



USAID
FROM THE AMERICAN PEOPLE

The Fiscal Impact of the Syrian Refugee Crisis on Jordan

This publication was produced for review by the United States Agency for International Development. It was prepared by DAI.

THE FISCAL IMPACT OF THE SYRIAN REFUGEE CRISIS ON JORDAN

Program Title:	Jordan Fiscal Reform II Project
Sponsoring USAID Office:	USAID/Jordan Economic Growth Office
Contract Number:	EEM-I-00-07-00009-00 Order No. EEM-I-08-07-00009-00
Contractor:	DAI
Date of Publication:	January 5, 2014
Authors:	Razan Nasser and Steven Symansky

DISCLAIMER

The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

CONTENTS

TABLES & FIGURES	V
ACKNOWLEDGMENTS	VII
ABBREVIATIONS	IX
EXECUTIVE SUMMARY	X
I. INTRODUCTION & BACKGROUND	1
II. THE METHODOLOGY	5
III. SECTOR ESTIMATES	10
A) BREAD/FOOD SUBSIDY	10
Other Considerations	11
B) LIQUID PETROLEUM GAS	12
C) ELECTRICITY	13
D) EDUCATION	15
Other Considerations	19
E) HEALTH	19
Method 1: Based on Billing Invoices for Syrian Refugees (Table 15)	23
Method 2: MoH Per Capita Approach (Table 15)	23
Method 3: Costs of Procedures (Table 13)	24
Method 4: The Per Capita Approach Using Budget Data (Table 13)	24
Vaccinations	26
Displaced Jordanians	26
Other Considerations	28
F) WATER	29
Other Considerations	34
G) PUBLIC WORKS—MUNICIPALITIES	34
H) SECURITY	36
IV. OFFSETTING REVENUE & A SOCIAL SAFETY NET	41
V. COMPARISON TO OTHER ESTIMATES	42
VI. SCENARIO: HOW TO TREAT SYRIANS WHO WERE IN JORDAN BEFORE 2011 ...	43
VII. CONCLUSION	45
BIBLIOGRAPHY	47
APPENDIX 1: FOOD SUBSIDY	49

APPENDIX 2: LPG	50
APPENDIX 3: FUTURE PRICES	51
APPENDIX 4: ELECTRICITY TARIFF AND COST	52
APPENDIX 5: CIVIL DEFENSE.....	54
APPENDIX 6: GENDARMERIE	57
APPENDIX 7: POLICE	60
APPENDIX 8: CAPITAL EQUIPMENT IN MUNICIPALITIES	66

TABLES & FIGURES

TABLE

Table 1: Executive Summary Table of Fiscal Costs of Syrian Refugees	xii
Table 2: An Estimate of the Fiscal Costs of Syrian Refugees	8
Table 3: Fiscal Cost of Food Subsidies for Syrian Refugees	12
Table 4: Fiscal Cost of the LPG Subsidy for Syrian Refugees	13
Table 5: Fiscal Cost of the Electricity Subsidy for Syrian Refugees	14
Table 6: School-Aged Syrian Refugees in Jordan	16
Table 7: Public Education Key Statistics 2002–2012	17
Table 8: Fiscal Cost of Education for Syrian Refugees	18
Table 9: Access to Health Services	20
Table 10: Occupancy Rate at Hospitals in North Jordan	21
Table 11: Morbidity for selected communicable diseases Jan 2012– Apr 2013	22
Table 12: Fiscal Cost in the Health Sector for Syrian Refugees	24
Table 13: Fiscal Cost in the Health Sector for Syrian Refugees (cont.)	25
Table 14: Arrears in the Health Sector 2009–2013	27
Table 15: Fiscal Cost in the Health Sector for Syrian Refugees (cont.)	28
Table 16: Fiscal Cost in the Water/Waste Sector for Syrian Refugees	31
Table 17: Fiscal Cost of the Municipality Subsidy for Syrian Refugees	34
Table 18: Syrian Population Density in the Northern Governorates— mid 2013	36
Table 19: Criminal Activity in Jordan Related to Syrian Refugees	37
Table 20: Fiscal Cost of the Police for Syrian Refugees	38
Table 21: Fiscal Cost of Civil Defense for Syrian Refugees	39
Table 22: Fiscal Cost of Gendarmerie for Syrian Refugees	39
Table 23: Fiscal Cost of the Military for Syrian Refugees	40
Table 24: Scenario—The Effects of pre-crisis Syrians Included as Refugees	44
Table 25: Wheat and Barley Subsidies 2010–2013 (JD million)	49
Table 26: LPG Subsidy 2010–2013 12.5Kg	50
Table 27: Future Prices of Commodities	51

Table 28: Cost of Power Generation 2011–2013	52
Table 29: Electricity Consumption in Kilowatts	53
Table 30: Civil Defense Capital Equipment.....	54
Table 31: Total Operational Cost of Civil Defense	55
Table 32: Two Sample Months of Civil Defense Operating Costs	56
Table 33: Gendarmerie Capital Costs.....	57
Table 34: Gendarmerie Total Operating Costs	58
Table 35: Gendarmerie Capital Operating Costs	58
Table 36: Gendarmerie Other Operating Costs	59
Table 37: Gendarmerie Personnel Costs	59
Table 38: Police Summary Table (cAMPS).....	60
Table 39: Police Salary Costs	61
Table 40: Police Food Costs	61
Table 41: Police Temporarily Assigned Staff	61
Table 42: Police Operational Costs of Vehicles	62
Table 43: Police Air Mission Costs.....	63
Table 44: Police Capital Costs—Vehicles.....	63
Table 45: Police Other Operational Costs.....	64
Table 46: Police Additional Investments Needed in 2014	64
Table 47: Alternative Method—Cost Per Incident/Activity	65
Table 48: Current and Proposed Capital Equipment in the Municipalities	66
Table 49: Increase in Municipal Capital (in US\$)	67

FIGURE

Figure 1: Syrian Refugees In and Outside of Camps: 2012–2013	7
Figure 2: Syrian Patients in MoH Hospitals and Clinics Jan–Aug 2013	20
Figure 3: Hepatitis A cases reported in Mafraq since beginning of 2013	21

ACKNOWLEDGMENTS

First and foremost, we would like to thank Jordan Fiscal Reform Project II (FRPII) Chief of Party Dr. Roberto Toso for entrusting us with this challenging assignment and for reviewing drafts of this study. We are also thankful to our colleagues Dr. Abdelhakim Shibli, Ammar Jarrar, and Gina Farraj for their valuable insights and critical contributions, and to FRPII researchers Amin Al-Asoufi, Amer Ahmed, and Tala Zalloum for their great help in collecting and processing large amounts of data. We would also like to thank Paul Bruning and Jason McNabb of USAID for their overall guidance. This study would not have been possible without the numerous authorities of different governmental and nongovernmental entities who have been generous sources of valuable information and insights, including:

1. H.E. Dr. Umayya Toukan, Ministry of Finance
2. H.E. Dr. Omar Zoubi, Ministry of Finance
3. Dr. Jalal Dibie, Ministry of Finance
4. Gasem Bashabsheh, Ministry of Finance
5. Dr. Hanadi Rifai, Ministry of Finance
6. Ziad Al-Adayleh, City and Village Development Bank
7. Mohammed Rweedan, City and Village Development Bank
8. Amal Zatar, City and Village Development Bank
9. Ahmad Jaraabah, Civil Health Insurance Fund
10. Col. Mohammed Al-Mawajdeh, Crisis Management Center – Joint Armed Forces
11. Brig. General Marwan Su'eidat, General Directorate of Civil Defense
12. Col. Zain Al-Abdedeen Al-Shawabkeh, General Directorate of Gendarmerie
13. Jacques Charaoui, Middle East Regional Technical Assistance Center – International Monetary Fund (IMF)
14. Farooq Khan, Middle East Regional Technical Assistance Center – IMF
15. Dr. Zaynab Shawabkeh, Ministry of Education
16. Dr. Saleh Khalayleh, Ministry of Education
17. Nuha Abu Hayt, Ministry of Education
18. Dr. Khaled Al-Adwan, Ministry of Health
19. Dr. Abdel Razzaq Shafei, Ministry of Health

20. Atef Alawneh, Ministry of Industry and Trade
21. Dr. Raed Al-Adwan, Ministry of Interior
22. Saleh Jaradat, Ministry of Municipal Affairs
23. Feda Gharaibeh, Ministry of Planning and International Cooperation
24. H.E. Basem Telfah, Ministry of Water and Irrigation
25. Brig. General Mazen Roshan, Public Security Directorate
26. Brig. General Dr. Waddah Hmoud, Syrian Refugees Camps Affair Department
27. Maj. Dr. Fawzi Al-Ghuuweri, Syrian Refugees Camps Affair Department
28. Andrew Harper, United Nations High Commissioner for Refugees (UNHCR)
29. Tala Kattan, UNHCR
30. Volker Schimmel, UNHCR
31. Barbara Rossmiller, USAID Institutional Support and Strengthening Program
32. Saddam Khleifat, USAID Institutional Support and Strengthening Program
33. Dr. Aiman Bani-Hani, USAID/Jordan
34. Scott Christiansen, USAID/Jordan
35. World Bank and IMF staff

ABBREVIATIONS

CVDB	City and Village Development Bank
GDP	gross domestic product
IMF	International Monetary Fund
JD	Jordanian Dinar
Kg	kilogram
KwH	kilowatt hour
L	liter
LPG	liquid petroleum gas
m ³	cubic meter
MoE	Ministry of Education
MoF	Ministry of Finance
MoH	Ministry of Health
MoPIC	Ministry of Planning and International Cooperation
MoWI	Ministry of Water and Irrigation
O&M	operations and maintenance
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
VAT	value-added tax
WFP	World Food Programme

EXECUTIVE SUMMARY

The Syrian crisis has substantially impacted Jordan in a multitude of ways. There have been several attempts to measure the consequences of the Syrian crisis on Jordan. The purpose of this study was to only **estimate the fiscal effects of the Syrian refugees on the Jordanian budget**. The broader economic and humanitarian costs were not measured. This study provides an estimate of the fiscal costs and is by no means a general “needs assessment.”

There are two types of effects that were measured in this study. The first is the **direct costs**, which should be measurable in terms of actual spending and seen in the budget outturns as a result of subsidies or new activities such as providing security in the camps. The second type of effect is the **indirect costs**, which are related to quality deterioration—larger class size, crowded hospitals, etc. These were measured as the expenses that are needed to ensure that Jordanians are no worse off than they were before the influx of refugees. Budget data on a per capita basis are generally used for this type of calculation.

The estimates within this study were calculated on an annual basis for 2013 and 2014. To put the estimates in the context of an annual budget, the average number of refugees during this year (457,000) rather than the number at the end of the year (more than 570,000) were used. There is an outstanding question about whether the Syrians who were in the country before the crisis and decided to remain because of the crisis should be included. The estimates use only officially registered refugees, but a scenario is included that estimates the cost if all Syrians are included.

The estimates were done on a sector-by-sector basis. There were some key issues considered in this work:

- Detailed information provided by ministries and sector specialists was used when available. This included water and electricity tariffs and their production cost, costs and number of medical procedures for Syrians, per unit costs of equipment, arrears for expenses related to Syrians, etc. Budget data were also used. The details used in the calculations are included in both the text and the appendices.
- These estimates differentiate costs for refugees depending on whether they reside in the camps or Jordanian communities. This is one of the key reasons for differences in fiscal costs compared to other studies.
- Donor financed expenditures were excluded. In some cases, assumptions were used to estimate donor funding.
- Revenue paid by refugees in a sector (for example, water and electricity) was taken into account in the calculations.
- In most sectors, alternative research methodologies were utilized to provide a certain level of comfort with the estimates.

- Various approaches were used to capture public capital stock being utilized by the refugee population. In some cases, a depreciated value of the needed capital was used. In some other cases, annual capital costs were captured in costs.
- Extensive consultations and discussions with stakeholders were part of the research approach with the objective of testing the reasonability of the estimates. These included ministries, security sector, United Nations High Commissioner for Refugees (UNHCR), International Monetary Fund (IMF), World Bank, and some sector specialists (for example, water and electricity).
- Feedback and comments have been received on first drafts of the study by some field experts. These comments were examined thoroughly and taken into consideration. Additional feedback maybe incorporated into future versions of the study.
- Some may argue that various costs are related to underlying fiscal weaknesses, but that is not part of this analysis. The estimated costs are based on the current fiscal system.

The estimate for fiscal costs for the budget is 1.8 percent of gross domestic product (GDP) (Jordanian Dinar [JD] 442million) in 2013; per capita of JD967/refugee. This is consistent with a “back of the envelope” calculation (fiscal spending is 30 percent of GDP and refugees are 7 percent of population). The estimate for 2014 is much larger (JD617million) or 2.4 percent of GDP, mostly because the number of refugees is greater (635,000). Approximately 60 percent of the costs are direct (budgetary expenditure).

Each sector has unique characteristics. For food and liquid petroleum gas (LPG), per unit subsidy information was used, taking into account idiosyncrasies such as unsubsidized bread procurement by donor agencies. The values of these subsidies are not large. Education is also small, because a large portion of it is being covered by donors. The largest educational expense is the indirect costs of quality deterioration.

There has been a wide range of estimates for health costs by other studies. In this study, we approached this sector using four different methods, three of which produced about the same estimate. Vaccinations and an estimated cost for displaced Jordanians based on arrears¹ information was added to these costs to arrive at the total fiscal cost for health.

Electricity cost calculations also used tariff and production cost data, supplemented with information on total losses in the sector to better capture the possible pass through of subsidies. The estimates for water and wastewater were largely based on some detailed work from the Ministry of Water and Irrigation (MoWI). This included using tariff and operating cost data supplemented by marginal cost effects (for example, increased cost of demineralization). However, a fairly large estimate for capital costs was also included, because there is a critical need to address water capacity problems that have been exacerbated by the influx of Syrians.

¹ Arrears are delays in government's payments to its suppliers and creditors

The information for municipal governments was scarce. The per capita expenditures, not supported by municipal revenue, were used. This was supplemented by some estimates of additional capital stock needs in the northern governorates.

The security sector had the largest expenditures related to the Syrians. That is because the Gendarmerie, Civil Defense, and Public Security (Police) had expenses directly related to the camps, but also because quality deterioration has occurred as the number of Syrians outside the camps increased. Direct expenses for the Joint Armed Forces have also increased since they are the first responders as refugees cross the border.

TABLE 1: EXECUTIVE SUMMARY TABLE OF FISCAL COSTS OF SYRIAN REFUGEES

	our current estimates		of which direct costs	
	2013	2013	2014	2014
Total JD	442	284	617	361
Total US\$	625	400	871	510
Health	51.67	41.95	84.84	68.90
Education	26.73	0.34	41.95	1.97
Public Works	15.17	10.22	20.59	13.86
Food & Feed & LP gas	19.32	19.32	30.30	30.30
Bread	16.35	16.35	23.98	23.98
LPG	2.98	2.98	6.32	6.32
Security	164.71	131.46	206.85	133.64
civil defense	9.79	0.33	15.67	0.33
gendarmerie	17.59	9.37	22.63	8.49
police	25.93	10.37	54.43	10.68
military and other	111.39	111.39	114.13	114.13
Electricity	57.31	57.31	82.30	82.30
Water 6/	107.49	22.91	149.77	30.04
Jordan GDP (JDm)	24,054	24,054	25,930	25,930
% of GDP	1.8%	1.2%	2.4%	1.4%
population (m)	6.50	6.50	6.69	6.69
refugees	457,395	457,395	635,059	635,059
refugees in camps	131,285	131,285	115,481	115,481
JD cost per refugee	967	620	971	568
% of budget	6.3%	4.0%	8.8%	5.1%
Gvt Expenditures/GDP	29%	29%	29%	29%
refuges/population	7.0%	7.0%	9.5%	9.5%
exchange rate	0.708	0.708	0.708	0.708

Note: Table 1 is identical to Table 2 in the main body of the text. It is included here to illuminate issues raised in this Executive Summary.

If one takes into account Syrians who were in Jordan before the crisis, the fiscal costs are significantly higher. Some sectors are affected more than others, depending on whether there are sizable fixed costs (for example, security expenses in the camp) or they rise in proportion to the number of new refugees (for example, water).

This study does not suggest how to finance the increased costs that Jordan has experienced due to the influx of refugees. That is left to the Jordanian Government and their international partners. The purpose is to provide a transparent and detailed set of estimates of the fiscal costs related to Syrian refugees.

Finally, after a thorough review of this document the Ministry of Planning and International Cooperation (MOPIC) would like to add that this study did not take into account that Syrians are expected to stay for a longer period in Jordan due to the crisis and other associated developmental aspects which should be taken into consideration; including the add on pressure on the level of services and existing infrastructure.

According to MOPIC the recent pledging conference in Kuwait mid-January 2014, it is estimated that the number of Syrian refugees is expected to increase to 800,000 from 600,000 refugees by end of 2014, where the UN estimates the requirements for this year at US\$1.6 billion, of which US\$1.2 billion for humanitarian needs, and US\$413 million to cover urgent Government of Jordan's needs for host communities in the sectors of health, education, water and municipal services.

Additionally, in accordance with the draft National Resilience Plan (NRP) (2014-2016) prepared recently by the Government of Jordan, other additional urgent requirements are estimated at US\$1.2 billion for 2014 which are needed to mitigate the impact of the influx Syrian and to maintain the level of basic services, including: US\$731 million are needed for critical investments in the sectors of water and sanitation, education, health, energy, employment, housing, municipal services, and social protection in host communities (affected by the influx of Syrian refugees); US\$208 million is the additional cost of subsidies; and US\$291 million for security support.

I. INTRODUCTION & BACKGROUND

The Syrian crisis that began in 2011 has substantially impacted neighboring countries. There are economic and humanitarian issues in addition to security concerns arising from the conflict. Economic activity in Syria is at a near standstill, and a significant number of homes and businesses have been damaged or destroyed. As a result, many Syrians have sought refuge in other countries. In addition to other countries in the region, Jordan has generously opened its borders to allow Syrians to enter the country on a humanitarian basis. The Syrians have settled in camps established by the UNHCR and in cities, especially in the northern part of Jordan.

This humanitarian decision by Jordan has resulted in some positive economic effects for Jordan, because both donors and Syrians are spending more resources in the country. However, with nearly a 10 percent increase in the population over a short period of time, there are both tangible and intangible negative consequences due to the stretching of country resources—schools and health facilities are overcrowded, water and waste services are near capacity, and Jordanians are being displaced by Syrians in the workplace.

Furthermore, Syrian refugees are affecting the finances of Jordan. **The purpose of this study was to estimate the fiscal effects of the Syrian refugees. It did not attempt to measure the larger economic impact that the refugee crisis has had on the Jordanian economy.**

There are several sources of fiscal costs. First, the government is supplying additional services; these include the provision of security at the camps and transporting refugees from the borders. Second, there are the costs incurred because the Government of Jordan has extended certain services to the refugee population, such as the decision to provide them with free healthcare through the Ministry of Health (MoH). Third are costs that the government cannot avoid because they are the result of untargeted subsidies that are shared by everyone in Jordan. This applies to bread, LPG, electricity, and water. All of the above we refer to as **direct** costs which can be seen to some extent in government expenditures. Lastly, there are implicit costs that are effectively deterioration in the quality of public services due to increased demand, and they do not appear in either budgets or expenditures.

As the refugees enter the local communities and local services are shared by the new entrants, the economic welfare of Jordanians declines. This does not have a direct cost, but worsens the welfare of Jordanian citizens and is an **indirect** expenditure. Measurement of this cost could be viewed as how much financial resources it would take to bring back the economic welfare of Jordanian citizens to its pre-crisis level. All of the above represent types of fiscal costs, although only some show up in the fiscal accounts.

