

# Introduction

Greater Irbid Municipality (GIM) is one of the municipalities of the Hashemite Kingdom of Jordan. GIM is 100kms away from Amman, 20kms from the Syrian borders and has large areas of residential as well as commercial complexes that lack proper organization due to being an ancient city. GIM was divided into 23 areas.

Population of Irbid is around one million, 25% of which are non-Jordanians who have increased in numbers after the situation in Syria, creating challenges, infrastructure issues, increasing environmental issues and traffic jams in the governorate.

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The presentation will cover the following:

- Vehicles Department, its administrative structure and functions
- Status of the waste collection fleet before and after the Syrian refugees crisis
- Difficulties and challenges at work
- How to meet those challenges and find solutions
- Cooperation and partnership with international organizations

# Vehicles Department

A part of the administrative structure of GIM specialized in repair and maintenance of all operational vehicles and equipment of the Municipality totaling 348 including 112 vehicle for solid waste collection and transfer within the Municipality. The Department works on implementation of plans and programs that aim at upgrading the efficiency of those vehicles and sustainability of their operations.

Staff of the Vehicles Department include:

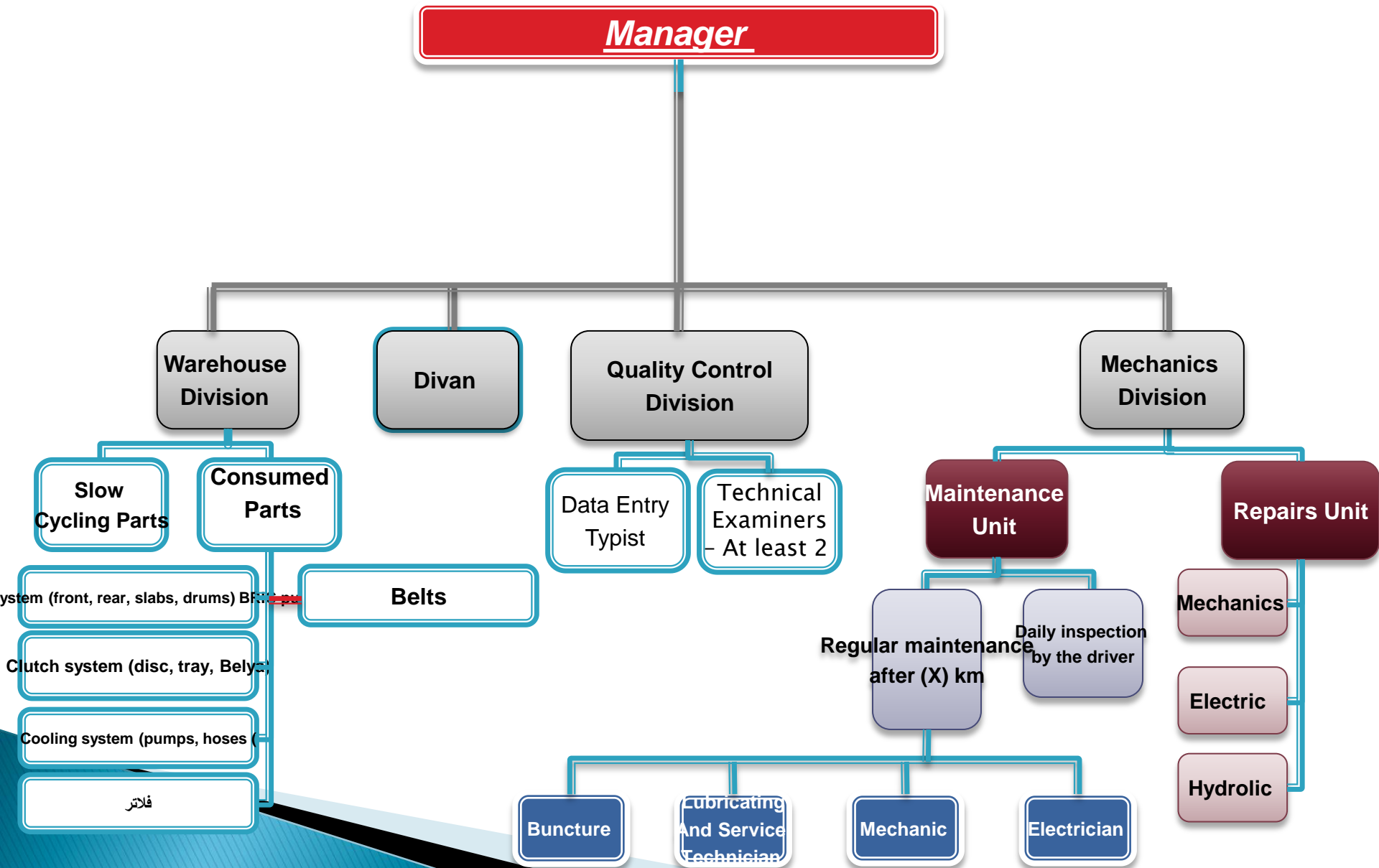
Count	Position
4	Mechanical Engineers
8	Admins and supervisors
59	Technicians- Different specialties
10	Warehouse personnel
3	Procurement personnel

