

AMERICAN UNIVERSITY OF BEIRUT

THE WASTE MANAGEMENT VALUE CHAIN IN WEST
BEKAA: CONTRIBUTIONS TO LABOR MARKETS AND
RURAL DEVELOPMENT

by

RAMI SAMI ASSAF

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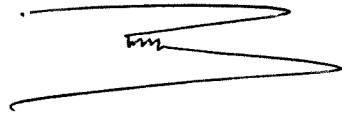
by
RAMI SAMI ASSAF

Approved by:



Dr. Ali Chalak, Associate Professor
Department of Agricultural and Food Sciences

Advisor



Dr. Jad Chaaban, Associate Professor
Department of Agricultural and Food Sciences

Member of Committee
Giuliano Martiniello

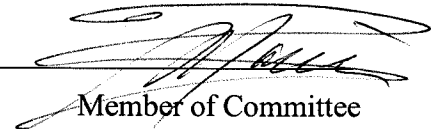
Dr. Giuliano Martiniello, Assistant Professor
Department of Agricultural and Food Sciences

Member of Committee



Dr. Shady Hamadeh, Professor
Department of Agricultural and Food Sciences

Member of Committee



Mr. Ziad Moussa, Outreach Officer
Environment and Sustainable Development Unit

Member of Committee

Date of thesis defense: December 17, 2018

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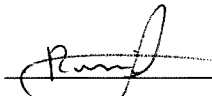
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AN ABSTRACT OF THE THESIS OF

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Title: The Waste Management Value Chain in West Bekaa: Contributions to Labor Markets and Rural Development

Rural Lebanon is being depleted with a large number of the population living in urban areas in search of better incomes and life. The West Bekaa, a rural area, doesn't skip the rule. The area is poor, is losing its agricultural lands for the pop-up of urban sprawls and is practicing a non-sanitary waste management. Moreover, since 2011, it has taken in more than 300,000 Syrian refugees fleeing the crisis in their country.

In 2015, a waste crisis erupted in Lebanon and more particularly Beirut whereby a lot of media attention shifted towards the unconventional ways of dealing with waste in Lebanon. This crisis, coupled with the Syrian one, has opened the eyes for international non-governmental organizations to implement projects all over the country. Some of these projects, implemented in the West Bekaa, were done with a clear view of creating a value chain out of waste management all while ultimately contributing to rural development.

This thesis focused on revisiting these views. A value analysis and a revisiting of a theory of change were conducted. Data was collected from the value chain stakeholders and analyzed using qualitative and quantitative methods. The value chain analysis focused on stakeholders' roles within the chain and their importance to it while the revisit of the theory of change refuted the claims of ultimate impact.

The results showed that the value chain is fragile and heavily dependent on a municipality's willingness to continue with such projects. As for the theory of change, it needs clear restructuring. Waste treatment facilities in no means bring in sustainability, they add debts for municipality in terms of operation, they do create jobs but for a limited and very small number of people while rural development is a utopist claim.

The research also will open recommendations for two unexpected findings which are the agricultural boost and alleviation of Syrian refugees lives that were induced by waste management projects.

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CHAPTER I

INTRODUCTION

Rural to Urban migration has depleted the countryside due to significant increase in rural outmigration to urban areas. Wide disparities in terms of job and income opportunities as well as access to superior services in urban areas are the obvious factors explaining the rapid increase in migration. (Asia, 2015; IFAD, 2013). The rural to urban migration is a phenomenon spread across the world with more than 50% of the world population living nowadays in urban areas compared to 33% in the 1960s (Mengesha, 2017; World Bank & Baker, 2008). Moreover, rural areas are observing urban sprawls themselves leading urban people to govern rural lands bringing changes in demographic composition, industrial structure and agricultural production with the latter observing a decline (Alina & Zadworny, 2016; Ma, Jiang, Li, & Zhou, 2018)

In Lebanon in particular, the countryside is also experiencing the same trends and in addition to rural-urban migration, has seen a recent influx of Syrian refugees. That influx coupled with previously mentioned problems have opened the eyes for the International Non-Governmental Organizations which have seen this as an opportunity to engage in rural development. There are many approaches under which these organizations engage in rural development. From cash for work to building basic infrastructure and promoting rural cooperation and farming, all these projects fall under the rural development umbrella with means of empowering rural population and slowing down the rural to urban migration.

One of these theories is the decentralized waste management treatment facilities. Lebanon has been dealing with a waste management crisis for several decades due to poor governmental and municipal planning, inadequate support and open dumping. The crisis peaked in the summer of 2015 when the Naameh landfill which supported all of the capital Beirut's waste was shut down and garbage piled on the street. Media shifted focus towards waste management back at that time and the government decided to declare waste management as a solemn responsibility of concerned municipalities. (Khawaja, 2017; Massoud & Merhebi, 2015).

INGOs saw that window of opportunity and decided to shift some funds in building waste treatment facilities with the aim of providing a solution to the ongoing crisis. Some NGOs and donors are implementing various projects related to waste management proclaiming a theory of change that will solve the waste dilemma, all while creating job opportunities and contributing to rural development.

This study aims to verify the veracity of such claims by analyzing two different interventions in West Bekaa. This analysis will help in drafting a value chain for solid waste management in West Bekaa. The value chain will identify the different stakeholders related to waste management and who profits from what. In addition, the study will also review qualitatively some of the consequences of such interventions which were unaccounted for during project proposals and implementation. The present study is guided through the following research questions:

1. To what extent can a proper municipal solid waste management can contribute in creating labor employment and enhance rural development?
2. What are the unaccounted consequences from such interventions beyond these claimed by the NGO discourse?

In order to answer the research questions, chapter two will start by discussing the literature related to the rural to urban migration in Lebanon that is also accompanied by an influx of Syrian refugees. It examines the basis of the waste crisis and the entry point of donors and INGOs to the field of waste management claiming a solution to the problems by contributing to rural development and alleviating the refugee and waste crisis.

Chapter three discusses the methodology used to answer the research questions and the problems faced during data collection and field work.

Chapter four presents the data gathered during field work and its analysis. It focuses on the value chain analysis of waste management to unveil different stakeholders and revisit the claims made in the theory of change. In addition, it displays unaccounted consequences and findings that were not discussed during project proposal and implementation

Chapter five concludes by providing recommendation for a more realistic approach and a set of objectives in implementing a waste management project in rural areas of Lebanon. Moreover, it will offer a critique of NGO involvement in development in general.

CHAPTER II

LITERATURE REVIEW

A. Rural to urban migration and Syrian crisis

The world cannot afford a future where rural areas are synonymous with social and economic marginalization. Current trends make this obvious – as the rural population grows and becomes younger, it is imperative to boost rural economies and jobs. (Asia, 2015).

During the last several decades, there has been a significant increase in rural outmigration to urban areas. Wide disparities in terms of job and income opportunities, and access to superior services in urban areas are the obvious factors explaining the rapid increase in migration.(Asia, 2015; IFAD, 2013) The rural to urban migration is a phenomenon spread across the world with more than 50% of the world population living nowadays in urban areas compared to 33% in the 1960s (Mengesha, 2017; World Bank & Baker, 2008).

In addition to the rural exodus, agricultural productivity is slowing down and declining. This statement was raised in the World Development Report 2008 (World Bank, 2008), which claimed that annual growth rates in yield of rice, maize and wheat in developing countries have slowed sharply since the 1980s. In 1995, agriculture accounted to 7.871% of the world's GDP while in 2015, it accounted to 3.791% of it. The disparities are even clearer in some MENA countries such as Egypt where in 1970, agriculture accounted to 29.42% of the national GDP while in 2000, it regressed to 16.70% (Belloumi & Matoussi Mohamed Salah, 2009). It is a negative regression and

trend, as agricultural growth, contrary to growth in general, is typically found to be the primary source of poverty reduction (Cleaver, 2013; Diao, 2007)

The Middle-East and North Africa - MENA region which is inhabited by around 381 million people equivalent to about 6% of the world population, has seen its urban population grow four-fold from 1970 to 2010 and is expected to double again by 2050 (Serageldin, Larsen, & Summers, 2015; World Bank, 2013). In the 1970s, Urban population in the MENA region accounted to approximately 135 million, while in 2010 it was around 420 million (World Bank, 2013). The population exodus from rural areas is presently of larger magnitude in MENA than in other comparable regions. Urban populations are growing faster, and rural slower, than in other lower middle income countries. (Silva & Silva-Jauregui, 2004).

There have always been disparities in development between the urban areas of Lebanon, on the coastal fringe, and the rural hinterland. Before the civil war (1975–1990), many of the coastal cities, centers of trade and commerce, were prosperous and thriving. In the hinterland, however, large areas remained underdeveloped and lacking in basic infrastructure. The ending of the war has not changed this situation meaning that the urbanization in Lebanon grows in faster rates than other places of the world.(Makhoul & Harrison, 2002) Being part of the MENA region, Lebanon, a country of 10,452 km² is experiencing the rural outmigration to urban areas trend. With 87.5% of its population identified as urban, Lebanon is the country with the highest urbanization in the region. In comparison, Jordan comes in second with its 83.2% urban population, Iraq has a 69,2% rate of urbanization and 43% of Egypt population lives in rural areas (Serageldin et al., 2015).

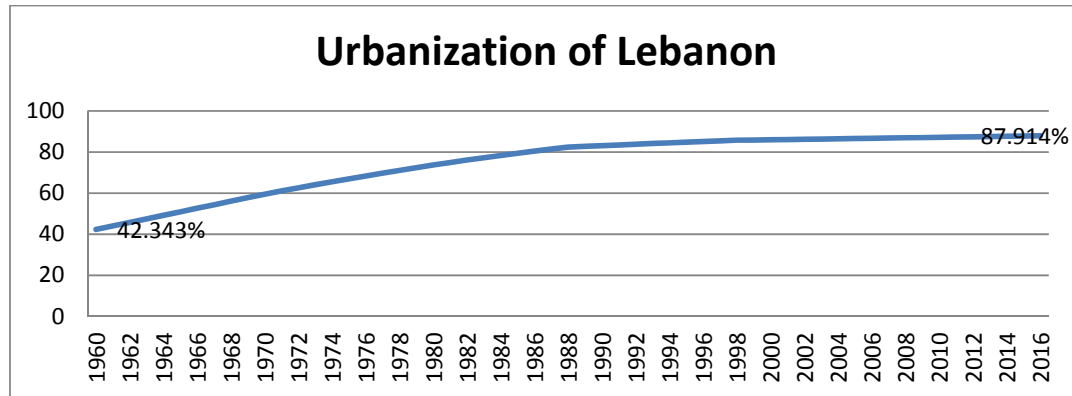


Figure 1: Urbanization of Lebanon (World Bank, 2016)

Though a small country, Lebanon is extremely rich in terms of cultivable lands.

The country is characterized by the coexistence of plants with diverse origins. It is considered a key area of geological activity and climatic changes, while the combination of geological variation and altitude, along with strong climatic variation among different slopes, creates a marked heterogeneity in the ecological forces acting on the evolution of plant differentiation. Another important geographical feature of Lebanon that should be mentioned is its numerous springs and rivers. Topographically and geologically speaking, Lebanon is the perfect place for agricultural products. (Bou Dagher-Kharrat, El Zein, & Rouhan, 2018; Chalak & Sabra, 2007; El Zaatari, 2018).

Though Lebanon is ideal for agricultural production, the budget allocated by the Lebanese government to the agricultural sector has never exceeded 0.8% of the annual national budget. As a consequence, agricultural services have been limited and lacking sufficient funds, staff and skills to adequately meet farmers' needs. (Chalak & Sabra, 2007). Furthermore, the agricultural sector generates only around 3% of Lebanon's GDP. (CAS, 2016). In this regard, about 40% of the Lebanese population is currently working in the agricultural sector including the agro-food industries, services, farming, etc... The Lebanese economy is essentially based on services offered by a strong

banking sector and an attractive and diversified tourism sector (Chalak & Sabra, 2007).

