

Sustainable Urban Planning and Public Transportation Amman

policy or project implementation
share your experiences (success, failure, strategy, and so
forth)

Sustainable development program
Seoul Metropolitan government may 2018

Rola Sayaydeh
GAM Greater Amman Municipality
Head of zoning department

Introduction

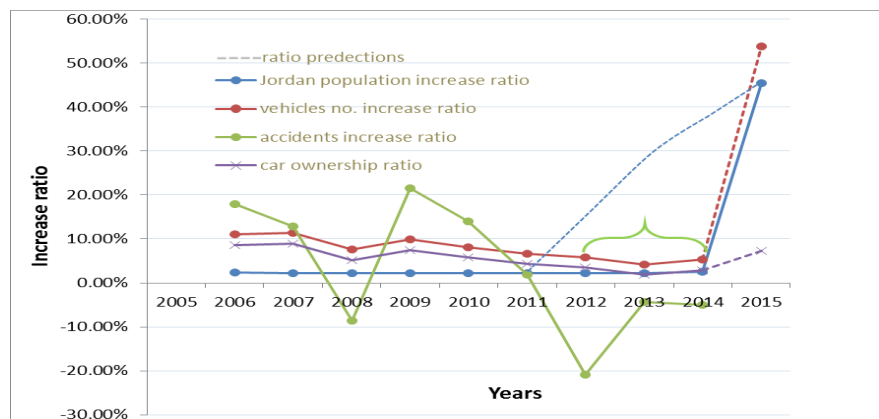
Amman occupies the middle northern part of Jordan and surrounded by three major cities, which are Zarqa & Rusayfa, Madaba imitating one mega region. GAM area is 803 km² divided into 23 administrative districts with 4.2 million inhabitant exemplifying 42% of Jordanian population. The estimated general density of urbanized areas is 90 inh/hect, 60 inh/hect in west and 120 inh/hect in eastern districts. 48% of the urbanized _build-up_ areas have access to public transport within 300m (3½ - 9min), and about 64% within 500m (6-15min).

The average durations of a single way trips is 35 minutes, which generates lower levels of happiness and higher anxiety levels.

Amman is a bus based public transport service which has many limitations stated in literature. The multi operators' effects induce the absence of regulations and timetables. Together with low fleet capacity, users of public transport in Amman have to face daily crowd by standing in lines or randomly waiting for buses, which became a motivator for using private cars. High and low temperatures and topography are additional challenges for public transport.

Public transport usage is considered inappropriate due to the behavioral attitudes of the service's staff which sometimes lead to unsafe situations. Safety is also is divisive with road accidents, which are the highest among pedestrians especially for elderly above 60, these conditions are due to inapt streets designs for cycling or walking. The trip cost is considered low ranging between 0.30 to 2 JD, however every ride is charged which make additional costs for journeys with multi stops and interchanges. As a conclusion, private motorized modes became citizens' first choice with car ownership escalated from 1 car per 8.6 in 2004 persons to 1 car per 5 persons in 2014.