Among the 59 Technicians, 18 started work early this year.

## Department Workshops

- Hydraulics
- Construction Vehicles
- Large Vehicles
- Passenger Vehicles
- Blacksmith
- Electrical
- Oils
- Warehouses

# Organizational Structure of Vehicles Department (1) - Proposed



## Two workshops were newly established in cooperation with GIZ according to the proposed organizational structure

- Periodic and Preventive Maintenance
- Quality Control(Under establishment)
- **Work within the Department**
  - **Technical and admin staff were divided into two shifts**
  - Shift A – From 7 a.m. – 3 p.m.
  - Shift B – from 3 p.m. – 10 p.m.
  - Shift C – from 10 p.m. – 7 a.m. (To be activated in emergencies and difficult weather conditions only.)

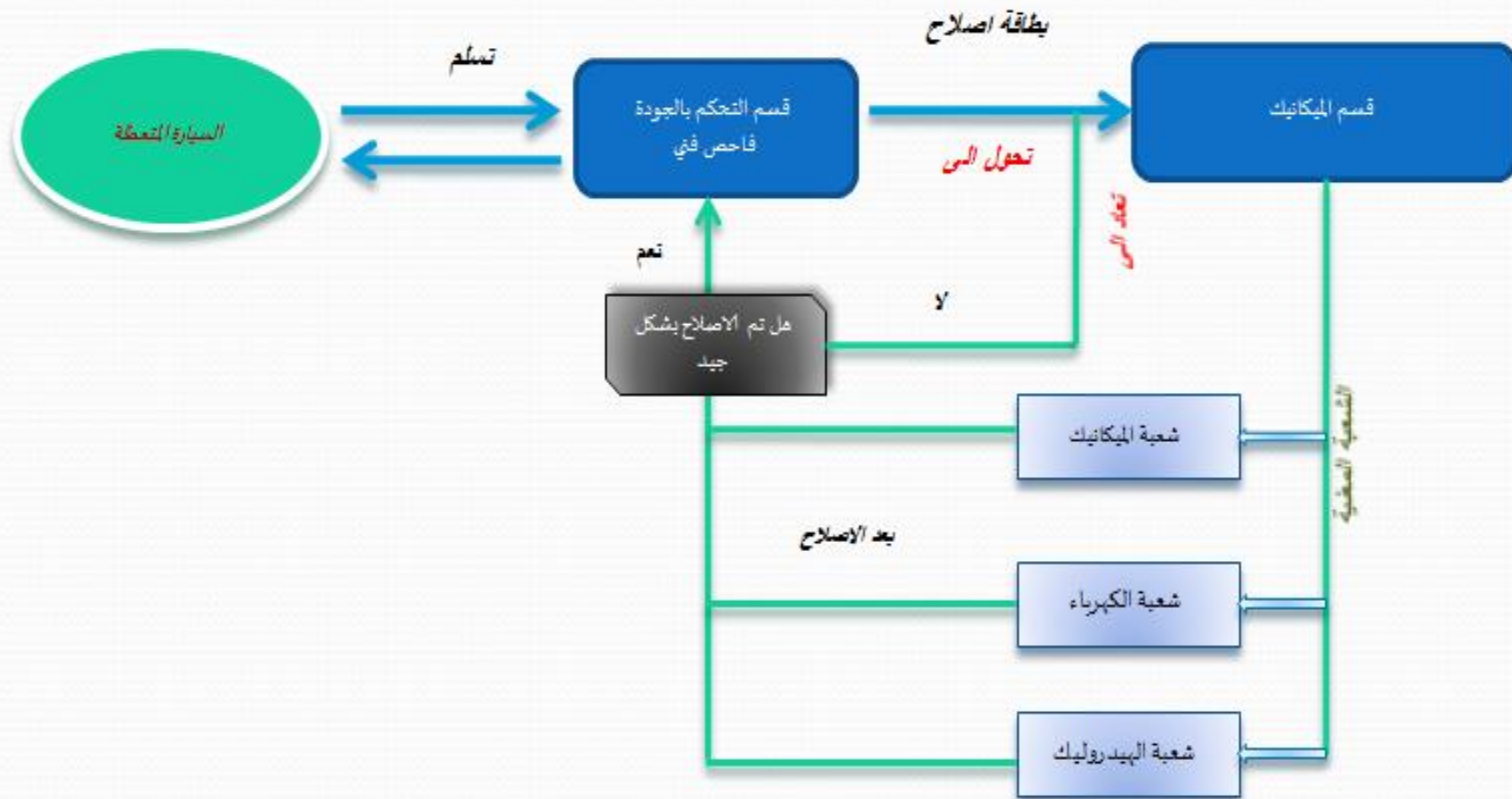
# Chart 2: Maintenance Division

## شعبة الصيانة

**الوصف الوظيفي**  
الاختصاص  
الواجبات  
الخبرات العملية  
التدريب



## مخطط سير عملية استقبال/ تسليم المركبات (٣) قسم التحكم بالجودة



قسم التحكم بالجودة

مهندس



الحوادث والاضرار

التوثيق (الادخال/الاخراج)

السيطرة/المساعدة على  
الطريق

الفحص الفني

مخاطبة الدوائر لبيان  
المتسبب بالضرر  
ومتابعة جودة اصلاح  
بعد اصلاحها من قبل  
المركبات التامين

تجهيز سيارة  
بعدد لا اصلاح  
المركبات  
المتعطلة على  
الطريق

ميكانيكي بخبرة  
واسعة

# In-Department Work Flow

Department Engineers receive the vehicle to determine causes of its malfunction and forward it to the specialized division then follow on the repair process and determine the required spare parts, which will be supplied either from the warehouses or through a procurement committee. After being repaired, the vehicle will be released to proceed work in the field or forwarded to the Transport Division.

