.

## b) Supply chain

The flower shops visited during this study have a range of cut flowers, various potted plants and some stock accessories (artificial flowers and décor). A flower shop in Sulaymaniyah has two branches in the city that are fully equipped. They serve a niche market on country holidays and events, for which they make large arrangements in the colours of the flag. On the other hand, another shop operates from a small kiosk in Sulaymaniyah and has much lower prices than the first.

Prices in the flower shops in Erbil are much more expensive compared to Sulaymaniyah. One bouquet of flowers in Erbil often costs between IQD 50,000-70,000, while in Sulaymaniyah the price of a similar bouquet ranges between IQD 30,000-50,000. The long stem rose consumer price ranges between US\$2 to 2.50 per stem, which is the double the retail price in the Netherlands, for instance. Profit margins of florists are at least 100 percent and reaches up to 200 percent. This high profit margin is due to the short shelf life of the flowers. Florists stated that there is no guarantee of selling all imported flowers in such a short period.

All cut flowers currently sold in the KRI are imported from Holland or Kenya via Turkey, or directly from Iran. Flowers are occasionally imported from Sri Lanka as well. The usual chain consists of large wholesale florists that purchase flowers abroad and distribute them to smaller florists in Erbil and Sulaymaniyah.<sup>13</sup> These wholesalers use adequate cooling systems in their shops for storage of flowers, and regular land transportation for distributing the flowers to their final destination to be sold to end consumers (Figure 3). Some wholesalers also have access to Baghdad and other cities of Iraq, selling to hotels and other florist shops. For instance, the largest florist in the KRI imports around 25,000 roses per month, constituting about 75 percent of their total - the rest consisting of other kinds of flowers. This shop sells an average of 30 percent of their imports to Baghdad, but it is important to note that demand in Baghdad is not stable and mostly relies on direct sales to end users for events such as weddings, conferences and other social events due to a lack of intermediaries in Baghdad.

Regarding local production, the Ministry of Agriculture owns more than 25 nurseries in different locations throughout the KRI, where they used to produce outdoor decorative plants for public areas. Most of these nurseries are not operating now or are working at a very low scale due to government budget cuts, as the production was destined for public use. Private nurseries are also found in Erbil and Sulaymaniyah, where about 35-40 small to medium scale businesses are producing different types of living plants in addition to outdoor decorative plants. Indoor decorative potted plants are not produced in the region and they are all imported at a high cost.

Finally, flower seed packets and gardening tools and equipment are widely available in public markets and in some nurseries.

<sup>13</sup> It is important to highlight the role of the expatriate Kurdish community, especially those in the Netherlands. Expatriates living there put together orders to ship to the KRI by truck. Dutch companies have had a strong presence at trade fairs in Iraq and the Dutch Consulate in Erbil is very active in organising the participation of the Netherlands in the International Flower Fair held annually in Erbil.

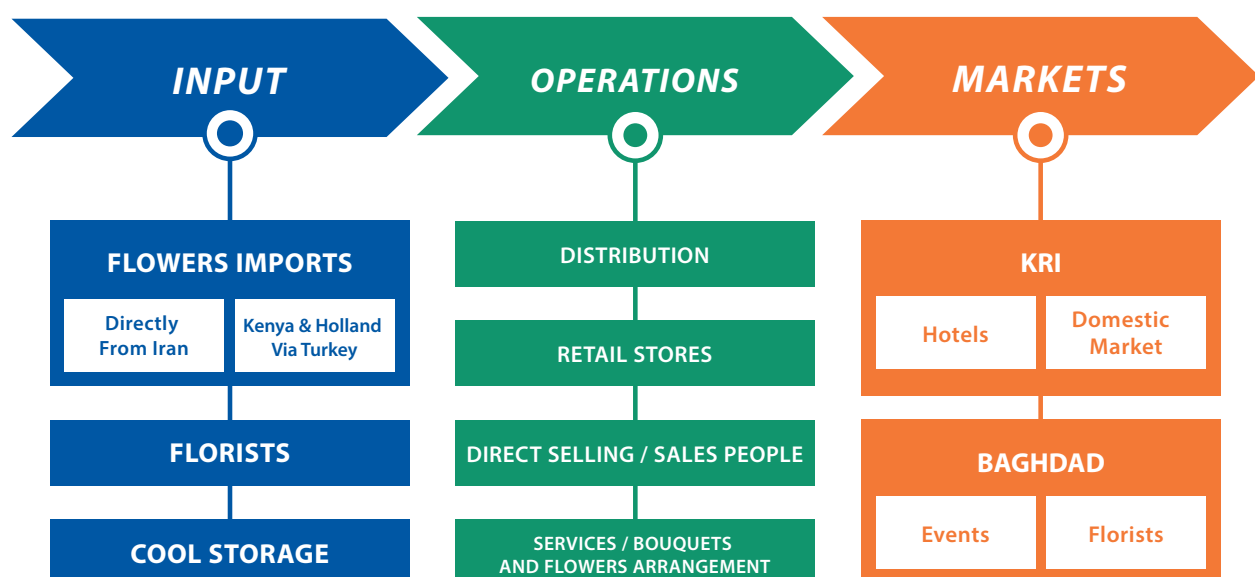






A nursery in Jalawla, Diyala supported by UNDP's ICRRP selling potted flowers and shrubs grown by the owner. © Ayser Al Obaidi/UNDP Iraq/2017

Figure 3 Current value chain of cut flowers in the KRI



### c) Market potential

Florists in Erbil and Sulaymaniyah see high potential for fresh flowers as a niche market in the region. Fresh cut flowers can be sold by the stem, in bunches, or in mixed bouquets. Local people as well as the increasing number of expats living in the KRI are increasingly a source for local demand. In addition to the general public, hotels, local and international offices and diplomatic missions provide a sales avenue for cut flowers. In addition, there is also a potential of increased demand for flowers in other cities of Iraq such as Baghdad. Opportunities also exist for export of locally produced fresh flowers to Jordan and the Gulf countries.

Additionally, cut flowers are well-suited to small-scale production and are a good way to diversify or expand existing farm operations, as well as provide non-urban employment opportunities. Fresh flowers could be grown in open fields or in greenhouses. Greenhouse cultivation has only recently been introduced in the KRI, with the first greenhouses established for vegetable growing in 2007<sup>14</sup>. However, they have rapidly spread and several thousand greenhouses can be seen in a small area close to Sulaymaniyah. Thus, greenhouse technology is now well known and could be easily extended to flowers, which has an advantage over open fields in that it provides protection from insects and other pests.

The summary of the market evaluation and its potential is summarised in the SWOT analysis below (Table 3).