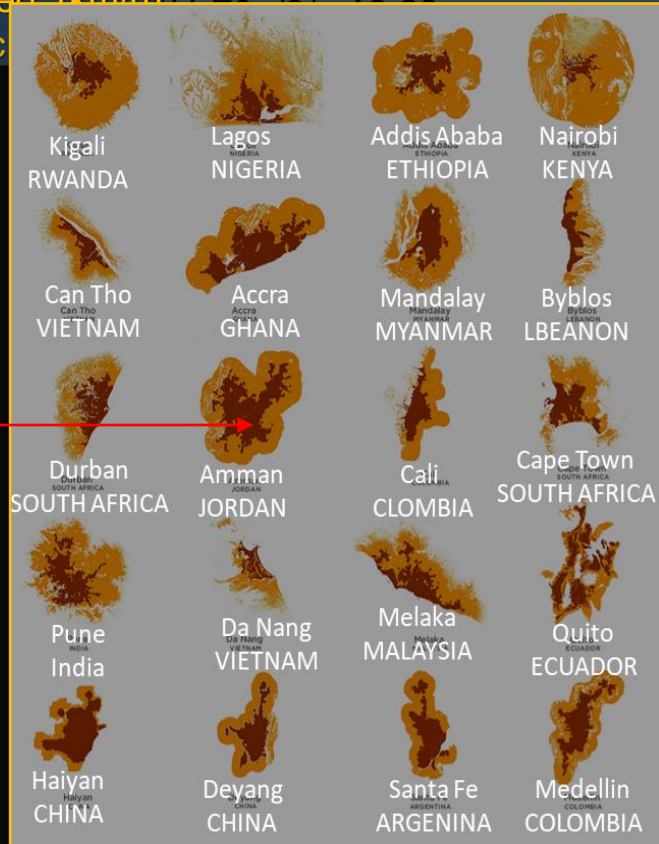
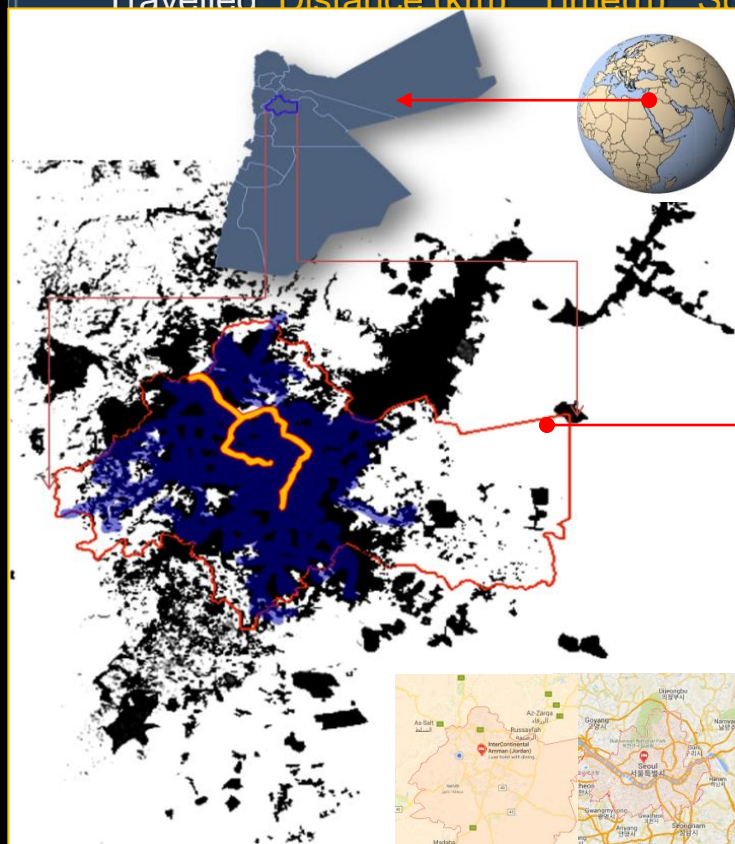
- comparing increase ratios of population, vehicle numbers, accidents, and car ownerships in Jordan between 2005 and 2015



Indicator s

value

Jordan Population	9.5 M
Amman Population	4.2 M
Growth rate	2.2/year
Amman Area (municipal border)	803 km ² (80300 hec.)
“ urbanized area	350 km ² (35000 hec.)
“ area density	52 inh/hec. (5230inh/km ²)
“ urbanized area density	120inh/hec.(12000inh/km ²)
<u>Length of public Transportation lines</u>	36000 km
<u>Length of proposed BRT line</u>	33 km
Percentage of serviced Area by Public transport in within 300m	48% (area 25900 hec)
% of serviced Area by Public transport in within 500m	64% (area 34500 hec)
<u>% of serviced Area by BRT within 300m</u>	3.5% (area 1900hec)
<u>% of serviced Area by BRT within 500m</u>	6.1% (area 3300hec)
Commuting Expenditure per households income	10-30%
Highest TRIP PURPOSE	Working → Shopping
Travelled Distance (km) , Time(h) , Speed (km/h) all modes	10.15 /1/ 19.35 World av. sp.35km/h Chi. 18.7
Travelled Distance (km) , Time(h) , Speed (km/h)	



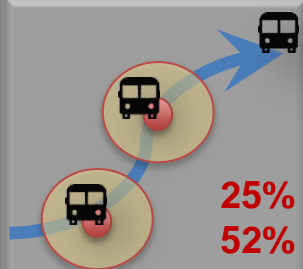
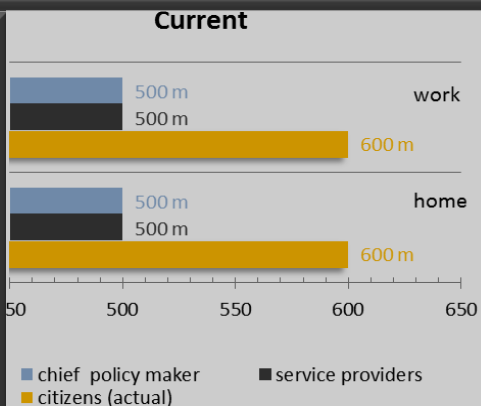
Daily Trip