Within each division, there is someone in charge of organizing works and distributing staff to vehicles and deciding on the required needs to expedite performance and promote efficiency of the repair process.

## **2- Status of the waste collection fleet before the Syrian refugees crisis:**

Before the Syrian refugee crisis, GIM had around 50 waste collection vehicles of different sizes as work was around the clock to collect solid wastes from different areas within its jurisdiction and transfer the collected wastes to transfer stations and Acider Landfill, which is on 35kms distance from the city center.

Due to the technical condition and aging of those vehicles, more than 40% of them should have been taken out of service as a result of the high costs of repair and week level of performance. Malfunctioning percentage was more than 50% of the total vehicles operational in waste collection and transfer.



- **Status of the waste collection fleet after the Syrian refugees crisis:**

After years of suffering negative impacts of the Syrian refugees crisis and GIM not receiving any new vehicles or equipment to support its performance and prevent environmental disasters within its jurisdiction, foreign organizations including the government of Canada, EU and GIZ started to provide assistance to meet environmental difficulties and challenges resulted from the increase in population. In addition, the Government of Jordan has increased GIM allocations obtained through foreign grants and loans.

GIM received 61 vehicle of different types to upgrade efficiency of waste collection and transfer; some were procured through Municipality bids and others through foreign grants, which allowed for taking group of vehicles out of service and repairing a significant number of old ones.