Calculating fiscal costs is not a straight forward analysis, because there are several **factors that complicate this work:**

1. **Examining the increase in fiscal expenditure outturns (actual expenditure) will generally not capture the effects of the Syrians on the *real* fiscal situation.** The country is operating under the national economic reform program and combined with the more general budget austerity environment and annual spending appropriation limits approved by the Parliament, there is not much room to increase spending. Thus, it is important to capture the **costs of quality deterioration** (for example, student/teacher ratios)—generally referred to as **indirect expenditures**. Every attempt was made in this analysis to calculate what expenditures would be needed to ensure that pre-crisis quality standards are achieved. The tables show the total costs and the direct and indirect costs. Admittedly, the line between the two was not always clear.
2. **The distribution of the refugees has generally been concentrated in the northern governorates.** Thus, applying average per capita spending may miss the capacity constraints faced by those areas. Although capturing geographical effects are important as marginal and average costs can vary substantially, it was not possible to measure this in all sectors. This geographical effect was important in the municipal government estimates in this analysis where the northern governorates were treated differently than the rest of the country.
3. **The costs to the budget differ significantly for refugees located inside the camps when compared to those outside the camps.** In general, donors have assumed many of the costs related to the camps. For example, free healthcare and education are provided to the refugees in the camps by donors, with little impact on the Jordan budget. Meanwhile, a significant part of the direct and indirect costs of providing education and healthcare services to refugees outside the camps is being incurred by the government. In contrast, the security costs of the camps are almost completely the responsibility of the Government of Jordan. Furthermore, not all camps operate under the same financing rules.
4. **Certain expenditures are paid directly by donors.** In this study, only grant financing was taken into account since loan financing, even on very favorable terms, does not eliminate the cost to Jordan, but rather defers its payment or reduces interest payments. There are several ways to capture donor financing and each is fraught with drawbacks. One is to ignore the source of financing when measuring expenditure and then subtract the aggregate of foreign financing at the end. However, this misses sector-specific cases where Jordan must mostly finance these expenditures on their own, especially looking forward (for example, security sector). Second is to measure all expenditures project by project and/or program by program and subtract foreign grant financing. However, this approach is very time consuming and can easily miss the correct timing for donor support related to a specific expenditure. The last approach is to exclude expenditures that could be identified as directly foreign-financed (for example, many of the camp expenditures such as bread, health, and education). The weakness in this, as well as in the previous approach, is that it ignores general budget financing and some parts of capital

expenditures. This study used the last approach, and in the case of capital expenditures, historical information was used to assign a share of capital financed by donors. This is most relevant in the infrastructure area.

5. **Only some costs are directly proportional to the number of refugees (average cost pricing).** Other expenses tend to vary with the individual circumstances as capacity limits are reached (marginal costs) or are one-time costs (fixed costs). Different approaches are needed for these.
6. **The number of refugees in Jordan is not without controversy.** Some studies have claimed that when this study was drafted in November 2013 there were more than 1.3 million refugees, while UNHCR identified fewer than 600,000. This study used the official UNHCR numbers for several reasons. First, it is the “official” source, because Syrians need to register in order to be identified as a refugee. Second, it is the only source with a consistent time series of refugees to use in estimating or attributing aggregate costs to a specific time period. Third, and most importantly, only registered refugees are eligible to receive some of the services identified in this study, such as healthcare.
7. The Ministry of the Interior and UNHCR are working together to reconcile the differences in their refugee lists. The difference between the 1.3 million and the 600,000 are the Syrians residing in Jordan who have not registered as refugees. These unregistered Syrians may also result in fiscal costs, but since they have chosen not to register, they are excluded from specific benefits. These individuals are generally thought to be Syrians who were in Jordan on a semi-permanent basis before the crisis—they were traders or migrant workers who tended to move between the two countries—but it appears that they have decided to remain in Jordan during the crisis and sometimes even bring in their families. Unregistered refugees are treated as other immigrants in Jordan.
8. **Spending is measured for a fiscal year.** This means that the data estimates should take account of the time profile of refugees and not just the number of refugees at a single point in time when the analysis is undertaken. Thus, when aggregate spending for a year is provided, the average number of refugees during the year is used to account for spending related to refugees during that year. In some cases, the data for spending on refugees included spending from the beginning of the crisis. In order to allocate that spending to 2011, 2012, and 2013 to date, the monthly time profile of refugees was used to allocate the spending appropriately.
9. **Taking account of capital expenses is one of the more problematic issues.** When does a sector reach capacity constraints affecting the need for new capital? When is the tipping point reached? Is the capacity problem one that was evident before Jordan was faced with the Syrian refugees, and if so, how should these costs be allocated? For example, many hospitals were near capacity before the crisis. While they may require a large capital investment with the large inflow of refugees, it was also true before the Syrian crisis. In this type of situation, it is not appropriate to

assume that new investment should be related to the Syrian refugees.² Furthermore, it is unclear if the Syrian inflow is temporary or permanent. When there is uncertainty regarding capital costs, they are discussed in the individual sector section.

During the past two years, there have been several studies that have examined the impact of the Syrian refugees on Jordan. The reported estimates have varied widely. Part, although not all, of the reason for this variation is that the different studies aimed to measure different socioeconomic aspects. This study does not aim to capture lost output, opportunity costs, displaced workers, or spending financed by donors. Rather, it **focuses only on direct and indirect costs on the Jordan budget.**

The study first provides an overview of the methodology used in measuring fiscal costs, including underlying assumptions, and concludes with a discussion of some issues related to these estimates that are important, but are not examined in this study. The next section provides the sector estimates with tables and supporting discussion, including some qualitative data to support measurement of indirect costs. Appendices are used when the calculations are too detailed to be included in the main text. The spreadsheets behind this work are available upon request. The individual sector results are then aggregated to get a full assessment. This is followed by a brief discussion of some areas that were not included in the estimate of fiscal costs. The estimated costs are then compared with some previous work done by others, followed by a brief discussion of the fiscal costs if the Syrians who are not registered as refugees are included.

Finally, after a thorough review of this document the Ministry of Planning and International Cooperation (MOPIC) would like to add that this study did not take into account that Syrians are expected to stay for a longer period in Jordan due to the crisis and other associated developmental aspects which should be taken into consideration; including the add on pressure on the level of services and existing infrastructure.

According to MOPIC the recent pledging conference in Kuwait mid-January 2014, it is estimated that the number of Syrian refugees is expected to increase to 800,000 from 600,000 refugees by end of 2014, where the UN estimates the requirements for this year at US\$1.6 billion, of which US\$1.2 billion for humanitarian needs, and US\$413 million to cover urgent Government of Jordan's needs for host communities in the sectors of health, education, water and municipal services.

Additionally, in accordance with the draft National Resilience Plan (NRP) (2014-2016) prepared recently by the Government of Jordan, other additional urgent requirements are estimated at US\$1.2 billion for 2014 which are needed to mitigate the impact of the influx Syrian and to maintain the level of basic services, including: US\$731 million are needed for critical investments in the sectors of water and sanitation, education, health, energy, employment, housing, municipal services, and social protection in host communities (affected by the influx of Syrian refugees); US\$208 million is the additional cost of subsidies; and US\$291 million for security support.

² Some of the recent estimates by the UN are more related to general capital needs rather than to the effects of the Syrian refugees. Taking account of the pre-Syrian weaknesses is more a general "needs assessment" and not related to the Syrian refugees.

II. THE METHODOLOGY

Where possible, several different approaches were used to determine sector estimates. If the estimates are similar, it supports the final analysis presented in this study. When the variation is significant, the study explains why the differences occur (although this is not always possible). These variations may also help explain why there have been significant differences in many of the existing estimates provided by others.

All of the estimates were normalized for annual spending in 2013 and then extended to 2014. In addition, where possible, estimates were also provided for 2012. In some cases, this represents no more than scaling for the number of refugees. In other cases, there are fixed costs or depreciation that either only occur in one year or are independent of the number of refugees.

The choice of methods was dictated by the sector. For example, only one approach is presented when calculating the LPG subsidies since the degree of support provided by the government on a per-item basis was available. The approach in sectors with this type of information (including bread and to some extent electricity and water) was fairly straightforward and differences in results depended more on the assumptions than the approach. Some sectors had only one approach, primarily due to a lack of information. In general, when there was a significant amount of information available for a sector, this allowed for the use of several different approaches. This was especially true for health.

In some cases, refugee population data was used to project plausible spending based on historical per capita spending. Sometimes, the data was adjusted for possible differences in refugee spending patterns versus Jordanians, based on information provided by sector experts. In those cases where these assumptions were important, every attempt was made to provide supporting information. This may mean budget data or statistical information to support the quality assessments (classroom size, number of reported crimes, etc.). This was done extensively for the refugees outside the camps. As explained above, when relevant, subsidy and tariff rates were used to project plausible spending related to the refugees (for example, water, bread, LPG, electricity). There were several cases where the analytical work of other researchers proved to be useful, and therefore was utilized in this study.

One key point alluded to earlier, is that the estimates in this study do **not** include “desired lists” for capital expenditures. Even in cases where physical constraints are being reached and some capital investment is needed, capital expenditures are depreciated over their useful life rather than measuring the full cost of the investment and applying it to a specific year. Such expenditures were allocated more widely to the whole population and not just to refugees unless the additional capital is purely for refugees (for example, Police vehicles in camps).

Depreciating over the life span of a capital asset makes economic sense, but it does raise an issue about fiscal costs. On the one hand, it could reasonably be argued that

the more relevant approach is to add the full cost since that captures the actual outlay. On the other hand, large capital investments are often financed by donors and if not, the government will often borrow for these investments and the debt servicing will approximate the depreciation. Lastly, and possibly most importantly, some of the per capita calculations include both current and capital expenditures, which implicitly includes an estimate for capital expenditures, although from an average rather than a marginal or capital constraint perspective.³ This is an important detail that should be highlighted, particularly if the estimates are used to measure or highlight capital costs.

As other analysts have recognized, the data challenges in this work were substantial. In some cases, there was a plethora of data that supported detailed, bottom-up estimates. This was true for parts of the security sector where there was information on the number of additional vehicles, personnel, food, etc., used in the camps. In other cases, there was very little data and information to work with (for example, public works in the municipalities), or the quality of the data was poor or provided in a way that attributing it to a given time period or the time profile of refugees was nearly impossible. One of the reasons for including the details of the calculations is to allow others to improve the estimates if better data are obtained.

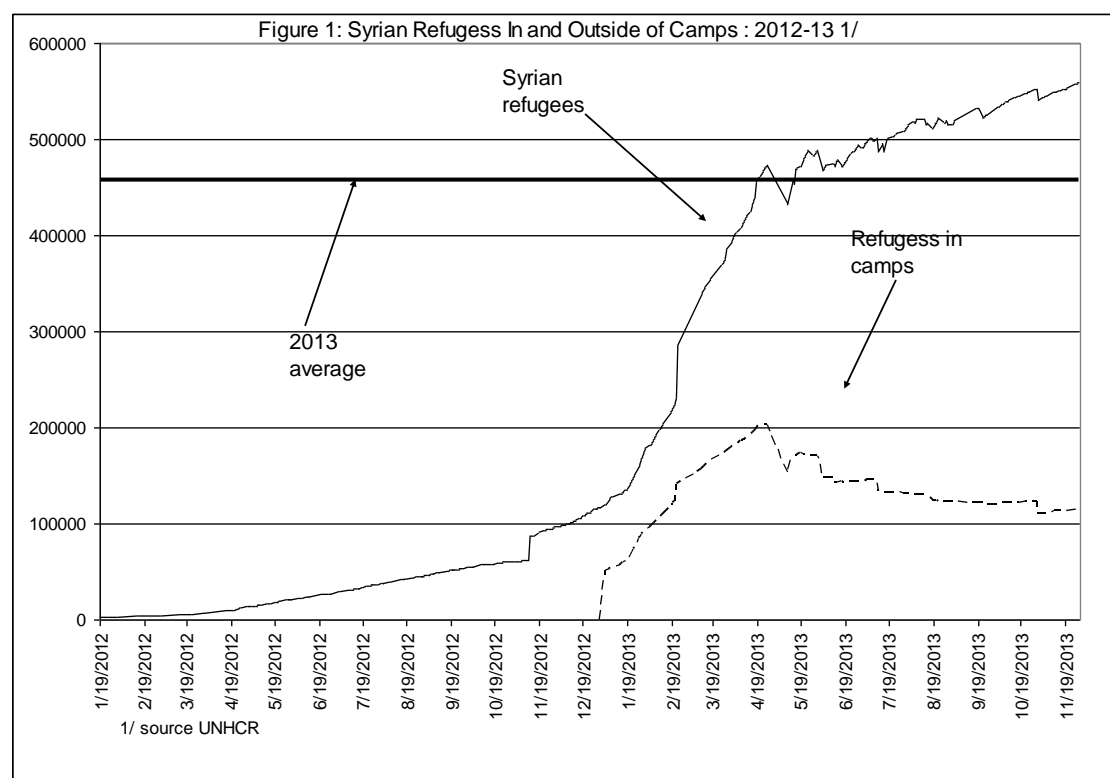
In all cases, the analysis used net spending. This includes revenue offsets (for example, water and electricity tariffs) as well as donor support (for example, United Nations [UN] and bilateral countries). Although donor-financed spending is sometimes reported as budget expenditure in government accounts, it is difficult to get the necessary information and is not needed in this work. The goal of this analysis was not to capture all fiscal spending, but rather **estimate the additional burden placed on Jordan's budget by Jordan-financed expenditures for Syrian refugees**. Best efforts were made to capture all relevant expenditures, as well as donor financing, however, it is possible that the data coverage is not comprehensive.

In all cases **the analysis accounted for the differences in expenditures related to refugees in and out of the camps** and is discussed thoroughly in the individual sectors. This distinction may be the largest contribution of this study, because there are significant differences across the sectors. In some cases, monthly data were used to attribute costs proportionally when only aggregate spending numbers covering portions of three years were given. This is especially critical since the number of refugees started rising quickly in January 2013 (monthly increase of around 100,000), but then fell to about 10,000 a month in late spring 2013. In contrast, the camps initially grew very fast and accounted for half of the registered refugees, but the numbers in the camps are now falling and account for only 20 percent of the refugees (see Figure 1). The distinction between those refugees in and those out of the camps is important when examining the estimates over several years or when running scenarios for different numbers of refugees in a given year. This should not be done by simply scaling up or

³ One reason capital expenditures were included in the per capita analysis is that often the budget data had classified current spending as capital. This was especially true of some transfers where the relevant institution probably believed the funds would be used for capital. However, this is an incorrect classification. The body receiving the transfer should classify the ultimate spending and the transfer should be treated as a current expenditure.

down the estimates since these estimates critically depend on the in- and out-of camp distinction and whether spending is a fixed or variable cost.

FIGURE 1: SYRIAN REFUGEES IN AND OUTSIDE OF CAMPS: 2012–2013



The fiscal spending estimates are provided on an annual basis. This again is somewhat different than the approach used in other work. In order to get the fiscal cost for a year, the estimates do not use the latest refugee count, but rather the estimates **use the average number of refugees for the year, since government spending occurs throughout the year rather than at a single point in time**. For 2013, this means the refugee number used in the estimates is 436,000 total and 136,000 in the camps. In contrast at the end of November there were 560,000 total, but only 110,000 in the camps. For forecasting the month of December 2013 and the year 2014, it is assumed that the refugee population grows at 10,000 a month and that the camp population grows a little in December and then stabilizes. This resulted in an average refugee population in 2014 of 635,000 and 115,000 in the camps. Projections beyond 2014 are not provided because there are too many uncertainties, including whether or not the conflict will continue and whether or not Syrians will return to their homes if there is peace. Alternative assessments using different assumptions regarding the number of refugees can easily be provided.

At an aggregate level, central government spending is about 30 percent of GDP. The average size of the Syrian refugee population in Jordan over 2013 equals 7 percent of the Jordanian population. By the end of 2013, Syrian refugees will have added about 9 percent to the existing Jordanian population. A simple calculation would indicate this crisis would add around 2 percent of GDP additional demands on the government in 2013 and just below 3 percent in 2014. Of course, this abstracts from differences in sectors, capacity constraints, whether refugees are in or out of camps and the role of donors. This is worth keeping in mind when evaluating the credibility and plausibility of the analysis. This point will be reinforced at the end of the study when the alternative estimates are examined.

Table 2 presents the estimates for 2013 and 2014 of the total cost of Syrian refugees on the budget. Also included is an estimate of the direct component of that cost. This table shows that the total cost is estimated to be JD442 million in 2013 and JD617 million in 2014. About 64 percent of the spending is direct in 2013, while it falls to about 58 percent in 2014, although the percentages vary significantly in the different sectors. Security and water are the two largest sectors in terms of costs incurred. While overall spending increases are almost in proportion to the greater number of refugees in 2014, they vary substantially by sector, with some showing large increases and others small. The details behind the estimates and these observations are in the sector discussion that follows.

TABLE 2: AN ESTIMATE OF THE FISCAL COSTS OF SYRIAN REFUGEES

	our current estimates		of which direct costs	
	2013	2013	2014	2014
Total JD	442	284	617	361
Total US\$	625	400	871	510
Health	51.67	41.95	84.84	68.90
Education	26.73	0.34	41.95	1.97
Public Works	15.17	10.22	20.59	13.86
Food & Feed & LP gas	19.32	19.32	30.30	30.30
Bread	16.35	16.35	23.98	23.98
LPG	2.98	2.98	6.32	6.32
Security	164.71	131.46	206.85	133.64
civil defense	9.79	0.33	15.67	0.33
gendarmarie	17.59	9.37	22.63	8.49
police	25.93	10.37	54.43	10.68
military and other	111.39	111.39	114.13	114.13
Electricity	57.31	57.31	82.30	82.30
Water 6/	107.49	22.91	149.77	30.04
Jordan GDP (JDm)	24,054	24,054	25,930	25,930
% of GDP	1.8%	1.2%	2.4%	1.4%
population (m)	6.50	6.50	6.69	6.69
refugees	457,395	457,395	635,059	635,059
refugees in camps	131,285	131,285	115,481	115,481
JD cost per refugee	967	620	971	568
% of budget	6.3%	4.0%	8.8%	5.1%
Gvt Expenditures/GDP	29%	29%	29%	29%
refuges/population	7.0%	7.0%	9.5%	9.5%
exchange rate	0.708	0.708	0.708	0.708

An important issue is how the quantitative estimates in this study should be used. **In no way does this work say how much the budget should be expanded or the deficit increased.** That requires a macroeconomic assessment regarding demand pressures, available foreign financing, balance of payment considerations, etc. One can use this to argue for more grant support, because the refugees are an international issue, but that is also beyond the scope of this study. Rather, these estimates should be taken at face value for the net amount of Jordan government financing of expenditures related to the inflow of Syrian refugees.

The study measured the amount of financial resources that are allocated and relocated for the crisis, but it did not measure if these resources have been effectively and efficiently utilized. Two examples are electricity and water tariffs: IMF and USAID programs recognize the need for reform, but the current reality is that these are entitlements and a source of spending by the Government of Jordan. These are important issues and should be examined in a public expenditure review of Jordan, but were not considered in this analysis. **Rather, the focus is completely on the additional expenditures related to Syrian refugees under the current fiscal system in Jordan.**

III. SECTOR ESTIMATES

A) BREAD/FOOD SUBSIDY

The Government of Jordan has been providing subsidies for bread for many years (with a short interruption in the late 1990s), although the form and degree of support has varied. Economists generally argue that cash subsidies targeted at the poor are more efficient than general price subsidies on goods since a price subsidy distorts the efficient allocation of resources and goes to everyone in society whether or not they need it. However, this was not part of this analysis. Rather, the purpose was to estimate the amount of these subsidies related to Syrian refugees.

This calculation is reasonably straightforward, because it used a per capita approach. What differentiates this analysis from some others is that the analysis accounted for bread purchases by the World Food Program (WFP), which are not subsidized, as well as the additional subsidized bread purchased for those in the camps (it appears that the WFP does not meet all the bread needs of these refugees). Furthermore, while there is an abundance of information about the bread subsidy, there is much less detail on subsidy for bran and barley, and neither of these are covered by the WFP.

This analysis, shown in Table 3, calculated the per capita consumption of flour (95 kilograms [Kg] per year) for the typical Jordanian. This is then multiplied by the estimated subsidy (JD0.265 per Kg in 2013) to obtain a per capita subsidy (JD25.39 in 2013). This is then multiplied by the refugees living outside the camps to get the 2013 value of the subsidy for this group of Syrians (JD8.28million).

