

## Supplementary dataset A to O:

### (A): Interview results

Questions	Answers
Have you lived in the downtown?	Yes: 95% No: 5%, but they have been working in the downtown since the 1950s.
Do you remember the stream of Amman before it was converted into Quraysh street?	Yes: 100% No: 0%
Why was the stream covered?	To convert it into street to solve the traffic crisis in the downtown especially King Talal Street, because of the urban expansion and the increasing number of population and cars. The stream's course was exposed and changed off its natural course, its depth also increased to transport rainwater and wastewater under the ground, and then it was covered.
What was the reaction of the people who lived surrounding the stream when it was covered?	They were divided between supporters and opponents, supporters found it as a solution for the problem of flooding in the winter and solving the traffic crisis. While the opponents considered it as a great loss especially that it was a source of irrigating orchards and farms, and a source of fishing, in addition to the green orchards surrounding the stream which converted into cement buildings.
What were the problems faced by the residents which associated with the stream at that time?	Land acquisitions, difficulty of mobility despite the presence of a wooden bridge, flooding in the winter season, discharging wastewater on the stream by residents which led to pollute the water, especially after the increase in population number from inside and outside Jordan.
What were the most important features of the city of Amman at that time?	Agriculture in the areas surrounded the stream, excursion in Ras Al.Ein area; in the former Al.Ahli club, which its location had become the Greater Amman Municipality. In addition to the Roman Amphitheater, the Nymphaeum, and the Roman Arches, which were removed when the stream covered. The Grand Hussein Mosque, the adjacent courtyard with the fountain, which was also removed. Commercial markets such as Bukhari market which formerly were inns for the merchants.
Can you describe the old city of Amman?	It was a small village, with low number of population. Until the seventies of the last century, Amman was an agricultural lands and orchards. The city was a social mix of Jordanians, Palestinians, Circassians, Syrians, and Yemenites.
What were the most important places in that time?	King Talal street, the Roman Amphitheater, the Nymphaeum, Jabal Amman, Citadel, the Grand Hussein Mosque, Saudi & Malhas's mill (the mill was running on water before being run

	on electricity, demolished after the governmental acquisitions), the Italian hospital and the central market.
How was the economic and social life then?	The economic situation was moderate; shops were only separated along King Talal Street. While the social life was better than it is now, people were gathering every day.
What were the prevalent crafts at that time?	Handcrafts, agriculture, ranching, carpentry, leather tanning, and some people worked in the railway station.
Are there any memories associated with the old downtown?	King Hussein's wedding, swimming in stream, fishing, playing football in Al.Ahli club. Cafes that gathered politicians, ministers and all categories of society. Spring season where the city was a green paradise.
Are there any memories associated with the stream?	Swimming in the stream, fishing, grilling the fish on the coal on the sides of the stream, walking in the stream to reach the farms of apricots and grapes, farms surrounding the stream, making bread on the sides of the stream, the women filling the water from the stream, people gathering on the both sides of the stream, and the women washing clothes near the stream.
What were the trees and plants existed at that time?	Trees such as: willow, poplar, lindens, apricots, grapes, walnut, pomegranate, almond, lemon, orange, mulberry and eucalyptus. Vegetables such as: lettuce, tomatoes, carrots and cucumber. Herbalists such as: chamomile, salvia, dandelion and thyme.
Do you wish to restore the stream in a new urban way?	Yes: 90% No: 10%

**(B): Questionnaire results**

Variables		Percentage (%)
Gender	Female	41
	Male	59
Age Group	20-30s	23
	31-40s	20
	41-50s	19
	51-60s	18
	Over 60s	20
Educational Level	Illiterate	1
	Preparatory	10
	Secondary	14
	Diploma	16
	Bachelor Degree	51
	Master's Degree	8
Have you lived in the downtown?	Yes	23
	No	77
Favorite outdoor places in Amman downtown	Roman amphitheater	21.43
	Roman Nymphaeum	2.86
	The Hashemite plaza	13.57
	Streets	10.71
	Grand Hussein	5
	mosque	17.86
	Bazaars	28.57
	Nothing	29
The purpose of visiting the downtown, especially Quraysh street & Hashimi street	Shopping	26.43
	Government - departments	6.43
	Banks	4.64
	Library	4.29
	Tourism	14.64
	Restaurants	16.07
	Wholesale trade	5.36
	Visit friends & relatives	9.64
Have you seen Amman before the stream was covered?	Yes	21
	No	79