- **Daily repair rates:**

Vehicles Department receives (20-25) malfunctioning vehicle daily with minor, intermediate and major faults.

Despite the limited number of technical staff compared to the daily work load, around 80% of the malfunctioning vehicles are repaired while 10% are referred to the private sector and the rest are un-repairable either because of the repair being time consuming or it should be put on hold awaiting supply of the required spare parts.

### **3- Difficulties and challenges at work**

#### **Financial incentives for the technical staff**

Monthly salaries of technicians at the Vehicles Department are around JD300, which creates a problem as those with distinguished expertise and competencies leave to work in the private sector where they receive more than double that salary.

#### **Poor educational backgrounds of the technical staff**

A significant part of the technical staff at GIM lack educational qualifications, which makes it hard to train them as repair of most of the faulty vehicles require computer skills to determine faults; however, through long time practice and repetition of faults, they obtained some experience in dealing with modern vehicles

#### **Diversity of vehicles operating in waste collection**

GIM has more than eight types of waste collection vehicles, which is caused by the source being different foreign organizations and the public procurement system that mainly focuses on the cheapest price. Such diversity creates a huge obstacle in the supply and storage of spare parts on warehouses as well in having the proper technical skills to deal with each type of vehicles.

#### **Infrastructure**

GIM lacks the infrastructure for qualified parking areas with required advanced tools to carry out optimal maintenance and repair works in addition to traffic jams that create another big obstacle in waste collection.

## **Financial system in procurement and supply of spare parts**

The financial system applied at GIM provides giving the department manager JD200 petty cash for direct procurement in cash without having to divide the procurement into parts. If the procurement was of less than JD1000, it will be made through debts, which means that the amount will be collected through submitting an invoice to the Financial Department of GIM and, in this case, the supplier will have to wait for one week at least to collect his invoice for the spare parts.

Amounts more than JD1000 require RFPs and referral to GIM committees to award the procurement to the supplier with the cheapest price. This usually takes two weeks at least to supply the spare parts, creating a delay in the supply process as prices for most of the spare parts are more than JD1000.

- **How to overcome the challenges**
- **Financial incentive for technicians**

Monthly financial incentives of JD100 were allocated for each technician as overtime work compensation provided they exert maximum efforts at work and minimize faults.

- **Qualification of technical staff**

We always work on upgrading skill levels of the technical staff in order to cope with the advancements in modern vehicles systems. GIZ has provided two engineers to assist the staff in dealing with some faults in view of increasing their expertise in addition to training them on the use of computers in determining vehicle faults.

- **Infrastructure**

In cooperation with GIZ, new garages were equipped for the Vehicles Department with wider spaces and hangers were established within garages and equipped with required tools. There is also a plan to establish a training center in the garages to conduct courses and workshops for technicians and admin.

## **Overcoming the challenges in cooperation with GIZ**

**GIZ began its work plans with the GIM since 12/2014. Accordingly, GIZ provided two engineers with competency and is capacity to repair vehicle faults using computer and have the capacity to develop plans and programs that aim to raise work efficiency. GIZ achievements can be summarized as follows:**

- Provision of mobile workshop that contains all tools and equipment needed to repair faults and place it inside the garage**
- Training of engineers and technicians on the use of computer in the process of troubleshooting and repair**
- Provision of tools and equipment for some of the technical divisions**
- Contribution of GIZ engineers to repair a set of vehicles' faults that would have to be forwarded to the private sector ; thus, saved financial costs to GIM**
- Hold courses and workshops for admins that aim to raise the level of work**
- Establishment of Regular and Preventive Maintenance Division and providing it with all spare parts, tools and required equipment in order to reduce the proportion of faults and maintain vehicles operation so that the Division develops a monthly program that require each vehicle to be inspected served to ensure their due readiness to work**
- Establishment of the Quality Control Department, which aims to increase the level of control on drivers and technicians as well as to raise the quality of repairs. The Division will begin operations with the beginning of work at the new location for garages**
- Work on providing GIM with a JD200,000worth of spare parts for vehicles, where GIZ was provided with the necessary lists, and we are waiting for the supply after the prepare and equipping of warehouses**
- Work on the establishment of a training center within the new garages to hold courses and workshops and we are awaiting equipping the center with all its needs through the of the**