The WFP supplies about 23 tonnes of flour per day to the camps. However, applying the per capita consumption from above would imply the need for 34.5tonnes of flour per day. Thus, the refugees or other donor agencies need to purchase additional bread, which is consistent with the anecdotal evidence that catering companies are supplementing the WFP-provided food. This adds an extra million to the cost of the bread subsidy, bringing the total to JD9.4million.

However, this is only part of the story. The government subsidizes both wheat and barley. Furthermore, wheat is processed into flour and bran, while barley is used as cattle feed and its subsidy passes through as an effective subsidy on meat products. Taken together, the total food subsidy in 2013 is estimated to reach JD272 million (see Appendix 1 regarding the total food subsidy in Jordan). The flour/bread component of the analysis related to the refugees was evaluated above. However, based on available information, bran and barley are being purchased at the regular subsidized rates for refugees in the camps. Subtracting the flour component from the total food subsidy results in a per capita subsidy of JD15.15; this is then multiplied by all the refugees resulting in another JD6.9million subsidy or a total of JD16.3million.

This implies that the Syrians account for 6 percent of the food subsidy, slightly less than their 7 percent part of the population. The difference is largely the result of the bread provided in the camps with no fiscal consequence to the budget.

For 2014, the subsidy increases slightly more than the refugee population for two reasons. First, the subsidies are linked to the future price of wheat, which shows a modest increase.⁴ Second, the unsubsidized part of bread consumption is constant since the number of refugees in the camps does not rise, thus increasing the share of subsidized bread consumed by refugees.

OTHER CONSIDERATIONS

An alternative approach is shown in Table 3. This took the subsidized flour consumed in 2011 and had it grow at the rate of the Jordanian population growth. Then, the difference between the total amount of subsidized flour and this value was assumed to be accounted for by the Syrians outside the camps plus the extra bread consumed by those in the camps. This difference was then multiplied by the flour subsidy rate and resulted in a subsidy of JD13.25 in 2013. When added to the non-flour food subsidy, this would imply that the Syrians are being subsidized at a rate greater than Jordanians even though Syrians in the camps are predominately consuming unsubsidized bread. Even though the first calculation was used, the second method is plausible because there is a view that Syrians consume substantially more bread than Jordanians since bread is a key staple food for lower socioeconomic groups, and there are reports that some Syrians are smuggling subsidized bread into Syria. There is some plausibility to this argument, but it was not included in the final calculations.

⁴ The future prices of wheat and other commodities, which were used in several of the calculations, were retrieved from <http://www.barchart.com/commodityfutures>, and can be found in Appendix 3.

TABLE 3: FISCAL COST OF FOOD SUBSIDIES FOR SYRIAN REFUGEES

	2011	2012	2013	2014
Method 1				
Subsidized flour (metric tonnes)	580,690	616,078	654,011	
Subsidized flour (JD)	102,303,563	155,874,274	173,348,549	
Avg subsidy per ton	176	253	265	273
Avg subsidy per KG	0.176	0.253	0.265	0.273
Number of refugees (Avg)		36,374	457,395	635,059
Number of refugees in camps		15,000	131,285	115,481
Number of refugees outside camps	0	21,374	326,110	519,578
Population	6,249,000	6,388,000	6,500,000	6,690,000
Subsidized flour per capita (KG)	92.93	96.12	95.81	95.81
Subsidy per capita (JD)	16.36	24.28	25.39	26.17
Refugee cost out of camps (JD)		519,065	8,281,538	13,595,080
Market price of flour (JD)	238.4	309.8	303.0	
WFP flour purchase (tonnes per day)		2.63	23	23
Consumption in camp (tonnes per day)		3.95	34.46	30.31
Cost of extra bread for camp (JD)		121,940	1,108,841	728,979
Total cost of subsidized bread for Syrians (JD)		641,005	9,390,379	14,324,059
Method 2				
Change in expected volume from 2011 based on Jordan 2% growth				
	2011	2012	2013	2014
Actual volume of flour consumed (tonnes)	580,690	616,078	654,011	
Population	6,249,000	6,388,000	6,500,000	6,690,000
Forecasted flour consumption based on population growth from 2011 (tonnes)	580,690	593,607	604,014	
Difference: actual - expected volume (tonnes)		22471	49997	
Total cost of subsidized bread for Syrians (JD) ^{1/}		5,677,325	13,251,823	
All non bread grain subsidy (barley & bran)				
Total subsidy for wheat and barley (JD)	218,200,000	219,400,000	272,206,244	
Total subsidy excluding flour (JD)	115,896,437	63,525,726	98,857,694	
Subsidy per capita (JD)	18.55	9.94	15.21	15.21
Total cost of other food subsidies for refugees (JD)	0	361,724	6,956,464	9,658,534
TOTAL Syrian Food subsidy		1,002,729	16,346,843	23,982,593
of which direct cost		1,002,729	16,346,843	23,982,593
1/ Estimate too large when compared as a percentage of total food subsidy to the percentage of Syrians				
Data provided by World Bank, MoF, and MOTI				

B) LIQUID PETROLEUM GAS

The subsidy for LPG in Jordan has been reduced substantially since 2011, largely as a result of increases in the subsidized price (from JD6.5 per 12.5 Kg container to JD10) as the import price has remained largely unchanged (see Appendix 2 for historical data on the LPG subsidy). Households in Jordan primarily use LPG as cooking and heating fuel. It appears that the Syrians do not receive any outside support for LPG. The per capita approach was used and applied to all refugees. This is shown in Table 4 and results in an estimated cost to the government of JD3million in 2013. This is relatively modest, and is not likely to increase much as the government has adopted a policy to limit subsidies on this fuel as part of their deficit-reducing measures.

For 2014, the subsidy is assumed to increase per cylinder as the future price of LPG increases by about 7 percent relative to the current market price (see Appendix 3, Future Prices of Commodities). However, this results in a 50 percent increase in the per-unit subsidy. Combined with a 50 percent increase in the refugee population, the total LPG subsidy doubles in 2014.

TABLE 4: FISCAL COST OF THE LPG SUBSIDY FOR SYRIAN REFUGEES

	2011	2012	2013	2014
Avg monthly no. of LPG imported cylinders (12.5kg type)	2,262,174	2,416,063	2,373,430	
Avg monthly subsidy (JDm)	10.39	10.55	3.95	
Subsidy price of a LPG cylinder (12.5kg type) (JD)	6.50	7.08	10.00	10.00
Imported price of LPG cylinder (12.5kg type) (JD)	11.16	11.58	11.49	12.27
Subsidy per LPG cylinder (12.5kg type) (JD)	4.66	4.49	1.49	2.27
Total annual subsidy (JDm)	124.70	126.60	47.45	
Total subsidy based on avg (unweighted) (JDm)	126.55	130.23	42.30	
Number of refugees (Avg)	0	36,374	457,395	635,059
Population	6,249,000	6,388,000	6,500,000	6,690,000
Per capita consumption (JD)	4.34	4.54	4.38	4.38
Subsidy for refugees (JD)	-	741,523	2,976,869	6,318,953
of which direct cost	-	741,523	2,976,869	6,318,953
Note:				
Avg monthly LPG imported cylinders (12.5kg type)				
MOTI	2,356,121	2,373,143	2,373,430	
WB	2,262,174	2,416,063		
1/ Data provided by World Bank, MoF, and MOTI				

C) ELECTRICITY

The energy sector is another subsidized area for Jordanians, but also one undergoing major changes. The amount of losses incurred by this sector of the economy has been substantial—more than JD1billion per year. Part of this has been the result of switching to more expensive heavy fuels for electricity generation in place of natural gas as the unrest in Egypt, the country's major supplier of natural gas, has led to disruptions in its supply. But, the explanations for the losses go way beyond this because the fuel costs in 2012 were reduced. Despite a graduated tariff for households and industry paying substantially higher rates than any consumer, almost every sector of the economy gets some degree of a subsidy. In the fall of 2013, electricity rates were raised, but the estimated losses in electricity are still projected to be substantial. Under the most optimistic projections, the losses will continue through 2017.

Method 1: Tariff and Cost Data: The first method for this sector used the tariff schedule and a per-kilowatt cost estimate (see Appendix 4 for information on electricity tariffs and costs). Because the Syrians are assumed to be low-end consumers, they are on the low end of the tariff schedule and thus receive a substantial subsidy per kilowatt hour (KwH). But, since they also consume less than high-end consumers, the subsidy is not substantial. There is also an additional offset: the UN purchases electricity for the camps at a price above cost estimates, and thus produces some net revenue.

TABLE 5: FISCAL COST OF THE ELECTRICITY SUBSIDY FOR SYRIAN REFUGEES

	2012	2013	2014
Method 1: Tariff and Cost data			
Household electricity consumption (GwH)	5,210	5,250	
Number of household subscribers (m)	1.400	1.408	
Consumption per household per annum (KwH)	3,721.43	3,729.86	3,738.31
syrian/jordanian elec consumption	1	1	1
Consumption per Syrian household per annum (KwH)	3,721.43	3,729.86	3,738.31
Assumed household size	5.50	5.50	5.50
Consumption per capita per annum for Jordanian (KwH)	676.62	678.16	679.69
Consumption per capita per annum for Syrian (KwH)	676.62	678.16	679.69
Number of refugees outside of camps	21,374	326,110	519,578
Electricity consumption by refugees (GwH)	14.46	221.15	353.15
Average cost of supplying electricity/KwH (fils)	164.3	173.7	173.7
Average electricity tariff for households/KwH (fils)	63.42	63.42	63.42
Urban refugee subsidy cost (JDm)	1.46	24.40	38.96
Average electricity tariff paid by camps/KwH (fils)	247	247	247
Refugee camps electricity consumption (GwH)	0.89	13.37	13.37
Net profit from providing electricity to camps JD	73,343	979,221	979,221
Net cost on government JDm	1.39	23.42	37.98
Cost on government per refugee per annum outside camps	68	75	75
Number of refugees	36,374	457,395	635,059
Refugee cost as a percentage of total subsidy		1.81%	
Method 2: Operational loss in Energy Sector			
Electricity operational loss - IMF report (JDm)	1027	1296	
per capita cost	160.8	199.4	199.4
Net cost on government JDm	5.85	91.20	126.62
Average of two methods(JDm)	3.62	57.31	82.30
Data from ERC study, MEMR, UNHCR, IMF			

The formerly described calculations are shown in Table 5 as Method 1. The average consumption per year per household of the typical Jordanian was applied to the Syrians. That quantity determined its tariff value. Given this consumption level, and using the graduated tariff schedule, the typical household pays 63.42 fils⁵ per KwH. With an average estimated cost of 173.7 fils per KwH in 2013, the net subsidy per KwH is about 110 fils per KwH. Assuming a household level of 5.5; this resulted in a net subsidy for Syrians outside the camps of JD24.4million.

Offsetting this is the net utility revenue of the government from the UN. In contrast to the 63.42 KwH that the Syrian household is paying per KwH, the UN is paying 247 fils per KwH. Based on usage by the UN in 2013, this resulted in net revenue of just under JD1 million for a net fiscal cost of JD23.4 million.

⁵ 1 JD = 1000 fils

Method 2: Per Capita Operating Losses in the Energy Sector: The estimate for the total operating loss for the electricity sector in 2013 is around JD1.3billion. This could be used as an estimate for the total cost to the government of subsidizing electricity. If one compares the Syrian subsidy calculated under Method 1 to this amount it comes out to only 2.3 percent of this loss. Even if it were assumed that all the Syrians were outside the camps, the net cost would still have been only 3.2 percent of the JD1.3billion, substantially less than their 7 percent share of the population. If anything, the Syrians are on the high end of the subsidy scale and one would expect a value greater than their population share.

However, households only account for about 40 percent of the total electricity consumption. As stated earlier, almost every sector is consuming subsidized electricity. Assuming a pass-through of the subsidy to the prices of goods, water, etc., the per capita share of the total subsidy would be JD200, resulting in a subsidy about 4 times the value from Method 1. Of course, there would not be full pass-through, but there should be some. Multiplying the JD200 per capita cost by the total number of refugees inside and outside the camps gives an estimate of JD91.2 million in 2013. In this method, the total number of refugees is used because this is a per capita approach. The total subsidy used in the estimate of the total fiscal cost is the average of the two methods. For 2014, the fiscal costs increase slightly more than the growth in the number of refugees (outside the camps).

OTHER CONSIDERATIONS

These calculations take into account the standard current and capital costs incurred by the utility companies, because they are built into the per KWh cost calculation, especially since much of the capital is financed by the private sector. However, the influx of refugees, especially localized in the northern areas, may result in the need for additional power generation. If this results in increased marginal costs, then this analysis underestimated capital costs. To gauge that need was beyond the scope of this study.

D) EDUCATION

During the past decade, Jordan has made significant strides in improving access to education. In 2010, Jordan boasted a 91 percent and 94 percent primary and lower secondary net enrollment ratios, respectively. The number of children not attending primary and lower secondary schooling stood at only 80,000 and 100,000, respectively. The Syrian refugee crisis is threatening to undermine these accomplishments. As of November 2013, 273,000 Syrian refugees in Jordan were of school age (see Table 6), of which 93,000 were out of school, adding an additional 50 percent to the existing number of children not attending school. If this situation continues, it could have a dire long-term socioeconomic impact on the country.⁶

⁶ UNESCO, 2012.

TABLE 6: SCHOOL-AGED SYRIAN REFUGEES IN JORDAN

	As of Oct 13	As of Nov 13
School aged Syrian Children in Jordan		190,234
Students in Zataari Camp	12,000	
Students in Emarati Camp	1,065	
Total Students in Camps	13,065	11,065
Students in Regular Shift	52,621	52,621
Students in Second Shift	19,145	33,548
Total Students Outside Camps	71,766	86,169
Total Syrian Students	84,831	97,234
Out of School Syrian Children		93,000
Out of School Jordanian Children (2010)		180,000

Source: Ministry of Education (MoE) and United Nations Educational, Scientific and Cultural Organization (UNESCO), 2012.

Despite Jordan's past achievement in increasing school enrollment, the country has struggled to ensure that children receive a quality education. For example, Jordan historically had wide learning gaps between socioeconomic groups. In 2009, only 16 percent of girls from poorer households were at or above the minimum level in mathematics, compared to 57 percent of girls from wealthier households.⁷ School overcrowding is another challenge. A 2011 study undertaken by the National Centre for Human Resource Development showed that 36 percent of all schools were considered crowded, with those in urban areas most affected.

The country has also been aiming to eliminate the second-shift system and the use of rented school buildings, and has realized some progress.⁸ As of the 2011–2012 academic year, 404 schools, or 7 percent of them, ran the double-shift system (down almost 1 percentage point from the previous year), and 25 percent of schools still had rented buildings (see Table 7). The added pressure of the Syrian crisis is exacerbating the situation. Nearly 53,000 Syrian children have been absorbed into regular first shifts of Jordanian public schools, adding pressure to already overcrowded classrooms. In 2013, 67 schools began operating new second-shift schools to absorb an additional 34,000 students.⁹ Many of the costs related to Syrian students attending second shifts have been absorbed by donor agencies, but the added pressure on the infrastructure and school facilities is not taken into account.

As part of the effort to improve the quality of education, the student-to-teacher ratio has been declining, because teacher hiring has been taking place at a faster rate than student population growth. However, the effect of the Syrian refugees is not yet reflected in the data, and some of these gains are likely to be undone.

⁷ UNESCO, 2012.

⁸ A second-shift class occurs after regular school hours and uses either existing school facilities or temporary container structures.

⁹ MoE.

TABLE 7: PUBLIC EDUCATION KEY STATISTICS 2002–2012

Academic Year	Students	% growth	Teachers	% growth	Class units	% growth	Student-to-teacher	Student-to-class unit	% Double shifts schools	% Rented schools
2003-2002	1,051,676		56,190		36,419		18.72	28.88		
2004-2003	1,059,968	0.79%	57,809	2.88%	36,992	1.57%	18.34	28.65	Source: MoE statistical yearbooks 2010–2011, 2011–2012.	
2005-2004	1,069,001	0.85%	59,388	2.73%	37,777	2.12%	18.00	28.30		
2006-2005	1,081,462	1.17%	58,886	-0.85%	38,095	0.84%	18.37	28.39		
2007-2006	1,099,433	1.66%	62,223	5.67%	39,199	2.90%	17.67	28.05		
2008-2007	1,106,885	0.68%	63,552	2.14%	40,161	2.45%	17.42	27.56		
2009-2008	1,131,113	2.19%	65,170	2.55%	40,901	1.84%	17.36	27.65		
2010-2009	1,129,448	-0.15%	69,693	6.94%	41,977	2.63%	16.21	26.91		
2011-2010	1,143,008	1.20%	71,181	2.14%	42,689	1.70%	16.06	26.78	7.60%	24.8%
2012-2011	1,154,880	1.04%	73,613	3.42%	43,487	1.87%	15.69	26.56	7.1%	24.9%

Clearly, the influx of the refugees has created a burden on the Jordanian educational system; especially since a high percentage of the refugees are of school age (over 50 percent are under 18 years old). However, there are several factors that mitigate the cost to the government and why a simple per capita calculation cannot be used. First, the schools in the camps are completely financed by the donors.¹⁰ Second, donors are paying for the teachers and books for Syrian students attending second-shift classes. However, the furniture and utilities are the responsibility of the MoE, and the additional usage of MoE equipment (such as computers) reduces the equipment's life. Third, donors have provided 50 prefabricated containers to 21 schools across Jordan to create additional classrooms. Fourth, a surprisingly large number of Syrian school-age children are not attending school, either from a lack of interest or a lack of available spots. The UN has been keeping track of the number of students who want to enroll, and this number is declining as more second-shift classes are being provided by donors.

There are three types of cost calculations needed for the cost analysis in the education sector. First, there are students receiving their education in the camps. Second, there are students attending second-shift classes either in MoE classrooms or temporary containers provided by donors. The third group includes those Syrians who are attending regular classes along with Jordanians. The numbers in these groups have not been constant even during the school year, because new second-shift classes are continuously being added and families seem to be leaving the camps to settle in cities and towns.

An additional adjustment to the numbers reported is also required; the student numbers from the MoE and UN are given on a school-year basis, while the MoE budget is for a calendar year. The calculations in the table used the MoE budget numbers, while the number of students was a weighted average of two school years.¹¹

¹⁰ The teachers are identified by the MoE and paid by MoPIC, but the financing is from UNICEF, based on contributions from bilateral donors.

¹¹ For 2013, the students on a calendar year were based on five months of the 2012–2013 school year and four months from the 2013–2014 school year.

The assumptions used in the calculations for the three groups are as follows: 1) there is no cost to the budget for those students attending schools in camps; 2) for second-shift schools, only the depreciation of equipment and some costs such as utilities associated with running the schools are included; and 3) a regular per capita cost was used for those students attending regular classes. These calculations are shown in Table 8.