To put things into perspective, around 195,000 hectares or approximately 18% of the Lebanese territory is covered by agricultural area for only 3 % of the GDP (CAS, 2016; FAO, 2012)

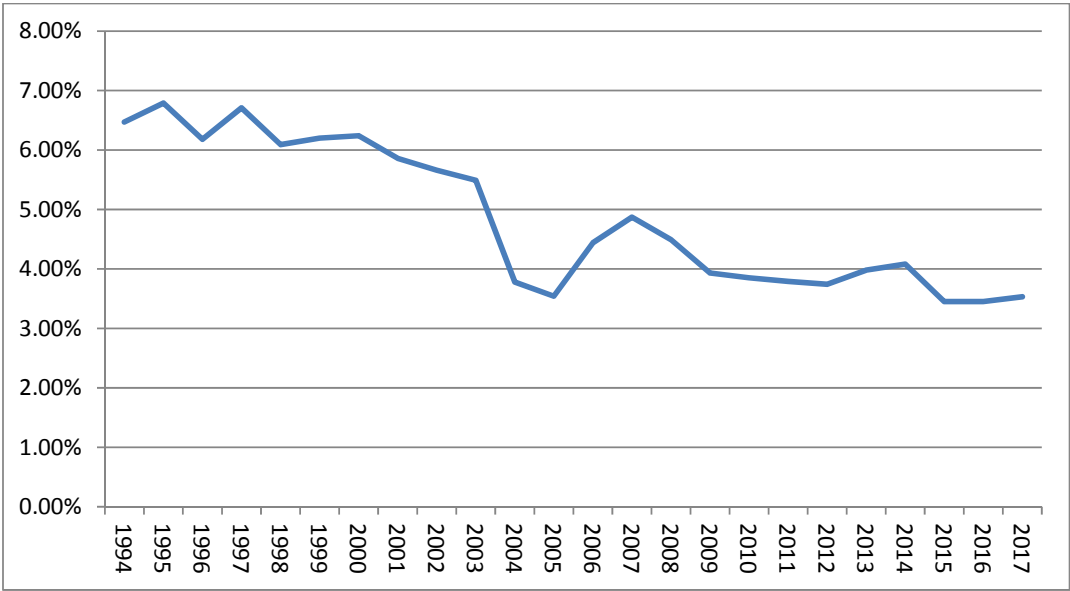


Figure 2: GDP Agriculture Percentage evolution in Lebanon (World Bank, 2017)

Since the start of the century and the end of the Lebanese civil war, the government hasn't been able to put a sustainable solution to empower local farmers except some theoretical studies done by the ministry of agriculture (Chalak & Sabra, 2007; Hamade, 2016)

Another problem hitting the Lebanese agricultural sector is water scarcity, overuse of chemicals as well as the pollution of soil and resources. For example, a study conducted by Haydar et al. shows the different levels of pollution of the Litani river, the largest and longest one in Lebanon and the primary source of irrigation for farmers in the Bekaa. (Haydar, Nehme, Awad, Koubaissy, & Fakih, 2014). Although pollution levels may vary between seasons, the river is extremely polluted and accounts for a problem in proper water irrigation.

The point is, although agriculture and agri-food industry play a minor role in Lebanon's economy, around 20 to 25 percent of the active population has some activity in agriculture on a full time or part time basis. However, in the poorest areas of the country which are the rural areas, agriculture-related activities account for up to 80 percent of the local GDP making it highly important for rural communities.(FAO, 2012)

An additional point to be taken into consideration is the land inequality in rural Lebanon. This country is driven by severe politicization of agricultural and rural development institutions with agricultural programs and policies driven mainly by political considerations. Moreover, Lebanon is placed among the countries with the highest levels of income, wealth and land inequality in the world. (Assouad, 2017; Michaels, Mansour, & Magnan, 2010). As such, in countries with higher land inequality, more migrants are willing to move to the urban sector with lower wages (Bush & Martiniello, 2017) and that is the case of Lebanon.

To conclude the previous paragraphs, Lebanon's countryside is under developed. It started pre-civil war¹ with the government neglecting the rural areas for the thriving of coastal ports and center of commerce and it continued with the low budget allocated by the Lebanese government to the agricultural sector which is the main income hub for rural citizens. No sustainable solution to empower agriculture has been put by the government except theoretical studies. Add to it the pollution, overuse of resources and the inequalities of land distribution and we have a case of agrarian crisis.

Last but not least, there are high regional disparities in terms of poverty in Lebanon. As shown in the figure below, for example, the Bekaa valley contains 13% of the Lebanese population but also, it contains 13% of its poverty thus making it a ration

¹ Before 1975

of 1:1 compared to the capital Beirut where 10% of the population reside but only 2% makes for the country's total poverty.

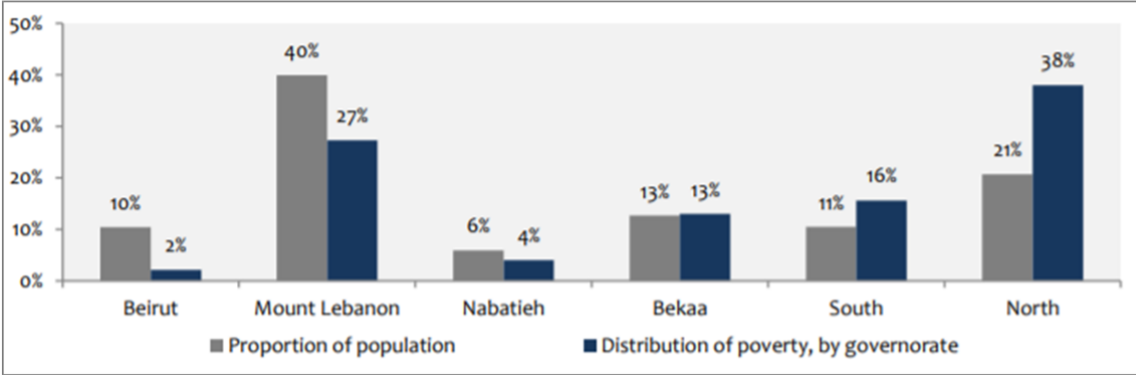


Figure 3: Poverty, Growth and Income Distribution in Lebanon (UNDP, 2008)

These factors enhanced has accelerated the rural to urban migration and pushed more citizens to work in different fields than in agriculture. One of these fields is the real-estate and the urban sprawls emanating in rural areas. For example, in the south, after the 2006 war with Israel, construction turned from contractor-based approach to owner driven one. This triggered the involvement of donor neighboring countries which significantly increased the funds dedicated to the housing sector. In such circumstances, primary material prices rose immediately. For example, the steel went from 605\$ per ton to 1166\$. This change of prices as well as the money pumped in the construction sector, pushed new companies to open in the south and a lot of rural citizens turned into the construction sector. Also, this changing investment has accelerated the widespread shift from local development to regional and national one while opening up the markets for commercialization and profitability (Barakat & Zyck, 2011; Soliman, 2004). Real estate and housings are growing markets in rural Lebanon. As shown by BankMed, one of the leading Lebanese banks, the main rural areas i.e. Nabatieh, Bekaa and the North of Lebanon have seen a significant increase in the volume of real estate transactions by

11.8%, 2.6% and 2.9% respectively between 2013 and 2014. These numbers are accelerated by the real estate demands and upsurge in the value of the transactions of the 3 mentioned areas. For example, in the Bekaa, the value and demand has risen by 14.8% between 2013 and 2014 while in Metn and Kesserwan areas it has dropped significantly by 11.9% and 12.5% respectively (Bankmed, 2016). Despite having clear rules about land and construction use in rural and agriculture areas (CDR, 2005), real estate is showing no signs of slowing down, with an ever increasing demand, value and volume in the rural areas of Nabatieh, Bekaa and North Lebanon (Bankmed, 2017), leading to a decline in agricultural lands for the benefit of housing.

Value of Real Estate Transactions							
in USD Billion	2008	2009	2010	2011	2012	2013	2014
Beirut	1.98	2.08	2.57	2.78	2.75	2.46	2.44
<i>% Change</i>		5.4%	23.2%	8.1%	-1.1%	-10.6%	-0.6%
Metn	1.25	1.30	1.80	1.61	1.62	1.80	1.58
<i>% Change</i>		4.4%	37.9%	-10.5%	0.5%	11.2%	-11.9%
Kesserwan	0.97	0.81	1.07	0.99	0.99	1.18	1.03
<i>% Change</i>		-16.6%	31.1%	-7.4%	-0.1%	19.7%	-12.5%
Baabda	1.42	1.62	2.39	1.93	1.94	1.88	1.97
<i>% Change</i>		14.0%	47.7%	-19.4%	0.5%	-2.8%	4.7%
South	0.28	0.30	0.44	0.45	0.50	0.42	0.63
<i>% Change</i>		6.3%	46.0%	2.1%	13.3%	-16.6%	48.7%
North	0.44	0.48	0.68	0.55	0.56	0.58	0.62
<i>% Change</i>		8.8%	41.2%	-18.5%	1.5%	3.6%	7.2%
Nabatieh	0.09	0.13	0.17	0.19	0.22	0.22	0.29
<i>% Change</i>		39.3%	26.1%	14.5%	14.3%	0.0%	36.3%
Bekaa	0.02	0.03	0.30	0.27	0.30	0.29	0.33
<i>% Change</i>		46.0%	983.3%	-9.6%	11.7%	-4.8%	14.8%
Others	0.04	0.03	0.07	0.09	0.06	0.05	0.06
<i>% Change</i>		-20.5%	125.8%	24.3%	-33.3%	-14.5%	20.0%

Table 1: Value of real estate transactions in Lebanon (BankMed, 2016)

Although real estate has its rewards in terms of jobs and economy (Barakat & Zyck, 2011; Harvie & Saleh, 2008), it is economically unsustainable - its market can turn from a bubble to shambles in the space of days - and environmentally unfriendly, accelerating soil degradation as well as floods and natural disaster (CDR, 2005; Watson & Watson, 2018).

As the rural exodus and the agrarian crisis were accelerating, another major event happened on the other side of the border. As most of the history books suggest, the Syrian crisis started on March 15, 2011, it soon turned into an unprecedented human crisis with over 5.6 million of people fleeing Syria as of May 2018. Most of these refugees fled to neighboring countries which adopted an open border policy. Lebanon, with its 4.5 million inhabitants, has received approximately 1 million registered Syrian refugees while Jordan, with its 6 million inhabitants has received approximately 600,000 registered Syrian refugees as of May 2018 (UNHCR, 2018). Jordan's area is 9 times bigger than Lebanon's.