Table 3 SWOT for cut flower market

INTERNAL FACTORS	
STRENGTHS (+)	WEAKNESSES (-)
<ul style="list-style-type: none"> <li>• Kurdish culture appreciates flowers from the mountain areas, a local symbol</li> <li>• Host communities can be involved in horticulture; also, there are people with basic gardening skills in IDP camps.</li> <li>• Jobs may be created for IDPs and refugees.</li> <li>• More employment of women is possible.</li> <li>• Low barriers to entry; small scale production is possible in a community group.</li> <li>• Many florist and nursery businesses in Duhok and Erbil show that there is local horticultural experience.</li> <li>• Greenhouse technology exists in the KRI</li> </ul>	<ul style="list-style-type: none"> <li>• Demand depends heavily on available disposable income, which is now hit hard by the financial crisis and delays in public salaries.</li> <li>• Flower prices are currently high and are seen as a low priority cost.</li> <li>• Growing flowers requires more know-how than other plants.</li> <li>• Supermarkets have a strong position in household expenditures, but their supply of flowers are very low.</li> </ul>
EXTERNAL FACTORS	
OPPORTUNITIES (+)	THREATS (-)
<ul style="list-style-type: none"> <li>• Possibility to outsource expertise from neighbouring countries to transfer know-how and train producers on different skills, e.g. growing from cuttings or seeds, cultivating long stemmed or short stemmed roses, careful flower packaging and handling for proper distribution, etc.</li> <li>• Availability of quality seeds and gardening tools in neighbouring markets with possibility to import, e.g. Iran and Turkey.</li> <li>• The private sector can offer support or partnership; some local flower shops are interested in setting up their own nursery.</li> <li>• Iraq International Flower Expo was held in Erbil in November 2016, setting a good legacy.</li> <li>• INGOs can set up community based projects.</li> <li>• Export opportunities to Amman, Dubai or Doha.</li> </ul>	<ul style="list-style-type: none"> <li>• This is a seasonal business, unless using greenhouses with heating in winter and protected from extreme heat in summer.</li> <li>• Perishable product with limited shelf life without cooling.</li> <li>• Most flowers are imported from Kenya, Holland and Iran of good quality.</li> <li>• Imports from Iran give good quality at low prices in Sulaymaniyah; local growers will need time to compete.</li> <li>• Local farmers may not be interested in switching to horticulture as most plant heavily subsidised wheat.</li> <li>• Consumers have limited disposable incomes due to the economic and fiscal crisis.</li> <li>• Traders might have strong business relations and mutual interests with their suppliers of imported flowers that discourage them from sourcing locally grown flowers.</li> </ul>

14 Appropriate Agriculture International, *Agriculture and Farmers in the Kurdistan Region*, No. 73 (Tokyo, AAI News, 2012).



## Future targeted situation

Based on the analysis above, the potential for this niche market lies on expanding the production phase of the value chain, encouraging the local production of flowers in place of imports through livelihoods programmes (Figure 4). Therefore, the key operational factors to take into account for programming as well as the relevant financial data are presented below.

### a) Open fields vs greenhouse growing

Although the KRI does not currently produce cut flowers, good growing conditions are present in terms of availability of land, water resources, and sunlight. The KRI has the potential to grow flowers in open fields and greenhouses. It is, however, important to note that open field production is only possible during a few months of the year, January to April, when the temperature is less than 27 degrees Celsius during the daytime and less than 17 degrees Celsius during night. Greenhouse production offers the advantage of an extended season and year-round income. It would, however, require a much larger investment in terms of greenhouse construction, a pre-cooling system, irrigation, and other equipment, which are not required for open field production.



Greenhouses in Banislawia, Erbil equipped with mist irrigation systems supported by UNDP's ICRRP. With extreme heat in the summer and frost temperatures in the winter, greenhouse growing allows for climate control and year-round income potential. © Linda Fawaz/UNDP Iraq/2017

### b) Crop selection

In addition to roses and carnations, different kinds of cut flowers can be grown in greenhouses including lilies, anemone, cornflower, coral bell, and other varieties. Each cultivar should be evaluated in light of the intended market, consumer demand, and sales potential. Ease of production, harvest, and handling are also critical concerns, in addition to the crop's adaptability to local growing conditions, resistance to diseases and insect pests, storage and vase-life, and flowering season. Growers would need to take into consideration the crop's production expenses, especially labour costs, and compare those estimates with the flower's market value and expected revenue.

### c) Cut flower production

Given that the know-how and expertise in cut flower production in the KRI is limited, cut flower growers will need to be familiar with the different production and harvest requirements of a diverse group of plant material. In general, cut flowers require fertile, well-drained field soil or a soilless mix. Growers may choose to use transplants, or directly

plant seeds into containers or greenhouse production beds. Transplants may be grown in-house or purchased as plugs. Most cut flowers require support to prevent lodging and to ensure straight stems. Sequential plantings can ensure a continuous supply of the cuts that are in demand year-round. A precise flowering schedule is necessary to market cut flowers through any supply chain. Cut flower production is highly labour and management intensive. Trained labour is required for all aspects of production and harvest. Establishing a sophisticated cut flower value chain will create job opportunities for skilled (trained), semi-skilled and unskilled labour in the KRI.

#### d) Cut flower harvesting

The proper stage of harvesting will depend upon a number of factors, including type of market, cultivar, distance to market, and intended use. Flowers are hand-harvested with a sharp knife. Once harvested, stems are placed in a bucket of water containing floral preservative. Harvested flowers should then be placed in a cooled area or cooler until sold. Floral preservative and refrigeration are essential to keeping flowers fresh and extending their shelf and vase life.

## Financial considerations

The option of cut flower production in greenhouses, as opposed to open fields, has significant start-up costs. However, given the extreme weather conditions in the KRI in the summer, it is seen as the most productive option in the long run. In addition, this is supported by the existence of know-how regarding greenhouse construction and operation.

