



# Spatial Planning for Health sector in West Bank

Done by :Abdulqader Ismaeel

# Abbreviations

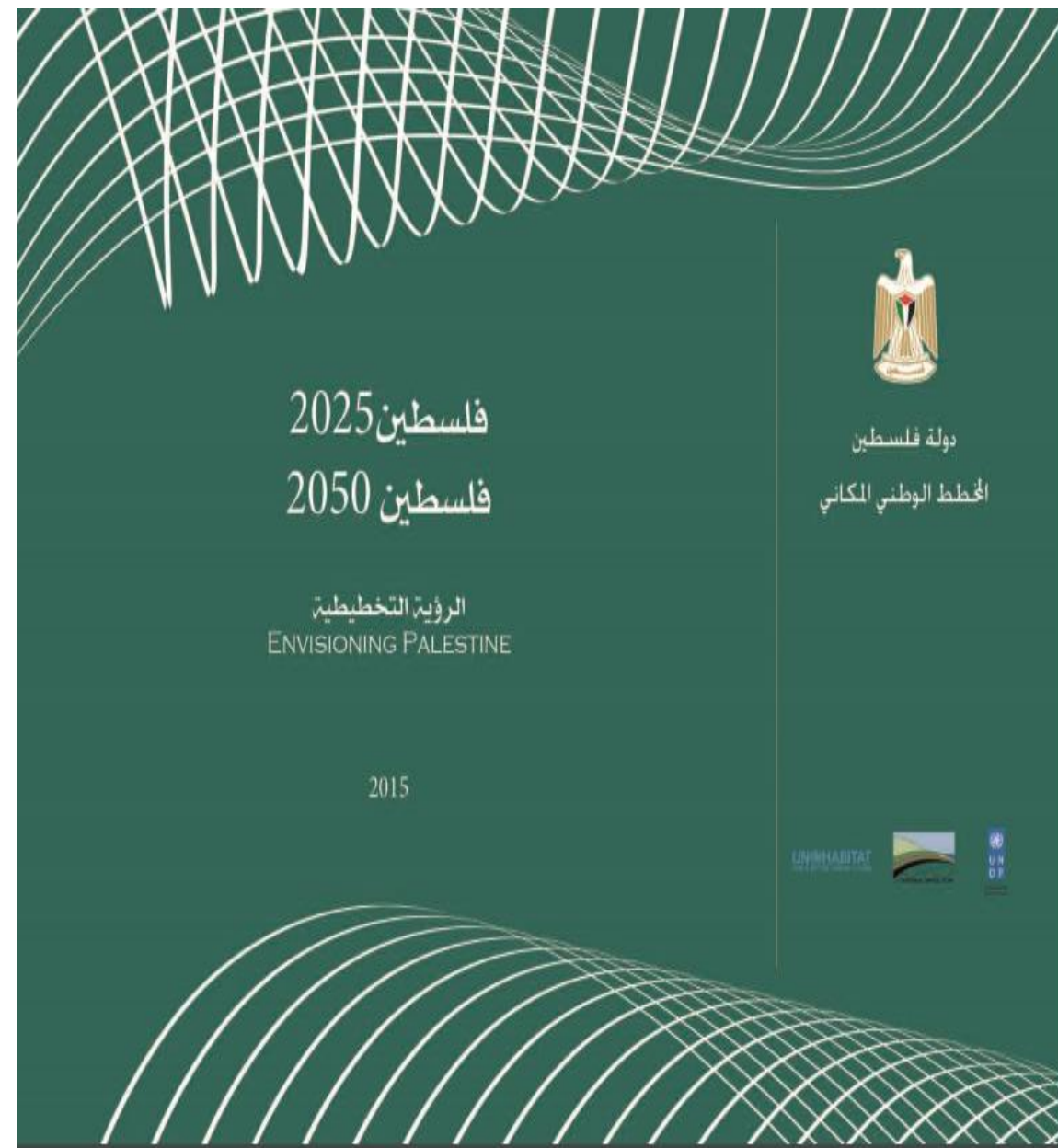
- HF: health facilities
- HS: health services
- Community : community without classification
- Neighborhood: Neighborhood community
- Local: local community
- Regional/sub-regional: regional/sub-regional community