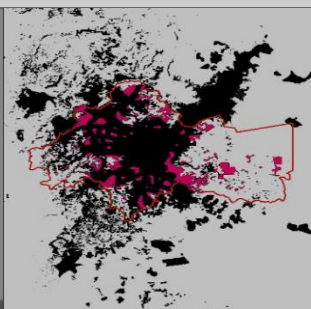
Daily Trip findings

Citizens vs. service providers

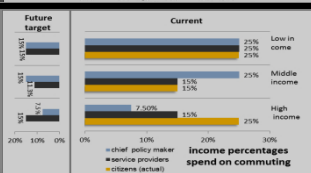
PT catchment distance



CATCHMENT DISTANCE
500-700m
25% NOT Within 500m
52% NOT Within 300m



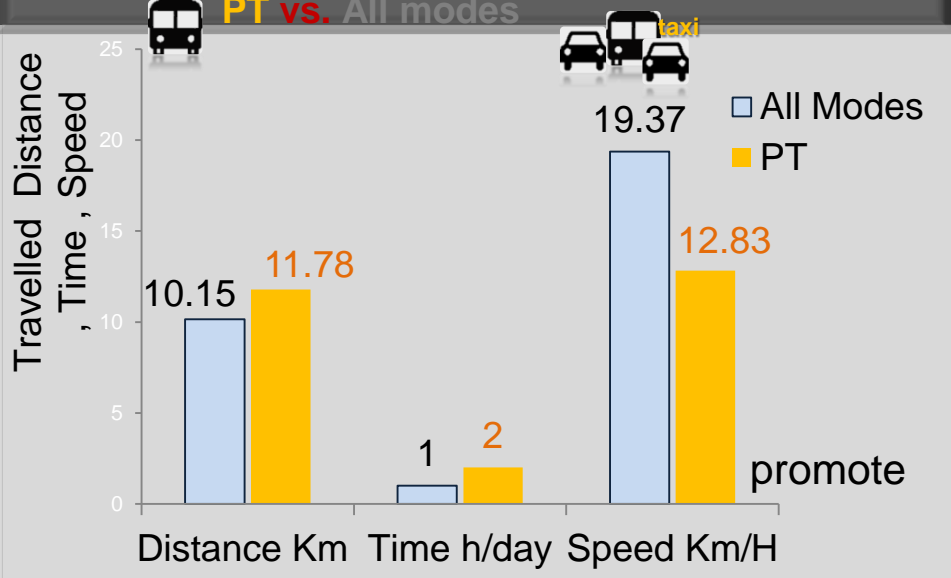
COMMUTING EXPENDITURE
10-30% per households income



TRIP PURPOSE
 The Highest Trips **Working**
 → Shopping

Travelled Distance, Time, Speed

PT vs. All modes



promote

Problem Identification

Amman is a car dependent city that is experiencing continues growing congestions. Comfort therefore is not foreseen in all trip modes because the average of one way trip durations is 35 (more than hour daily). For this purpose it became integral to investigate main public transport attributes that are relative to Amman's citizen's needs, and also to define required specifications to achieve citizen's satisfaction.

Creating a city that is evenly accessible by all community strata is integral to enable them practicing their cultural and social activities with less psychological stresses. If a transportation system well tie Amman with its neighborhoods, Ammanies could experience altered activities; specifically in places linked with public transport service as primary spots. Public transport system could upturn choices of accessible parts and places of the city, therefore, presenting more opportunities to develop economical activities, and experience better social life.

Accessibility modes in Amman are mostly limited to private motorized modes. This was a result of weekly managed public transport system during past decades, and not considering transportation during land use planning process in most cases.

since 2004 there was only 200 busses added to the fleet of public transport, in addition to 400 taxies since 2001. Amman now accommodates 3000 'Service taxis', 200 middle busses, and 400 large busses. Around 400 of all bus types are run by 8 operators and the rest are privately operated. The approximate daily capacity of this fleet is about 332,000 passenger for one-way trip and 664,000 in both direction.

So, capacity increment since 2004 until 2016 was about 74,000 passengers; with growth rate of 1.8% for capacity of both public transport and taxies and 2.4% for public transport only, this is much behind population growth rates which reached 12% between 2008 and 2015.

That means in 2004, 86% of Amman residents cannot travel with public transport; comparing with 90% of today's population .

In 2004 there was one seat for each 69 citizens; comparing with one seat for each 127 citizens in 2015,

year	1 seat per (X) capita
2004	69
2016	127
2020	110 (+100 bus)
2020	65 (+360 bus)

Pop. mio	#Trip av.	#Trip mio	#Car Trips mio
3	2	6	2.04
4	2	8	2.72
5	2	10	3.4
6	2	12	4.08
7	2	14	4.76