Lebanon, like Jordan is a non-signatory of the 1951 refugee convention and considers Syrian refugees as 'guests' or 'displaced persons', a category with no legal meaning. However, both countries differ in terms of encampment. Jordan initially opposed encampment, the numbers of Syrians that were crossing the border continued to increase rapidly and, following negotiations with government and tribal leaders in northern Jordan, the government decided to open Zaatari refugee camp in July 2012. Zaatari hosts around 80,000 refugees, and Azraq camp, which opened in April 2014, around 18,000. Lebanon is a different case. Due to its turbulent and violent history with refugees, the Lebanese government completely shut down any suggestion or idea of encampment. As such, Informal Tented Settlements - ITS popped up across the country, with a vast majority nestled around the Bekaa and the North of Lebanon. In the autumn of 2014, Lebanon drafted the LCRP - Lebanon Crisis Response Plan in order to lay down the premise of Lebanon's relation to the international refugee regime. The preamble notably establishes that:

'Lebanon is neither a country of asylum, nor a final destination for refugees, let alone a country of resettlement. Lebanon considers that it is being subject to a situation of mass influx and reserves the right to take measures aligning with international law and practice in such situations'

A clear sign of Lebanon's views towards Syrian refugees, their nationalization and their encampment.(Janmyr, 2018; Turner, 2015; UNHCR, 2018; Weis, 1961)

Until 2015, the movement between Syria and Lebanon has been unrestricted, following the long-established policies of not requiring visas at the border. Many families have also extended unconditional hospitality to refugees. However, as numbers have continued to grow, and the crisis has become more protracted, some of its aspects have bred tensions while others have benefited large sections of local host communities. Refugees have added pressure to families already struggling to cope economically, and overwhelmed infrastructure and resources in many parts of the country.(Fawaz, Saghiyeh, & Nammour, 2014b; Yassin, Osseiran, Rassi, & Boustani, 2015). A key aspect of Lebanese policy towards displaced Syrians has been the refusal to allow the establishment of formal refugee camps by humanitarian organizations. As a result, innumerable informal settlements have proliferated across private agricultural lands. An informal settlement is defined as "a settlement that was established in an unplanned and unmanaged manner, which means they are generally unrecognized. There may or may not be an informal or formal agreement between landlords and residents of the settlement. The 2015 Lebanon Shelter Sector Strategy formally defines an Informal Settlement as: 'Unofficial group of temporary residential structures, often comprising of plastic-sheeting and timber structures and can be of any size from one to several hundred tents. Informal Settlements may have some informal community-led

management". These informal settlements are being secured through informal market channels with no planning nor proper infrastructural works leaving as such open drainage systems for wastewater, savage dumping of household waste and loss of all resources such as proper water across agricultural fields. (Fawaz et al., 2014b; Sanyal, 2017)

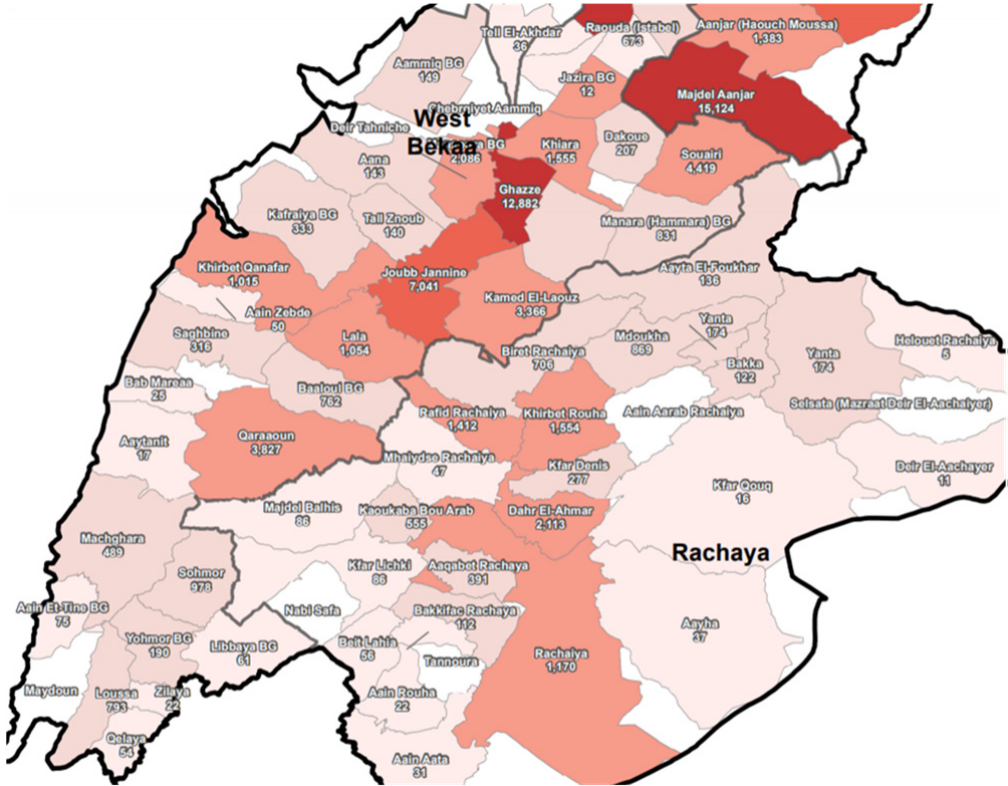


Figure 4: Number of registered Syrian refugees in West Bekaa and Rachaya Regions (UNHCR, 2016)

As of February 2016, there were approximately 3768 informal tented settlements ranging from 2 tents up to 250 and more tents with the Bekaa hosting 2467 ITS or approximately 65% of the total informal settlements of Lebanon.

B. The Waste Crisis and the Non-Governmental Organizations

intervention:

Solid waste is the unwanted or useless solid materials generated from combined residential, industrial and commercial activities in a given area. It may be categorized according to its origin, to its contents or to its hazardous potential. The term municipal solid waste (MSW) is normally assumed to include all of the waste generated in a community, with the exception of waste generated by municipal services, treatment plants, industrial and agricultural processes (Ibrahim & Mohamed, 2016). Waste generation is steadily on the rise as a natural result of population increase and economic growth. The type and quantity of produced waste is related to human activities, lifestyles, and level of environmental awareness. Hence, waste management is considered a particularly challenging issue for most countries, especially developing ones, such as Lebanon (Massoud & Merhebi, 2015)

To deal with challenges, some communities and countries had to resolve to different traditional methods in order to stand to the challenge. In Indonesia for example, with the continuous exponential growth of the population and the solid waste management, some communities have taken matters into their own hand in order to find some solutions. In the Yogyakarta province, integrated waste community driven management has succeeded in decreasing the quantity of waste that was going to the final disposal site by one third and that is by implementing the 3R approach: Reduce, Re-use, Recycle. (Brontowiyono, n.d.)

As for Brazil, in the Marcos Moura district, waste problems were tackled through the upgrading of a cooperative for recovery and exploitation of local resources all while boosting the participation and social inclusion of scavengers. Results were positive,

however, they were far from sustainable with some improvements needed.(Vaccari, Torretta, & Collivignarelli, 2012).

In Thailand, in the city of Yala, a method called 'Garbage for Eggs' emerged whereby residents were encouraged to bring recyclable materials to exchange for eggs, at monthly exchanges in local communities, with emphasis on poorer communities. The project succeeded initially but then slowed down to lower degrees.(Mongkolnchaiarunya, 2005).

As for Europe, the general vision of the member states and their cities is the sorting from the source approach. As this approach takes time, the transition phase consists of post-sorting and waste to energy incinerators with mixed results. The goal is a minimum reliance on land filling (Bassi, Christensen, & Damgaard, 2017)

In Lebanon, the history of the waste management crisis goes back several decades, with a pattern of poor government planning and management; inadequate support to and oversight of areas outside of Beirut and Mount Lebanon; overuse of landfills, open dumping, and burning; a reliance on the private sector and international donors; and a lack of transparency. There are nearly 150 open burn dumps located across the rest of the country, home to the other 50 percent of the population. Although focus of the waste crisis is much on the capital Beirut and its landfills, i.e. Nehmeh and BourjHammoud, most of the dumps at which open burning takes place regularly are located in some of the poorest areas in the country, including the Bekaa Valley, Nabatieh, and the south. (Khawaja, 2017; Massoud & Merhebi, 2015). These burnings have a big negative effect on the air quality as well as the soil and water quality. Moreover, they tend to accelerate health problems for residents living nearby. Direct health problems such as respiratory diseases are very high for residents living nearby the open air burning dumpsites.

Indirect health problems such as cancer, skin diseases, etc... are due to the negative environmental impact these dumpsites have on the quality of water, soil and air thus polluting everything in their surrounding including agriculture and food. (Khawaja, 2017; VNG International, 2016).

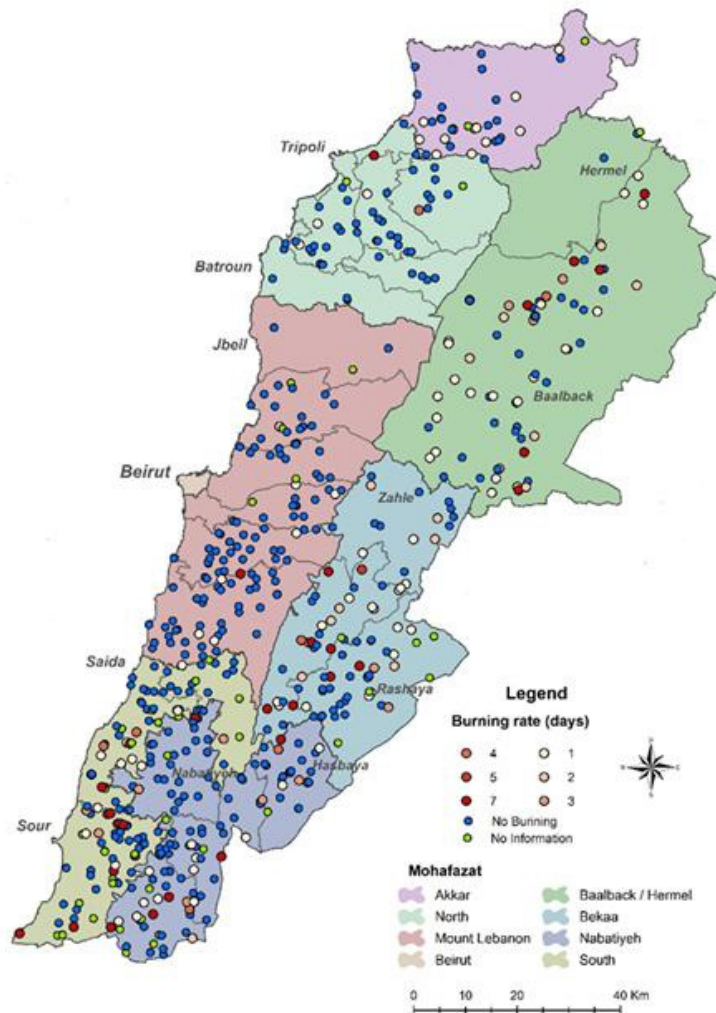


Figure 5: Map of solid waste dump burn rates in Lebanon (Khawaja, 2017)

A non-governmental organization (NGO) is an organization independent of the government and whose primary mission is not commercial but focuses on social, cultural, environmental, educational, and other issues. NGOs address a wide range of response and recovery needs. Its work includes direct intervention such as advocacy,

raising awareness, and forming lobbies and pressure groups, in addition to multiple forms of fieldwork.(Baroud, Majed, Abdel Samad, Helou, & Aadas, 2004).

While they are considered by some as 'smart or soft power' strategy pursued by Western powers, instead of wars, to promote democracy and play a significant role in national and international politics as well as the globalization process (Basbous, 2007; Nagel & Staeheli, 2015) others consider their interventions as humanitarian and for the benefit of all included parties(Altan-olcay & Icduygu, 2012; Posusney & Angrist, 2005)

Lebanon has always had hundreds, and more recently thousands, of associations dedicated to work on issues of governance, development and democratization. According to recent studies there are approximately 1.3 associations per 1,000 inhabitants in Lebanon. The latest data received from the official records of the Ministry of Interior and Municipalities, as of March 2013, shows the presence of 8,311 registered civil society organizations, in addition to a number of loosely organized groups. In comparison, there are around 2,793 organizations in Palestine and 5,703 organizations in Jordan.(Beyond, 2015; Costantini, Salameh, & Issa, 2015; Jarrah, 2009; Urdun & Jadid, 2010).