## Timeframe adopted during application of the regular maintenance

Work on the regular maintenance program began early December after being approved by GIM as a first phase

Work on Quality Control Division will begin after finalizing the first phase as follows:

1 – The site has been fully equipped with necessary maintenance equipment and received (3) vehicles a day to perform maintenance operations and record their mileage (km) from (29.11.2015) for a period of 6 weeks

2 – Files have been prepared for all the agreed upon vehicles totaling (60) and all observations and maintenance programs were recorded in these files from (10.01.2016) for a period of 4 weeks. All vehicles were checked in accordance with the model shown below

3 – Quality Control Division will be equipped after the completion of the first phase

- Staff were selected and trained
- Files were prepared for all operating vehicles
- Site was selected

From (07.02.2016) for a period of 8 weeks

# Regular Maintenance

Date:

Area:

Vehicle No.:

Vehicle Type:

Wash the vehicle before maintenance Mechanics Inspection and maintenance of the cooling system Inspection and maintenance of chassis and tighten the screws Tighten screws of the barrel for grinding mills Full inspection of the hydraulic system	Inspection of air filters and replacing them, if necessary Inspection of the wheels and tighten the rim screws Inspection and maintenance of the BRIC system Inspection and maintenance of the guidance system  Signature of the mechanic -----
Oils Check	
Hydraulic Oil Gearbox and Bakaks oil and, if necessary, oil change	Engine Service Steering Oil  Signature of Oil Technician -----
Lubricating Dry Shaft conjunctions Caliber joints of rear and front BRIC Axis and boxes Rare and front springs Rear and front drum Pele and barrel jagged Front chamber lifting joints	Clutch Pele Steering system joints Water pumps for tanks, if any Rare device Spare wheel lifting device Blade and blade ducts  Signature of oils technicians -----

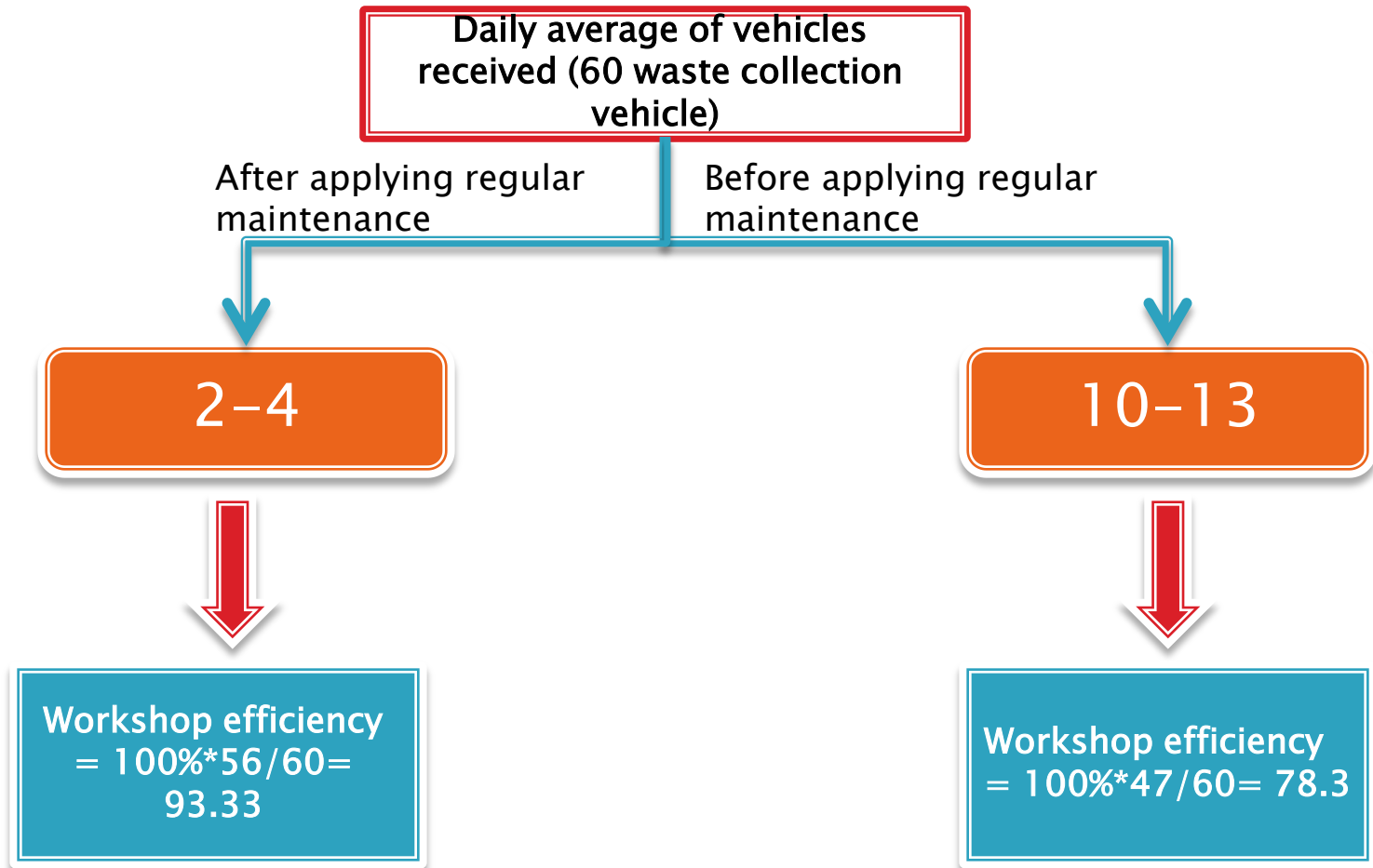
Electricity Inspection of battery fluids and battery cables	Inspection of dynamo and starter
	Signature of Electrician -----
Puncture Tires check	Air gauge
	Signature of puncture service technician -----