**(C): History and city character features results**

Questions	Agreement	Percentage (%)
<b>The covered stream of Amman has a significant historical value?</b>	Agree	73
	Neutral	16
	Disagree	11
<b>The covered stream of Amman has played a significant role in initiating the city of Amman?</b>	Agree	73
	Neutral	19
	Disagree	8
<b>Positive impact points of the stream, before the coverage :</b> 1. Agriculture	Agree	74
	Neutral	15
	Disagree	11
2. Recreation	Agree	59
	Neutral	26
	Disagree	15
3. Aesthetic value	Agree	51
	Neutral	33
	Disagree	16
4. Rainwater harvesting	Agree	62
	Neutral	22
	Disagree	16
<b>Negative impact points of the stream, before the coverage :</b> 1. Solid waste landfill	Agree	33
	Neutral	26
	Disagree	41
2. Landfill for wastewater	Agree	33
	Neutral	24
	Disagree	43
<b>After coverage the stream, the positive impacts:</b> 1. Development of new uses and services	Agree	57
	Neutral	18
	Disagree	25
2. Reduction of visual pollution	Agree	31
	Neutral	21
	Disagree	48
3. Solving the problem of transportation	Agree	41
	Neutral	19
	Disagree	40
4. Rainwater transfer in underground pipes	Agree	30
	Neutral	22
	Disagree	48
<b>After coverage the stream, the negative impacts:</b> 1. Negative impact on the city character	Agree	66
	Neutral	22
	Disagree	12
2. The possibility of mixing the wastewater with rainwater	Agree	72
	Neutral	17
	Disagree	11

3. Elimination of agriculture	Agree	66
	Neutral	16
	Disagree	18
4. Increased the runoff	Agree	64
	Neutral	23
	Disagree	13
5. Change in land uses	Agree	61
	Neutral	24
	Disagree	15
<b>The character of Amman had changed after covering the stream?</b>	Agree	59
	Neutral	17
	Disagree	24
<b>The impression of Amman had changed after covering the stream?</b>	Agree	45
	Neutral	34
	Disagree	21
<b>Do you think that bringing back the stream enhances city character?</b>	Agree	60
	Neutral	21
	Disagree	19

**(D): Social and cultural characteristics results**

Questions	Agreement	Percentage (%)
Is the downtown of Amman a cultural and touristic destination?	Agree	8310
	Neutral	7
	Disagree	
Does the present social life of the people in Amman differ from the past social life?	Agree	8016
	Neutral	4
	Disagree	
Are there sufficient places in the downtown for cultural activities?	Agree	26
	Neutral	16
	Disagree	58
Does the stream provide an opportunity for people to meet and socialize?	Agree	61
	Neutral	17
	Disagree	22

**(E): Environment, landscape and green spaces characteristics results**

Questions	Agreement	Percentage (%)
The stream has a significant value as an environmental element?	Agree	80
	Neutral	17
	Disagree	3
Is there a need for conserving the natural elements?	Agree	86
	Neutral	11
	Disagree	3
Does the existence of the stream enhance the natural beauty?	Agree	69
	Neutral	17
	Disagree	14
Does the existence of the stream encourage domestic and foreign tourism?	Agree	60
	Neutral	21
	Disagree	19
Does the existence of the stream important in storm water management?	Agree	72
	Neutral	19
	Disagree	9
Restoring the stream will help in reducing the runoff in the winter?	Agree	70
	Neutral	19
	Disagree	11
Restoring the stream will help in reducing the heat island effect?	Agree	73
	Neutral	19
	Disagree	8
Resorting the covered waterway into urban greenway will reduce the air pollution?	Agree	76
	Neutral	18
	Disagree	6
Do you recommend restoring the stream?	Agree	67
	Neutral	19
	Disagree	14
Do you think that the stream water quality needs treatment to become safe?	Agree	87
	Neutral	10
	Disagree	3
Is the proportion of green spaces area per person in Amman sufficient?	Agree	9
	Neutral	10
	Disagree	81
Are there any suitable places for relaxation and recreation in the downtown?	Agree	13
	Neutral	10
	Disagree	77
linear parks could provide a continuous green heart and reintroduce nature into the city	Agree	77
	Neutral	17
	Disagree	6

**(F): Land use planning characteristics results**

Questions	Agreement	Percentage (%)
The rapid processes of urbanization, transportation and migration hindered land use and environmental planning process	Agree	79
	Neutral	15
	Disagree	6
Covering the stream led to convert the residential use into the commercial use	Agree	72
	Neutral	21
	Disagree	7
Covering the stream led to canceling agricultural practices along the stream	Agree	69
	Neutral	19
	Disagree	12
Restoring the covered stream could enhance and encourage new housing, commercial and recreational development?	Agree	70
	Neutral	23
	Disagree	7