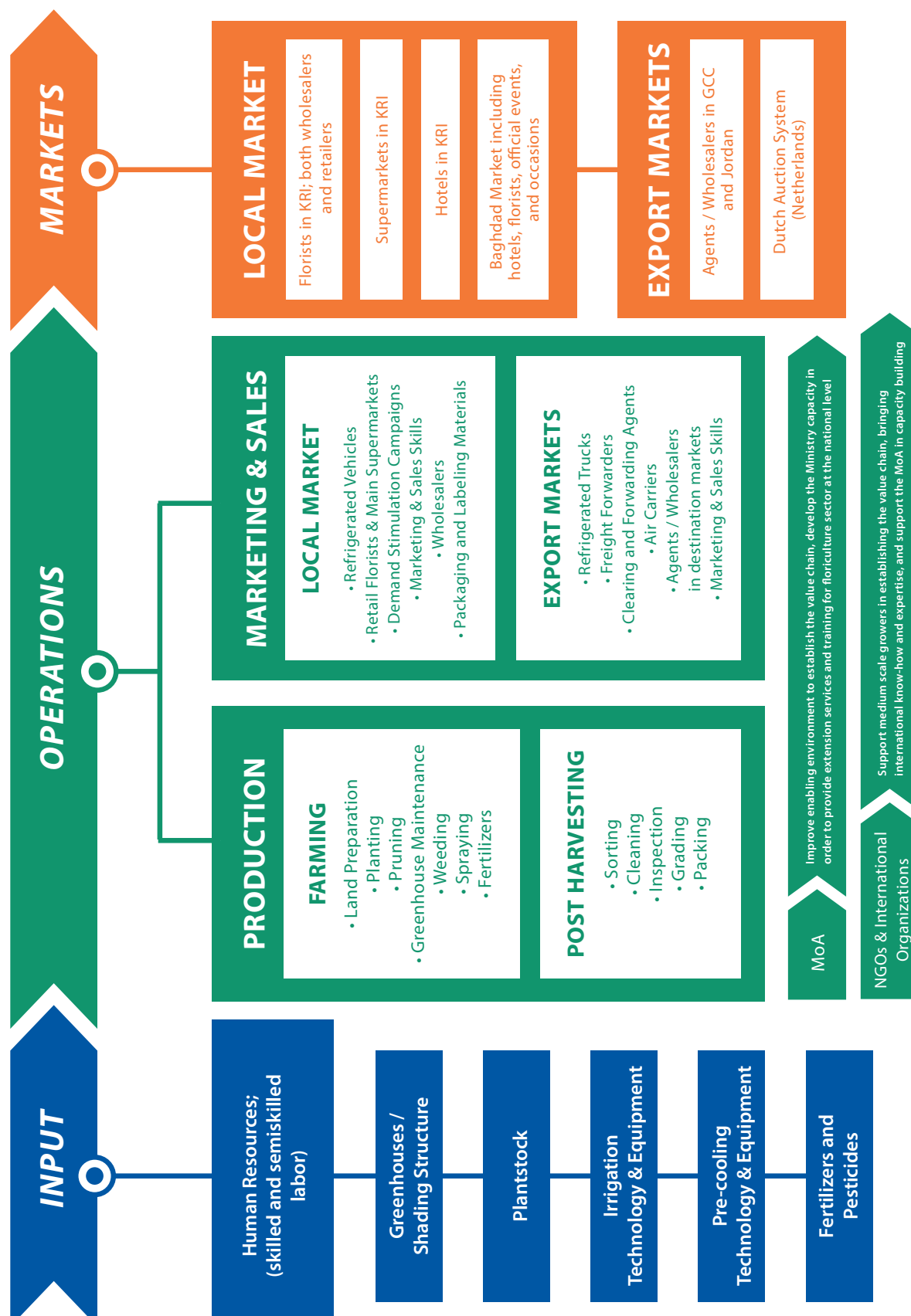
Initial investments include greenhouse construction, production system costs, and equipment. The cost of a production-ready greenhouse, excluding land costs, can run approximately US\$85 per square meter. For example, the typical greenhouse used for vegetables measures 9 x 51 meters, or 459 square meters, and costs US\$3,000 to US\$4,500 for a plastic greenhouse or between US\$15,000 and US\$20,000 for glass. Suppliers are available in Erbil and a lot of experience has been established with greenhouses for vegetable cultivation during the last nine to ten years. Based on these estimates, the cost of establishing a one-dunum<sup>15</sup> flower greenhouse is approximately US\$215,000, including all requirements and equipment (ready to plant and produce).

Production costs and returns vary greatly depending on crops grown, greenhouse size, production system, and marketing strategy. Typically, the average profit margin for growing cut flowers in greenhouses is US\$10 to US\$12 per square meter. A one-dunum greenhouse producing flowers can create at least 10 permanent job opportunities, two of which for skilled labour and the remaining eight for either semi-skilled or unskilled labourers. The same greenhouse can generate up to US\$30,000 net profit annually.

<sup>15</sup> A dunum of land in Iraq is equivalent, approximately, to 2,500 square meters.



Figure 4 Future value chain of cut flowers in the KRI





Fruit sellers in the Erbil Bazaar with locally grown fruit on display. © Adam Jones/Creative Commons/2011

## Section 5. The fruit processing market system

### Current situation

The fruit processing industry includes all businesses that alter fresh fruits to create a higher value-added food product for human consumption. Industry products include canned fruits, fruit juices, souse, dehydrated or dried fruits, fruit salad, jams and others. Unlike the previous niche market where supply in the KRI was completely imported, there are already local fruit production and processing activities, which are analysed in more detail below. The market potential, therefore, is not focused on creating a new production or processing structure from scratch, but on promoting and upgrading current processes in the KRI. Part of the success lies on understanding the main challenges facing the operations within different steps of the value chain and their competitiveness.

#### a) Local fruit production

The availability of locally produced fresh fruit is a critical factor for the fruit processing industry in the KRI. The region produces different fresh fruit in large quantities, including apple, grape, peach, pomegranate, plum, pear, apricot, and figs. Most of the apples, oranges, apricots, plums, pears and pomegranates are, however, mainly imported as production levels are not enough to satisfy local demand (Table 4).



Table 4 Fruit consumption and origin in the KRI, 2015

CROP	PERCENTAGE		CONSUMPTION BY TON	
	IMPORTED	LOCAL	IMPORTED	LOCAL PRODUCE
White Grape	14%	86%	494	3,011
Red Grape	2%	98%	70	2,741
Black Grape	5%	95%	269	5,663
Peach	51%	49%	10,174	9,707
Pomegranate	40%	60%	16,305	24,852
Apricot	56%	44%	4,446	3,437
Fig	0%	100%	0	2,950
Orange	99%	1%	70,701	792
Red Apple	83%	17%	32,288	6,767
Green Apple	77%	23%	20,227	6,206
Yellow Apple	92%	8%	41,768	3,833
Plum	73%	27%	2,415	886
Red Plum	72%	28%	1,791	687
Pear	76%	24%	5,301	1,707
<b>Total</b>	<b>77%</b>	<b>23%</b>	<b>241,922</b>	<b>73,246</b>

Source: Ministry of Agriculture (KRG), June 2016

Fruit production is dominated by small holdings and individual farmers. Fruits are largely grown in northern areas, on mountain slopes. According to data from the Ministry of Agriculture, the extension of cultivated land designated for growing fruits is just 256,924 dunums, or about 642 square kilometres (Table 5). Farmers in the mountainous areas, where it is not possible to own a large piece of land, would try to increase their income by switching from wheat cultivation to planting fruit. These landholders, however, obtain varying degrees of productivity, and tend to use conventional agricultural methods. Observations during field research indicate that there have not been many plantings of new orchards or introductions of new fruit varieties in the previous years. Existing orchards appeared to have not been cared for in a manner that maintains production or quality. Appropriate varieties, improved production technology, and better pest management are still necessary to meet market quality requirements.

Table 5 Fruits cultivation areas in the KRI

PROVINCE/GOVERNORATE	FRUIT CULTIVATED AREAS (SQUARE KILOMETRES)	PERCENTAGE
Erbil	116	19%
Duhok	144	23%
Sulaymaniyah	355	58%
<b>Total</b>	<b>615</b>	<b>100%</b>

Source: Ministry of Agriculture (KRG), June 2016

The products of small farmers are mainly destined for household consumption in the local markets, with few reaching wholesale markets for further distribution. Their goods tend to be of relatively low and inconsistent quality. The productivity of the local fruit trees tends to be much lower in the KRI than in neighbouring countries Iran and Turkey due to the use of traditional production methods and technologies, as well as the lack of extension services essential to improving performance. In addition, according to discussions with locally operating NGOs, a great share of the fruits produced do not reach the market and is left to rot in the trees due to the high cost of harvest and transportation from farms in mountainous areas to the markets in the urban areas. The high transportation cost is either a result of lack of trucks owned by farmers themselves or lack of cooperation between farmers to use shared venues for transporting their fruits to the market.

This fragmented production and distribution structure leads to critical challenges in supply consistency as well as affects the competitive advantage of the locally produced fruits. Overall, it leads to a higher unit production cost for locally produced fruits. For this reason, in 2015, local production covered only 23 percent of the fruit consumption in the KRI, as shown in the previous tables, while the other 77 percent was imported mainly from Iran and Turkey.