## □ Staff benefited from technical training

Subject	No. of staff trained	Name	Position
Faults and power testing device	2	Engineer Aktham Firas Dkhail	Mechanical and electrical engineer
Hydraulic system	3	Ahamd Abu al- Rob Ahmad Dalki Ahmad Karmi	Hydraulics Technician
Mechanics	4	Amin Hamaydeh Mohammad Abu al-Hana Mohammad Ababenh Osama Ghanim	Mechanical Technician
Maintenance	2	Emad Adawreh Mohammad Abu Msameh	Maintenance Technician



# □ Workshop Efficiency



Percentage of increase in workshop efficiency =  $78.3 - 93.33 = 15\%$

## ❑ Training center

Provides vocational training services that are consistent with market needs and qualifies technicians in order to raise the workshop efficiency and reduce rates of vehicle faults.

## ❑ Advantages of the training center

Transfer and exchange of knowledge on the vehicle engines, mechanical and electrical systems, skills of using hand tools and test equipment, skills of assembly and disassembly of gasoline and diesel engines, disassemble, modify, installation and inspection of diesel injectors and pumps, maintenance and repair of cooling, lubrication and fuel systems, and calibration and maintenance of fuel pumps.

## ❑ Phases of technical staff training



Based on what has been explained, and the difficult situation surrounding work, capacity and efficiency of the administrative and technical staff to cope with all the challenges, we strive for the success of our work and to achieve the desired outcomes with no regard to any personal interests. We wish to prove our ability to confront the problems and challenges and to reach the best results. As well, we are proud to be part of the work system in the Greater Irbid Municipality, which is fortunate to have a president with high prospects of thinking and creativity, Engineer Hussein Bani Hani. Moreover, we are ready now to transfer our expertise and experience to any municipality in terms of how to respond to crises and risks in the process of fleet management

We thank all foreign organizations that provided support to face the difficulties and challenges because of the Syrian refugees, especially GIZ that has provided and still provides all types of material and logistical support and cooperated with the municipality in the worst of circumstances and became part of us. We hope that all foreign organizations will follow GIZ example and their impressive way in dealing with the municipality