# The project justification

- The vision for health sector according to NSP :

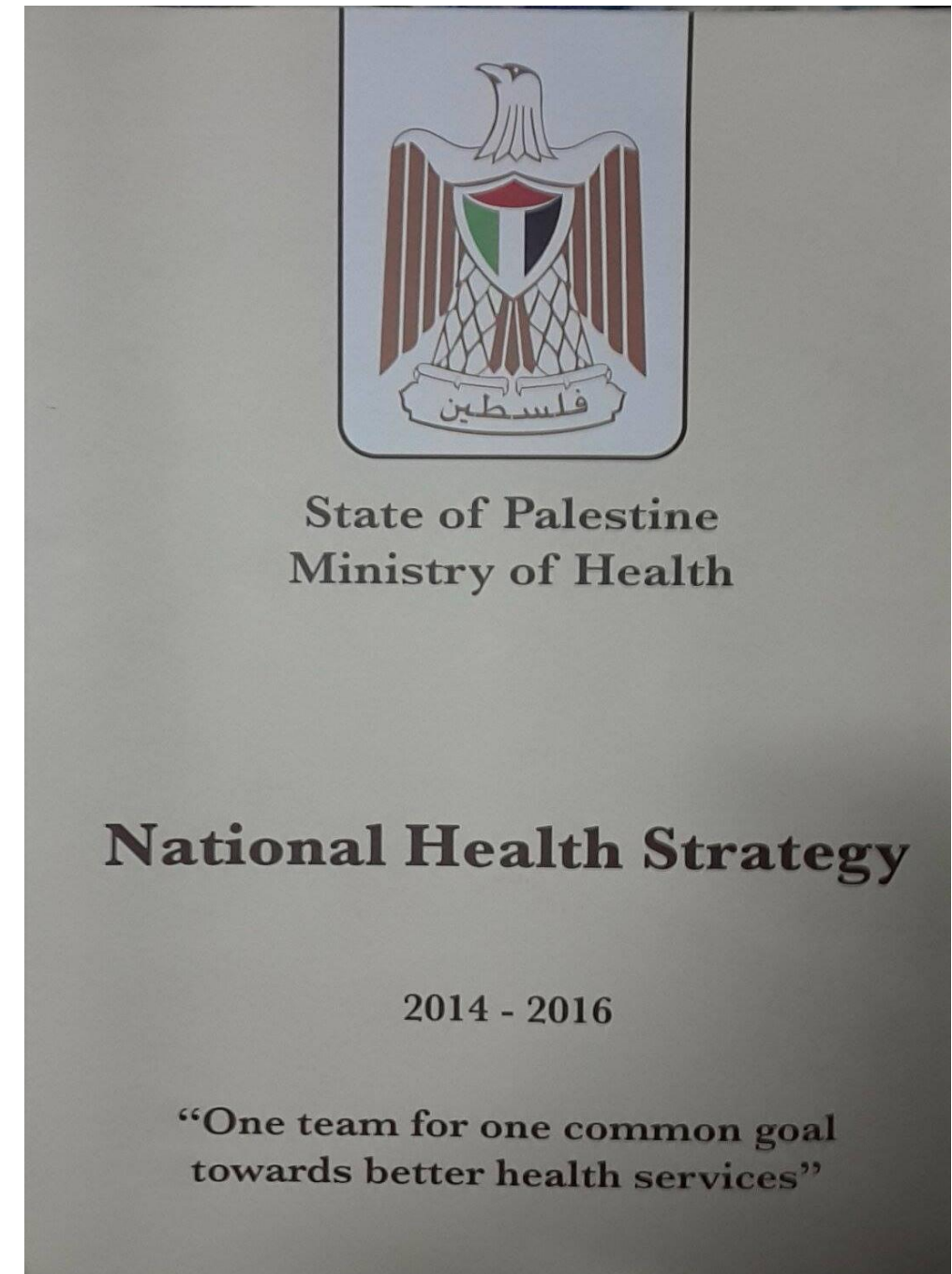
**“Develop a comprehensive and effective system of quality health care that keeps up with the best international standards and helps the entire population without discrimination of access and use its services”**