In sum, the production, harvesting and packing infrastructure remains underdeveloped or outdated. Low-yielding varieties and antiquated production technology exacerbate the problem. As a consequence, the next step in the value chain, which is fruit processing, suffers from poor local inputs in terms of appropriate varieties, packing, cooling, and transportation in order to produce a competitive product. Therefore, the development of the fresh fruit production value chain is also essential in establishing a robust and durable local fruit processing value chain in the KRI.

#### b) Processed fruits production

Only a few varieties of processed fruit products are produced in specific areas of the KRI, mainly in Shaqlawa (Erbil Governorate) as well as in some rural areas of Sulaymaniyah Governorate. They are produced on a small scale using very conventional methods. Most are inherited family businesses, usually run by small-scale farmers and their family members at their houses. The following are the current products processed in small quantities by local farmers in the KRI (Table 6).

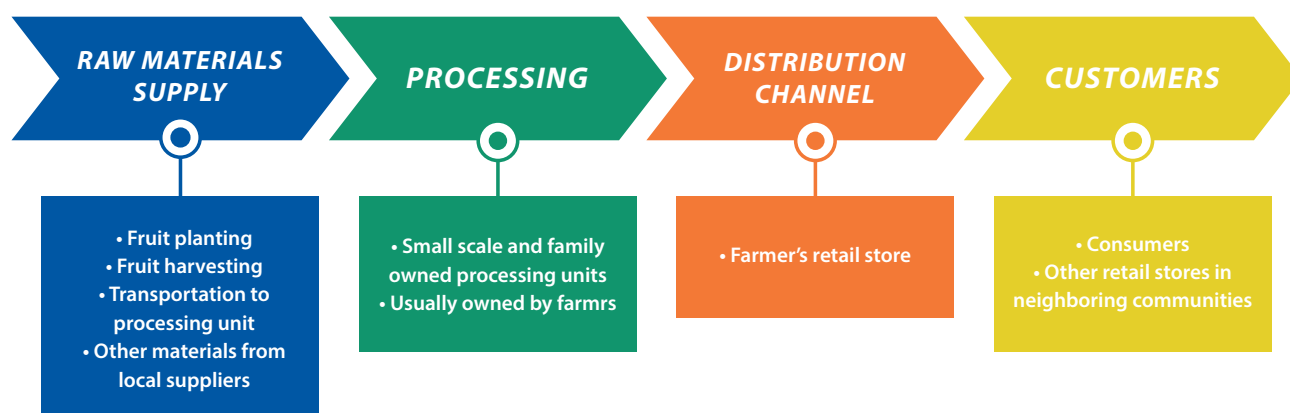


Table 6 Product variations from fresh fruits

PRODUCT TYPE	VARIETIES
Dehydrated and dried fruits	Figs, grapes, apricot and blueberries.
Kamarudin	Produced in two or three different styles. It is a sheet of dried fruit called fruit leather mainly produced from apricot, blueberries, and other fruits.
Jams	Usually from plum, fig, or apricot. Displayed in bulk washtubs in specialized retail stores. Retailers weigh smaller quantities for customers in small plastic packs.
Souse	Pomegranate molasses or souse is usually produced at the household level or in small, traditional plants.
Fresh juices	Fresh juices are usually extracted and sold for customers in small stalls in street bazaars for immediate consumption or in large bottles for household consumption. Shelf life of fresh juices is very short, only one to three days. Both local and imported fruits are pressed in such stores.
Traditional sweets	Some of the local sweets such as Bozuq, are made of fruits – processed grapes or figs stuffed with nuts.

Generally speaking, there are several actors in the supply chain management of processed fruits that determine the fulfilment of consumer demands, such as farmers, local traders, transporters, processors, retailers, etc. From the farm gate to the consumer, a horticulture product (fresh or processed) passes through six or seven different distribution channels in a more developed market. However, the supply chain of processed fruit in the KRI is very simple and does not pass through all the same channels (Figure 5). The farmer is frequently the supplier of fresh fruits and possesses a processing unit at the household level and also owns a retail store in which they sell most of their processed fruits to the local community. Some farmers also sell processed fruits to other retail stores in neighbouring communities.

Figure 5 Current value chain of fruit processing in the KRI





With an increase in productivity and better equipment, the KRI has potential to become a large producer and exporter of agricultural products.  
© Ben Barber/USAID/2007

### c) Market potential

The availability of fruit and human resources as well as its traditional role in the KRI economy are the major assets in expanding opportunities in this niche market. Both production and processing are currently present, although they require further support to increase standards, productivity and competitiveness.

As an example from other mountainous regions, such as the Alpine areas of Europe, farmers establish their own small plants to process the fruit grown in the region. Growers can bring the fruit to the plant and sell it for a fixed price and/or get a voucher to buy back the processed juice. The fresh juice sells at a higher price than factory-produced juice from fruit concentrate.

Similar fruit processing, for instance, might be possible in the area of Bamarne (Duhok Governorate), which already has fruit farms and has an adequate electricity supply. It could therefore be a suitable factory location. Dawadia IDP camp nearby could also benefit from seasonal or full-time employment. In Sulaymaniyah Governorate, Barika IDP camp, with 105 families, is about 30 minutes from Arbat, in a very rich agricultural area of fruits, nuts, etc. Fruit processing should be examined as a possibility there as well. Both locations could potentially enable IDP and host communities to work together on a project. Equipment suppliers can be found in both Germany and Turkey and, nevertheless, technical descriptions of small-scale processing of jam, dried fruit, fruit leather or fruit vinegar, among others, are available through Practical Action, a UK-based NGO.

The summary of the market evaluation and its potential is summarized in the SWOT analysis below (Table 7).