TABLE 8: FISCAL COST OF EDUCATION FOR SYRIAN REFUGEES

	2012	2013	2014
Current			
Total current expenditure	722,713,375	805,842,000	854,157,000
Total capital expenditure	36,209,948	49,650,000	63,700,000
Total expenditure	758,923,323	855,492,000	917,857,000
Admin % of expenditures	0.065	0.065	0.065
Total number of student in MOE	1,173,976	1,195,147	1,216,700
Total number of teachers in MOE		73,613	
Teacher student ratio		16	
Per student cost - current cost	616	674	702
Per student cost - Total cost	646	716	754
Per student cost - UNICEF sponsored (outside camp and 2nd shift school current)	15.4	19.3	32.7
Per student cost - UNICEF sponsored (outside camp) and 2nd shift school capital	7	6	8
Per student cost - UNICEF inside camp	-	-	-
Total number of Syrian school age children		169,236	234,971.83
Total number of Syrian school age children (as of mid Nov 2013)		190,323	
Total number of Syrian students	26,361	97,234	135,002.19
Syrian students in MOE schools- regular shift	26,361	52,621	53,570
Syrian students IN UNICEF caravans outside camps and 2nd shift MOE schools	-	33,548	70,367
Syrian students IN UNICEF schools inside camps		11,065	11,065
School age children not going to school		72,002	99,970
School age children not going to school (as of mid Nov 2013)		93,089	
Number of school age children waiting to get in	11,021	22,000	
Syrian students in MOE schools- reg shift - calendar year	13,246	36,865	53,001
Syrian students caravan & 2nd shift schools - calendar year	1,722	13,419	48,276
Syrian students in schools inside camps - calendar year	-	4,426	11,065
<i>Implicit cost of Syrian students in MOE</i>	<i>8,562,880</i>	<i>26,388,145</i>	<i>39,982,707</i>
<i>Cost of Syrian students in UNICEF(outside camp) and 2nd shift MOE school</i>	<i>38,367</i>	<i>338,848</i>	<i>1,972,114</i>
<i>Estimated cost of Syrian students in UNICEF inside camp</i>	<i>-</i>	<i>-</i>	<i>-</i>
Total implicit and explicit cost of education for Syrians	8,601,247	26,726,994	41,954,822
of which direct cost	38,367	338,848	1,972,114
% of MOE budget	1%	3%	4%
% of MOE students	2%	7%	10%
Data from GBD and MoE			

The relatively low numbers shown in this table in comparison to calculations by some other researchers may reflect that this study, unlike others, differentiates between students in camps, first and second shifts. Furthermore, it reflects the adjustment for school year (September to June) data to calendar year (January to December). For example, two-thirds of the budget for calendar year 2013 reflects the number of students in the 2012-2013 school year when there were far fewer Syrian students. This also largely explains why the costs for 2014 are so much larger than 2013.

OTHER CONSIDERATIONS

There is little question that the schools are overcrowded in the highly impacted areas. However, the second-shift approach is relieving much of the pressure. Of course, this is not a long-term solution because the added instructors are generally not long-term teachers, and few have received the appropriate level of training for this work. This would argue for a significant increase in capital in this sector. However, until the refugee situation is known to be permanent, investment in additional permanent structures would result in longer-term operations and maintenance (O&M) expenditures and could prove counterproductive and therefore were not included in this work. However, normal per capita capital expenditures are included to the extent they are reflected in the capital component of the MoE budgets.

Some consideration was given to divide the cost by type of school program, but basic and secondary programs account for around 95 percent of the MoE budget. Although there is ample data for Jordanian students, there is no readily available information that breaks down the Syrian refugees into the type of education they are receiving. It is also appropriate to include administrative and other costs since there is clearly an increase related to Syrian refugees, possibly more than Jordanians on a per capita basis. Thus, the total budget of the MoE was used in the calculations.

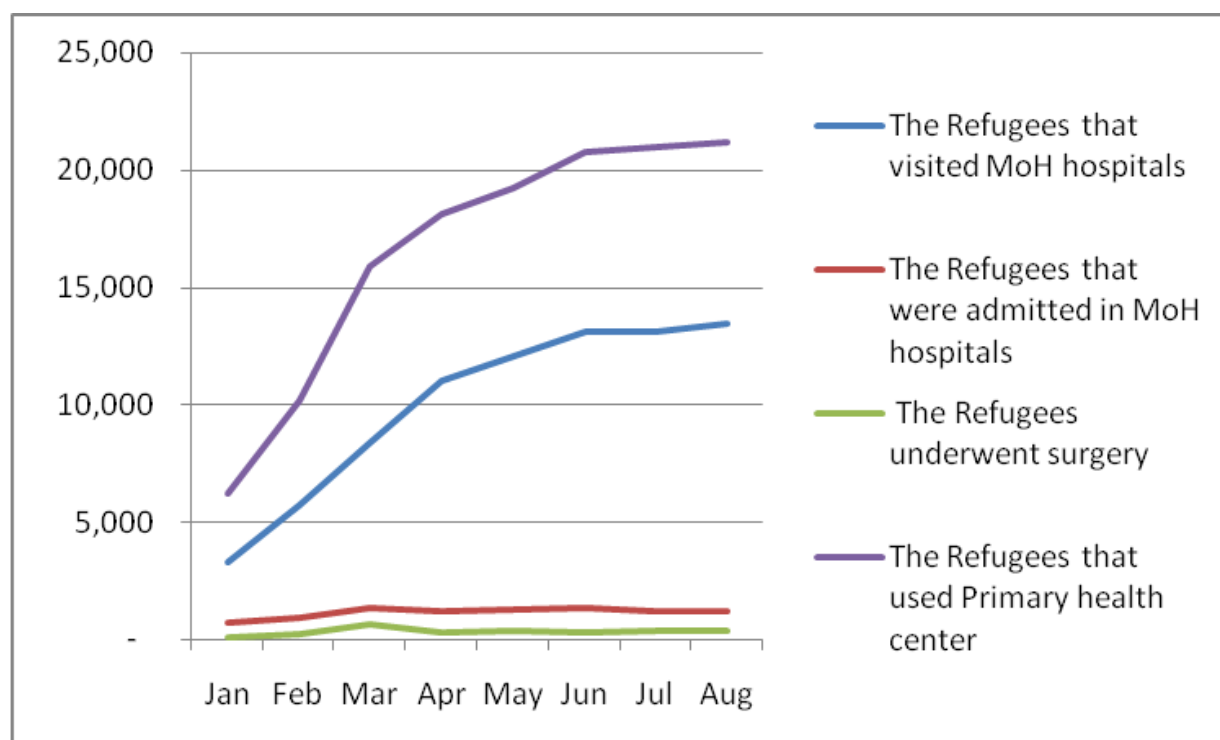
The cost of the Syrians that have chosen not to attend schools is not included in the estimates. In order to provide an accurate estimate, the reason for their lack of attendance is needed. If they are not attending by choice, this has a societal impact, but not a fiscal cost. If it is because of a lack of available space, then it is a fiscal cost. Given the substantial increase in second-shift schools, it is assumed that students not attending school do not reflect a lack of facilities. Going forward, as more refugees enter the community they are assumed to attend schools at the same rate as in 2013.

E) HEALTH

The Jordanian healthcare system has an excellent reputation and is even a source of tourism for the country. Jordan ranked first in the region and fifth globally as a medical tourism destination, according to a 2009 World Bank report. As with education, the influx of Syrian refugees has raised significant concerns, especially since the government declared that healthcare will be provided free to all Syrian refugees at MoH facilities. This decision not only has direct fiscal implications, but also has raised concerns about whether Jordanians will be able to receive the same quality of healthcare they had in 2011.

When refugees first enter Jordan they are able to receive free treatment at the refugee camps, courtesy of the donor agencies working at the camps. Syrian refugees outside the camps often rely on MoH hospitals and clinics for treatment. During the first eight months of 2013, Syrian refugees had 80,000 visits to MoH hospitals and 132,000 visits to primary healthcare centers, according to MoH statistics (see Figure 2).

FIGURE 2: SYRIAN PATIENTS IN MOH HOSPITALS AND CLINICS JAN–AUG 2013



Source: MoH.

The increase in the number of people being serviced by the MoH system has reduced Jordanians' access to healthcare. Table 9 shows that every per capita ratio worsened in 2013. Most of the main hospitals of the north are currently operating at or near full capacity (see Table 10). This has resulted in a critical situation in terms of emergency preparedness. Furthermore, the occupancy rate is forcing hospitals to transfer publicly insured Jordanian patients to university, private, and Royal Medical Service hospitals for treatment. This has significantly increased the large financial burden to the civil health insurance fund.

TABLE 9: ACCESS TO HEALTH SERVICES

MoH workers	Mid 2012	2013(F)
Physician/ 10K population	27.1	23.05
Dentists/ 10K population	10	8.5
Nurses/ 10K population	46.6	39.6
Pharmacists/ 10K population	16.3	13.9
MoH health facilities		
Total health facility beds	4572	4572
Hospital beds/ 10K population	18	16

Source: MoH.

TABLE 10: OCCUPANCY RATE AT HOSPITALS IN NORTH JORDAN

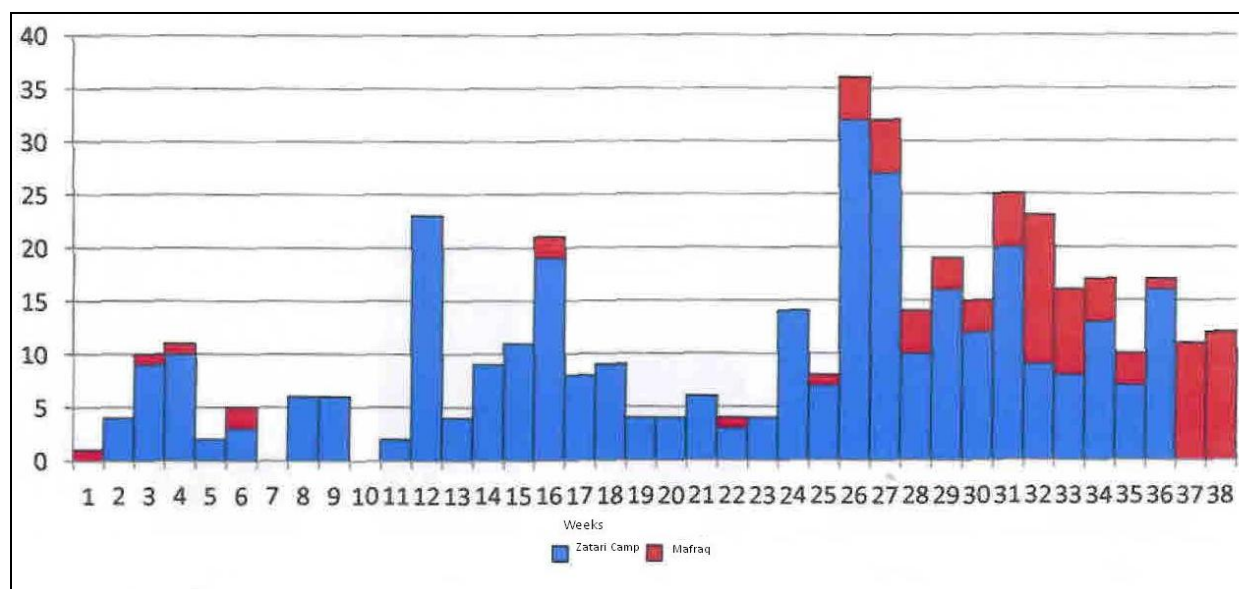
Hospital	2010	2011	As of Jul 2013
Princess Rahma Hospital	89.7	92.8	95.7
Women's and Children's Hospital (Al-Mafreq)	79.6	77.1	99
Al-Ramtha Hospital	49.9	55	67.5
Princess Basmah Hospital	88.8	85.2	92.6
Al-Mafreq Governmental Hospital	74.5	73.4	83.2

Source: MoH.

The Syrian refugee population is less healthy and has higher risk factors for many diseases in comparison to the Jordanian population. This not only affects the Syrians, but also exposes the Jordanians to a much worse health environment, increasing their risk and potential costs. There are several reasons for the poor health conditions of the Syrians: 1) the refugees tend to be from low socioeconomic groups that have been exposed to harsh environmental factors; 2) many have been injured in the conflict; and 3) many had limited access to healthcare and education, and hence vaccinations. The high prevalence of Hepatitis A among Syrian refugees and then among the host community in Mafraq demonstrates this concern (see Figure 3).

FIGURE 3: HEPATITIS A CASES REPORTED IN MAFRAQ SINCE BEGINNING OF 2013

(Inside Zatari camp versus in Mafraq Governorate)



Source: MoH.

Other diseases such as Measles were eradicated from Jordan in 2008, and are now resurfacing among the Syrian refugee population. Ten cases of polio have been reported inside of Syria, raising concerns of contagion across the border.¹² The MoH is

¹² Relief Web, 2013.

working on curtailing outbreaks of measles, rubella, and polio by launching several routine vaccination campaigns for Syrian refugee children. Other contagious diseases that Syrian refugees have been treated for include cutaneous leishmaniasis, scabies, pulmonary tuberculosis and typhoid (see Table 11).¹³

TABLE 11: MORBIDITY FOR SELECTED COMMUNICABLE DISEASES JAN 2012–APR 2013

Disease	Jordanians	Syrian Refugees
TB annual case notification per 100K	5	13
Measels per 1M (no cases in Jordan since 2008)	2.8	51.2
Cutaneous Lishmaniasis per 1M	3.1	158.1

Source: MoH.

The above demonstrates that there are several aspects to account for in the health sector in estimating the fiscal costs. However, estimating these fiscal costs in the health sector proved extremely problematic because there are a variety of considerations that require judgment. For that reason, several different methods were used in the analysis. The reasons for the complications in this sector include:

- Accounting for the Government decision that all Syrians can receive free healthcare.
- Recognizing that Syrians seem to be in much worse health than Jordanians, which should imply higher per capita costs for Syrians relative to Jordanians. However, Syrians may not be going to health facilities as often as Jordanians.
- Syrians are generally first treated in the camps before they move into the Jordanian communities.
- Capturing the effects of Jordanians using non-MoH facilities since the MoH facilities are now at capacity.
- When potential billing is estimated, Syrians are being charged a premium over Jordanians at MoH facilities.
- Non-governmental organizations are offering some healthcare services to refugees outside of camps.
- Taking account of the large number of arrears in the health sector, which implies that reported expenditures may be inaccurate.

These difficult issues may explain why the calculations tend to vary across different studies and why several different calculations were included for this sector.

¹³ MoH statistics.

METHOD 1: BASED ON BILLING INVOICES FOR SYRIAN REFUGEES (TABLE 15)

MoH facilities are sending the invoices for Syrians to the Civil Health Insurance Fund. The insurance fund has been collecting them and demanding reimbursement from the government, but no payments have been made.¹⁴ Other relevant information used in Method 1 includes the fact that Syrians pay about 40 percent more than Jordanians at MoH facilities, although the billing rate is still below cost.¹⁵ The government has indicated a Jordanian patient is billed on average a fifth of his treatment's actual cost. Taking both of these into account would mean that the billing for Syrian refugees should be doubled to get the underlying fiscal cost.

Through the first nine months of 2013, the Civil Health Insurance Fund was billed for 340,000 Syrian patients. Taking into account the scale factors mentioned above and annualizing the above information gave a total cost of JD41million. Yet, this method does not take into account Jordanians displaced out of the public health system, vaccinations, or any treatment costs at the refugee camps.

METHOD 2: MOH PER CAPITA APPROACH (TABLE 15)

In 2009, the MoH undertook an assessment of the per capita cost of health services provided to Jordanians by both the private and public sectors. They established JD269 as that benchmark. Based on the increase in costs over the last several years, they estimate that value to be JD309 in 2013. Approximately 60 percent of healthcare expenses are outside the MoH, while the remaining 40 percent of the country's healthcare expenses are covered by the MoH. This translates into JD124 per capita cost that the Ministry of Health is responsible for.

It has been commonly argued that Syrians require at least double the amount of treatment that a typical Jordanian requires. On the other hand, one research organization estimated that Syrians may only be utilizing medical services at one-third of the extent of Jordanians. They argue that Syrians do not go to healthcare facilities to the same extent as Jordanians for fear of having to pay, despite the announcement by the government that they will be treated at no cost. Furthermore, they are initially treated at no cost in the camps when they first arrive. Both arguments have some validity and Method 2 assumes no scaling in either direction.

In this method, the per capita expenditure was multiplied by the number of refugees outside the camps, resulting in an estimated fiscal cost of JD40 million. Note that this method also does not take into account displaced Jordanians, vaccinations, or any treatment at the refugee camps. It is encouraging that the first two methods provide estimates that are similar, even though they take different approaches.

¹⁴ It has been alleged, but not confirmed, that the UN may be covering at least part of the expenses for Syrians use of MoH facilities.

¹⁵ Typical costs based on a survey of some bills indicates that they are being charged JD11million for treatment and JD4million for medication, which confirms the 40 percent charging premium for Jordanians.

TABLE 12: FISCAL COST IN THE HEALTH SECTOR FOR SYRIAN REFUGEES

	2013	2014
Method 1 - Based on Billing Invoices		
Total MoH claims for treating Syrian patients in 2013 (billed at subsidized rates) as of end September 2013		
Number of Syrian Patients (through September)	339,723	
Treatment billed	11,004,849	
Medication billed	4,023,278	
Total Billed	15,028,127	
Per vist billing	44.2	
Jordanian to Syrian billing rates	0.41	
Total Billed at Jordanian Rates	6,199,102	
Amount billed as % of actual cost	20%	
2013 expenditures for 1st 9 months	30,995,512	
Annualizing 2013 expenditures	41,327,349	69,855,146
Per Capita cost for a Syrian	127	131
Method 2: MoH per capita approach		
Per capita costs		
Average cost of health expenditure per capita in 2009	269	
Average cost of health expenditure per capita in 2012	309	
% of which covered by MoH	40%	
Per capita expenditure on healthcare by MoH	124	
Per capita expenditure on healthcare by MoH (possibly acct for non MoH expenditures)plus insurance fund	124	
Syrain per capita cost (2012)	124	127
Estimated cost of Syrian refugees healthcare outside camps	40,346,325	66,210,613

METHOD 3: COSTS OF PROCEDURES (TABLE 13)

The MoH provided a list of procedures and treatments undertaken for the Syrian refugees in 2013, from January through August, as well as the per-unit costs. In order to annualize the information, the analysis took account of the fact that the number of Syrians in the early part of the year was smaller than later in the year. By using the monthly UNHCR refugee numbers, this resulted in a scale-up of 1.81 for the last four months (rather than 1.5, which is consistent with an unchanged population throughout the year).

The data was divided into hospital visits, hospital admittances, surgeries, and visits to primary healthcare facilities, and summed to JD12 million. The same billing and scale-up factors used in Method 1 were applied to this value, resulting in just under JD25 million. This is substantially below the values calculated in the first two methods. It appears that the reason for this difference is largely accounted for by the total number of billings. In Method 1, there were 340,000 patients recorded by the Civil Health Insurance Fund, but this method only had 224,000 or 66 percent of Method 1. This raises questions about the validity of this approach, or more likely, the data. As was true with the first two methods, this only covered the out-of-camp health costs.

METHOD 4: THE PER CAPITA APPROACH USING BUDGET DATA (TABLE 13)

The fourth method relies on the reported numbers from the budget to estimate a per capita expenditure. In order to do this, it was necessary to aggregate the MoH with the Civil Health Insurance Fund. The insurance fund is not part of the central budget, but is

covered under the Budget Units Law and has both revenues and expenditures. The fund receives money that is collected by MoH facilities from patients plus they receive an annual subsidy. The insurance fund makes payments for medicine and other expenses, including the medical costs for Jordanians displaced from MoH facilities and attending non-MoH facilities. However, the Civil Health Insurance Fund has accumulated significant arrears (see next section).

Aggregation of the expenditures and revenues of the MoH and the Civil Health Insurance Fund resulted in a total net expenditure of JD641million in 2012 and a per capita cost of JD106 (very similar to the JD107.8 based on the projected 2013 budget outcome). Applying this value to the Syrians outside the camps resulted in an estimated cost of JD34.6 million. This may be an underestimate since the per capita calculation for Jordanians assumed that all Jordanians use MoH facilities and/or are covered by the insurance fund, but no account was taken of this likelihood.

Given the uncertainty surrounding all of the estimates, the average of Methods 1, 2, and 4 was used to produce an estimated cost of JD38.8 million for treatment of Syrians outside the camps in 2013. For 2014, these costs rise with an increase in the number of refugees plus inflation.

TABLE 13: FISCAL COST IN THE HEALTH SECTOR FOR SYRIAN REFUGEES (CONT.)