# The project justification

- The Objectives for health sector according to MOH :

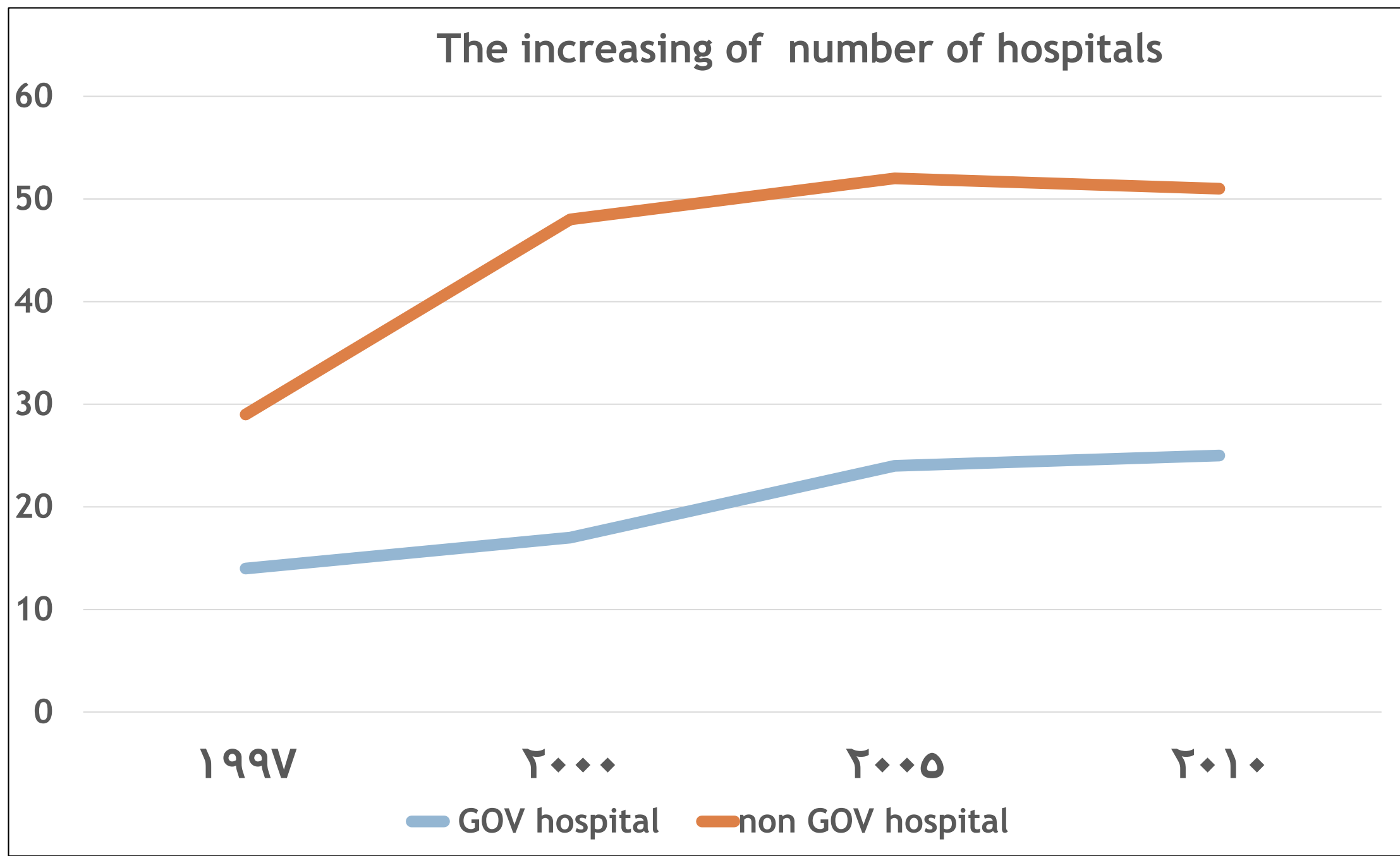
**Ensure rights-based comprehensive and integrated health services to all Palestinian citizens (taking into consideration gender, age, geographical distribution, Palestinian political and socioeconomic situation).**