Table 7 SWOT for fruit processing market

INTERNAL FACTORS	
STRENGTHS (+)	WEAKNESSES (-)
<ul style="list-style-type: none"> <li>• Fruit orchards are located close to major cities, in Duhok and Sulaymaniyah.</li> <li>• Locations of fruit production close to refugee and IDP camps provide good opportunities for employment and income-generating activities.</li> <li>• The climate is sunny in the KRI from May to September for ripening and sun-drying fruit.</li> </ul>	<ul style="list-style-type: none"> <li>• Transport is too expensive for taking fresh fruit from farm gate to market.</li> <li>• Short production period due to the duration of growing and harvest seasons.</li> <li>• Tree management is poor due to lack of motivation and low prices of fruits.</li> <li>• Fresh fruit perishes quickly without cool storage.</li> <li>• Farmers cannot do their own marketing, and selling fresh juice requires a different marketing strategy due to strong competition from international brands.</li> <li>• Labour costs are high and harvesting fruit is labour intensive.</li> <li>• Limited disposable income will limit the market for fresh juice to middle to upper income brackets, not the mass market or IDP camps.</li> </ul>
EXTERNAL FACTORS	
OPPORTUNITIES (+)	THREATS (-)
<ul style="list-style-type: none"> <li>• Availability of large quantities of fruit during growing season: apples, grapes, peaches, apricots.</li> <li>• There is potential for a factory to be built able to process about 1,000 kg of fruit per hour into juice.</li> <li>• Small-scale jam or chutney production can be done close to the fruit farms.</li> <li>• Fruit cultivation, fruit processing and proper handling can be taught through training programs.</li> <li>• Access to packaging materials and bottles can be organized.</li> <li>• The same equipment can process several types of fruit, both with and without stones/seeds, thus covering different fruit harvest seasons.</li> <li>• The production of dried fruit “sheets,” currently done in Shaqlawa, can be expanded to other areas.</li> </ul>	<ul style="list-style-type: none"> <li>• Farmers could attempt to send foul fruit to a juice factory that would contaminate the whole batch.</li> <li>• Tetrapak juices are very competitive in supermarkets and small shops, with prices ranging from IQD 1,300 to 2,000 per litre, depending on specification.</li> <li>• Available quantities, condition of the orchards (tree management) and condition of the roads is not consistent or reliable.</li> <li>• Water and electricity supply is not reliable in rural areas.</li> <li>• High standards of hygiene are necessary, and government oversight of this (through the Ministry of Health) must be consistent.</li> <li>• Turkey, a main import source for products in the KRI, supplies juice in high quantities and in all forms: concentrate, drink, nectar.</li> <li>• There is a strong competition from established firms in Iran and Turkey for all fruit products, Iranian dried apricots for example. Selling dried fruit requires a marketing strategy due to strong competition from Iran and Turkey.</li> <li>• Only good quality fruit is suitable for drying, though farmers prefer to sell all of their produce together, and not separate the high quality from the lower quality.</li> </ul>



## Future targeted situation

Based on the information gathered above, this section undertakes a gap analysis in order to identify the areas within the value chain that can benefit from livelihoods programming. Given the challenges of both production and processing, such programming should target the whole length of the value chain – from input to operations, and transport to markets – requiring a combined approach by NGOs and international organizations as well as government actors (Figure 6).

The key challenges to address coming out of the gap analysis are summarized as follows.

### a) Production performance

Consumers are sensitive to the quality and taste of the fruit products they purchase. Therefore, obtaining fruit inputs from healthy orchards is crucial to ensure maximized end-product quality. The fruit processing industry in the KRI, however, requires support to modernize its conventional production methods. The inadequate supply chain limits the opportunities of the industry to compete with imports and to take a higher market share in the local markets. The aim should be to better connect the various small producers in isolated areas, who have limited capabilities in reaching different target groups by themselves.

Opportunities to increase economies of scale in fruit production must also be sought. Small producers lack the scale to produce at lower unit costs than other large companies that can produce a high volume of output benefitting from lower capital and operating costs per unit.



A farmer tends to his well-kept fruit orchard in Erbil. © Linda Fawaz/UNDP Iraq/2017

## b) Marketing

Marketing consists of the marketing mix: product, price, place, and promotion. Packaging and labelling are important components of the product that attract consumer demand. Currently, the packing and labelling of locally made fruit products is substandard and it is not attractive to a large portion of the consumer base. Most of the products are not packed properly, and the few packaged products are sold unbranded without any labelling or product information.

Focusing on branding improvements would make the product more reliable and consistent to consumers. Packaging, branding and labelling products creates product identity and can positively distinguish the national product from imports, in turn increasing the position of the product in the consumer's mind. Also, there must be a focus on marketing and promotional activities for local production to strengthen the market segment.

## c) Work force

Because of the traditional and conventional nature of the fruit processing industry in the KRI, most of the people qualified for production processes are from older generations; youth are rarely found in this sector except for those working with their parents at the household level. However, this inherited experience is also valuable in terms of the value of the goods. Partnerships with small, existing fruit processing units is a critical factor to ensure transfer of know-how from the older generation to youth IDPs, refugees and host communities.

New-skill development, however, is required in the product development stages, marketing and promotional activities, food safety, design, packaging, etc.

## d) Institutional support

Public policies for the development of agricultural and other industries are not in place. Typical supporting institutions, including the government, private sector associations, and NGOs are not able to provide enough support. Therefore, this analysis calls for the NGOs and international organizations to work along Chambers of Commerce, the Ministry of Agriculture, the Ministry of Industry, and other entities and create partnerships with greater impact in supporting the industry.

## Financial considerations

Most processed fruit products are labour intensive. Therefore, the machines and technology used are relatively simple and have not changed significantly over time, with the exception of more complex processes such as canning or chemical preservation. For example, drying, jam, and extraction are relatively simple processes and highly dependent on peoples' skills and expertise rather than technology and equipment. A small to medium scale plant for processing different fruit products may require an investment ranging between US\$30,000 and US\$70,000 for machines and equipment. This investment does not include the facility or warehouse itself, which can be developed separately or preferably rented out in rural areas near fruit orchards.

Beyond the initial investment, operational costs would consist of product inputs, labour expenses and other costs not related to the production process itself. Estimations for each is provided as follows:

- **Inputs** in this industry represent the largest operational cost segment. The most important input costs are fresh fruit purchases, packaging materials such as glass jars, plastic containers, and labelling materials. These inputs are estimated to cost around 55-60 percent of the total cost of production, depending on the season and market price of the fruit. Long term contracts with fruit suppliers (farmers or merchants), or involving farmers as partners in a new fruit processing business, may reduce the cost of input purchases.
- The **labour expense** is expected to account for 18-20 percent of the total operational cost. Traditionally, fruit processing is a highly labour intensive process. A small to medium fruit processing plant would need 10-15 skilled, semi-skilled, and unskilled employees, including production, marketing and sales employees. The average monthly wage of all levels of labourers in the KRI is estimated at US\$750; annual labour expenditure in such small- to medium-sized plant is therefore estimated at US\$90,000 to US\$135,000.
- **Other costs** are estimated at 20-25 percent of the total cost including distribution cost, rent, promotion, utilities, administration fees, legal fees, and depreciation of capital investments.

Finally, based on the conducted market analysis and field work, a simple projected income statement for a small-scale plant with 10 employees is summarized below (Table 8).