	2012	2013	2014
Method 3: Based on costs of procedures (Jan-Aug)			
Scale factor to annualize and account for avg refugees per month)		1.81	
Number of refugee MoH hospital visits		80,097	
Number of refugee MoH hospital visits (annualized based on # of refugees monthly)		145,044	
Per unit cost of hospital visit		15.15	
Cost of refugee hospital visits		2,197,422	
Number of refugee MoH hospital admittances		9,168	
Number of refugee MoH hospital admittances (annualized based on # of refugees monthly)		16,602	
Per unit cost of MoH hospital admittance		411	
Cost of refugee MoH hospital admittances		6,826,723	
Number of surgeries on refugees by MoH		2,646	
Number of surgeries on refugees by MoH (annualized based on # of refugees monthly)		4,792	
Per unit cost of surgery		309	
Cost of refugee surgeries		1,482,500	
Number of refugee MoH primary health centers visits		132,432	
Number of refugee MoH primary health centers visits (annualized based on # of refugees monthly)		239,816	
Per unit cost primary health center visit		6.40	
Total number of patient billings		224,343	
Cost for refugee primary health care		1,534,820	
Total cost of refugees receiving healthcare		12,041,466	
Total cost of refugees receiving healthcare scaled		24,835,523	40,756,506
Method 4			
per capita Jordanian costs scaled up for Syrians- based on 2012 Budget			
Per capita costs			
Total health care cost via budget of MoH & Insurance Fund	641,215,086	700,717,000	778,145,000
Average cost of health expenditure per capita	100.4	107.8	116.3
Syrian refugee per capita cost (2012)	100.4	106.0	109.2
Estimated cost of Syrian refugees healthcare outside camps	2,145,492	34,567,408	58,428,894
Average of 1,2,& 4 methods		38,747,027	64,831,551

VACCINATIONS

During the past few years, Jordan had been relatively successful in eradicating several communicable diseases, including polio, measles, and malaria through vaccinations and other health interventions. However, the same cannot be said for the Syrian population, who, as mentioned previously, are less healthy and have higher risk factors for communicable diseases, due to the harsh environmental conditions they have been exposed to and their limited access to healthcare and education, and hence vaccination.

The MoH, with the support of UNICEF, World Health Organization, and UNHCR, conducted several inoculation campaigns for measles and polio. However, the MoH has also been providing 10 vaccines under its regular immunization schedule to Syrian refugees without outside financial support. The cost for these vaccines is JD60 per individual. Using the vaccination data provided by the MoH and prorating the information based on the number of refugees and time period covered, 53,000 vaccines were estimated as being delivered in 2013 for a total cost of JD3.2million (see Table 14). Going forward, the cost in 2014 will rise modestly since these inoculations are only done once.

DISPLACED JORDANIANS

Even before the Syrian refugees entered Jordan, many of the MoH facilities were running near capacity (see Table 10). Now with the Syrians attending MoH facilities, many more Jordanians are being transferred to other public sector health or private facilities, which then bill the insurance fund for their services. When a patient is insured, it is the obligation of the insurance fund to pay the treatment bill.¹⁶ However, instead of making full payments, the insurance fund has been accruing arrears. Table 14 shows some of the relevant information regarding the Civil Insurance Fund and the buildup of arrears. However, the arrears are not a new phenomenon and the net additional arrears do not seem very different in 2013 than earlier years.

¹⁶ When a patient is uninsured and has been given a special waiver it is the responsibility of the government or the Royal Court to cover their expenses, depending on who granted the waiver. In turn, the government or the Royal Court pays the insurance fund, which is then required to make the payment on their behalf to private and non-MoH public health facilities. However, the insurance fund has accumulated arrears. This was not included in the estimate of displaced Jordanians, because they were not included in the government social protection system for healthcare.

TABLE 14: ARREARS IN THE HEALTH SECTOR 2009–2013

	2009	2010	2011	2012	2013-sept	2013
Insured						
Public Hospitals	26,582,754	14,859,841	37,630,649	38,095,700	51,646,675	68,862,233
Private	9,938,404	10,398,804	13,844,750	13,533,980	15,200,000	20,266,667
Uninsured						
Public Hospitals	32,972,083	45,714,554	63,287,645	115,501,520	102,823,531	137,098,042
Syrians				5,573,437	8,728,560	11,638,079
New Arrears						
Insured						
Public Hospitals		-11,722,913	22,770,808	465,051		30,766,533
Private		460,400	3,445,946	-310,770		6,732,687
Uninsured						
Public Hospitals		12,742,471	17,573,091	52,213,875		21,596,521
Syrians		0	0	5,573,437		6,064,643
New Claims						
Insured						
Public Hospitals	62,502,626	76,498,280	73,920,490	81,358,202	70,663,236	94,217,648
Per capita		12.5201768	11.829171	12.7360992		14.49502277
Displacement calculation						11,433,003
Data Source: Civil Insurance Fund						

Possibly the most relevant information to use in the calculation related to displaced Jordanians is the change in arrears of the insurance fund that relates to the treatment of insured patients at non-MoH public hospitals. This was estimated to have increased by JD30.8million in 2013, compared to JD22.8million in 2011 (assumed base year) for a difference of JD8million. This is labeled Method A in Table 15.

An alternative method (labeled as Method B) used the new claims per capita of the insured patients at non-MoH public hospitals compared to the per capita in 2013. The per capita difference was assumed to be the result of Syrians displacing Jordanians. The per capita difference was multiplied by the number of Jordanians resulting in an estimate of JD11.4million. The average of these two methods was used, which comes to JD9.7million for 2013 and is shown in Table 15.

TABLE 15: FISCAL COST IN THE HEALTH SECTOR FOR SYRIAN REFUGEES (CONT.)

	2013	2014
Vaccinations in camps		
Children vaccinated Jan '12 - April 13		
all 10	50980	
Percent done in 1st 4 months	0.73	
Vaccinations in 1st 4 months	37129	
Estimate of vaccines in next 8 months	16324	
Total vaccines in year	53452	65812
Cost per vaccination	60	61.8
Total cost	3,207,129	4,067,178
Displaced Jordanians		
Method A		
Additional Health Arrears in 2013	30,766,533	
Base year arrears	22,770,808	
Cost of displaced Jordanians	7,995,725	
Method B		
New Health Claims in 2013 per capita	14.5	
New Health Claims in 2012 per capita	12.7	
Cost of displaced Jordanians	11,433,003	
Average of the 2 methods	9,714,364	15,941,824
Total Health Care cost	51,668,520	84,840,553
of which direct cost	41,954,156	68,898,729

Table 15 also shows the total estimated healthcare costs and estimated direct costs of treating Syrians (average of Methods 1, 2, and 4), vaccinations, and the cost of displaced Jordanians. The fiscal cost in 2014 rises more than proportionally to the increase in refugees, largely due to Syrians outside the camp, which is the source of most of the medical fiscal costs.

OTHER CONSIDERATIONS

It is difficult to estimate costs in the health sector for the reasons described above. For 2013, taking account of the various factors, the estimated cost to the government of healthcare for Syrians is JD51.7million. As more information is gathered by other studies, it is likely that this number will be adjusted, but it is unclear if it will be adjusted up or down since there are factors supporting both.

As in many of the other sectors, there is no special provision for capital. This seems somewhat surprising given the capacity constraints mentioned earlier. However, this is being accounted for in the per capita estimates. Having the Jordanians use non-MoH facilities is one way the capacity issue is alleviated. Furthermore, capacity problems existed even before the Syrians entered the country—they only exacerbated the problem. If new major capital costs are undertaken, they should be scaled across the full population and the displaced Jordanian estimates should be excluded.

F) WATER

Jordan is considered to be one of the poorest countries worldwide in water resources. Available water in Jordan on a per capita basis is very low, at a level of 145 cubic meters (m³) per capita per year, far below the global benchmark poverty line of 1,000 m³ per capita per year. The rapid rise in the number of Syrian refugees caused severe stress on public water supply systems, serving twice the number of people in some areas. Also, the number of refugees living in precarious conditions beyond the reach of support systems is increasing, with Syrian households creating their own private wash facilities and buying water from the markets. According to the Ministry of Water and Irrigation, this appears to have doubled the price of water sold from tankers, which Jordanians have relied on to supplement the rationed water supply they receive from the network.

Furthermore, during the early stages of the crisis in November 2012, representatives of the water companies told UNHCR that they had typically been supplying 70 liters (L) per capita per day. However, they had to decrease that to 60 L per capita per day as a result of the refugee influx.

Water is also a well-subsidized sector, especially by those who consume less water. As part of the IMF program and a recent agreement with USAID, the government put together a water strategy through 2020. The analysis in the government's strategy document provides the methodology and information used in Method 1. The approach taken in Method 1 is to base the analysis on water/wastewater tariffs and costs (see Table 16). However, adjustments to the government's methodology were made in this set of estimates, especially with respect to capital and opportunity cost.

The sector comprises more than just the Ministry of Water and Irrigation. There is also the national water authority and four public service providers that service different parts of the country. The budgets are complicated, because there is a chain of subsidies. The subsidy is first provided by the MoWI to the Water Authority, part of which is subsequently passed to the public service providers to help them become financially viable. Thus, the best way to get an overall view of the finances in the water/wastewater sector is to add all of the budgets together. This is the basis of Method 2 which was then applied on a per capita basis (see Table 16). A third method is to use the net budget in 2012, the year before the large Syrian influx, and assume that it grows in line with Jordan's population growth, compare this calculation to the actual 2013 outturn, and attribute the difference to the Syrians (see Table 16).

Admittedly, Methods 2 and 3 would underestimate the real subsidy if the costs do not really reflect capital costs—a widely held view about the Jordan water/wastewater sector. In that case, these two methods would only be capturing O&M costs. A second weakness in Method 2 is that the per capita approach does not recognize that the Syrians are on the lower end of the tariff schedule and thus receive the largest subsidies. In both cases, the true fiscal costs are likely underestimated. In some of the estimates of fiscal costs by other researchers the wastewater component was ignored, yet it contributes a significant amount of the sector's costs. The per liter operating cost of wastewater is more than half the cost of water.

One issue that runs through all methods is that the inefficiencies in the water sector result in a subsidy. As an example, the amount of lost water is estimated to be around 40 percent.¹⁷ The inefficiency is currently embedded in the fiscal system and no attempt is made to evaluate costs if the system were more efficient. That is not the purpose of the current estimates; rather the costs were taken as they currently exist.

Method 1 attributes a certain level of water consumption to the typical refugee. The estimates recognize that it takes 120 L of pumped water to consume 70 L. Based on a typical family and the cost of water, this results in a per refugee cost of JD31.54 per year living outside the camps. Assuming waste of 78 L per day, the waste cost per refugee is JD12.24 per year. Based on the average number of refugees living outside the camps in 2013, this results in a cost of JD10.3million and JD4million respectively for water and wastewater.

¹⁷ Lost water is the difference between the amount of water that is pumped and the amount that is billed. There is a multitude of reasons for this, including problems with infrastructure and corruption in billing.

TABLE 16: FISCAL COST IN THE WATER/WASTE SECTOR FOR SYRIAN REFUGEES

	2012	2013	2014
Method 1:			
Water			
Outside the camps			
liters per day		120	
m3 per year		43.8	
cost per m3		0.72	
cost per refugee per year		31.54	32.48
Total cost of water		10,284,203.82	16,876,963.33
Waste water			
liters per day		78	
m3 per year		28.5	
cost per m3		0.43	
cost per refugee per year		12.24	12.61
Total cost of waste water		3,992,270.79	6,551,543.41
Capital Cost			
annual water estimate '2011 JDm	438	463	477
less donor contribution	320	338	348
per capita water	50.1	52.0	52.0
wastewater scale factor	2.2	2.2	2.2
per capita waste water	110.2	114.4	114.4
Total per capita	160.3	166.3	166.5
Total annual capital cost	5,829,698	76,078,251	105,707,949
Electricity for camps for water & waste			
subsidy per KWH		0.15	
KWH per refugee		43.8	
KWH		14,283,616	
Total cost of Electricity for camps for water		2,142,542	2,206,819
water deterioration of water deterioration			
liters per day		120	
m3 per year		43.8	
cost per m3		0.7	
cost per refugee per year		30.66	31.58
Total cost of water		9,998,531.49	16,408,158.80
Crisis Management			
price markup		0.012	0
Total crisis management cost of water		1,229,950	-
Revenue			
Outside the camps			
liters per day		70	
m3 per year		25.6	
cost per m3		0.18	
cost per refugee per year		4.60	4.60
Total Revenue		1,499,779.72	2,389,537.69
Total Net cost of Syrians outside		102,225,969.52	145,361,895.53
Cost inside		5,263,261.69	4,406,743.13
Total Net cost of Syrians		107,489,231.21	149,768,638.65
of which direct cost		22,912,228.36	30,042,068.60
Method 2			
water authority fiscal balance	(112,435,385)	(139,270,000)	(139,270,000)
yarmouk fiscal balance	(17,300,000)	(20,257,000)	(20,257,000)
aqaba fiscal balance	(23,800)	1,400,000	1,400,000
Miyah fiscal balance	(3,456,000)	5,933,000	5,933,000
Ministry Expenditures (balance)	(39,445,000)	(33,594,000)	(33,594,000)
Jordan Valley Expenditures (balance)	(22,246,204)	(30,512,000)	(30,512,000)
Total Net Cost of water to Government	194,906,389	216,300,000	216,300,000
Per capita cost of water to Government	30.51133203	30.51133203	30.51133203
Cost of Syrians	1,109,823	13,955,731	19,376,496
Method 3			
Budget	194,906,389	216,300,000	216,300,000
Per capita per Jordanian	30.51		
Budget for Jordanian		30.51	30.51
Implied Budget		198,323,658	204,120,811
Excess loss - assumed to be for Syrians		17,976,342	12,179,189

The Ministry of Water's technical paper also recognized that there were some marginal costs associated with water and waste. In particular, there is the electricity needed, which has two components. First, electricity is subsidized, but also it takes more electricity to pump water up from deeper aquifers. This is estimated to add an additional JD2million. Furthermore, water that is deeper in a well tends to have more minerals and requires more treatment to remove them. Based on the quantity of water assumed in the above calculations, this results in an additional JD10million. Lastly, the ministry found that it required extra administrative costs to supply water and wastewater services. One example is that some equipment had to be purchased on an emergency basis, and it is estimated that this resulted in about a 1 percent markup over regular costs.

The estimates above were only about costs and did not take account of revenue. Based on the amount of water consumed, the water and wastewater tariffs for the assumed levels of usage are around one-quarter of the cost of water only. This provides a revenue offset of JD1.5million. Thus, the full net cost of water and wastewater for refugees outside the camps in 2013 is JD25million. It is estimated that the cost of water inside the camps is about half as much, and when applied to the refugees in the camps accounts for an additional JD5million.

The largest and possibly the most controversial cost is capital. In most of the other sectors, it was assumed that capital was implicitly included in the costs. However, the predominant view is that this sector is significantly undercapitalized. How undercapitalized is an outstanding question, and determining the appropriate way to attribute the portion to the Syrians is not obvious. A government strategy paper produced between 2010 and 2011 by the MoWI estimated an annual capital need of JD419million for around 14 years (JD5.8billion) to rehabilitate the water sector.¹⁸ The most recent government strategy paper (referred to above) suggests that the risk to the strategy is that the investments of JD4.8billion plus \$1billion for the Red-Dead project will not take place. These two estimates are surprisingly similar.

There are several other considerations. First is the extent of donor and possibly private participation. When the water sector was first developed, donor grant financing was approximately 27 percent of total financing. While the current amount of grant financing is substantially less than that amount, there is considerably more private financing. It is difficult to know how to treat this, but the analysis in this study assumed that the government will only be responsible for 73 percent of the capital.

Experts from MoWI and USAID suggest that the capital needed for wastewater is approximately double that which is needed for water. Taking account of this information and applying it on a per capita basis implies JD166 per capita. Multiplying this by the total number of refugees results in a capital cost attributable to the Syrians of JD76million in 2013 and JD106 million in 2014. Although approached differently, the

¹⁸ Zoubi, M., 2011.

capital cost calculations attributable to the Syrians in the government strategy paper are of a similar magnitude.¹⁹

An alternative approach would be to provide an assessment on a project-by-project basis and consider the type of financing, its budgetary effect, and the net impact of the Syrian refugees on each project. In light of the large number of water and waste projects—both real and anticipated—and the plethora of donors and financing strategies, undertaking this type of approach would take an inordinate amount of time. However, it is useful to cite two examples of the impact that the Syrians have had on water projects. First, the government is adding new connections with larger pipes to supply water to the north in light of the large inflow of refugees. Second, the new southern Disi Aquifer was anticipated to cover all of Jordan's water needs until 2022. However, with the rise in consumption, largely as a result of the influx of Syrian refugees, new complementary sources are now predicted to be needed by 2017. Admittedly, the capital stock calculation in this analysis is only an estimate, but it is based on a clear and reasonable set of assumptions. This is one area where more work is needed.

The advantage of the analysis in Method 1 is that it recognizes that average cost pricing can be misleading, due to the exceptional costs associated with water. Nevertheless, two other approaches were also used. These other methods both have drawbacks, which are described above. They likely ignore the true capital costs, but their advantage is that they use fiscal outturn data. Both Methods 2 and 3 combine the budgets of all of the water companies, the water authority, and the ministry. Method 2 calculates a per capita subsidy and applies it to the Syrians both inside and outside the camps.²⁰ The sum of the budgets less revenue is JD195million in 2012 or a per capita cost of JD30.5. Multiplying this by the number of refugees results in a net cost of JD14million, substantially less than the amount calculated above.

Method 3 also uses the combined budgets, but then applies the Jordan population growth rate to the value in 2012 and subtracts that from the projected outturn in 2013, attributing this difference to the Syrians. While this still does not capture undercapitalization, it will capture some of the marginal costs. While the value is still significantly lower than the value from Method 1, it probably captures a large portion of O&M costs attributable to the Syrians. It is reassuring that this number (JD18million) is close to the direct costs from Method 1 (JD22.9million) and is higher than the value from Method 2.

The expected increase in the cost in 2014 is similar to the growth in the population of the refugees since there are only minimal differences between the costs in and outside the camps.

¹⁹ The government estimates capital costs of JD6,600 per subscriber for wastewater and JD3,000 for water. Since there are approximately 5.5 people per household and capital is assumed to be depreciated over 10 years, this is approximately JD174 per capita.

²⁰ The budgets of the ministry and various other water entities are found in the appendices.

OTHER CONSIDERATIONS

The analysis provided by the government included one other cost that is not included in this analysis—opportunity cost. The government analysis argues that if water is used for agriculture it could result in as much added value as JD80 million. While some studies have shown that there is a high potential return from water used in agriculture, this is currently not the case.²¹ If it were, it should be done independent of the Syrian refugee issue. Furthermore, it does not seem appropriate to calculate both the actual and opportunity costs. Only one of these is relevant.

G) PUBLIC WORKS—MUNICIPALITIES

Most of the public works that are relevant to this study are provided by the municipalities rather than the central ministries. This includes waste management, city lighting, and repair and construction of town and city roads. The municipalities receive substantial central government support, and they are running deficits and borrowing from the City and Village Development Bank (CVDB) through loans and overdrafts. The problem is that information from the municipalities is poor, and in some cases, nonexistent. However the CVDB, which provides support and financing to the municipalities, has information by municipality (except Amman) for 2009–2011 and partial data for 2013. Of relevance to this study is their estimated aggregate expenditure of JD158million in 2013, of which only JD67million are covered by the municipalities' own revenue²² (see Table 17).

TABLE 17: FISCAL COST OF THE MUNICIPALITY SUBSIDY FOR SYRIAN REFUGEES

	2010	2011	2012	2013	2014
Expenditures					
Total	143,165,430	144,263,115		158,238,528	
Current	102,196,648	121,877,182			
Salaries, wages and bonuses	74,382,661	93,803,753		101,148,757	
general and administrative	27,813,987	28,073,429			
capital expenditures	40,605,699	21,963,889			
Financial investments	363,083	422,044			
Revenue					
Total	143,022,550	140,321,459		136,623,269	
government support	67,015,820	66,728,671		69,843,891	
own revenue	69,498,998	68,568,595		66,779,378	
aid	4,733,325	3,229,651			
investment income	1,774,407	1,794,542			
Balance	(142,880)	(3,941,656)		(21,615,259)	
Method A: per capita approach					
Government supported expenditures	67,158,700	70,670,327		91,459,150	
Population (exc Amman)	3,317,873	3,393,353	3,470,550	3,531,399	
Per capita net expenditure	20.2	20.8	21.8	25.9	26.7
Number of refugees out of camps	-	-	21,374	326,110	519,578
Expenditure for Syrians out of camp	-	-	465,616	8,445,871	13,860,154
Method B: Growth Approach					
Government supported expenditures		70,670,327	75,602,838	81,236,362	
				10,222,788	
Depreciated capital cost				6,725,089	6,725,089
Total Expenditure for Syrians out of				15,170,960	20,585,243
of which direct cost				10,222,788	13,860,154
Data from MOPIC and City and Village Development Bank					

²¹ See *Water public expenditure perspectives working paper*, 2011. This paper, funded by USAID, puts a very low return on water used for agriculture at the current time. The paper argues that "Jordan Valley Authority sells much more water for agriculture than industrial applications; the revenues from each sector are about the same."