As discussed in previous chapters, the Syrian crisis started in 2011 and was followed with an influx of Syrian refugees to Lebanon. This influx propelled the funding allocated towards the international community towards the help of Lebanon to increase significantly from approximately 13 million USD per year to 881 million USD per year in the year 2013 which was the peak of the Syrian war (Beyond, 2015). To put things into perspective, Lebanon has received approximately 4.5% of the total international humanitarian fund in 2013 (Abdel Samad & Moschini, 2016; Beyond, 2015). This jump is also due to Lebanon agreeing on recognizing, registering and

guaranteeing the protection of Syrian refugees on the 4th of January, 2013 (Global Centre for the Responsibility to Protect, 2014)

At the beginning of the Syrian crisis i.e. March 2011, most of the international aid and funding went to the emergency relief response towards the Syrian refugees. International NGOs flocked into Lebanon in masses in order to help the country deal with the unprecedented number of refugees where in 2013, 1 out of 4 persons in Lebanon was considered a refugee. Aids came in all form. From cash for work practices to blankets, food, tents, fuel and water distribution.(Abdel Samad & Moschini, 2016; Janmyr, 2018; Sanyal, 2017; Thorleifsson & Thorleifsson, 2016) Whether the aid was sufficient to cover all Syrian families is a matter to be discussed alone.

The Syrian crisis, coupled with the Waste crisis, has opened the door for the INGOs to work on projects that would tackle the two mentioned crises and that is engaging in the creation of waste treatment facilities to be operated by municipalities in a decentralized way. Some INGOs see that the construction of waste management facilities coupled with governmental policy strategies can provide the necessary infrastructure for green waste management activities such as sorting and composting thus increasing opportunities for the private sectors. These opportunities would contribute towards the greening of waste management sectors in Lebanon with the potential achievement of considerable economic, environmental and social benefits (Ahlback, 2017). Other INGOs go as far as proclaiming job creation and rural development coupled with social cohesion and environmental benefits. Their intervention would benefit both the Lebanese and the Syrian refugee communities all while ensuring sustainability of programs and environmental benefits (De Nardo, Resente, Bellavita, & Prestia, 2015; VNG International, 2016).

In the 2017 Lebanon Crisis Response Plan results report, it is mentioned that Mercy Corps, in collaboration with INTAJ, rehabilitated two waste treatment facilities in the Chouf Caza and managed to achieve sorting of 155 tons of recyclables, for a revenue of 10,500 USD and succeeded in creating 30 jobs from these interventions (Inter-Agency Coordination in Lebanon, 2017). The article stated the waste crisis problem in Lebanon and how the funding of waste treatment facilities managed to sort the problem in an area all while creating an economic boost with some job openings and money gained from the selling of recyclables.

As for the Lebanese Organization for Studies and Training, in collaboration with multiple donor agencies such as Swiss Aid and the German embassy, they are implementing multiple waste management projects in northern Bekaa including rehabilitation of facilities, sorting from the source, clean-up campaigns and many other. In one of the project, whereby a seminar was held in the presence of a waste expert, it is claimed in the activities report that recycling has a direct influence on economy, health, and preservation of limited resources. Moreover, it is added that recycling not only benefits the environment but also provides job opportunities.(Lebanese Organization for Studies and Training, 2016).

As for Ghazze in West Bekaa, a Solid Waste Management designed by Studio Azue and implemented by Oxfam was created with an objective of reducing vulnerability of crisis-affected people following two main criteria: (a) To design a system catalyzing social, physical and financial assets by lessening hazards on public health, reducing potential conflicts among residents and by creating new income generated opportunities connected to an efficient and effective waste management process and (b) to propose a transitional solution with a minimal impact on the

environment all while providing a sustainable sectoral intervention (De Nardo et al., 2015).

Another project that was implemented in the West Bekaa is the sorting from the source pilot project done by the international co-operation agency of the association of Netherlands municipality. The project focused on two components which was the technical component and the communication component. On the technical side, the Dutch implementers worked on building a treatment facility to manage incoming sorted waste. On the communication side, they focused on working closely with the community in order to teach them sorting their waste from the source in four different types of bags. The component was based on household conferences, trainings of fellow associations and volunteers as well as school interventions. The project goals were to drastically reduced soil, groundwater and air pollution caused by the existing savage landfill as well as contribute to the economic development of the area. (VNG International, 2016)

These previously mentioned claims as well as other multiple paragraphs written over some other INGO websites would lead to the drawing of a generalized theory of change. A theory that is drawn in the figure below and that promotes the creation of waste treatment facilities: Their creation would tackle the waste and refugee crisis as well as the rural poverty all while creating jobs, promoting environment, conservation, preservation and ensuring their sustainability. The ultimate impact would be the creation of a value chain and rural development.



Figure 6: Theory of Change by INGOs (Own Illustration)

These types of theory of change and to be more precise, its outcomes are also acknowledged by the local population. Most of the Lebanese citizens do agree with the environmental benefits of such facilities and the job creation it generate. However, in terms of sustainability, people are wary and that is due to a lack of trust and transparency from local authorities and central governments. (Chalhoub, 2018). This case is not typical to Lebanon alone. As shown in a study by Zhang & Klenosky, residents perceptions towards waste treatment facilities sites nearby their living areas in Canada, the USA or Europe were unwelcomed in terms of noise pollution and foul odor. However, the common positive perception of inhabitants towards these type of facilities

is the economic benefits associated with jobs, waste disposal efficiency and revenue generation thus alleviating the protests against the building of such facilities (Zhang & Klenosky, 2016). It is also to be noted that protests are mainly by people living nearby such facilities and not general residents.

CHAPTER III

METHODOLOGY

This chapter aims at outlining the methods used in the study. Firstly, it details the conceptual framework used in the research of the waste management value chain in West Bekaa. Secondly, it presents the general characteristics of the study area and data collection.

A. Conceptual Framework & Research Design:

From the literature review, there is a conceptual framework that arises. Rural areas are being deprived from agricultural areas through the pop-up of urban sprawls while youth are moving into cities for job opportunities. In addition to the previously mentioned points, in Lebanon, the rural population have to deal with two extra crises: The waste crisis and the Syrian crisis. INGOs working in Lebanon, saw this as a window of opportunity and decided to work in waste management projects in rural areas in Lebanon proclaiming in their project proposal and reports that such projects would create jobs, provide a value chain, have environmental benefits and would contribute to rural development. This framework can be translated into a theory of change (

Figure 6: Theory of Change by INGOs (Own Illustration)

)

In order to understand how waste management can contribute to job creation and rural development, the waste management value chain was analyzed and assessed to identify the linkages between stakeholders participating in the chain as well as the job opportunities emanating from that chain. In addition, to check on the claims of the project proposals, such claims i.e. that promoting proper waste management projects and facilities will contribute to job openings and rural development and verify them, a

generalized theory of change for these types of projects was drafted and qualitatively reviewed through field work.

B. Value Chain Analysis (VCA):

The VCA will act as an analytical tool to identify the different actors of the chain and understand their specific contribution or role to it. Therefore, it will focus on all the ongoing activities related to waste. The research applied the VCA in order to map the waste management value chain in West Bekaa.

The VCA included the following research steps:

- i. Mapping the value chain to understand the characteristics of the chain actors and the relationships among them, including the study of all actors in the chain, of employment features, and of the destination and volumes of sales.
- ii. Identifying the distribution of actors' benefits in the chain.

The VCA focused on the waste management value chain itself and disregarded rural development. Hence, the qualitative review of the theory of change was intended to focus on these claims.

C. Revisiting the Theory of Change (ToC):

A Theory of Change is a specific type of methodology for planning, participation, and evaluation that is used in the not-for-profit sectors to promote social change. Theory of Change defines long-term goals and then maps backward to identify necessary preconditions (Brest, 2010).

As shown before, the intervention by INGOs gives way for the creation of a theory of change mainly used for planning. That ToC promotes social change through

the creation of waste treatment facilities. The goal of that methodology is to qualitatively review these claims through the revisit of the theory of change.

D. Study area and data collection:

The study results are fundamentally based on empirical research. A qualitative research approach enabled an explorative and in-depth investigation of the research topic to fully understand the challenges and opportunities related to waste management.

1. Study Area

The Bekaa valley, with a length of 120 km and width of 16 km, represents 42% of Lebanon's area. Its Lebanese population is of 540,000 inhabitants and it hosts approximately 350,000 Syrian refugees. The Bekaa valley or governorate is divided into 4 sub-districts. North Bekaa, composed of Baalbek and Hermel, has been relatively marginalized which has left conditions ripe for smuggling activities. Central Bekaa (Zahle) is considered the economic hub of Bekaa. It also hosts the largest official border crossing, Masnaa. West Bekaa and Rachaya have a relatively greater sense of security than the rest of Bekaa. (Hamamy, Badre, & Askharian, 2008; Najwa & Badre, 2012; OCHA, 2014). The Bekaa is fed by the two biggest rivers of the country: Al Litani and Al Assi.

The Bekaa plain constitutes the main region of prime agricultural land in Lebanon. The agricultural sector is the lead consumer of available water resources (up to 70%). Intensive agriculture, urban expansion and industrial activity have been increasingly stressing the limited soil and water resources.(Darwish T.M, Jomaa I., Awada M, 2008) Moreover, water is contaminated with its main source, i.e. the Litani river, being in an alarmingly hazardous state with nitrates and phosphates leaching into underlying

aquifers well beyond permissible concentrations intended for human consumption (Darwish et al., 2011; Saadeh, Semerjian, & Amacha, 2012)

The pollution of the river makes it harder and more expensive on the farmer in terms of productivity, pushing more and more farmers into bankruptcy or changing scope of works due to non-treatment of the Litani pollution while on a larger scale, it is downscaling the agricultural market on a national level.

Also, as discussed in previous chapters, the Bekaa valley which accounts to rural Lebanon is underdeveloped compared to the rest of the country. The most recent poverty study of Lebanese in Lebanon, and the most commonly used one for a poverty profile of Lebanon, is the 2007 national report, 'Poverty, Growth and Income Distribution in Lebanon' by the UNDP and MoSA. Relying on the expenditure data from the 2004/05 National Survey, the study uses a money-metric poverty measure and determines a national poverty line based on household expenditures. Both reports however, concluded that disparities between the Governorates are glaring with Nabatieh, Beka'a, South Lebanon and North Lebanon as the most deprived and Mount Lebanon and Beirut the least deprived Governorates in the country. The most deprived governorates are those comprising the largest rural areas in the country including the Bekaa. (Kukrety & Al Jamal, 2016)

The study will focus on two villages from the district of West Bekaa: Ghazze and El Manara. Both these villages, with the help of INGOs, have implemented a different waste management project. For Ghazze, it is a post-sorting facility which operates for a village comprising of 6,000 Lebanese residents and 32,000 Syrian refugees while for El Manara, it is a pre and post-sorting facility which operates for a village of 3,500 Lebanese residents and 1,500 Syrian refugees. These two villages will be used as a case

study as they relate most to the literature. Two villages in the West Bekaa, hit by rural exodus and the Syrian crisis, had a waste management problem like all villages in the area when they used to dump and burn on a daily basis. Both villages were approached by INGOs for the implementation of waste management projects in order to solve their problems.

It is to be noted that both these villages have institutional differences. While it is true that both have municipalities of 9 members, the ones in Manara are much more active in terms of responsiveness and field work as well as cooperation between themselves and the inhabitants. There is more planning and more institutional organization within the municipality of Manara compared to the one in Ghazze. Another point to be noted is also the difference in terms of investment costs. The study will only focus on the operation cost as the investment costs here are made by INGOs but the project in Ghazze cost around 250,000 USD while the one in Manara cost around 100,000 USD for the implementation i.e. procurement of bins, printing of brochures, building of the warehouse, installation of equipments, etc...