**(G): Satisfaction with transportation and pedestrian networks characteristics results**

Questions	Agreement	Percentage (%)
Do you think that Quraysh street as part of the downtown should have priority for vehicles?	Agree	27
	Neutral	24
	Disagree	49
Do you think that Quraysh street as the part of the downtown should have priority for pedestrians?	Agree	80
	Neutral	11
	Disagree	9
Do you think that there is a conflict between pedestrians' movement and vehicles movement?	Agree	76
	Neutral	13
	Disagree	11
Does the vehicle traffic jam at Quraysh street prevent people from walking along the street?	Agree	75
	Neutral	16
	Disagree	9
Was there a necessity to cover the stream of Amman and convert it to a road?	Agree	26
	Neutral	33
	Disagree	41

**(H): Online questionnaire results of the public perception.**

Variables		Percentage (%)
Residency in Amman	Resident	45
	None resident	55
Gender	Female	67.1
	Male	32.9
Age Group	Less than 18s	1.4
	18-25	23.8
	26-35	53.2
	36-45	8.6
	46-55	7.2
	56-65	3.6
The city of Amman is rich in natural resources	1(Totally disagree)	11.1
	2	17.6
	3	28.8
	4	21.6
	5	14.4
	6 (Totally agree)	6.5
The city of Amman is rich in recreational areas	1(Totally disagree)	5.2
	2	20.9
	3	19.6
	4	26.8
	5	18.3
	6 (Totally agree)	9.2
Amman is the city of waters	1(Totally disagree)	43.8
	2	22.2
	3	15.7
	4	7.8
	5	6.5
	6 (Totally agree)	3.9
Amman is the city of brotherly love	1(Totally disagree)	14.4
	2	17.6
	3	19
	4	19.6
	5	20.3
	6 (Totally agree)	9.2
Amman is the city of tariff congestion	1(Totally disagree)	0.7
	2	0.7
	3	1.3
	4	5.9
	5	22.9
	6 (Totally agree)	68.6

Amman is the city of seven mountains	1(Totally disagree)	3.3
	2	3.9
	3	6.5
	4	13.1
	5	12.4
	6 (Totally agree)	60.8
Amman is the city of concrete and stone blocks	1(Totally disagree)	1.3
	2	0
	3	13.7
	4	20.3
	5	28.1
	6 (Totally agree)	36.6
Amman is the city for all nationalities	1(Totally disagree)	0.7
	2	5.2
	3	7.2
	4	21.6
	5	28.1
	6 (Totally agree)	37.3
Amman is the city rich in culture	1(Totally disagree)	1.3
	2	6.5
	3	11.8
	4	32.7
	5	26.1
	6 (Totally agree)	21.6
Amman is the city for shopping	1(Totally disagree)	7.8
	2	5.9
	3	17.6
	4	24.2
	5	26.8
	6 (Totally agree)	17.6
Amman is the city for tourism	1(Totally disagree)	9.2
	2	7.8
	3	19.6
	4	27.5
	5	22.9
	6 (Totally agree)	13.1
The perception of the city of Amman character among time periods; an open-ended question		
Perception/ Time period	Positive (repetition)	Negative (repetition)
The perception of Amman's old character	-Beautiful historical character (60)	-Neglected character (4)
	-City of civilizations (60)	-Unclear character (6)
	-City of waters (4)	
	-Rich in the ancient heritage (12)	

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	-Old Amman's character is represented in the downtown (18)	
	-Ancient village with multicultural character (14)	
	-Multicultural character (32)	
	-City rich in water (12)	
	-Economic center (downtown) (6)	
	-Inveterate character (24)	
	-Rich social character (4)	
	-Residential functional character (4)	
	-Spatial character (6)	
	-Clear character (4)	
	-Clear geographical and natural character (4)	
	-Have a unique landscape character (4)	
	-Quiet town (6)	
	-Good character (4)	
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The perception of Amman's current character	-City of development (24)	-Ugly city (0)
	-Services city (6)	-Lost its character (52)
	-City of tourism (10)	-Without any specific character (72)
	-City of shopping (8)	-city free of nature and full of industry (8)
	-City with multi-economic centers (4)	- lacks of water (14)
	-Beautiful city (22)	-contrariness between the current and old character (10)
	-Urbanized city (12)	-Crowded city (18)
	-Economic center (4)	-City in need of traffic regulation (6)
	- City of diverse nationalities (6)	-City in need of infrastructure improvements (10)
	-Multicultural city (12)	-Lost its cultural and historical character (12)
	-Multi architectural character (14)	-City with bad planning (10)
	-Commercial city (4)	-City of traffic congestion (34)
	-Heritage city (6)	-City of concrete blocks (18)
	- Thriving city	- Random city (6)
		-City of distinction between rich and poor people (10)
		-Turbulent character (4)