²² Municipalities own revenues come from municipal taxes and fees

The per capita value of these expenditures less the municipalities' own revenue (excluding Amman) is around JD26. This per capita value, referred to as Method A, was applied to the refugees out of the camps and implies a subsidy of JD8.5million in 2013 and JD13.9 million in 2014. While including 2013 in the per capita calculation using the Jordanian population as the base may be viewed as an overestimate since refugees were already using services, the counter argument is that the 2013 forecasts were done before the large refugee influx.

In Method B, an alternative approach led to an even larger value. The 2011 expenditures were assumed to grow in line with population and inflation to produce a baseline figure for 2013. This was then compared to the 2013 expenditures data provided by CVDB. The difference between the two is JD 10.2million, and can be attributed to the Syrian refugee crisis. This is slightly above the estimate from Method A.

The northern governorates have faced heavy demands on their capacity to deliver services. According to a recent United Nations Development Program (UNDP) study, among the municipalities in Irbid and Mafrq governorates, solid waste management was cited as the most affected urban service in 33 of the 36 municipalities. The Syrian refugees residing outside of the camps have added additional pressure on municipalities already struggling to provide essential services to their constituents. In solid waste management, the influx of refugees is estimated to have resulted in 340 tons of additional daily waste, according to the aforementioned UNDP study. As a result, municipalities face a shortage of equipment and the over usage of existing assets results in higher maintenance costs and accelerates the depreciation of the equipment.²³

Estimates were put together for the government to capture the municipality capital needs.²⁴ However, these estimates show the same needs for every greater municipality, which is not plausible because there are significant Syrian refugee population density differences across the governorates (see Table 18). Furthermore, even for Greater Irbid, which probably has the greatest need based on refugee population (outside the camps), the capital requested is multiple times their current stock of some equipment even though the Syrians at the end of November represent only about 11 percent of the Irbid population. For example, in Greater Irbid they currently have 13 garbage compactors, while the government estimate claims they need an additional 30 compactors just to deal with the refugee crisis effect (See Appendix 8 on capital equipment for municipalities for details).

²³ UNDP, 2013.

²⁴ MoPIC, September 2013.

TABLE 18: SYRIAN POPULATION DENSITY IN THE NORTHERN GOVERNORATES—MID 2013

	Irbid	Mafrq	Jarash	Ajloun	Zara
Syrians	124662	57446	10674	9966	45158
Population	1137000	300000	192000	147000	160000
Syrians in governate relative to total Syrians	22.6%	10.4%	1.9%	1.8%	8.2%
Syrian share relative to Jordan population	11.0%	19.1%	5.6%	6.8%	28.2%
1/City and Village Land Bank and UNHCR					

Nonetheless, a set of capital requirements was estimated for these governorates, based on the capital equipment requirements in the earlier government study even though the information provided by CVDB imply this may be an overestimate.²⁵ The capital requirement estimate for Irbid is applied to the other municipalities, based on the net addition of Syrians.²⁶ The fiscal cost is based on 10-year capital depreciation and is around JD9.5million. Thus, the total fiscal cost for municipalities is around JD18million in 2013 and JD23.4 million in 2014. The total non-depreciated capital estimate in this study came close to half of the government's; however, as mentioned previously, this study is depreciating the value over several years, while the government paper attributes the full cost to the current year. The fiscal costs in 2014 rise proportionally less than the refugee population because the capital costs are unchanged.

H) SECURITY

The security sector has several responsibilities related to the Syrian refugees. In addition to their regular role within Jordanian communities, the Gendarmerie, Civil Defense, and Police (Public Security) are responsible for providing security services for the refugee camps. In contrast to these three services that provide regular services to the camps, the military operates very differently. The military's traditional security role inside Jordan is to become involved only in the case of riots or mass demonstrations, and only when the Police and the Gendarmerie need assistance. However, with regard to the refugees, the military have become the first responders, and are responsible for assisting refugees on arrival and transporting them from the border. Furthermore, compared to the pre-conflict period, they have substantial added aerial and ground responsibility as they patrol and receive refugees along the 378 kilometers of the border.

In order to provide security within the camps, the Gendarmerie, Civil Defense, and Police have withdrawn manpower and equipment from other parts of the country. Not surprisingly, this has reduced the quality of services in their traditional areas of responsibility in local communities. Table 19 supports this conjecture. The Police have observed an increase in crime and disturbances in areas with high refugee populations.

²⁵ MoPIC, September 2013.

²⁶ Details of this calculation are in Appendix 8.

Below are some key statistics of crimes committed by Syrian refugees inside and outside the camps.

TABLE 19: CRIMINAL ACTIVITY IN JORDAN RELATED TO SYRIAN REFUGEES

	2011	2012	Oct 2013 YTD	Total
Outside Camps				
Number of crimes committed by Syrians	981	1836	2343	5160
Of which:				
Drug related crimes	48	99	84	231
Sexual crimes	18	62	85	165
Theft	151	281	306	738
Number of Syrians currently detained in Jordanian Prisons	15	141	105	261
Number of Syrians detained and released from Jordanian Prisons	657	835	297	1789
Number of Syrian related protests and riots				211
Inside Camps				
Number of different, cases incidences and complaints				243
Smuggling attempts				2556
Sexual crimes				6

The security sector provided the most detailed data of any sector for this study. The estimated cost for security is substantial. In areas such as health and education, the costs of the camps are covered by the donors. However, the security related to the camps is a direct cost to the Government of Jordan. This is then combined with the indirect costs of security outside the camps. It is therefore not surprising to see that the cost of security services is greater than would be indicated by a per capita calculation.

The Gendarmerie, Civil Defense, and Police provided a detailed list of all their expenditures related to the camps. Less detailed information was provided by the Joint Armed Forces.²⁷ Although in some cases the camp costs represent relocation or shift of resources from other areas, this analysis assumed that additional costs will result as the equipment and manpower are being withdrawn from other parts of the country. For capital goods, straight line depreciation was used with varying depreciation periods depending upon the type of equipment. The detailed analysis is provided in the Security Appendices 5, 6, and 7 and the results shown in Tables 20, 21, and 22.

²⁷ The intelligence service provided some aggregate cost estimates, but for security reasons were not in a position to provide a detailed breakdown of their costs related to the refugees.

Some experts have questioned including camp costs such as food and uniforms, but these do represent additional costs. In the case of the Police, for example, instead of eating at home, their service must provide them with food. Furthermore, the equipment and other supplies that are used for the camps tend to deteriorate at a much faster pace given the conditions in the refugee camps.

For outside the camps, a per capita calculation was used for the Police (see Table 20), Civil Defense (see Table 21), and Gendarmerie (see Table 22), similar to what was done in other sectors. Essentially, the quality of services in the governorates deteriorates as security force is servicing a larger number of people, due to the increase in population from the refugees residing in urban areas outside of the camps. In fact, a large number of people have observed that the security situation in the governorates has deteriorated significantly since the influx of Syrians. This observation is consistent with Table 19, but at the present time there is no data to compare total crimes in Jordan before and after the influx of the refugees.

The first draft of these estimates was shared with experts from the respective security bodies, who provided us with comments and feedback. Particularly, the Public Security Directorate expressed their strong view that they believe our numbers for the Police to be underestimates especially for 2012. They provided a series of detailed comments, which were examined thoroughly, but did not lead to any amendments to our estimates.

TABLE 20: FISCAL COST OF THE POLICE FOR SYRIAN REFUGEES

	2012	2013	2014
Total current expenditures	473,585,000	494,200,000	536,500,000
Total Capital	28,965,000	22,700,000	26,700,000
Total current and capital expenditures	502,550,000	516,900,000	563,200,000
Population	6,388,000	6,500,000	6,690,000
Refugees	36,374	457,395	635,059
Refugees in camps	15,000	131,285	115,481
Per person cost - current cost	74.14	76.03	80.19
Per person cost - Total cost	78.67	79.52	84.19
Cost of refugees outside camps	1,681,522	25,933,268	43,740,828
Current cost of Police in camp	2,393,170	10,064,558	9,351,089
Capital cost of Police in camp	258,715	305,265	1,333,341
Total cost of Police]	4,333,407	25,933,268	54,425,258
of which direct cost	2,651,885	10,369,823	10,684,430
% of own budget	1%	5%	10%
Syrian % of population	1%	7%	9%
Data from GBD and Public Security Department			

TABLE 21: FISCAL COST OF CIVIL DEFENSE FOR SYRIAN REFUGEES

	2012	2013	2014
Current Expenditures			
Total capital expenditures	22,560,000	19,300,000	22,500,000
Total current and capital expenditures	162,260,000	164,700,000	183,500,000
Population	6,388,000	6,500,000	6,690,000
Refugees	36,374	457,395	635,059
Refugees in camps	15,000	131,285	115,481
Per person cost - current cost	21.87	22.37	24.07
Per person cost - Total cost	25.40	25.34	27.43
Cost of refugees outside camps	542,919	8,263,125	14,251,495
Current cost of Civil Defense in camps	603,949	1,199,965	1,087,183
Capital cost of Civil Defense in camps	330,100	330,100	330,100
Total cost of Civil Defense]	1,476,967	9,793,190	15,668,778
of which direct cost	934,049	1,530,065	1,417,283
% of own budget	1%	6%	9%
Syrian % of population	1%	7%	9%
Data from GBD and Civil Defense Department			

TABLE 22: FISCAL COST OF GENDARMERIE FOR SYRIAN REFUGEES

	2012	2013	2014
Current Expenditures			
Total current expenditures	140,036,457	150,500,000	166,900,000
Total capital expenditures	9,364,290	13,400,000	15,100,000
Total current and capital expenditures	149,400,747	163,900,000	182,000,000
Population	6,388,000	6,500,000	6,690,000
Refugees	36,374	457,395	635,059
Refugees in camps	15,000	131,285	115,481
per person cost - current cost	22	23	25
per person cost - Total cost	23	25	27
Cost of refugees outside camps	499,892	8,222,988	14,134,998
Current cost of Gendarmerie in camps	1,009,093	8,831,923	7,957,761
Capital cost of Gendarmerie in camps	535,175	535,175	535,175
Total cost of Gendarmerie	2,044,160	17,590,086	22,627,934
of which direct cost	1,544,268	9,367,098	8,492,936
% of own budget	1%	11%	12%
Syrian % of population	1%	7%	9%
Data from GBD and Gendarmerie Department			

The estimated costs for the military include only the camp/border-related direct expenditures (see Table 23). The indirect effect does not apply to the military forces, because the role of the military is primarily focused on external security and border control. Most recently, the military's costs have been increasing as more of the refugees are coming in via the most northeast border where conditions are very harsh, and the refugees must then be transported to the camps in the northwest. This was not taken into account.

TABLE 23: FISCAL COST OF THE MILITARY FOR SYRIAN REFUGEES

	2012	2013	2014
Current Expenditures			
Total current expenditures	865,997,000	834,000,000	888,500,000
Total capital expenditures	30,175,000	28,000,000	30,000,000
Total current and capital expenditures	896,172,000	862,000,000	918,500,000
Based on cost of the Jordanian joint armed forces from 2011 until mid-Nov 2013			
# of months covered	12	12	12
Monthly cost O&M	4,080,360	4,080,360	4,308,860
Annual cost	48,964,316	48,964,316	51,706,317
personnel	8750	8750	8750
avg monthly salary	420	420	420
personnel	44,100,000	44,100,000	44,100,000
uniforms	2,012,500	2,012,500	2,012,500
food	13,610,625	13,610,625	13,610,625
Total cost on the Jordanian joint armed forces	108,696,611	108,696,611	111,438,612
of which direct cost	108,696,611	108,696,611	111,438,612
% of own budget	12%	13%	12%
Syrian % of population	1%	7%	9%
Other security			
Based on cost of other security from the beginning of crisis till end of 2013			
# of months covered	12	12	12
Monthly cost	224,412	224,412	224,412
Annual Cost	2,692,941	2,692,941	2,692,941
Total Military and other Security Cost	111,389,552	111,389,552	114,131,554
Data from GBD and Defense Department			

Estimates for the security sector appear reasonable, although they are relatively larger than other sectors when their refugee spending is compared to their total budgets.

One other method was used for the Police. They provided the number of incidents/activities where they were involved and the cost on a per incident basis (see Table 47 in Appendix 7). This is not an additional cost, because equipment and personnel for the camps were already included there, but rather provides an alternative way to estimate costs. The estimates of the two approaches were reasonably similar, adding some confidence in the quality of their data.

The security sector accounts for JD165million in 2013 and JD207million in 2014. The more modest growth in security relative to other sectors in 2014 is because the camp costs are either unchanged or fall slightly, due to the fact that the assumed number of refugees in the camps is not expected to rise much and the security camp costs are relatively fixed. Only the indirect costs increase in proportion to the rise in the number of refugees.

IV. OFFSETTING REVENUE & A SOCIAL SAFETY NET

There are a few elements that may appear to be missing from the analysis. The first are tax revenue offsets due to a rise in consumption and output as the Syrians spend some of their own accumulated savings, and donors purchase items for the camps. However, the evidence does not support either of these conjectures. First, the data on both value-added tax (VAT) and income tax have not risen. While there may be a multitude of reasons for this, there are some valid arguments why the Syrian influx has not affected tax revenue. First, most of the goods are imported (which have little added value) or are considered basic goods and are either exempt from VAT or are taxed at very low rates. In fact, some have argued that Jordanians are not purchasing middle or high-end tax items because of the increased uncertainty created by the crisis. What is observed is that low-end spending by Syrians and the UN is replacing high tax purchases. The net effect is minimal.

Income tax may not be increasing because illegal Syrian workers are replacing Jordanians in the workplace. Rather than Syrians adding to tax revenue, the replacement of tax-paying Jordanians by non-taxpaying Syrians might produce a negative income tax effect.

If the above labor replacement is taking place, fiscal costs could increase in the form of unemployment insurance and increased reliance on the social safety net. However, there is little reason to support either of these conjectures. First, to be eligible for unemployment benefits from the Social Security Corporation, a person must have worked for several years and in firms that register their employees in Social Security. These are typically not the people being replaced. Second, and more importantly, neither the Social Security system nor its unemployment component is government funded. Rather, any unemployment payments are similar to borrowing from one's own savings account, because it diminishes the size of the unemployed person's pension account.

A social safety net should provide support for unemployed Jordanians in lower-paying jobs, but the facts do not support this. The reason is that the social safety net in Jordan is not well-developed. The National Aid Fund has a meager budget, and there is little evidence of an increase in its spending level. As should be apparent, instead of a social safety net, the government relies on subsidies of food, electricity, and water, and these are not directly affected by income level.

For those reasons, the analysis did not account for these factors.

V. COMPARISON TO OTHER ESTIMATES

There have been a number of previous estimates attempting to capture the fiscal costs of Syrian refugees.²⁸ Some do not include all sectors, while others capture more than just the fiscal costs. For example, a recent estimate of \$2.3billion in 2013 and \$2.7billion in 2014, attributable to the UN, has been widely referenced in the press. But that analysis is not really comparable to the estimates in this study because the UN estimate includes potential UN expenditures for Syrian refugees in addition to those of the Government of Jordan, and the estimate includes both humanitarian and development needs.²⁹

The current set of estimates presented in this study is in the range of the previous work, but there are some important differences. Some of the reasons for the differences include:

- The Ministry of Planning and International Cooperation (MoPIC) estimates are much larger than most other estimates, partly because they included the full capital costs in the first year. Even if an adjustment is made to depreciate capital, the MoPIC estimate is still the largest. It appears that this may be because they also include some donor-financed fiscal costs, and possibly some double counting of electricity costs.
- The largest variation is in the water estimates. Some of that is explained by the exclusion of capital costs. Also, some of the estimates excluded wastewater, which is an important component. The estimate in this study was on the higher side since wastewater is included and there is a large capital component.
- Although the internal Ministry of Finance (MoF) estimates are similar to this study's estimates, there are major differences in the sectors.
- This study's estimate of security stands out as being the largest of other studies. This is partly because of the inclusion of both direct and indirect costs. It may also be due to the fact that very detailed data are used to calculate the camp security costs (see security appendices).

²⁸ At the time this study was written, there were two estimates produced by MoPIC (April and September 2013), an MoF internal estimate, an estimate sponsored by the Adenauer Foundation, an unpublished World Bank estimate, and a study by the Economic and Social Council.

²⁹ At the time this study was written, there was no available information that explained how these estimates were calculated.

VI. SCENARIO: HOW TO TREAT SYRIANS WHO WERE IN JORDAN BEFORE 2011

Before the conflict in Syria and the influx of a large number of refugees, there were as many as 700,000 Syrians many of whom were not permanent residents in Jordan, but tended to move back and forth between the two countries. They were farmers, traders, and businessmen. When the conflict erupted, apparently many of them did not return to Syria, but chose to remain in Jordan, and sometimes even brought their families. Very few have registered as refugees for reasons discussed in the background section. Some government officials have argued that even though these Syrians are not refugees, they should be included in an estimate of the fiscal costs.

There are legitimate arguments on both sides of this issue. On the one hand, they have not chosen to sign up as a refugee and therefore should be treated no differently than any foreign national in the country who uses services. On the other hand, they may not want the stigma of being designated as a refugee, but fully intend to return back to Syria if the fighting stops. Whether or not this suggestion is valid, a scenario is presented that examined including these Syrians in the fiscal cost. In the scenario, all of the additional Syrians were assumed to be outside the camps, since that is where they reside now. Furthermore, their demographics are different, because they were assumed to have few school-aged children.³⁰

This scenario more than doubles the number of Syrians in 2013, and it doubles the fiscal effects. It shows a total cost of JD883million in 2013 and JD1 billion in 2014. Not surprisingly, the per capita costs decline because of unchanged fixed costs. Furthermore, as was seen in the comparisons between 2013 and 2014, the effects tend to vary by sector, because it depends on fixed costs and the relative size of in-camp and out-of-camp expenses.

³⁰ The reason for this demographic assumption is that the 2012 historical school enrollment figures indicate a relatively modest non-Jordanian population and only a small number of Syrian school-aged children would be consistent with this nationality data.

TABLE 24: SCENARIO—THE EFFECTS OF PRE-CRISIS SYRIANS INCLUDED AS REFUGEES

	our current estimates	our current estimates	accounting for Syrian immigrants	accounting for Syrian immigrants
	2013	2014	2013	2014
Total JD	442	617	883	1,002
Total US\$	624.9	870.9	1247.3	1415.3
Health	51.67	84.84	110.69	140.19
Education	26.73	41.95	75.04	87.78
Public Works	15.17	20.59	43.91	46.83
Food & Feed & LP gas	19.32	30.30	51.12	61.48
Bread	16.35	23.98	43.75	49.12
LPG	2.98	6.32	7.37	12.36
Security	164.71	206.85	250.63	278.16
civil defense	9.79	15.67	24.51	29.76
gendarmarie	17.59	22.63	32.24	36.60
police	25.93	54.43	82.49	97.67
military and other	111.39	114.13	111.39	114.13
Electricity	57.31	82.30	97.82	107.34
Water	107.5	149.8	253.9	280.3
Jordan GDP (JDm)	24,054	25,930	24,054	25,930
% of GDP	1.84%	2.38%	3.67%	3.86%
population	6.50	6.69	7.18	7.30
refugees	457,395	635,059	1,132,395	1,242,559
refugees in camps	131,285	115,481	131,285	115,481
JD cost per refugee	967	971	780	806
% of budget	6%	9%	13%	14%
Gvt Expenditures/GDP	29%	29%	29%	29%
refuges/population	7%	9%	16%	17%
exchange rate	0.708	0.708	0.708	0.708

VII. CONCLUSION

This study estimated the fiscal cost of Syrian refugees on the Jordan budget. There have been other studies, but they tended to look at the broader economic and humanitarian costs or a general “needs assessment.” The estimates in this study included both the direct costs, which capture actual spending as seen in the budget outturns, and indirect costs, which are related to quality deterioration. The latter were measured as the expenses that are needed to ensure that Jordanians are no worse off than they were before the influx of refugees.