Background of the Policy Project

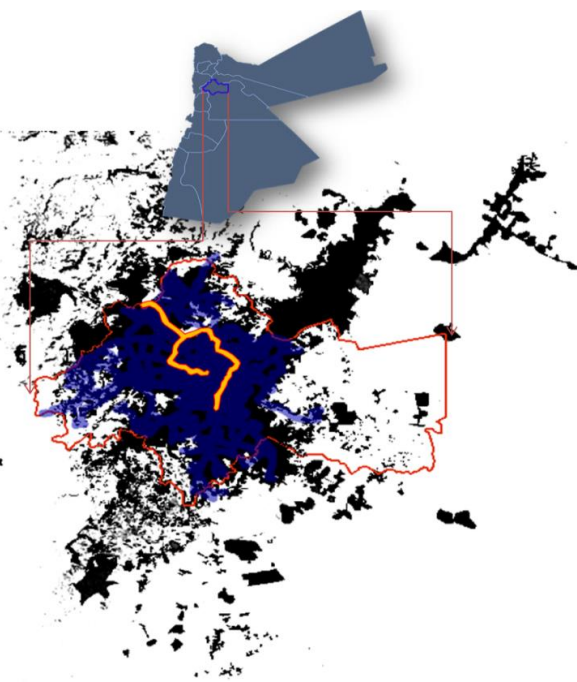
BRT phase 1

BRT phase1 is part of the Transportation Master Plan for Amman which extend to 33 km ,it was chosen to cover main routs especially students' trips. The project was established in July 2009,feasability study in 2010 Apr, financed by the 'Agence Française de développement' AFD in Oct. 2010 & budgeted 166\$mio.

In May 2011 the parliament asked to stop the project for further investigations by a Gov. committee , and reevaluation was done by a Spanish consultant in Feb 2013 to conclude the feasibility and importance of the project with some required adjustments, the project is under construction and will be finished 2020.

GAM is the municipal body that is responsible about all municipal services in Amman area , it is an independent institution and directly connected to the prime minister of the country.

the Transport Mobility Master Plan TMMP (2008); these obstacles are as following:
 1)under-developed bus based public transport system which is not integrated together, 2)cultural preference for private transport,3) poor traffic regulations, 4)poor use of road space, 5) uncoordinated policy development with land use, 6) limited Information Technology Services ITS project skills, 7) no demand for management policy, 8) volatility of fuel prices, 9) world economic, 10) long term economic growth encourages car ownership, 11) need for instant results, 12) ITS schemes may be introduced as piecemeal and in an uncoordinated way, and 13) lack of stability and profitability of public transport operators



PT linesLength /% of serviced Area by BRT within 300m/ within 500m	36000 km/ 48% /64%
BRT Length / % of serviced Area by BRT within 300m/]within 500m	33 km/ 3.5%/6.1%

Key Issues of the Project Implementation

Obstacles

- The government and large municipalities were not given the project high priority.
- The organizational structure separates Amman Municipality _the largest pop. In Jordan_ from the ministry of transport and even much fragmented structure by finding separate directorate for each project.
- Lacking the know how of learning a multi modal public transport system, and the complementary aspects to consider .
- Feasibility studies regarding financial models and Amman topography.

Conflicts

- debate between stakeholders (government, parliament, AFD bank , and citizens) on how to finance the first phase of BRT, whether if there corruption
- The debate between policy maker and other entities whether to concentrate on bus system and Employer Transportation , or to invest highly subway construction.

un- or favorable Conditions

- Its an urgent system initiative for the city, but the actual plan is not clear to citizens and some planners
- Transport policies are not connected to other government partners.
- institutional leadership instability and the above conflict all led to significant delays for only the first phase.

Key Strategies for Success of the Project

Role in solving the problem

- TMMP 2008 was initiated
- BRT project is under construction for 25km long
- planning for new metro line

policy tools employed in the process

Planning

- Working with outside supervisors like steer davies cleave with local designers and other governmental entities.
- Selecting and Planning feeder routes .
- Reforming financial model after 3 years delay.
- Tendering buses and operators.
- Using VISUM program to enhance planning

Financing

- Modules to calculate : revenue, opex (Operating expenses), capex(Capital expenditures)
- Calculate leases, debt and services.
- Allocate to GAM, oerators, and othres.
- Add margins and taxes
- Tendering buses and operators.

Raise awareness

Videos and direct contact with citizens about:

- congestions effects
- Recent problems of existing transport system
- Explain the project
- Advertisements and bill boards
- TV , Radio, newspapers
- We site, Brochures
- Official and nonofficial meetings

Lessons & Implications

Achievement

- Starting to think about public transport as a key priority by policy makers.
- In 2020 will finish the BRT first phase project.
- Starting to build the know how knowledge in construction
- Managed to have our metro line feasible study after feasibility study failure in 2010.
- Citizen Awareness for the need of developed system is getting higher.

Failures

- Long period of time for implementing the project created a state of miss trust between citizens and government.
- Not thinking about : land use planning , pedestrian and cycling networks as a first key planning factors.
- the first system coverage is only 3% of the urbanized area
- Part of the first phase selected routs is not built with low densities
- Thinking about metro subway lines as a costly system and not considering its role of shifting modes.
- Feasibility studies are based on direct revenues, not the economic benefit on country level.