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		-Deficient character (8) -Poor city with green and recreational areas (16) -Highly dense city (10) -City of environmental pollution (14) -Unsafe city (4) -Very expensive city (12) -City lacks of services (8) -Bad character (4)
The perception of Amman's future character	-One of the most important urbanized cities (12) -City of urban development (6) -Culturally diverse character (10) -It will be more sophisticated (10) -A prosperous character (10) - It will be a competitive destination (8) -Global city character (6) -Tourist destination (14) -If the problems of traffic and rapid bus transit are solved, the city will get better	-Will not have any presence in the future generations' minds (6) -The gap between the current and old character will increase (10) -Will be crowded and dangerous city (14) -Will lose its character completely (38) -It will have bad character (6) -Unknown character (42) -Contradictory future character (4) -Its character will get worse (6)

Answers that don't have any connotations or meanings related to the subject of the question 63

**(I): The demographic characteristics of the participants.**

Before the coverage (Group A)	After the coverage (Group B)
<p>The demographic characteristics results of the target group of the interviewees (30 persons of the elder people <math>\geq 65</math> ) showed that:</p> <ul style="list-style-type: none"> <li>▪ 100% of the participants were men</li> <li>▪ Residents at that time worked in handicrafts, agriculture, ranching, carpentry, leather tanning, and some people worked in the railway station.</li> <li>▪ 100% of the participants saw the stream before the coverage and remember the downtown in that time clearly.</li> </ul>	<p>One-to-one questionnaire, random sampling 200 person of the visitors and residents, ages 20-75.</p> <ul style="list-style-type: none"> <li>▪ 59% were males, while 41% were females, where 62% of the participants were less than the age of 50 years.</li> <li>▪ Over 59% of the participants had at least a bachelor degree.</li> <li>▪ They constituted shoppers, visitors, and residents of the study area.</li> </ul>

<ul style="list-style-type: none"> <li>▪ 95% lived in the downtown before the coverage of the stream, while 5% of them did not live in the downtown but they have been working in the downtown since 1950s.</li> <li>▪ The education of the interviewees was middle or high school. 10 people had a 2-year industrial college (vocational school) education, while the rest learned the craft by practice.</li> </ul>	
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**(J): Description of the history and city character features.**

Before the coverage	After the coverage
<ul style="list-style-type: none"> <li>▪ The interviewees described "the old city of Amman" i.e. the downtown as a small village, intermediated with a small river i.e. the stream of Amman.</li> <li>▪ They described the stream banks including orchards and some houses with low number of population.</li> <li>▪ In their opinion, the most important features of the city were:               <ol style="list-style-type: none"> <li>1. Roman Amphitheater</li> <li>2. The Nymphaeum</li> <li>3. Roman Arches over the stream (Upon the covering of the stream the municipality removed the arches).</li> </ol> </li> <li>*They did not see that the stream is an important feature for the downtown.</li> </ul>	<ul style="list-style-type: none"> <li>▪ 73% of the participants considered the stream a historical value that played a significant role in the emergence of the city.</li> <li>▪ 59% of the participants considered that the character of Amman had changed after covering the stream</li> <li>▪ The positive impacts of covering the stream:               <ol style="list-style-type: none"> <li>1. Development of new land uses and services 57%</li> <li>2. Solving transportation problems 41%</li> </ol> </li> <li>▪ The negative impacts of the coverage as:               <ol style="list-style-type: none"> <li>1. The possibility of mixing the wastewater with rainwater 72%</li> <li>2. Negative impact on the city character 66%</li> <li>3. Increased the runoff 64%</li> <li>4. The change of the land uses 61%</li> </ol> </li> </ul>