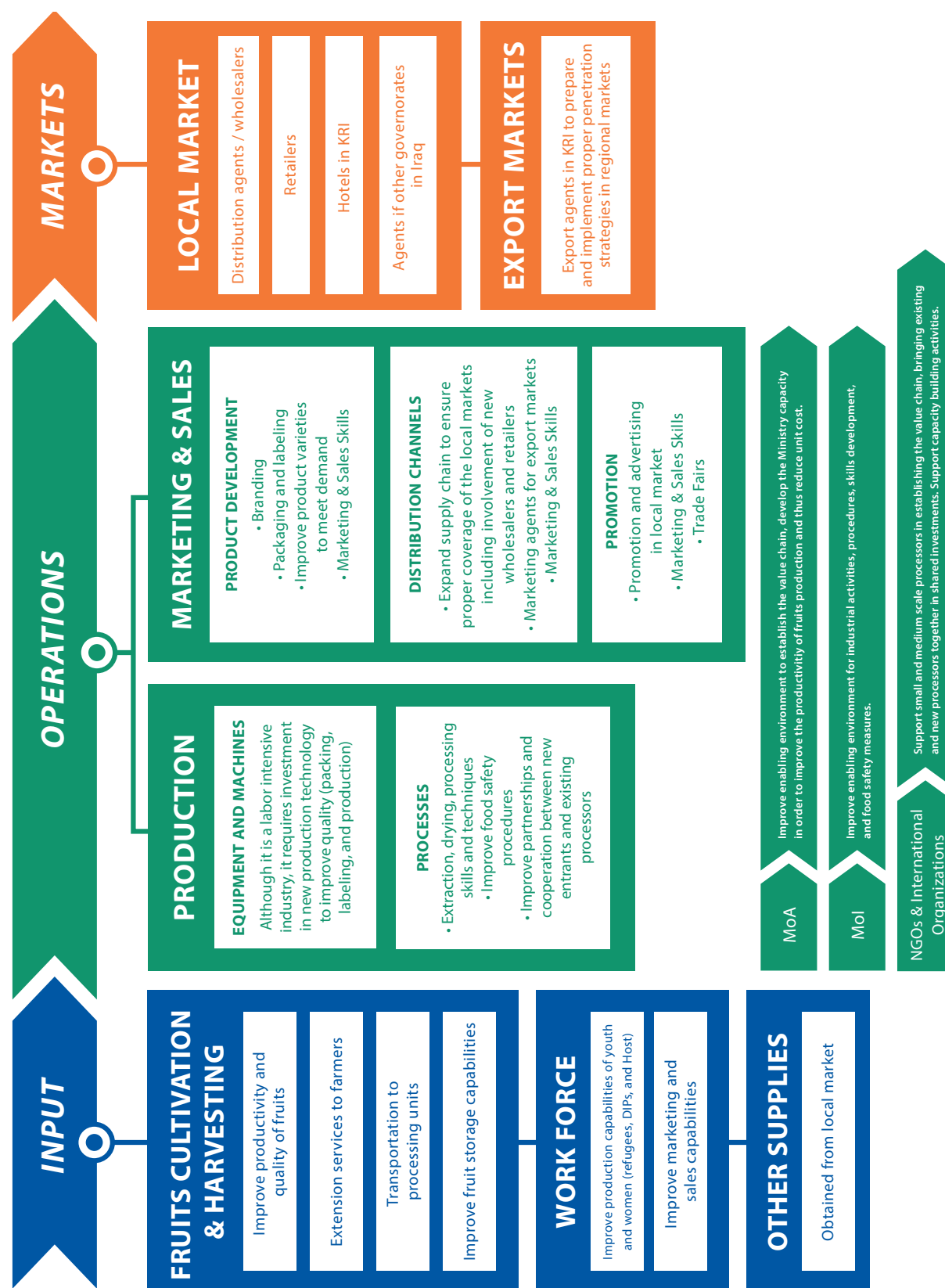
Table 8 Projected income statement of small scale fruit processing plant

BALANCE	ESTIMATED VALUE (IN US\$)
Sales	600,000
Inputs expenses	(255,000)
Labour cost	(90,000)
<b>Gross profit</b>	<b>255,000</b>
Other operating costs	(103,000)
<b>Net profit</b>	<b>152,000</b>

Source: Team calculation based on collected information, 2016



Figure 6 Future value chain of fruit processing in the KRI



## Section 6. The fresh herb market system

### Current situation

A large variety of fresh herbs can be found in mountains and country sides in the KRI including, but not limited to basil, chervil, chives, coriander, dill, marjoram, oregano, rosemary, sage, sorrel, tarragon, chamomile, anise, and thyme. Very few crops are cultivated commercially, mainly mint, arugula and parsley. The market for fresh herb production in the KRI, where herbs are used for medicinal use as well as in cuisine, therefore offers some business development potential.

#### a) Supply chain

Different spice shops were visited during the fieldwork. These shops are the businesses most familiar with the varieties of herbs that are sold in the KRI. Most of the processed herbs sold in the region were imported, mainly from India, while some of the spice mixes were created using fresh herbs collected from the area. Most of these herbs are wild crops and found in the mountains. The sale of herbs in other retail or vegetable shops, in turn, is essentially limited to those produced commercially in the KRI, mainly mint, arugula and parsley.

The process of cultivation and processing of herbs therefore cannot be classified as an industry in the KRI. It is fragmented, very small in scale, and highly dependent on the wild herbs in mountains. This dependency limits the cultivation and production season and causes significant fluctuation in supply.

#### b) Market potential

A key feature of commercially produced herbs is the length of the harvest season, that is, the effective number of months during which herbs can be cultivated. The agronomic and climate conditions in the KRI, as well as the diversity of herb types that can be grown, results in the potential to harvest significant quantities of herbs throughout the year. This factor, with the advantage that locally grown herbs can be in the marketplace within a few hours of being harvested to retain their freshness, is especially important from the perspective of developing a comparative advantage in the local market against imports, which are usually transported by road.

In these circumstances, greenhouse cultivation of high value crops in IDP or refugee camps could be considered, as well as cultivation in existing farming communities. Putting the market logistics in place would therefore be a crucial factor, although logistics for transporting about a hundred kilograms on a regular daily basis would not be a relatively complicated endeavour.

For NGOs looking to support a project connecting private capital with community association greenhouses to supply herbs to large retailers, this study has identified potential investment partners with commercial interest in this niche market, who are listed in Annex 2.



Greenhouse cultivation of herbs is uncommon but has high potential in the KRI. This greenhouse is located in Erbil and supported by UNDP's ICRRP. © Linda Fawaz/UNDP Iraq/2017

The market evaluation and its potential are summarized in the SWOT analysis below (Table 9).

Table 9 SWOT for the fresh herb market

INTERNAL FACTORS	
STRENGTHS (+)	WEAKNESSES (-)
<ul style="list-style-type: none"> <li>• IDPs and refugees can be involved in horticulture with herb cultivation.</li> <li>• Employment opportunity for women.</li> <li>• Low barriers to entry, small scale cultivation is possible in a community group.</li> <li>• Horticultural experience is available locally.</li> <li>• Many herbs and spices sold in supermarkets.</li> <li>• Greenhouse technology is available.</li> </ul>	<ul style="list-style-type: none"> <li>• Labour costs are high in the KRI; growing and harvesting is labour intensive.</li> <li>• Fresh herbs have not been a main ingredient in local cuisine, except in mountainous areas where they are available.</li> <li>• Fresh herbs need to be brought to market quickly but there is no transportation network from mountainous areas, where they currently grow wild, to the faraway markets.</li> </ul>
EXTERNAL FACTORS	
OPPORTUNITIES (+)	THREATS (-)
<ul style="list-style-type: none"> <li>• Basic training in horticultural skills is available for growing, harvesting and packing herbs.</li> <li>• Availability of appropriate quality of seeds.</li> <li>• Gardening tools can be sourced in public markets.</li> <li>• Private sector interest can be matched with new enterprises.</li> <li>• Several INGOs that can set up community based projects.</li> <li>• Export opportunities to Amman, Dubai or Doha.</li> </ul>	<ul style="list-style-type: none"> <li>• Artificial flavourings and sauces are competitors to fresh herbs due to the availability and low price.</li> <li>• Local producers may not be able to achieve low prices to compete with imported herbs.</li> <li>• Fresh herbs can be imported quickly from border areas in Turkey and Iran to Duhok and Sulaymaniyah.</li> <li>• Farmers still prefer to grow wheat on a large scale rather than high value crops like herbs.</li> </ul>

## Future targeted situation

Based on the analysis above, the potential for this niche market lies on creating local production opportunities, logistically well-connected to gain a competitive advantage (Figure 7). Therefore, the key operational factors to take into account for programming as well as the relevant financial data are presented below.