I decided to choose two different villages in order to compare two different types of waste management intervention. The difference is by demographics, type of implemented project, municipalities ways of dealing with operation, type of work for hired labor, etc... Having two case studies to analyze gives more credibility and more in-depth understanding of the findings, conclusion and recommendations especially considering the different presented aspects that were mentioned earlier.

2. Data Collection

As the main aim of my thesis is to verify if a proper waste management value chain contributes to job openings and rural development, my main method of Data Collection

was qualitative research methodology. I chose to work on Value Chain Analysis and review of the Theory of Change in order to answer my research question, The Value chain analysis will help me in mapping the different stakeholders related to waste management in West Bekaa. It will give me an idea about what role each individual or company plays all while engaging and linking the different actors to one another. Once mapped the value chain will be used to critically review the claims made by the generalized theory of change of the implementing INGOs.

While collecting primary data, secondary data also popped up from discussions and were used for the study.

The mapping and the analysis of the value chain was conducted through different participatory research approach and mainly focus groups. Six different focus groups were conducted with various stakeholders at different locations. Using this approach is beneficial because it is collaborative at every level of the chain, and it involves all the people concerned from highly qualified industrials to municipal members to Syrian refugees. It will consider the acts of communications between the different actors of the value chain to understand the links between them socially and economically (Kemmis and McTaggart, 2007).

In order to optimize information and data collection for the mapping of the value chain, every focus group was conducted at the interviewees' zone of comfort. As such, it gave them space to express their thoughts about waste management. Every focus group lasted for an approximate time of two hours and participants gave their full consent for participation. Every person was free to join, to leave the meeting or restrain himself from responding to questions.

The first two focus groups were conducted with the two different municipal councils. One was conducted at the municipality of Manara with the concerned members including the mayor while the second one was conducted at the municipality of Ghazze in the presence of the mayor as well.

The third focus group was conducted with the waste workers at the Manara treatment facility. There were chairs in the facility where all of us sat comfortably and we were joined by two workers from Ghazze. Sensitive questions such as the perceived salaries were asked in full confidentiality as a one on one interview before starting the meeting. Participants were enthusiastic about the study as they considered it one of the rare times they have been given importance for the work they do.

The fourth focus group was conducted with four different industries from the Bekaa. These industries are related in a way in that they all buy recyclables, some of them from the study cases, and transform them into other materials to be used for future purposes. The meeting was conducted over dinner at a restaurant in the city of Zahle which a mid-point to all of them and every industry is was represented by an employee. None would accept to make the meeting at another's factory but they were all happy to respond positively for the dinner invitation and conduct the meeting.

The fifth focus group included citizens from Manara and Ghazze. The meeting was arranged at the village's community hall next to the village mosque and was conducted on a Friday after prayers. As most of the villagers are pious, it was good to wait for them at the hall until they finished their prayers. It showed some respect towards their traditions. The meeting was conducted in full consent of all participants and some of the citizens were happy to be exchanging knowledge and information among each other.

The sixth focus group was conducted with Syrian refugees. This one was divided into two different groups. One was conducted at an informal tented settlement in Ghazze, more precisely at a Shawich house, the other was conducted in an unfinished house rented by refugees.

In all meetings I started by asking background information about interviewee such as name, age and job function. Afterwards, every group had its specific set of questions which helped me determine the stakeholders of the value chain as well as discover some unexpected findings

3. Limitations

One of the problems I faced was not expected or anticipated. The Ghazze treatment facility had closed and turned into a sanitary landfill also with the help of an INGO. This fact made some of the Ghazze municipal members and citizens unenthusiastic discussing some situations about their village thus potentially limiting their impact or blocking some information.

Another limitation was the Shawich. During my visit to the Informal Tented Settlements, the shawich are the ruling authority of the camp. They don't let anyone work in 'their' camp without information passing by them thus I was indirectly obliged to conduct one of the focus groups at a Shawich house.

4. Ethics

Finally, an important part of the study is ethics. Ethics is about how the human being treat each other and the ecosystem. It covers matters of rights, responsibilities, well-being and harm(Banks, 2015). Ethics also ensure the correctness of the researcher towards interviewee and readers as well as being aware of the social and political contexts in which one is working. It is also imperative that the researcher accepts the

values, traditions and culture of the respondents. Therefore, during my study, I made sure that the surroundings for the focus groups were made in a way to optimize the comfort of the interviewees. Some meetings were even delayed or pushed to another location to let people follow their daily routines or traditions. Finally, the researcher always made sure to abide by all approved documents by the institutional review board at AUB which the consent forms are, invitation to participate in a questionnaire or focus groups and the ways of approaching participants.

CHAPTER IV

RESULTS & DISCUSSION

This chapter aims at showcasing the results emanating from the field work as well as discussing them

A. Value Chain Analysis:

The following Chapters analyze the Value Chain of Waste Management in West Bekaa

1. Mapping the waste management value chain in West Bekaa

The purpose of mapping the value chain is to outline the different stakeholders related to waste management in the area. The chain includes various actors - The municipality, the waste workers, the local citizens, the industries, the refugees, the schools and the farmers. The general overview of the waste management value chain in West Bekaa is presented in the figure below.



Figure 7: The Waste Management Value Chain in West Bekaa (Own Illustration)

a. Municipalities

The municipalities in the West Bekaa have a decentralized management of their solid waste. Each municipality is responsible for its own collection, sorting, dumping or burning of its own waste. Each municipality have the right to hire waste workers as well as do whatever they want with the waste they produce. Moreover, the municipalities have the right to put in some laws related to their waste collection such as fine citizens who don't abide by a certain collection plan or schedule. To cut a long story short, municipalities are the entities responsible for the operation and management of waste in their respective villages.

Hereby, two different cases of management by municipalities will be presented. One by the municipality of Manara, the other by the municipality of Ghazze.

The municipality of Manara caters for the waste of 5,000 inhabitants or 1,300 households. These households produce around 3 tons of waste per day. Manara used to savagely dump their waste and burn their piles on a daily basis until in 2017, a Dutch INGO came and implemented a waste management strategy and built a facility which focused on sorting from the source and at the facility in order to optimize the selling of recyclables, the composting of organic waste and the minimization of inert all while creating job opportunities.

The below table shows a comparison of waste management before and after the intervention:

Element	Pre-Intervention	Post-Intervention
Number of workers	3	8
Nationality of workers	1 Lebanese, 2 Syrians	2 Lebanese, 6 Syrians
Number of trucks	2	3
Waste management costs	25k USD per year	33.4k USD per year (after the selling of recyclables)
Gains from recyclable	0 per year	29k USD per year

Table 2: Before and After Intervention in Manara (Own Illustration)

As shown in the figure, there is an increase in the number of employees and that is by five. One extra Lebanese worker for four extra Syrian workers. The number of trucks has also increased from two to three and that can only mean positive news for gas station and garage owners. However, we can still see that the costs are not entirely covered by the selling of recyclables and an interesting point is that the operation costs more money for the municipality than it used to be pre-intervention even after the selling of recyclables.

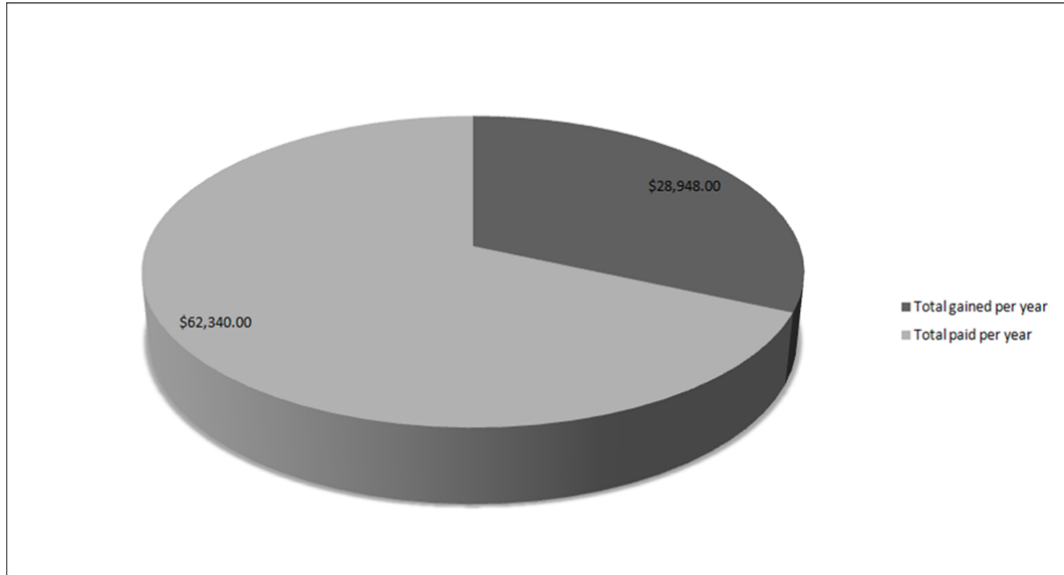


Figure 8: Costs vs Gains per year in Manara (Own Illustration)

On a rough estimate, the costs for running such an operation are approximately 62,300 USD per year while the gains are around 29,000 USD inflicting a loss of 33,300 USD per year on the municipality.

As for the municipality of Ghazze, it caters for the waste of 36,000 inhabitants of which 30,000 are Syrian refugees living in informal tented settlements. This population produces around 22-23 tons of waste per day. It is to be noted that when the treatment facility was opened, it was designed to cater for around 10 tons of waste per day thus the reality now is the closure of this facility and the opening of the dumpsite. When the facility was operational, the waste management operations were as follow:

Element	Pre-Intervention	Post-Intervention
Number of workers	9	20
Nationality of workers	5 Lebanese, 4 Syrians	5 Lebanese, 15 Syrians
Number of trucks	2	5
Waste management costs	110k USD per year	125k USD per year (after the selling of recyclables)
Gains from recyclable	0 per year	33k USD per year

Table 3: Before and After Intervention in Ghazze (Own Illustration)

As shown in the figure, there was a big increase in the number of employees pre and post intervention i.e. 11 extra Syrian workers were hired in order to run the facility and the collection. The number of trucks also raised by three. As with the Manara case study, costs were not entirely covered by the selling of recyclables and the operation of waste management was costlier with recycling than it was before the intervention.