The estimates were calculated on an annual basis for 2013 and 2014. The estimates were put in the context of an annual budget and use the average number of refugees during the year (457,000). The estimates were done on a sector-by-sector basis, in consultation with sector specialists and ministry officials, and used water and electricity tariffs and their production costs, operational and capital costs for security at the camps, healthcare costs and number of medical procedures for Syrians, per unit costs of municipal government equipment, and arrears for expenses related to Syrians, etc. Also, budget data were used. In most sectors, the study used several methods to provide a degree of comfort with the estimates.

There were several key issues that were taken into consideration in this study. The estimates differentiate costs for refugees depending on whether they reside in the camps or Jordanian communities. This may be one of the key reasons for differences in fiscal costs compared to other studies. Donor-financed expenditures were excluded and revenue paid by refugees in a sector (for example, water and electricity) was taken account of in the calculations. Estimates for capital expenditures were incorporated in cost data or a depreciated value of the needed capital was used.

The estimate for fiscal costs for the budget is 1.8 percent of GDP (JD442million) in 2013, a per capita of JD967/refugee. The estimate for 2014 is considerably larger (JD 617million and 2.4 percent of GDP), mostly because the number of refugees is greater (635,000). Approximately 60 percent of the costs are direct (budgetary expenditure).

Each sector has unique characteristics. For food and LPG, per unit subsidy information is used, but the bread consumed in the camps supplied by the donors and purchased at market price is excluded. The values of these two sectors are not large. Education is also small because a large portion of it is being covered by donors. The largest educational expense is the indirect costs of quality deterioration.

In this study, four different methods were used for health, three of which produced about the same estimate. Vaccinations and an estimated cost for displaced Jordanians based on arrears information was added to these costs to arrive at the total fiscal cost for health.

Electricity cost calculations also used tariff and cost data, and these were supplemented by using information about total loss in the sector to capture possible pass-through of subsidies.

The estimates for water and wastewater were largely based on some very detailed work from the MoWI, using tariff and operating cost data supplemented by marginal cost effects (for example, increased cost of demineralization). However, a fairly large estimate for capital costs was also included, because there is a critical need to address water capacity problems that have been exacerbated by the influx of Syrians.

Information for municipal governments was scarce. The per capita expenditures, not supported by own revenue, was used. This was supplemented by some estimates of additional capital stock needed in the northern governorates.

The security sector had the largest expenditures related to the Syrians. That is because the Gendarmerie, Civil Defense, and Police had expenses directly related to the camps, but also quality deterioration as the number of Syrians outside the camps increased. The Joint Armed Forces also has sizeable direct expenses, because they are the first responders as the refugees cross the border.

BIBLIOGRAPHY

ACE International Consultant. 2011. *Repeat public financial management assessment following the PEFA methodology, final report: Jordan*.

IMF. March 2012. *Jordan: Staff report for the 2012 Article IV consultation*.

IMF. May 2012. *Jordan: Selected issues, IMF country report no. 12/120*.

IMF. December 2012. *Jordan: Request for a stand by arrangement—staff report; request for modification of performance criteria, IMF country report no. 12/343*.

IMF. May 2013. *Jordan: First review under the stand by arrangement, request for waivers of nonobservance of performance criteria, modification of performance criteria, and re-phasing of access—staff report*.

Inside Edge. September 15, 2013. “Economic update: The impact of Syrian Refugees on Jordan’s economy.”

Mhailan, M. May 2013. *Impact of Syrian refugees on Jordan’s Health Sector*[PowerPoint presentation].

Ministry of Municipal Affairs and MoF. June 2011. *Municipal financial bulletin for 2009, no. 2*.

MoE. 2011. Ministry of Education statistical yearbook, 2010–2011.

MoE. 2012. Ministry of Education statistical yearbook, 2011–2012.

MoF. 2013. *Estimated costs of Syrians in Jordan*[unpublished note of the Research Directorate].

MoPIC. April 2013. *Response plan for hosting Syrians by the Government of Jordan*.

MoPIC. September 2013. *Response plan for hosting Syrians by the Government of Jordan*.

MoPIC and UN. July 2012. *Needs assessment of displaced Syrians in Jordan*.

MoWI.n.d. *Structural benchmark action plan to reduce water sector losses*.

MoWI Directorate of Media and Water Awareness. 2011. *Annual report for the Water Authority*.

Relief Web. 2013. *Jordan polio vaccination campaign focuses on Syrian refugee children*. Retrieved from <http://reliefweb.int>.

Sommaripa, L. 2011. *Water public expenditure perspectives working paper*. Jordan Fiscal Reform Project II, USAID.

UNDP. 2013. *Jordan needs assessment*[Draft].

UNDP and MoPIC. November 2013. *Needs assessment review of the impact of the Syrian crisis on Jordan*.

UNESCO.2012. *Education in Jordan factsheet*.

USAID Institutional Support and Strengthening Program. 2012. *Water valuation study: Disaggregated economic value of water in industry and irrigated agriculture in Jordan*.

Wazani, K. W. May 2013. *The socio economic impact of Syrian refugees on Jordan*. Adenauer Foundation

Wikipedia. November 2013. *Water supply and sanitation in Jordan*. Retrieved from http://en.wikipedia.org/wiki/Water_supply_and_sanitation_in_Jordan.

World Bank. May 2013. Fiscal and socio economic impacts of Syrian displacement in Jordan: A preliminary assessment [Draft].

World Bank. July 2013. *Emergency project to assist Jordan partially mitigate impact of Syrian conflict, report no 78129 JO*.

World Bank. September 2013. *Lebanon: Economic and social impact assessment of the Syrian conflict*.

World Bank. 2013. "Maintaining stability and fostering shared prosperity amid regional turmoil." *Jordan Economic Monitor*.

Zoubi, M. 2011. *Jordan's water strategy*. MoWI.

APPENDIX 1: FOOD SUBSIDY

Monthly subsidy data were provided by the MoF. The Ministry of Trade and Industry has comparable data, but only provided information on flour. The value for 2013 is a forecast that uses 2013 and 2012 data to provide the forecast for December.

TABLE 25: WHEAT AND BARLEY SUBSIDIES 2010–2013 (JD million)

Month/year	2010	2011	2012	2013
Jan	3.2	14.5	20	23.5
Feb	7.2	15.7	20	22.8
Mar	6.7	12.5	17.8	20.3
Apr	4.5	15.3	18.4	23.7
May	5.2	24.4	18.2	25.4
Jun	7.4	19.9	18	24.3
Jul	8.1	18.4	15.1	21.9
Aug	9.3	16.8	20.6	21.6
Sep	9.5	18.1	17	19.2
Oct	14	20.4	18.3	22.4
Nov	7.4	18.9	15.2	21.3
Dec	28.1	23.3	20.8	
Total	110.6	218.2	219.4	272.2
1/MoF				

APPENDIX 2: LPG

TABLE 26: LPG SUBSIDY 2010–2013 12.5KG

JOD				
	2010	2011	2012	June 30 2013
Jan	9,774,309	18,627,866	17,503,772	8,157,362
Feb	8,588,952	15,257,475	19,150,472	6,305,910
Mar	6,833,676	11,812,903	20,987,604	4,048,447
Apr	4,805,201	8,824,169	12,873,391	3,054,831
May	4,645,320	7,964,255	9,333,283	1,536,258
Jun	3,793,466	7,838,661	6,700,281	620,121
Jul	3,269,941	6,758,183	5,391,286	
Aug	2,712,822	6,659,399	3,001,222	
Sep	2,619,198	6,159,384	5,518,794	
Oct	3,684,811	7,515,641	9,068,638	
Nov	5,633,498	12,279,585	9,473,622	
Dec	13,548,752	14,933,295	7,653,849	
Total TD				23,722,930
Total	69,909,946	124,630,814	126,656,214	
Avg Monthly	5,825,829	10,385,901	10,554,684	3,953,822

Source: MoF and Jordan Petroleum Refinery Company.

APPENDIX 3: FUTURE PRICES

TABLE 27: FUTURE PRICES OF COMMODITIES

wheat		
Contract	Price	ann avg
ZWY00 (Cash)	659	
ZWZ13 (Dec '13)	645	
ZWH14 (Mar '14)	654.6	
ZWK14 (May '14)	659.2	
ZWN14 (Jul '14)	656.4	
ZWU14 (Sep '14)	665.2	
ZWZ14 (Dec '14)	679	662.88
gas		
Contract		
NGY00 (Cash)	3.564	
NGZ13 (Dec '13)	3.699	
NGF14 (Jan '14)	3.745	
NGG14 (Feb '14)	3.751	
NGH14 (Mar '14)	3.742	
NGJ14 (Apr '14)	3.724	
NGK14 (May '14)	3.74	
NGM14 (Jun '14)	3.78	
NGN14 (Jul '14)	3.817	
NGQ14 (Aug '14)	3.831	
NGU14 (Sep '14)	3.821	
NGV14 (Oct '14)	3.833	
NGX14 (Nov '14)	3.894	
NGZ14 (Dec '14)	4.015	3.80775
crude oil		
Contract		
CLY00 (Cash)	93.82	
CLZ13 (Dec '13)	93.49	
CLF14 (Jan '14)	94.16	
CLG14 (Feb '14)	94.52	
CLH14 (Mar '14)	94.62	
CLJ14 (Apr '14)	94.68	
CLK14 (May '14)	94.43	
CLM14 (Jun '14)	94.17	
CLN14 (Jul '14)	94.07	
CLQ14 (Aug '14)	93.31	
CLU14 (Sep '14)	92.85	
CLV14 (Oct '14)	92.59	
CLX14 (Nov '14)	92.18	
CLZ14 (Dec '14)	91.56	93.595

Source: Data retrieved from <http://www.barchart.com>.

APPENDIX 4: ELECTRICITY TARIFF AND COST

TABLE 28: COST OF POWER GENERATION 2011–2013

			actual 2011	actual 2012	projected 2013
Generation	fuel costs	JD million	1,533	1,844	2,028
		JD per KWH	0.113	0.129	0.135
	capacity charges	JD million	193	218	244
		JD per KWH	0.014	0.015	0.016
	operational costs	JD million	89	138	175
		JD per KWH	0.007	0.010	0.012
Total Generation			1,815	2,200	2,448
Distribution	operational costs	JD million	115	129	137
		JD per KWH	0.008	0.009	0.009
	required returns	JD million	20	20	23
		JD per KWH	0.001	0.001	0.002
Total distribution			135	149	160
Economic Cost	Generation and Distribution		1,950	2,349	2,608
	Electric power sold	GWH	13,572	14,293	15,008
	Economic Cost	JD per KWH	0.144	0.164	0.174

1/ 2011 and 2012 - ERC; 2013 are own estimates

TABLE 29: ELECTRICITY CONSUMPTION IN KILOWATTS

Consumption block in KWH	Block tariff in JD	Tariff in JD	JTV flat fee in JD	Fils Al-Reef fee in JD	Waste flat fee	GAM fee in JD	Total bill in JD
50	0.033	1.65	1	0.05	1.667	0	4.6
100	0.033	3.30	1	0.10	1.667	0	6.3
160	0.033	5.28	1	0.16	1.667	0	8.3
200	0.072	8.16	1	0.20	1.667	0	11.2
250	0.072	11.76	1	0.25	1.667	0.25	15.1
300	0.072	15.36	1	0.30	1.667	0.50	19.0
350	0.086	19.66	1	0.35	1.667	0.75	23.6
400	0.086	23.96	1	0.40	1.667	1.00	28.2
450	0.086	28.26	1	0.45	1.667	1.25	32.8
500	0.086	32.56	1	0.50	1.667	1.50	37.4
550	0.114	38.26	1	0.55	1.667	1.75	43.4
600	0.114	43.96	1	0.60	1.667	2.00	49.4
650	0.141	51.01	1	0.65	1.667	2.25	56.8
700	0.141	58.06	1	0.70	1.667	2.50	64.1
750	0.141	65.11	1	0.75	1.667	2.75	71.5
800	0.168	73.51	1	0.80	1.667	3.00	80.2
850	0.168	81.91	1	0.85	1.667	3.25	88.9
900	0.168	90.31	1	0.90	1.667	3.50	97.6
950	0.168	98.71	1	0.95	1.667	3.75	106.3
1000	0.168	107.11	1	1.00	1.667	4.00	115.0
1500	0.235	224.61	1	1.5	1.667	6.50	235.5
2000	0.235	342.11	1	2.00	1.667	9.00	356.0
2500	0.235	459.61	1	2.5	1.667	11.50	476.5
3000	0.235	577.11	1	3.00	1.667	14.00	597.0
1/ source ERC							

APPENDIX 5: CIVIL DEFENSE

The attached information was provided by Civil Defense for this study. The data were adjusted before they were used in the estimates in the main text of this study. For example, capital equipment was depreciated. Also, assumptions were made to annualize the operational costs for 2013 and provide a forecast for 2014. The capital data and monthly aggregates were provided directly to the authors by Civil Defense.

TABLE 30: CIVIL DEFENSE CAPITAL EQUIPMENT

Location	Machines					Labor		capital cost for machines	Annual depreciation (10 year schedule)
	Fire fighting	Ambulance	Quick intervention	Supply	Administration	Officers	Junior staff		
Manshih Al-alyan/Mafreq	-	2	1	-	-	2	42	320,000	32,000
Al-zatri/Mafreq	1	2	-	-	-	2	20	390,000	39,000
Rabbaa Al-serhan	2	2	1	1	1	4	49	898,000	89,800
Ramtha/Irbid	2	2	1	1	1	4	76	898,000	89,800
Sayber City /Irbid	1	1	1	-	1	2	45	485,000	48,500
Mrejeb Al-fhood	1	1	-	-	-	2	15	310,000	31,000
Total	7	10	4	2	3	16	247	3,301,000	330,100

TABLE 31: TOTAL OPERATIONAL COST OF CIVIL DEFENSE

Inside Camps	Cost (JD)
2011	140,988
Jan-Mar 2012	103,392
1-30 Apr/2012	61,485
1 May-30 Jun/2012	65,185
1 -31 July/2012	35,995
1-30 Aug/2012	63,906
1-30 Sep/2012	59,064
1-31 Oct/2012	62,421
1-30 Nov/2012	75,120
1-31 Dec/2012	77,381
2012	603,949
1-31 Jan/2013	77,165
1-27 Feb/2013	72,110
1-31 Mar/2013	80,459
1-30 Apr/2013	92,522
1-31 May/2013	101,880
1-30 Jun/2013	97,956
1 -31 July/2013	126,700
1-30 Aug/2013	127,537
1-30 Sep/2013	123,645
2013 Sept YTD	899,974
2013 Annualized	1,199,965
2014 Forecast	1,089,294

TABLE 32: TWO SAMPLE MONTHS OF CIVIL DEFENSE OPERATING COSTS

Financial cost for the period 1-31 Jan/2013				
Directorate	Incidence	Cost of Incidence /JD	Number of Incidences	Total cost
Irbid	30	27	30	810
North	(15) Ambulance Incidence	27	15	405
Mafreq	(1) Fire truck	400/Day including staff cost	31 Day	44,950
	(2) Ambulance	300/Day including staff cost	31 Day	
	(1)supply truck	100/Day including staff cost	31 Day	
	(1)Quick intervention	350/Day including staff cost	31 Day	
Mafreq	(1) Fire truck	400/Day including staff cost	31 Day	31,000
	(2) Ambulance	300/Day including staff cost	31 Day	
Total				77,165

Financial cost for the period 1-30 Apr/2013				
Directorate	Incidence	Cost of Incidence /JD	Number of Incidences	Total cost
Irbid	(168) Ambulance Incidence	27	168	4,536
North	(18 Ambulance Incidence	27	18	486
Mafreq	(1) Fire truck	400/Day including staff cost	30 Day	43,500
	(2) Ambulance	300/Day including staff cost	30 Day	
	(1)supply truck	100/Day including staff cost	30 Day	
	(1)Quick intervention	350/Day including staff cost	30 Day	
Mafreq	(1) Fire truck	400/Day including staff cost	30 Day	30,000
	(2) Ambulance	300/Day including staff cost	30 Day	
Zarqa	(1) Fire truck	400/Day including staff cost	30 Day	14,000
	(1) Ambulance	300/Day including staff cost	30 Day	
Total				92,522

APPENDIX 6: GENDARMERIE

The attached information was provided by the Gendarmerie for this study. However, in some parts, the data were adjusted before they were used in the estimates. For example, capital equipment was depreciated. Also, assumptions were made to provide estimates for 2013 and 2014

TABLE 33: GENDARMERIE CAPITAL COSTS

Total Capital Costs

	Quantity	Unit cost	Total
Equipment			
LMT Tank	218	1,000	218,000
9 mm gun	35	400	14,000
9mm holster	2,466	25	61,650
5.6 mm holster	51,000	0	15,300
hand grenade	778	20	15,560
14mm bomb	9,638	15	144,570
teargas	21	1,500	31,500
automatic gun	3	10,000	30,000
Automatic gun holster	19,000	1	14,250
Gelatin	25	120	3,000
Plastic Baton	25	10	250
Helmet	272	110	29,920
bullet proof vest	272	450	122,400
mission vest	250	25	6,250
Total			706,650
Annual depreciation (3 year schedule)			235,550
Vehicles			
armored car	1	22,000	22,000
riot bus	9	25,000	225,000
Pickup truck	1	15,000	15,000
soldier carrier	3	325,000	975,000
cavalry machine	8	130,000	1,040,000
4x4 discovery	1	50,000	50,000
exor truck	1	70,000	70,000
Total			2,397,000
Annual depreciation (8 year schedule)			299,625

TABLE 34: GENDARMERIE TOTAL OPERATING COSTS**Summary of Operating costs**

	2013	2014
Operating costs	8,831,923	7,970,361
Total Operating Capital Costs	67,615	61,379
Total Personnel	7,094,488	6,440,170
Other operating Costs	1,669,820	1,468,812
Total Food	1,151,021	1,044,864
Total Fuel	161,847	142,364
Total Clothes	356,952	324,031

TABLE 35: GENDARMERIE CAPITAL OPERATING COSTS**Capital Operating Costs**

	Quantity	Unit Cost	Total
Total Operating Capital Costs			67,615
Ammunition			8,440
9mm	3,500	0	700
5.56	20,800	0	6,240
machine gun	2,000	1	1,500
Machine matinenace 1	12	1,500	18,000
Machine matinenace 2	12	500	6,000
used LPG	2,345	15	35,175

TABLE 36: GENDARMERIE OTHER OPERATING COSTS**Other Operating Costs**

	Food	Fuel	Clothing	Total
Naddaf Camp	65,118	10,534	22,386	98,038
King Abdullah Garden Camp	61,523	21,067	19,246	101,836
Rajhi plus Zatari Camps	244,981	28,572	75,281	348,835
Rapid Prsponse plus Zatari Camps	91,840	31,601	28,188	151,629
Riba sarhan plus Zatari Camps	470,654	53,625	144,419	668,698
Mureijeb fhoud camp	155,826	11,181	48,867	215,874
KaramaHousing	61,079	5,267	18,565	84,910
Total	1,151,021	161,847	356,952	1,669,820

TABLE 37: GENDARMERIE PERSONNEL COSTS**Personnel**

Rank	Salary	Social Security	imin Cost	Monthly Cost/Emp loyee	employees	Total Cost	No. of employees	Annual Total Cost
Salary 1	963	125	109	1,198		-	2	31,138
Salary 2	844	110	95	1,049		-	5	68,195
Salary 3	672	87	76	836	3	32,594	8	86,917
Salary 4	622	81	70	773	7	70,320	25	251,143
Salary 5	600	78	68	746		-	31	300,557
Salary 6	545	71	62	677	11	96,788	32	281,565
Salary 7	510	66	58	633	14	115,267	104	856,267
Salary 8	503	65	57	625	24	194,885	194	1,575,323
Salary 9	487	63	55	606	29	228,340	369	2,905,431
Total					88	738,194	770	6,356,535

APPENDIX 7: POLICE

The attached information was provided by the Police for this study. They provided a tremendous amount of information, but only some of it is shown here. The data were adjusted before they were used in the estimates in the main text of this study. Table 38 summarizes the information that was used in the text. Table 47 shows an alternative way to estimate cost. It calculates the cost of each incident, and the results are very similar to the first method in 2013 (JD10.2 versus JD12.8). The two approaches should not be added together, because the first approach includes all the expenses and the second captures how they are used.