### a) Open fields vs. greenhouse growing

Herbs can be grown in open fields or in greenhouses. Production in open fields will reduce the harvest calendar and limit the harvesting season. Greenhouse cultivation is ideal for a longer harvest season. In addition, productivity of herbs in greenhouses is very high compared to open field cultivation, as it offers protection from pests and climate control. The table below summarizes productivity, harvest calendar, and cultivation periods of selected herbs.



Table 10 Herb production

PRODUCT	PRODUCTIVITY PER DUNUM	DAYS TO START HARVEST	HARVEST CALENDAR IN MONTHS (LENGTH OF SEASON)	HARVEST CYCLES DURING THE SEASON (REAPING)
Anise	7,500 kg	45 days	8 months	7
Chamomile	10,000 kg	25 days	5 months	8
Chives	7,500 kg	60 days	24 months	6
Arugula	9,000 kg	20 days	12 months	7
Rosemary	7,500 kg	40 days	12 months	10
Parsley	20,000 kg	30 days	12 months	10
Coriander	6,500 kg	40 days	12 months	6
Chervil	5,500 kg	30 days	12 months	10
Dill	3,200 kg	70 days	24 months	10
Basil	5,000 kg	25 days	4 months	3
Tarragon	7,500 kg	45 days	8 months	7
Sage	12,000 kg	30 days	24 months	10
Thyme	10,000 kg	30 days	12 months	10
Oregano	9,000 kg	70 days	24 months	10
Marjoram	11,000 kg	70 days	24 months	10
Sorrel	7,500 kg	40 days	12 months	10
Mint	15,000 kg	30 days	24 months	12

Source: Data compiled through interviews with local practitioners.

### b) Cultivation process selection

Sound agronomic practices constitute the foundation for establishing the herb value chain, especially if it becomes an export-oriented subsector. In general, small-scale farmers in the KRI do not practice Good Agricultural Practices (GAP) or Hazard Analysis and Critical Control Points (HACCP), which are international guidelines for farmers and food processors on safe practices. There is a need to raise awareness of good production and handling practices and offer continuous practical/vocational training programs to farmers.

A key aspect to consider also is the availability of local know-how. Local experts, agronomists running nursery businesses as well as specialists working for locally-operating NGOs can provide support on this field. Some of these stakeholders are listed in Annex 2.

### c) Packaging needs

Packing houses are essential actors in the herb production value chain, especially when it comes to the sale of fresh herbs. Establishing packing facilities is a key success factor for distribution and export of fresh herbs. Fresh herbs are usually sold in packs of 30, 40, and 50 grams in supermarkets. Packing facilities are small scale and linked to the production facilities to ensure maintenance of freshness and quality of herbs from harvesting time.



A man in Halabja, Sulaymaniyah selling fresh herbs. © Paola Piccione/UNDP Iraq/2017

#### d) Institutional support

It is essential to establish industrial platforms that link technical support services and industry actors, and encourage the value chain actors to participate in national development initiatives that help improve sector linkages and thus create bases for cooperation between all actors at different levels of the value chain. In this sense, international development partners in cooperation with the Ministry of Agriculture and Chamber of Commerce should provide technical assistance to identified actors in the value chain including producers, packing houses, and exporters with the objective of enabling a positive environment in terms of quality enforcement and access to local and export markets.

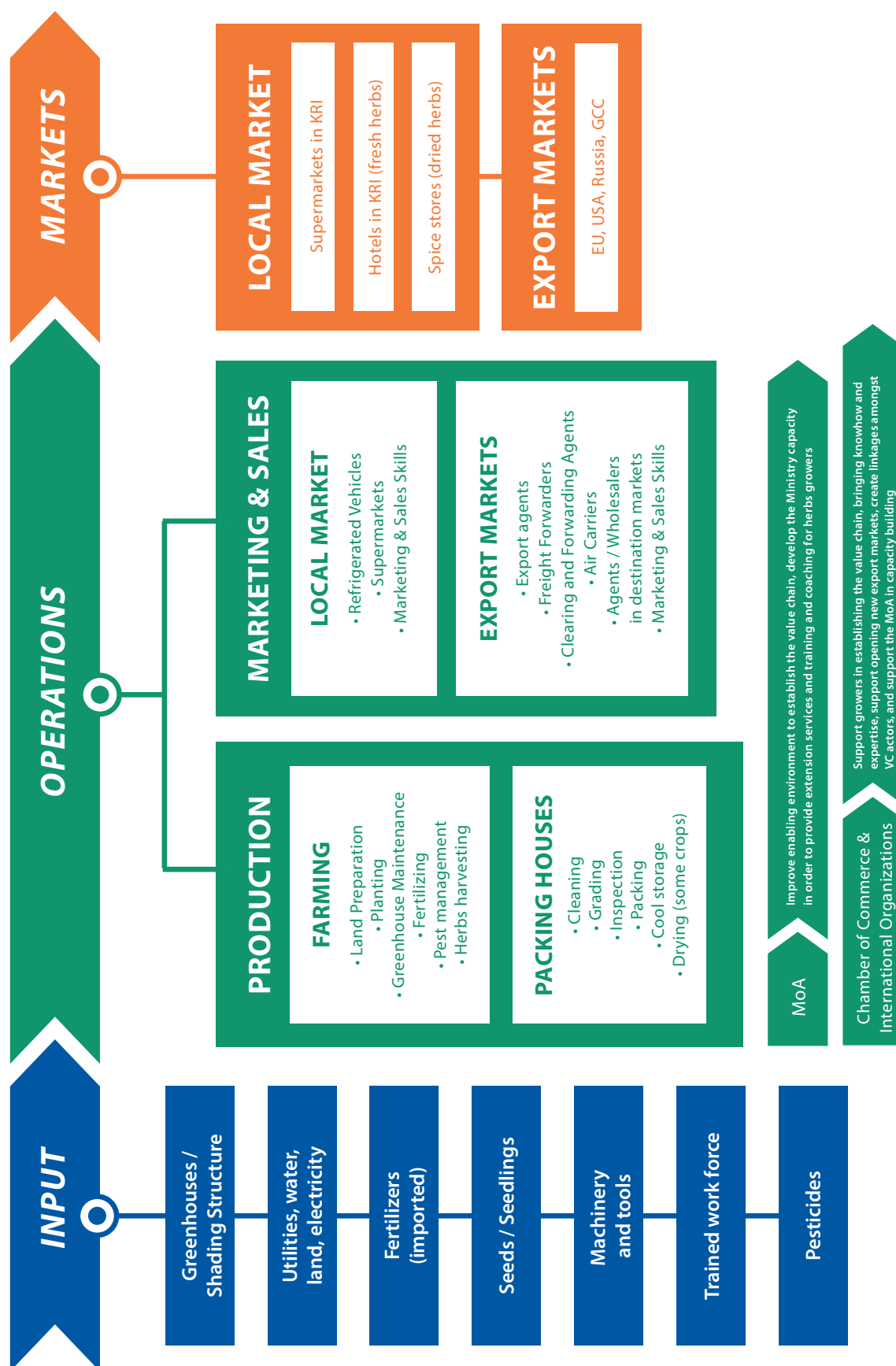
### Financial considerations

Establishing a small-scale herb production facility (one dunum, for instance) requires four greenhouses and a small packing house connected to a cultivation area. The cost of establishing the one dunum production and packing house is estimated at US\$25,000-30,000. This investment includes fully equipped greenhouses with irrigation and ventilation systems as well as a small packing unit with tools. Land could be provided by the government, so it is not included in the above estimation.