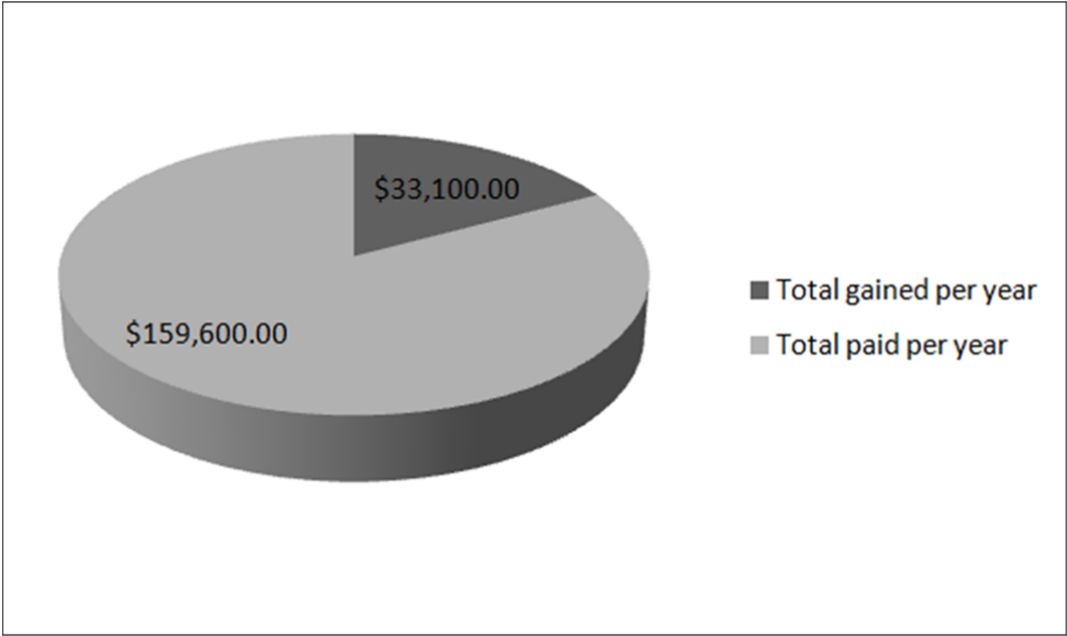


Figure 9: Costs vs Gains in Ghazze (Own Illustration)

On a rough estimate, the costs for running such a project were around 160,000 USD per year while the gains were close to 33,000 USD leading to a loss of 127,000 USD per year on the municipality

b. Waste Workers

The waste workers are the heartbeat of these projects. They are the hands that make the project functional, yet their job is undesirable by many.

Questions	Manara	Ghazze
Number of Lebanese/ Syrian workers	2/6	5/15
Monthly salary for Lebanese workers / Syrian workers (in LBP)	1,050,000 / 750,000	1,350,000 / 700,000
Level of Satisfaction within the job	Very high	Low
Lebanese worker job tasks	Truck drivers	Truck drivers and Bulldozer
Syrian worker job tasks	Collection, Baling, Composting	Collection
Relationship with municipality	Good and respectful	Not good
Total number of workers before/after the project	3/8	9/20 then 9
Interest for moving to another job with same salary scale	8 of them have no interest moving to another job (Except for higher salaries)	All of them have an interest in moving into another job
Recommendation for others about the job	All of them recommend others to apply to the job	Only 1 would encourage others into applying for the job

Table 4: Cases of the Waste Workers (Own Illustration)

As shown in the table above, there are stark differences between the waste workers in Manara and in Ghazze. The Lebanese working at the former gets paid less than the ones working at the latter and that is a 300,000 LBP or 200 USD monthly difference. On the other hand, the Syrian workers in Manara are paid 50,000 LBP more than the ones in Ghazze. The important points to take are the level of satisfaction and the interests of moving to other jobs with same salary. The Lebanese and Syrian in Manara are happy with their job. They enjoy what they are doing and they maintain a good and respectful relationship with the municipality and they recommend their jobs for others while in Ghazze, it is the contrary. From the meeting with these waste workers, the method of working had a lot to do with the satisfaction as the ones in Manara receive a pre-sorted waste and that in a sense made it a more fun job in baling and composting while the ones in Ghazze had to sort everything mixed at the facility.

Also, the respect shown by municipalities can be a push for these workers in continuing a good job.

c. Local Citizens

The citizens, like the municipalities and the waste workers have a role to play in the waste management value chain. First of all, it is the citizens own waste that is being dealt with and second, by their habits, they have their word to say in the value chain. Although most the citizens don't fancy working in waste management, they all appreciate the efforts made by the workers in order to keep their village clean. All of the interviewed citizens know about the cycle of waste in their villages, but their view differ about it. The ones in Manara are happy and proud of it. They consider themselves living in a model village and according to the interviewee, recycling from home has raised awareness about food consumption. Since the start of the project, all of them have felt that they have reduced unnecessary spending on extra food thus optimizing their purchasing powers for other items. In Ghazze, the citizens are indifferent towards the waste cycle but all of them laments the closure of the facility as it limited environmental degradation. All the citizens do agree that recycling is good environmentally and can cover the operation fees through the selling of recyclables. Moreover, these type of project tend to have some minimal social cohesion as all interviewee were adamant that they would employ Syrian refugees if they had been responsible for the management of a facility.

d. Industries

The interviewed industries were all based in Bekaa. They are a major actor in the value chain as without them, there would be no continuity in the process of recycling. They assure the buying of recycled material and provide an impetus for the

municipality to continue in their works. Four different industries were interviewed in a participatory approach i.e. focus group.

Questions	Arc-en-ciel	Sicomo	Lefico	Mazar Plast
Are you employing more people because of these 2 villages?	No	Yes	No	No
If all villages follow the case of Manara, would you employ?	Yes	Yes	Yes	Yes
Do you encourage all villages to follow suit?	Yes	Yes	Yes	Yes
Nationalities of workers	Lebanese and Syrian	Lebanese, Bangladeshi, Syrians and Egyptians	Lebanese and Syrian	Lebanese and Syrian
Tasks	Lebanese for the administration, others for technical	Lebanese for the administration, others for technical	Lebanese for the administration, others for technical	Lebanese for the administration, others for technical
Thoughts about the sustainability of these projects	Sustainable with a market for employment	Sustainable if properly managed	Sustainable	Sustainable

Table 5: Industries Characteristics (Own Illustration)

As shown in the above table, every industry is specialized in a type of recycling. Arc-en-ciel specializes in recycling all types of material while providing service and job opportunities for persons with disabilities. Sicomo recycles paper and cardboards and produce electrical energy from waste to feed its own factory. Lefico recycles PET bottles, transforms them into polyester fibers and ships them to Europe while Mazar Plast buys shredded black PE crates and retransforms them into new ones.

Some of them buys from the studied villages and mainly Manara. Only one of them used to buy from Ghazze and the reason is the cleanliness of the material. When recycled from the source, the material has a better quality thus is more attractive to these industries as it facilitates their process of reproduction by skipping the extensive cleaning part.

It is to be noted that due to the continuous market between the village of Manara and Sicomo, the latter employed an extra person in order to deal with its extra tons of paper

and cardboards as well as inert coming in. However, the most important point to note from these focus group is that these four factories acknowledge the practice of Manara as the best one and would employ more people if other villages followed suit. They all encourage these villages to follow the Manara example as it will help them environmentally, economically and would open new markets.

e. Syrian refugees

Syrian refugees flocked in numbers to Lebanon since the beginning of the crisis in 2011. Since then, a lot of them have settled in informal tented settlements or unfinished houses while the most fortunate of them have been able to afford rent or buying a finished house. Two types of focus groups were conducted. One with refugees inside an informal tented settlement in Ghazze - the tented settlement is nearby the sanitary landfill - and the other with refugees living in an unfinished house in Ghazze. The interesting part about the interviewed refugees is that all of them would accept a job related to waste as they want 'anything in order to feed their families'. Moreover, they consider the Lebanese not willing to work in that type of surroundings. It is to be noted that three of the interviewed refugees already work in waste management and are actually satisfied with it. When asked what their expected salaries is, the others were all expecting a salary between 400 and 500 USD as they consider it a hard job thus more demanding which entails a higher salary scale than others. When running a comparison between the different types of jobs that refugees are allowed to work in, it is clear that the highest in terms of salary are not ones related to waste management.

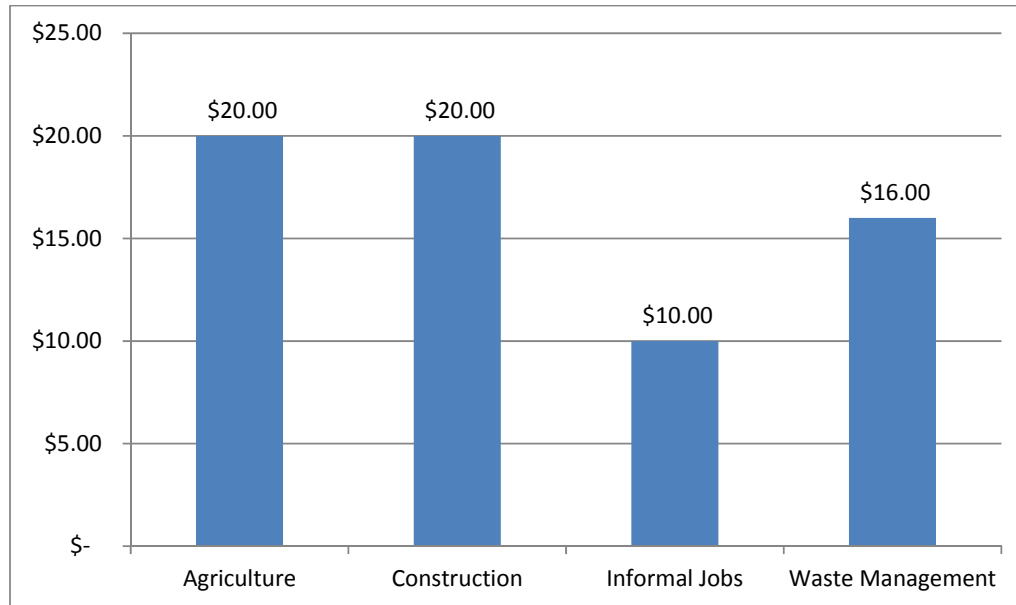


Figure 10: Approximate daily allowance for Syrian refugees depending on jobs (Own Illustration)

As the figure above shows, agricultural and construction jobs are better paid than waste management jobs. However, it is to be noted that the formers are mainly seasonal jobs and don't always cover the whole month in terms of working days nor salaries contrary to the latter where in the case of Manara, it has been turned from a daily allowance to a monthly salary for over a year now. The informal jobs include assisting a shop owner, working at gas stations, etc...

B. Revisiting the theory of change

As shown previously, and more specifically in figure 7, INGOs are implementing the waste management project proclaiming a theory of change with it. That theory induces that creating waste treatment facilities would bring outcomes such as job creation, environmental benefits and sustainability for an ultimate impact of creating a value chain and rural development.

While focusing on the two case studies, in the case of Ghazze, the design of the project proposal focused on two objectives: a - Creating new income generating opportunities connected to an efficient and effective waste treatment management process and b- Proposing a transitional solution with a minimal impact on the environment to support the on-going humanitarian crisis but able at the same time to provide a sustainable sectorial intervention (De Nardo et al., 2015) As for the case of Manara, the theory of change was that the project will promote the health of residents, refugees and school children and improve the quality of life in the area. It will represent a sustainable improvement to agricultural land. The recycling of waste will further contribute to the economic development of the area (VNG International, 2016). Moreover, there are some implemented projects by INGOs that are claiming to have succeeded in creating jobs while another declares that such solid waste management projects has a direct influence on economy and on the provision of job opportunities.

The following analysis will be made for each outcome point before discussing the ultimate impact.

While it is clear that such projects create jobs, however, the number of jobs and beneficiaries is limited compared to the number of citizens and it can be considered a drop in the ocean. For example, in the village of Manara, the number of waste workers increased by five persons, one Lebanese and four Syrians. Add to them one or two people related to the gas stations and shop owners who have drastically profited from such project and the number would rise to seven. Seven beneficiary out of five thousand, that makes it 0.14% of residents benefitted in terms of job creation. The extra employed person by industries can be added to these beneficiaries but then the number of citizens would have to be enlarged seeing that we will be adding an extra community

making the percentage even lower. For the first outcome, the claim must be revisited. 0.14% is too low of a percentage to proclaim that such projects contribute to job creation. Adding to it the Ghazze experience and the percentage of beneficiaries would even fall to 0.05% an even lower percentage than the other intervention.

Another point to be discussed is the direct influence on economy that was tackled in one of the articles. Field work has shown that the number of jobs is too low compared to the number of people so an impact on economy is a bit too pushed. On another note, after mapping the value chain, such projects can have an impact on economy but they would have to be on a much larger scale and include all types of stakeholders participating in it.