**(K): The social and cultural characteristics.**

Before the coverage	After the coverage
<ul style="list-style-type: none"> <li>▪ Interviewees expressed that social life was more intimate, simple and enjoyable then.</li> <li>▪ The community consisted of groups of extended and nuclear families with strong social ties, where the residents mainly worked in farming, fishing, trading and handicrafts.</li> <li>▪ Economically, people had comparable conditions.</li> <li>▪ The interviewees described "the old city of Amman" as a center of social mix and cultural gathering.</li> </ul>	<ul style="list-style-type: none"> <li>▪ 83% of the participants considered the downtown of Amman a cultural and touristic destination.</li> <li>▪ 80% of the participants considered the present social life of the people in Amman different from the past social life.</li> <li>▪ 58% of the participants believed that there are insufficient places in the downtown for cultural activities.</li> <li>▪ 61% deemed that the stream provided an opportunity for people to meet and socialize.</li> </ul>

<ul style="list-style-type: none"> <li>▪ The community was a mix of Jordanians, Palestinians, Circassians, Syrians and Yemenis.</li> <li>▪ They pointed out that the existence of the rail road (with traders and pilgrims) had an impact on the generated milting pot.</li> </ul>	
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**(L): The environment, landscape and green spaces characteristics.**

Before the coverage	After the coverage
<ul style="list-style-type: none"> <li>▪ When asked to describe the place in the spring, they were evoked to describe the stream's nature and significance for the city. Interviewees described the downtown in spring season as "a green paradise".</li> <li>▪ They said: the city was famous for local trees.</li> <li>▪ The problems faced by the residents were associated with the stream at that time:               <ol style="list-style-type: none"> <li>1. The winter floods of the stream.</li> <li>2. The pollution caused by discharging wastewater in the stream by residents. With the boost in the population, the pollution levels increased.</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>▪ 81% of the participants considered the proportion of green spaces areas per person in the downtown insufficient</li> <li>▪ 77% deemed that there are not any suitable places for relaxing and recreation in the downtown</li> <li>▪ 77% supported that the linear parks could provide a continuous green linear heart to reintroduce nature into the city.</li> <li>▪ 72% considered the existence of the stream important for storm water management.</li> <li>▪ 67% of the participants recommended the restoration of the stream.</li> <li>▪ 70% of the participants believed that restoring the stream will help in reducing the runoff in the winter</li> <li>▪ 73% thought that restoring the stream will help in reducing the urban heat island effect.</li> <li>▪ 76% believed that restoring the covered stream and turning it into an urban greenway will reduce the air pollution</li> <li>▪ 58% of the participants liked to visit the archeological sites,</li> <li>▪ 29% didn't have a favorite place in the downtown.</li> </ul>

**(M): Land use planning characteristics**

Before the coverage	After the coverage
<p>The interviewees indicted that until the seventies of the last century Amman has the following characteristics in terms of land use:</p> <ul style="list-style-type: none"> <li>▪ Agriculture-dependent city with land orchards and fields.</li> <li>▪ Shops scattered along King Talal Street.</li> <li>▪ The residential land uses concentrated around the stream.</li> </ul>	<ul style="list-style-type: none"> <li>▪ 79% of the participants considered the rapid processes of urbanization, transportation and migration hindering land use and environmental planning processes.</li> <li>▪ 72% of the participants deemed that covering the stream led to convert the residential use into the commercial use.</li> <li>▪ 70% supported that restoration of the covered stream could enhance and</li> </ul>

<ul style="list-style-type: none"> <li>▪ The archives of the city municipality also emphasized the same uses on the land use maps.</li> </ul>	<p>encourage new housing, commercial and recreational development.</p> <ul style="list-style-type: none"> <li>▪ The intensions to develop central business and central commercial uses did not take place by this stage. Documented uses were limited to small commercial uses, light industries, and residential uses.</li> </ul>
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**(N): Satisfaction with transportation and pedestrian networks.**

Before the coverage	After the coverage
<ul style="list-style-type: none"> <li>▪ The interviewees stated that there were few cars and few streets.</li> <li>▪ There was difficulty in accessing the other side of the stream bank</li> <li>▪ Residents crossed the wooden and metallic bridges to reach the stream banks and to carry out their daily activities.</li> <li>▪ Activities. The rail road role in transportation was limited to accessing Mecca and Damascus.</li> </ul>	<ul style="list-style-type: none"> <li>▪ 80% of the participants deemed that the priority at Quraysh Street should be for pedestrians.</li> <li>▪ 76% of the participants thought that there is conflict between pedestrians' movement and vehicles movement.</li> <li>▪ 75% considered that the vehicles traffic jam at Quraysh Street prevent people from walking along the street.</li> </ul>



(O): A blue print from the Roman Amphitheater to Ein Ghazal proposed planning modifications in 1971 excerpted from Greater Amman Municipality archives, re-colored by the authors.