Such a project would require of one full time skilled employee and another seasonal employee at the harvesting time. These two employees can handle the planting, daily care, harvesting, and packing of herbs. Export agents are responsible for marketing, communication and transportation of the products to the final destination. One export agent can support the marketing and export activities of many producers to save on costs of marketing communication, transportation and shipping within the value chain.

The revenue of a one-dunum herb cultivation area varies according to the type of cultivated herb. Based on the productivity levels listed above and observed local prices, annual revenues of the small-scale project are estimated at US\$25,000 to US\$40,000. Total operating cost including seeds/seedlings, fertilizers, pesticides, wages, water, packing materials, electricity, and other operating costs, is estimated at 65-70 percent of the estimated revenues.

Figure 7 Future value chain of herb farming in the KRI





## Section 7. Conclusion and summary of key recommendations

The analysis of the current market performance, supply chain, and market potential for each niche sector in the KRI suggests in effect that targeted support can help expand activities and promote more employment opportunities. In some cases, like in the fresh flower sector, support means creating a new step in the value chain that it is currently undertaken abroad. In other cases, like in fruit processing and fresh herb growing, it requires a focus on modernizing and expanding traditional processes to make them more productive and competitive.

The type of support required from external actors, such as NGOs or development organizations, is not limited to financial assistance to establish small and medium scale projects. Technical support and network activities to link different actors on the same value chain would certainly help to boost the impact of any livelihoods program and ensure sustainability. Therefore, programs bringing together different actors (private, public and humanitarian or development) should be one of the first tasks of any endeavour. Some guidelines on how to bring into practice these responses or recommendations are provided below (Table 11).

Finally, the fresh flower and herb cultivation sectors offer an immediate opportunity to develop quick impact projects in the KRI, for instance through pilot projects to construct greenhouses in locations close to IDP or refugee camps designed for the cultivation of roses and fresh herbs, respectively. The number of pilot projects possible depends on the amount of funding available from humanitarian organizations, donors, and the KRG, as well as whether a partnership with the private sector can be created for investing in these businesses.

Table 11 Key recommendations and response analysis for niche market development

RESPONSE ACTIVITIES	KEY ASSUMPTIONS	LIKELY EFFECT ON THE MARKET SYSTEM AND TARGET GROUPS	TIMING	IMPLEMENTATION
Technical or vocational training and capacity building activities for the three niche systems.	IDPs, refugees, and host communities are willing and capable to improve their knowledge and expertise in the targeted fields.	Improve production best practices and quality of products.	Prior to request for financial support.	Different partners such as the Ministry of Agriculture, agricultural colleges, and chambers of commerce can provide technical assistance.
Marketing and sales skills development for both owners and employees of supported projects.	Quality training and coaching offered.	Improvement in outreach and demand driven practices, helping to connect producers, sellers and customers.	Ongoing, over the project lifespan.	Different partners can intervene, including INGOs. This training shall focus on the marketing mix (4Ps) to enable participants to develop products' packages, labelling, promotion, communication, etc. as well as supply chain development.
Create linkages among actors in the value chain.	Willingness and capability of different actors to cooperate and join activities.	Strengthen the value chain performance and reduce transaction costs.	Depending on the needs of each project.	Existing clusters may play a major role in getting all parties together under the direct support of ICRRP.
Bringing existing expertise and know-how into the value chain.	Existing producers are willing to partner with new entrants.	Encouraging existing businesses to enter into partnerships with new entrants and to close existing gaps in terms of know-how and expertise in the targeted fields.	Ongoing, over the project lifespan.	ICRRP gives incentives to existing businesses to expand their operations with new partners in the business.

## Annex 1. Relevant sources

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## Annex 2. List of actors interviewed

### INGOs and NGOs

ERBIL	DUHOK	SULAYMANIYAH
<ul style="list-style-type: none"> <li>• Big Heart Foundation</li> <li>• Relief International</li> <li>• GOAL</li> <li>• Danish Refugee Council</li> <li>• Relief Foundation HRF</li> <li>• Women Empowerment Organization</li> </ul>	<ul style="list-style-type: none"> <li>• Zakho Small Villages Project</li> </ul>	<ul style="list-style-type: none"> <li>• Reach</li> <li>• ACF</li> </ul>

### International organizations

ERBIL	DUHOK	SULAYMANIYAH
<ul style="list-style-type: none"> <li>• UNDP ICRRP</li> <li>• WFP VAM</li> <li>• IOM</li> <li>• UNIDO/Swedish Academy</li> <li>• FAO</li> </ul>	<ul style="list-style-type: none"> <li>• UNDP ICRRP</li> <li>• GIZ</li> <li>• IOM</li> </ul>	<ul style="list-style-type: none"> <li>• UNDP ICRRP</li> <li>• IOM</li> </ul>

### Government actors

ERBIL	DUHOK	SULAYMANIYAH
<ul style="list-style-type: none"> <li>• Ministry of Agriculture</li> <li>• Agriculture High School</li> <li>• Ministry of Trade and Industry</li> </ul>	<ul style="list-style-type: none"> <li>• Board of Relief and Humanitarian Affairs</li> <li>• Duhok Municipality Council</li> <li>• Ministry of Labour and Social Affairs</li> </ul>	<ul style="list-style-type: none"> <li>• Directorate of Industry</li> <li>• Ministry of Trade and Industry</li> <li>• Ministry of Agriculture</li> </ul>

## Private sector actors

ERBIL	DUHOK	SULAYMANIYAH
<ul style="list-style-type: none"> <li>• Kurdistan Federation of Chambers of Commerce and Industry</li> <li>• Holland Flowers</li> <li>• Carrefour Iraq</li> <li>• Definitus</li> <li>• IFP Exhibitions and Events Organisers</li> <li>• Society of Devoted Agriculturists in Kurdistan</li> <li>• Casa Flora Flowers and Plants</li> <li>• Flower City Co.</li> <li>• Erbil Chamber of Commerce and Industry</li> <li>• Alshimal</li> <li>• Dawa Restaurant</li> <li>• Dried and other Processed Fruits Store, Shaqlawa</li> <li>• Ashad Mala Naser, independent fruit processing expert</li> <li>• Dana Hemn, independent fruit processing in Shaqlawa</li> <li>• Kurdistan Agricultural Association</li> </ul>	<ul style="list-style-type: none"> <li>• Amedi Nursery</li> </ul>	<ul style="list-style-type: none"> <li>• Sulaymaniyah Chamber of Commerce and Industry</li> <li>• Black Rose</li> <li>• Plastic House Co.</li> </ul>



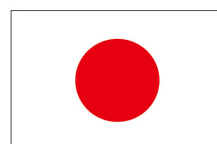


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