In terms of environmental benefits, it is clear that these type of projects do contribute to them. Be it in the case study of Manara where savage dumping and daily burning of waste have stopped since the inauguration of the facility or in Ghazze when the facility was contributing to limit the tons of waste going for landfill. No calculations were made but stopping a daily burning of waste and savage dumpsites can only mean improvement in terms of ecology and environment. Add to it the limitation of used resource. a cleaner air, soil and water made possible by such project and the claim of contributing to the environment may be eligible for proposals.

As for the sustainability, it is a more complex outcome than the previous two as it depends on different factors. In terms of economical sustainability, these type of projects are not profitable for municipalities in the West Bekaa considering their context. Contrary to popular belief and to reviewed articles and numbers, these type of project do not generate sufficient income for the continuation of operation and that is barely mentioned in any article related to these types of projects. For example, in the

Mercy Corps project that was written by the LCRP, it is mentioned that the union of municipalities benefitting from a waste treatment facility and sorting program succeeded in recycling 155 tons of sorted waste and make 10,500 USD of revenues with no mention in the costs of operation. Field work has showcased that managing such projects bring in extra deficits on the municipality. While it is clear that recycled material do bring in money, they do not cover the costs of operation and in the contrary, these costs become higher than pre-intervention.

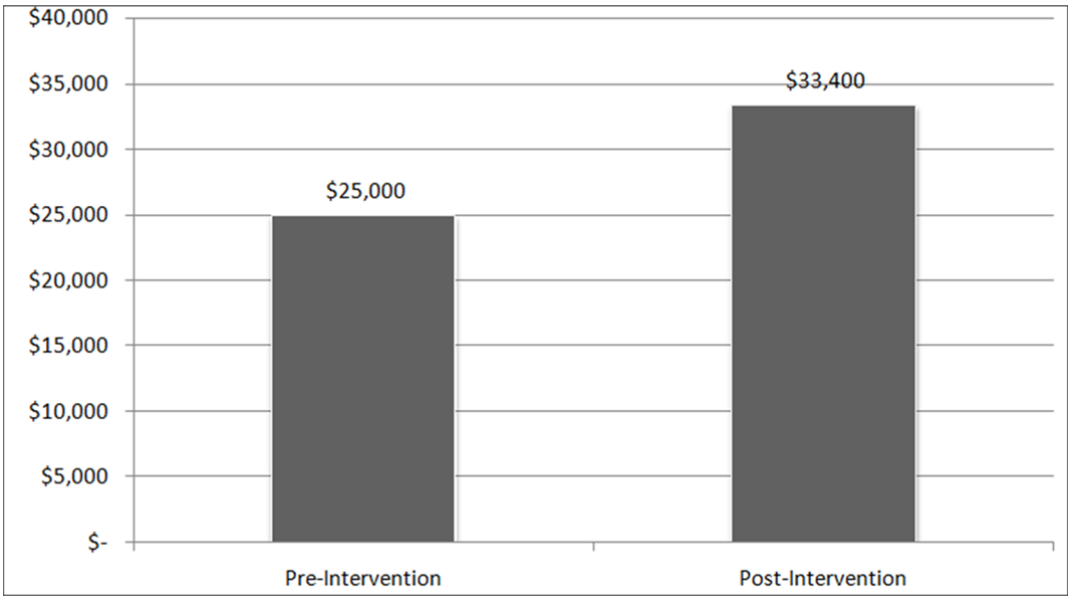


Figure 11: Pre and Post Intervention Costs in Manara (Own Illustration)

As shown in the figure above, for the case of Manara, the project implemented by an NGO added an extra deficit of 8,400 USD per year on the municipality despite an exemplary management from the municipality and the selling of all recyclables for good prices.

As for the project in Ghazze, show in the figure below, the project added an extra deficit of 25,000 USD per year on the municipality and that is after the selling of the recyclables. It is to be noted that the management in Ghazze is not an example to follow.

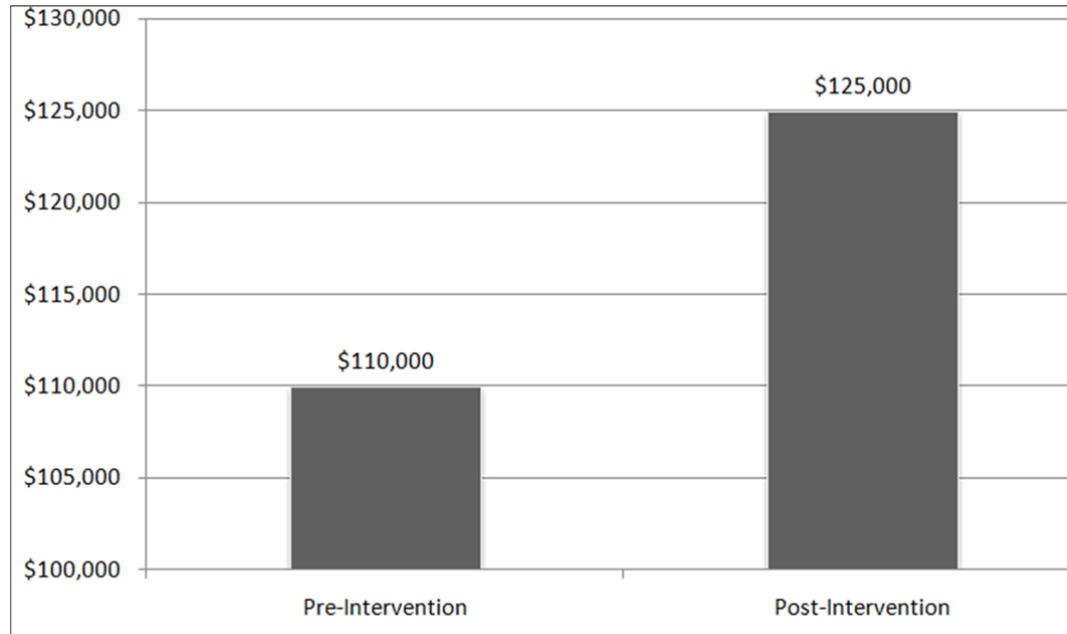


Figure 12: Pre and Post Intervention Costs in Ghazze (Own Illustration)

Therefore, these projects heavily depend on a municipality's environmental awareness and willingness to pay some extra fees in order to continue with managing it. Moreover, the law in Lebanon indicates that municipal elections are held every six year so if another mayor and municipal assembly are elected, they may opt in retreat of the project especially if it is costlier than savage dumping. Other reasons of opting out might be political

The revisit of these three outcomes makes the ultimate impact a utopist claim by the INGOs. Even though there is a value chain, it is too limited in terms of actors and is weak as well as heavily dependent on one of the actors. As for rural development, it is an impossible claim. The rural exodus is mainly for the youth population that is leaving the countryside for better job opportunities in cities. As seen during focus groups with local citizens, most of the Lebanese citizens are uninterested in working in such a domain. Moreover, as also discussed in one of the outcomes, the number of jobs is very limited and cannot be taken seriously.

C. Unexpected findings

The main research objective of this thesis was to revisit the claims of INGOs concerning waste treatment facility through the analysis of the value chain and the theory of change. During field work, unexpected findings popped up which may help in future research reformulating such claims. These claims were never mentioned in any of the projects.

1. Agricultural boost

This notion was first breached during the focus group meeting with the mayor of Manara. After discussing the benefits of such projects, the mayor discussed the environmental benefits such as clean air, soil and water, the labeling of his village as a clean village in the area and these two previously mentioned points as boosters to the agriculture in his area. Indeed, the village has been sorting from the source and recycling all of its waste since May 2017. No more burning or savage land filling since that day. Words spread from tongue to ear and through media about the success of their village and the good feeling of the inhabitants towards the cleanliness of their living space. The clean village label has pushed more consumers from neighboring village to travel to Manara and buy fruits and vegetables grown in that village because they were considered clean. As already mentioned in the literature review, most of the villages in the area if not all except Manara, continue to openly dump and burn their waste. Moreover, some of these villages are fed by the Litani, which is the main river passing through the Bekaa region. Although there are variations in water quality in different points of the Litani, the river in itself and in general is extremely polluted and this is due to many factors including wastewater being continuously dumped in it (Haydar et al., 2014).

Manara farmers irrigate their crops through artesian wells only. That factor and the one of the non-pollution of its air, soil and water has landed an agricultural boost to the village.

After meeting the municipality council, one of the next focus groups was with citizens from the village of Manara and one of the participants was a farmer. The information was confirmed by the farmer. According to his knowledge, there has been a clear boost in the sale of his products (Watermelon and pickled cucumbers) since the start of the project with new customers coming from neighboring villages such as Saouiri, Bireh, Sultan Yaacoub and Majdel Anjar.

Agricultural shop owners and sales are still at a primitive level in the village thus, it was impossible to get any saved receipt or invoice from pre and post intervention in order to confirm quantitatively that finding.

However, this is a positive long-term outcome and impact from such projects which donor and implementing agencies should have a closer look at and possibly measure it in order to reframe their theory of change.

2. Refugees living in the vicinity of dumpsites

According to refugees participating in one of the focus groups, the poorest of them settle and live near dumpsites. A study published by UNHCR and UNHABITAT in 2014, showed that most of the Syrian refugees secure shelter through an informal housing market. The market would include the renting of a small space whereby a refugee and his family would install their informal tented settlement due to the informality of such a market prices would vary a lot from one place to the other (Fawaz, Saghiyeh, & Nammour, 2014). Hereby, the space up for rent next to dumpsites is by far

the cheapest compared to space rented on agricultural lands or unfinished housing thus pushing the poorest of refugees to put tent there.

In Ghazze, a case study village for this research, these settlements were there pre-intervention and are still there post-intervention and after the closing of the facility. According to the participants in the focus group, living in those settlements were a nightmare for the refugees. Children being bitten by rats at night, foul odors emanating from the decomposition of waste and daily burning became a harsh daily reality for those refugees pushing a lot of them to sleep on the streets as it was easier than sleeping next to a savage landfill.

It is to be noted that the facility was built on the landfill site. Once the treatment facility was operational, things got more or less rosier for the inhabitants living near the dumpsite. The smell diminished significantly and slowly and with the help of some traps and poison, the rats disappeared. Moreover, a lot of these refugees were included in the facility program. Some of them helped with the post sorting on the conveyor belt while others acted as concierge at night in order to make sure that no one would come and dump any extra waste near the facility. On the darker side of the story, after the building of the facility, renting of prices went up as the landowners considered their belongings to be more valuable. On a positive note, it was still cheaper than agricultural areas and unfinished houses.

Nowadays, the facility closed due to the high operating costs of managing it and due to technical mistakes and unforeseen variables. It has been transformed by an INGOs into a sanitary landfill which also contains the foul odors and limits the number of rats. However, a sanitary landfill has a specific lifespan and is not sustainable. Moreover, the prices around the landfill went back to their normal.

Hereby, another unexpected finding that occurred during field work. A Waste treatment facility has the potential of alleviating the harsh living conditions of Syrian refugees living in the vicinity of existing dumpsites. On a longer term, it has the potential of boosting land values around it although that remains a question mark in the long term and deserves a full research paper related to it.

CHAPTER V

Conclusion & Recommendations

The research objective was to check if a properly implemented waste management project can contribute to job creation and rural development. The study was carried out in two villages of the West Bekaa, a rural area of Lebanon and the two villages were implementing a different waste management project. It was done through the analysis and the mapping of waste management value chain as well as the rethinking of a proposed theory of change.