TABLE 38: POLICE SUMMARY TABLE (CAMPS)

JD	2012	2013	2014
Current Expenditures			
Salaries	1,540,146	6,454,397	5,847,759
Salaries admin (10%)	154,015	645,440	584,776
Food	496,906	1,628,536	1,475,473
Uniforms	44,700	185,780	168,318
Vehicles operation and maintenance	77,233	485,863	672,680
Other current costs	80,170	664,543	602,084
Total current expenditures	2,393,170	10,064,558	9,351,089
Capital Expenditures			
Machinery and Equipment	10,723	57,273	124,108
Other capital costs	247,992	247,992	247,992
Additional capital costs in 2014			961,241
Total capital expenditures	258,715	305,265	1,333,341
Total current and capital expenditures	2,651,885	10,369,823	10,684,430
Refugees in camps	15,000	131,285	115,481
per person cost - current cost	160	77	81
per person cost - Total cost	177	79	93

TABLE 39: POLICE SALARY COSTS

Rank	Monthly salary	Annual salary (13 m)	2011		2012		2013 FY	
			Number	Total paid	Number	Total paid	Number	Total paid
1	1,703	22,145	-	-	-	-	1	22,145
2	1,178	15,320	-	-	-	-	2	30,641
3	976	12,685	-	-	-	-	8	101,481
4	857	11,143	1	11,143	3	33,428	20	222,853
5	654	8,498	5	10,028	5	42,492	34	288,948
6	614	7,984	3	939,579	12	95,812	35	279,451
7	590	7,676	2	139,921	20	153,516	55	422,170
8	589	7,661	-	22,804	-	-	4	30,645
9	578	7,514	25	460,000	50	375,712	121	909,222
10	537	6,975	29	202,282	30	209,257	177	1,234,618
11	531	6,897	20	137,945	40	275,890	188	1,296,681
12	507	6,585	30	197,553	40	263,403	200	1,317,017
13	311	4,040	-	-	5	20,199	7	28,278
Salaries cost			115	2,121,254	205	1,469,709	852	6,184,151

TABLE 40: POLICE FOOD COSTS

	Cost of food/day	Number of staff	2011			2012			2013 FY		
			Deployment date	Days deployed	Cost	Deployment date	Days deployed	Cost	Deployment date	Days deployed	Cost
Zataari Camp	6.5	209				2012/07/29	155	210,568		365	495,853
Alyan	6.5	12				2012/03/08	298	23,244		365	28,470
Cybercity	6.5	59				2012/03/07	299	114,667		365	139,978
protection and	6.5	194						-	2013/01/13	352	443,872
Azraq Camp	6.5	73						-	2013/09/01	121	57,415
Badya	6.5	114						-	2013/01/13	352	260,832
EJC	6.5	65						-	2013/04/10	265	111,963
center	6.5	45	2011/03/15	291	85,118		74	21,645			
holding center	6.5	47	2011/03/15	291	88,901		249	76,070			
Stadium	6.5	41				2012/04/12	102	27,183			
Total Cost		859			174,018		1,177	473,376		2,185	1,538,381

TABLE 41: POLICE TEMPORARILY ASSIGNED STAFF

Number	Daily food	Daily wage	2012				2013 FY		
			Deployment Date	Days Deployed	Wage cost	Food cost	Days Deployed	Wage cost	Food Cost
1	6.5	27.73	10/3/2012	89	2,468	579	365	10,121.45	2372.5
3	6.5	21.3	10/3/2012	89	5,687	1,736	365	23,323.50	7117.5
3	6.5	20.87	9/26/2012	96	6,011	1,872	365	22,852.65	7117.5
11	6.5	19.4	9/26/2012	96	20,486	6,864	365	77,891.00	26097.5
8	6.5	19.16	9/26/2012	96	14,715	4,992	365	55,947.20	18980
12	6.5	18.29	9/26/2012	96	21,070	7,488	365	80,110.20	28470
					70,437	23,530			
							270,246.00	90,155.00	

TABLE 42: POLICE OPERATIONAL COSTS OF VEHICLES

	Fuel cost/day	Driver wage/day	Driver meals/day	Repairs cost/day	Daily operating cost	2012		2013 FY		2014 Forecast			
						Deployment date	Days deployed	Cost	Deployment date	Days deployed	Cost	Days deployed	Cost
Buses seconded from central transportation department to camps													
Nissan 20 seater	15	20.614	6.5		42	2012/08/05	23	969					
Albahouse 50 seater	26	20.614	6.5		53	2012/07/28	156	8,286		365	19,387	365	19,387
Albahouse 50 seater	26	20.614	6.5		53	2012/07/28	156	8,286		365	19,387	365	19,387
Coaster 20 seater	15	20.614	6.5		42	2012/09/26	96	4,043		365	15,372	365	15,372
Coaster 20 seater	15	20.614	6.5		42			-	2013/03/27	279	11,750	365	15,372
Coaster 20 seater	15	20.614	6.5		42			-	2013/03/27	279	11,750	365	15,372
Vehicles dispensed by planning department to camps													
Kia Optima	15	20.614	6.5	2	44			-	2013/05/12	233	10,279	365	16,102
Toyota fortner	15	20.614	6.5	2	44			-	2013/05/12	233	10,279	365	16,102
Mitsubishi Lancer	15	20.614	6.5	2	44			-	2013/04/14	261	11,514	365	16,102
Mitsubishi Lancer	15	20.614	6.5	2	44			-	2013/07/16	168	7,411	365	16,102
Chevorlet	15	20.614	6.5	2	44			-	2013/06/25	189	8,338	365	16,102
Nissan orvan	15	20.614	6.5	2	44			-	2013/06/11	203	8,955	365	16,102
Mitsubishi Pick up	15	20.614	6.5	2	44			-	2013/04/08	267	11,778	365	16,102
Suzuki Vitara	15	20.614	6.5	2	44			-	2013/08/27	126	5,558	365	16,102
Isuzu Pick up	15	20.614	6.5	2	44			-	2013/09/02	120	5,294	365	16,102
Mitsubishi Lancer	15	20.614	6.5	2	44			-	2013/01/14	351	15,484	365	16,102
Ford Pick up	15	20.614	6.5	2	44			-	2013/03/06	300	13,234	365	16,102
Kia Cerratto	15	20.614	6.5	2	44			-	2013/08/13	140	6,176	365	16,102
Kia Cerratto	15	20.614	6.5	2	44			-	2013/08/13	140	6,176	365	16,102
Kia Cerratto	15	20.614	6.5	2	44			-	2013/01/14	351	15,484	365	16,102
Mitsubishi Pick up	15	20.614	6.5	2	44			-	2013/03/06	300	13,234	365	16,102
Mitsubishi Pick up	15	20.614	6.5	2	44			-	2013/08/13	140	6,176	365	16,102
Mitsubishi Pick up	15	20.614	6.5	2	44			-	2013/08/13	140	6,176	365	16,102
Vehicles seconded to camp management department by different units													
Suzuki Vitara	15	20.614	6.5		42			-	2013/05/21	224	9,434	365	15,372
Mitsubishi Pick up	15	20.614	6.5		42			-	2013/05/01	244	10,276	365	15,372
Mitsubishi Pick up	15	20.614	6.5		42			-	2013/03/04	302	12,718	365	15,372
Hyundai bus	15	20.614	6.5		42			-	2013/03/04	302	12,718	365	15,372
Chevorlet	15	20.614	6.5		42			-	2013/05/24	221	9,307	365	15,372
Chevorlet	15	20.614	6.5		42			-	2013/03/21	285	12,002	365	15,372
Chevorlet	15	20.614	6.5		42			-	2013/05/24	221	9,307	365	15,372
Suzuki Vitara	15	20.614	6.5		42	2012/08/16	137	5,770		365	15,372	365	15,372
Mitsubishi Pick up	15	20.614	6.5		42	2012/08/16	137	5,770		365	15,372	365	15,372
Toyota bus	20	20.614	6.5		47	2012/08/16	137	6,455		365	17,197	365	17,197
Toyota bus	20	20.614	6.5		47	2012/10/15	77	3,628		365	17,197	365	17,197
Mercedes Tipper	25	20.614	6.5		52	2012/03/27	279	14,540		365	19,022	365	19,022
Mercedes Tipper	25	20.614	6.5		52	2012/03/27	279	14,540		365	19,022	365	19,022
Ford tipper	25	20.614	6.5		52	2012/12/27	4	208		365	19,022	365	19,022
Isuzu tipper	25	20.614	6.5		52			-	2013/04/08	267	13,914	365	19,022
Hyundai tipper	25	20.614	6.5		52			-	2013/04/09	266	13,862	365	19,022
Subtotal								72,493			464,931		626,461
Additional vehicle repair costs								4,740			20,932		26,626
Total								77,233			485,863		653,087
													436,042

TABLE 43: POLICE AIR MISSION COSTS

	Cost per unit	2012		2013		2013 FY	
		Minutes operated	Cost	Minutes operated	Cost	Minutes operated	Cost
Air missions	71	450	31,950	1,670	118,570	2,227	158,093
Current costs of printing IDs (ink +labels)			738		6,462		7,754
Media campaign for Syrians			10,254		89,746		107,695
Camp police stations maintenance			6,317		55,287		66,344
Main building maintenance			359		3,141		3,769
General maintenance at camp management and security stations			667		5,833		7,000
Administrative supplies			1,230		10,770		12,923
Riot damage repairs at Zataari			10,459		91,541		109,849
Cost of installing and maintaining ICT equipment			1,615		14,135		16,962
Cost of liasing with donor organizations			8,921		78,079		93,695
Family protection department work at camps			214		1,874		2,249
Police injuries			3,999		35,001		42,001
Cost of replacing staff while on training			3,447		30,173		36,207
Total			80,170		540,611		664,543

TABLE 44: POLICE CAPITAL COSTS—VEHICLES

	2012					2013 FY			2014 Forecast	
	Vehicle value	Daily depreciation	Deployment Date	Days Deployed	Cost	Deployment Date	Days Deployed	Cost	Days Deployed	Cost
Buses seconded from central transportation department to camps										
Nissan 20 seater		10.00	8/5/2012	23	230					
Albahouse 50 seater		13.33	7/28/2012	156	2,080.00		365	4,866.67	365	4,866.67
Albahouse 50 seater		13.33	7/28/2012	156	2,080.00		365	4,866.67	365	4,866.67
Coaster 20 seater		10.00	9/26/2012	96	960.00		365	3,650.00	365	3,650.00
Coaster 20 seater		10.00		-	-	3/27/2013	279	2,790.00	365	3,650.00
Coaster 20 seater		10.00		-	-	3/27/2013	279	2,790.00	365	3,650.00
Vehicles dispensed by planning department to camps										
Kia Optima	13500	4.62				5/12/2013	233	1,077.23	365	1,687.50
Toyota fortner	21500	7.36				5/12/2013	233	1,715.58	365	2,687.50
Mitsubishi Lancer	11000	3.77				4/14/2013	261	983.22	365	1,375.00
Mitsubishi Lancer	11000	3.77				7/16/2013	168	632.88	365	1,375.00
Chevorlet	15000	5.14				6/25/2013	189	970.89	365	1,875.00
Nissan orvan	20000	6.85				6/11/2013	203	1,390.41	365	2,500.00
Mitsubishi Pick up	15000	5.14				4/8/2013	267	1,371.58	365	1,875.00
Suzuki Vitara	13000	4.45				8/27/2013	126	560.96	365	1,625.00
Isuzu Pick up	15000	5.14				9/2/2013	120	616.44	365	1,875.00
Mitsubishi Lancer	11000	3.77				1/14/2013	351	1,322.26	365	1,375.00
Ford Pick up	10000	3.42				3/6/2013	300	1,027.40	365	1,250.00
Kia Cerratto	9000	3.08				8/13/2013	140	431.51	365	1,125.00
Kia Cerratto	9000	3.08				8/13/2013	140	431.51	365	1,125.00
Kia Cerratto	9000	3.08				1/14/2013	351	1,081.85	365	1,125.00
Mitsubishi Pick up	15000	5.14				3/6/2013	300	1,541.10	365	1,875.00
Mitsubishi Pick up	15000	5.14				8/13/2013	140	719.18	365	1,875.00
Mitsubishi Pick up	15000	5.14				8/13/2013	140	719.18	365	1,875.00
Vehicles seconded to camp management department by different units										
Suzuki Vitara		3.33				5/21/2013	224	746.67	365	1,216.67
Mitsubishi Pick up		3.33				5/1/2013	244	813.33	365	1,216.67
Mitsubishi Pick up		3.33				3/4/2013	302	1,006.67	365	1,216.67
Hyundai bus		3.33				3/4/2013	302	1,006.67	365	1,216.67
Chevorlet		3.33				5/24/2013	221	736.67	365	1,216.67
Chevorlet		3.33				3/21/2013	285	950.00	365	1,216.67
Chevorlet		3.33				5/24/2013	221	736.67	365	1,216.67
Suzuki Vitara		3.33	8/16/2012	137	456.67		365	1,216.67	365	1,216.67
Mitsubishi Pick up		3.33	8/16/2012	137	456.67		365	1,216.67	365	1,216.67
Toyota bus		3.33	8/16/2012	137	456.67		365	1,216.67	365	1,216.67
Toyota bus		3.33	10/15/2012	77	256.67		365	1,216.67	365	1,216.67
Mercedes Tipper		6.67	3/27/2012	279	1,860.00		365	2,433.33	365	2,433.33
Mercedes Tipper		6.67	3/27/2012	279	1,860.00		365	2,433.33	365	2,433.33
Ford tipper		6.67	12/27/2012	4	26.67		365	2,433.33	365	2,433.33
Isuzu tipper		6.67			-	4/8/2013	267	1,780.00	365	2,433.33
Hyundai tipper		6.67			-	4/9/2013	266	1,773.33	365	2,433.33
25 additional car recently purchased	395,000	135.27							365	49,375.00
Total					10,723			57,273		124,108

TABLE 45: POLICE OTHER OPERATIONAL COSTS

	Total cost	Life	Annual cost
Cost of issuing ID cards to refugees	200,140	3	66,713
Cots to ICT department	15,726	3	5,242
Joint operational room at zataari	5,000	3	1,667
Arms issued	523,110	3	174,370
Total Cost			247,992

TABLE 46: POLICE ADDITIONAL INVESTMENTS NEEDED IN 2014

	Total Cost	2014
Electronics and equipment	287,236	95,745
Vehicles and Fuel	3,349,400	418,675
Buildings	771,920	96,490
Weapons and ammo	284,406	94,802
furniture and supplies	166,585	55,528
overdrafts	200,000	200,000
Incentives	2,400,000	
Total	7,459,547	961,241

TABLE 47: ALTERNATIVE METHOD—COST PER INCIDENT/ACTIVITY

Inside camps (13 Jan 2013 - 1 Nov 2013)	2013
Cost of monitoring and inspection missions	
Number of tasks	9680
per task cost	350
Total inspection missions cost	3,388,000
Cost of fixed missions inside camps	
Number of tasks	240
per task cost	12840
Total inspection missions cost	3,081,600
Cost of dealing with crimes inside camps	659,664
Cost of managing press visits	
Number of visits	1,512
Cost per visit	165
Total cost of managing press visits	249,480
Cost of official Delegation visits	
Number of visits	174
Cost per visit	350
Total costs of receiving delegations	60,900
Cost of protecting International organization HQs and warehouses	
Number of vehicle tasks	3,400
cost per task	350
Total vehicle mission costs	1,190,000
Number of foot tasks	4,800
cost per task	240
Total foot mission costs	1,152,000
Total foot and vehicle missions cost	2,342,000
Costs from previous method that are additive in this method as well	
Air missions	118,570
Current costs of printing IDs (ink +labels)	6,462
Media campaign for Syrians	89,746
Cost of liasing with donor organizations	78,079
Family protection department work at camps	1,874
Annualized capital cost of issuing IDs	66,713
Cost of replacing staff while on training	30,173
Total other costs	361,444
Total costs Oct YTD	10,143,088
Total costs 2013 FY	12,812,322
Outside camps	
Number of protests	211
Cost per protest	3650
Total protest cost	770,150
Number of crimes	7587
Cost per crime	348
Total crime cost	2,640,276
Vehicle deployment	700
Cost per deployment	350
Total cost	245,000

APPENDIX 8: CAPITAL EQUIPMENT IN MUNICIPALITIES

Unfortunately, the data information is poor. There was some limited information on capital equipment from the City and Village Bank for Irbid, but not enough to provide a full assessment. The information would indicate that MoPIC had significantly over estimated the needs. Nevertheless, the approach taken was to use the MoPIC estimate as a base and scale the needs of other municipalities based on the number of Syrians.

TABLE 48: CURRENT AND PROPOSED CAPITAL EQUIPMENT IN THE MUNICIPALITIES

	\$ cost per unit 1/	Current number 2/ Greater Irbid	Proposed increase 1/ Greater Irbid	Proposed increase 1/ other Irbid
Compactors	141,243	13	30	85
Tipplers	70,621	25	20	85
Loaders	423,729	19	10	17
Tractors	33,898		20	34
Insecticide Machines	5,297	17	80	170
Pickups	14,124	51	30	85
Containers	35		3,000	8,500
Tons of Insecticide	1,412		10	17
Rotary Trash	150,000	51	40	17
Lighting Units	28		10,000	34,000
1/ MOPIC estimate				
2/ City & Village Bank				

TABLE 49: INCREASE IN MUNICIPAL CAPITAL (IN US\$)

	Irbid		Mafrq		Jarash		Ajloun		Zarqa		Total
	#	Value	#	Value	#	Value	#	Value	#	Value	
Compactors	115	16,242,945	61	8,662,904	7	932,237	6	881,884	29	4,075,571	30,795,541
Tipplers	105	7,415,205	56	3,954,776	6	425,583	6	402,596	26	1,860,574	14,058,734
Lauders	27	11,440,683	14	6,101,698	2	656,619	1	621,153	7	2,870,620	21,690,772
Tractors	54	1,830,492	29	976,262	3	105,058	3	99,384	14	459,295	3,470,491
Insecticide Machines	250	1,324,250	133	706,267	14	76,003	14	71,898	63	332,272	2,510,690
Pickups	115	1,624,260	61	866,272	7	93,222	6	88,186	29	407,548	3,079,489
Containers	11,500	402,500	6,133	214,667	660	23,101	624	21,853	2,886	100,993	763,113
Tons of Insecticide	27	38,124	14	20,333	2	2,188	1	2,070	7	9,566	72,281
Rotary Trash	57	8,550,000	30	4,560,000	3	490,713	3	464,208	14	2,145,309	16,210,230
Lighting Units	44,000	1,232,000	23,467	657,067	2,525	70,709	2,389	66,889	11,040	309,125	2,335,790
		50,100,459		26,720,245		2,875,432		2,720,121		12,570,873	94,987,130
Capital cost 2013											9,498,713
MoPIC		50,100,459		50,100,459		25,408,994		25,408,994		25,408,994	176,427,900
MpPIC capital cost 2013											176,427,900

Fiscal Reform II Project (FRP II)

**Mecca St., Noufan So'oud Alodwan St.
Abu-Al Dahab Building no. 22, 4th floor, office no. 3
840126 Amman, 11181 Jordan
Phone: + (962 6) 592 2819**

مشروع الإصلاح المالي ٢
Fiscal Reform II Project