The study revealed that the value chain is interactive and involves multiple stakeholders from different backgrounds. However, it also revealed that this chain is fragile and is hugely dependent on one actors willingness to continue with such project i.e. the municipality. Moreover, contrary to popular belief, such projects do not cover the cost of their operation thus adding some debt to the municipal coffers or the party responsible for its management. An additional point to be taken into consideration is that this study focused only on the operational costs as its goal was to revisit the theory of change proclaimed by INGOs. However, if any municipality in Lebanon would want to invest in these type of projects, there is the issue of the implementation costs that were mentioned previously. In the studied cases, these costs were covered by INGOs but if they were to be covered by municipalities, they would add an extra debt.

As for the theory or concept of change with its outcomes and impact that was suggested by INGOs during project implementation, it needs revisiting. Although the environmental benefits of such projects cannot be denied, the claims of job creation and sustainability do not represent the reality.

Job creation is minimal and for a limited number of beneficiaries while

sustainability also depends on the municipality's willingness of continuing with such a project. Therefore, proclaiming that ultimate impact contributes to rural development is a utopist claim.

While other literature showcase community initiatives, environmental benefits, reduction of waste, and project proposal pushed for the economic benefits, this study shed lights on the brain teaser that is in between the implementation and the finalization and that is the operation. It brought a new dimension to the common understanding that waste problems are 'easy' to solve and that all it needs is recycling and some equipped warehouse especially for the case of Lebanon. This study also tackled the job creation and economic benefits of a waste management treatment facility implemented by an INGO in Lebanon. Contrary to INGOs' project proposals and common citizens' perceptions, such projects do not generate extra money and a lot of variables exist for its sustainability. This study has also been able to contribute to global literature through its two unexpected findings: The agriculture boost and the alleviation of Syrian refugees lives. Two findings that aren't mentioned in any global literature although there are some discussion about new technologies helping and alleviating the lives of residents living next to landfills worldwide. However, for the case of Lebanon, these two findings can be considered an original case study in academic research.

It is to be noted that by no means does this study support the implementation of the waste-to-energy plants or incinerators pushed by the government of Lebanon. On the contrary, and as proven in the literature review, the burning of waste is toxic, pollutes the air and can have long term damaging effects on citizens. The thesis only counters the common assumption about waste treatment facilities and their advantages

in creating jobs and a sustainable economy but this mentioned solution, despite its hiccups is way better than the legalization of the burning of waste.

This study suggests to involve the citizens more in terms of participation and thus by making them pay a monthly fee for the collection and treatment of their waste. Taking the example of the village of Manara, if every household is willing to pay a fee of 2.15 USD per month or round it up for 5,000 LBP per month, that fee would cover the operation costs of the facility, making a case for its sustainability all while lessening the value chain dependency on one actor.

Another aspect of the study that would need more research and consideration for upcoming projects relates to the unexpected findings occurred during field work. As discussed at the beginning of the study, agriculture is the primary source of income for rural population in Lebanon and if as claimed by municipalities and farmers, these types of intervention can give a boost to agricultural products, then they might as well be added to the value chain and the theory of change. Moreover, the second finding which juggles between humanitarian and economic also needs more research. Such projects alleviate the living conditions of refugees especially the ones living nearby dumpsites and at the same time revalues real estate although around them.

This study recommends further implemented projects to take into consideration these findings and develop them further in their discussion especially the agricultural boost since agriculture is still the biggest potential source of employment in the countryside.

APPENDIX I

FOCUS GROUP

Expected time of meeting: 2 hours for each group

Basic Questions:

1. Number of Attendees:
2. Name of Attendees:
3. Age of Attendees:
4. Function of Attendees:
- A. Focus group with the municipalities:**
5. Municipality of:
6. What are your thoughts about solid waste management in your village?
7. How many workers related to solid waste management are you hiring? Workers include collectors, street cleaners and employees at the sorting facility
8. What is their nationality?
9. What is their monthly income?
10. How much do you pay per month for the solid waste management?
11. What are your monthly gains from the selling of the recyclables?
12. What is the general thought of your citizens towards municipal solid waste management?
13. Economically speaking, do you think it is sustainable to persist with your current approach in solid waste management?
- B. Focus group with the waste workers:**
5. Nationalities:

6. What are your thoughts about solid waste management in the village you work with?
7. What are your respective salaries? (Questions might be asked personally face to face if they prefer not to declare their respective salaries in front of colleagues)
8. What are your tasks respectively?
9. What are your work hours respectively?
10. Are you satisfied about your jobs?
11. How is your relationship with the municipality or towards the supervising entity?
12. How many were you (Waste workers) before the adoption of the waste treatment facility? How many are you afterwards?
13. If you had the chance to move to another job, would you do it? If yes/no, please elaborate
14. Do you encourage others to apply to similar positions?

C. **Focus group with local citizens:**

5. Social Status of attendees:
6. Job of attendees:
7. Do you know about the solid waste management in your village? If yes/no, can you elaborate?
8. Are you involved in activities with your municipality?
9. Are you involved in anything related to waste management?
10. What are your thoughts about the waste management cycle in your village? Are you profiting/losing from the situation?

11. If you had to manage a waste management cycle, would Syrian refugees be in your plans? Please elaborate
12. Would you apply for a position related to waste? If yes/no, what are the reasons?
13. Environmentally and economically, do you think that recycling is good?

D. Focus group with industries:

5. Position of Attendees within their firms and nationalities:
6. What are your firms specialized in?
7. Do you buy any recyclables from Manara or Ghazze? If yes, at what price?
8. Are you employing more people due to these 2 villages? If no, and if there are other projects popping up in the area, would you employ new people?
9. What are the nationalities of your workers and their tasks/positions? An approximate answer can do if it is a big firm employing more than a hundred persons
10. Do you encourage villages to follow the other two mentioned villages and adopt a waste recycling facility? If yes/no, then why?
11. Do you think that these models of waste management are economically sustainable for the area? What is its potential in creating jobs?

E. Focus group with Syrian refugees:

5. Position of attendees within the camps or the families:
6. For those living in the vicinity of the treatment facility of the dumpsite, what made you live there?
7. Do you work with waste? (It can be with the municipality or as scavengers)
8. Are there jobs openings related to waste in the area? If yes, do you think that you stand a chance if you applied?

9. What are your expected salaries?

10. Usually, in any other job, how many hours per day do you work?

Are you familiar with recycling? If yes, do you think it is helpful from an economic point of view or is dumping better

APPENDIX 2

FOCUS GROUP IN ARABIC

الوقت المتوقع للاجتماع: ساعتان لكل مجموعة

الأسئلة الأساسية:

1. عدد الحاضرين:

2. اسماء الحاضرين:

3. عمر الحاضرين:

4. وظيفة الحاضرين:

A. مجموعة التركيز مع البلديات:

5. بلدية:

6. ما هي أرائكم حول إدارة النفايات الصلبة في قريتكم؟

7. ما هو عدد العاملين بإدارة النفايات الصلبة الذين تقومون بتوظيفهم؟ يشمل العمال جامعي النفايات ، عمال نظافة

الشوارع والموظفين في مرفق الفرز

8. ما هي جنسيتهم؟

9. ما هو دخلهم الشهري؟

10. كم تدفع شهريا لإدارة النفايات الصلبة؟

11. ما هي مكاسبكم الشهرية من بيع المواد القابلة لإعادة التدوير؟

12. ما هو الفكر العام لدى المواطنين تجاه إدارة النفايات الصلبة من قبل البلدية؟

13. من الناحية الاقتصادية ، هل تعتقد أنه من الممكن الاستمرار في اتباع نهجكم الحالي في إدارة النفايات الصلبة؟

B. مجموعة التركيز مع عمال النظافة:

5. الجنسيات:

6. ما هو رأيك حول إدارة النفايات الصلبة في القرية التي تتعامل معها؟

7. ما هو راتبك الشهري؟ (قد يتم طرح الأسئلة وجها لوجه شخصا إذا كانوا يفضلون عدم الإعلان عن رواتبهم

أمام الزملاء)

8. ما هي مهامك ؟

9. ما هي ساعات عملك ؟

10. هل أنت راض عن وظيفتك؟

11. كيف هي علاقتك بالبلدية أو تجاه الجهة المشرفة؟

12. ما كان عددكم (عمال النفايات) قبل اعتماد منشأة معالجة النفايات؟ كم هو عددكم الآن؟

13. إذا أتاحت لك الفرصة للانتقال إلى وظيفة أخرى ، فهل ستفعل ذلك؟ إذا كانت الإجابة نعم / لا ، يرجى التوضيح

14. هل تشجع الآخرين على التقدم لشغل وظائف مماثلة؟

C. مجموعة التركيز مع المواطنين المحليين:

5. الحالة الاجتماعية للحاضرين:

6. وظيفة الحاضرين:

7. هل تعرفون شيئاً عن إدارة النفايات الصلبة في قريبتكم؟ إذا كانت الإجابة نعم / لا ، فهل يمكنكم توضيح ذلك؟

8. هل تشاركون في أنشطة مع بلديتكم؟

9. هل تشاركون في أي شيء متعلق بإدارة النفايات؟

10. ما هي أفكاركم حول دورة إدارة النفايات في قريبتكم؟ هل تستفيدون / تخسرون من الوضع؟

11. إذا كان عليكم إدارة دورة إدارة النفايات ، هل سيكون اللاجئون السوريون في خططكم؟ يرجى التفصيل

12. هل تتقدم بطلب للحصول على وظيفة تتعلق بالنفايات؟ إذا كانت الإجابة نعم / لا ، فما هي الأسباب؟

13. بيئياً واقتصادياً ، هل تعتقدون أن إعادة التدوير جيدة؟

D. مجموعة التركيز مع المصانع:

5. وظيفة الحاضرين داخل شركاتهم وجنسياتهم:

6. ما اختصاص شركاتكم؟

7. هل تشتري أي مواد قابلة لإعادة التدوير من المنارة أو غزّة؟ إذا كانت الإجابة بنعم ، بأي ثمن؟

8. هل توظف المزيد من الناس بسبب هاتين القريتين؟ إذا كان الجواب كلا ، وإذا كانت هناك مشاريع أخرى ظهرت في المنطقة ، فهل توظف أشخاصاً جددًا؟

9. ما هي جنسيات عمالك ومهامهم / وظائفهم؟ يمكن إجابة تقريبية إذا كانت شركة كبيرة توظف أكثر من مائة شخص

10. هل تشجع القرى على اتباع القريتين المذكورتين وتبني مشروع إعادة تدوير النفايات؟ إذا كانت الإجابة نعم / لا ، فلماذا؟

11. هل تعتقد أن هذه النموذج لإدارة النفايات مستدامة اقتصادياً للمنطقة؟ ما هي إمكاناتها في خلق فرص العمل؟

E. مجموعة التركيز مع اللاجئين السوريين:

5. الحالة الاجتماعية للحاضرين داخل المخيمات أو العائلات:

6. بالنسبة لأولئك الذين يعيشون على مقربة من منشأة معالجة مكب النفايات ، ما الذي جعلكم تعيشون هناك؟

7. هل تعملون في مجال النفايات؟ (يمكن أن يكون مع البلدية أو كزوازين)

8. هل توجد فرص عمل متعلقة بالنفايات في المنطقة؟ إذا كانت الإجابة نعم ، فهل تعتقد أن لديك فرصة إذا تقدمت بطلب؟

9. ما هي روايتك المتوقعة؟

10. في العادة ، في أي وظيفة أخرى ، كم عدد ساعات العمل في اليوم؟

11. هل تعلم بإعادة التدوير؟ إذا كانت الإجابة بنعم ، هل تعتقد أن ذلك مفيد من وجهة نظر اقتصادية أم أنه الإغراق
أفضل؟

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