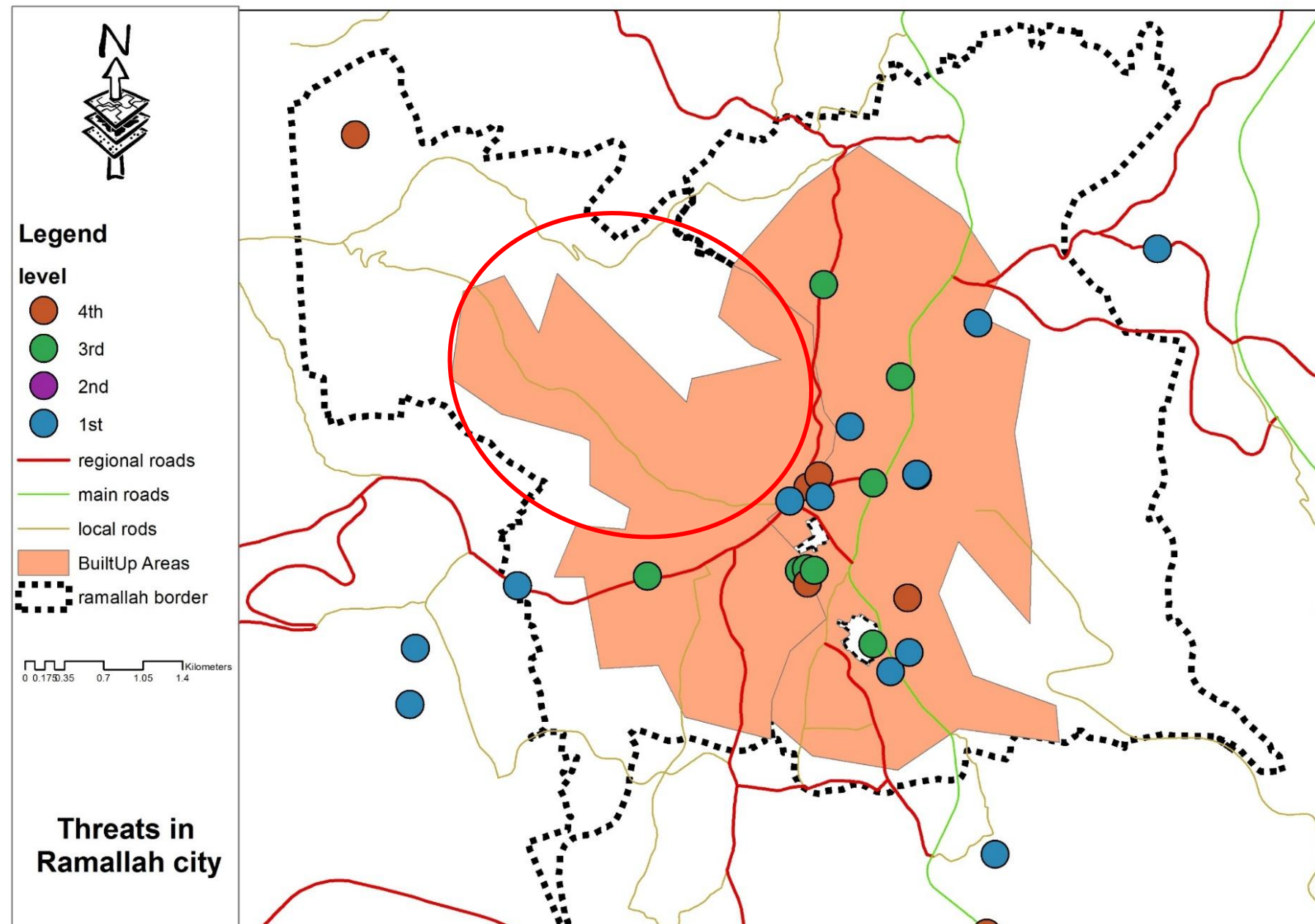
# The project justification

- The increasing of population



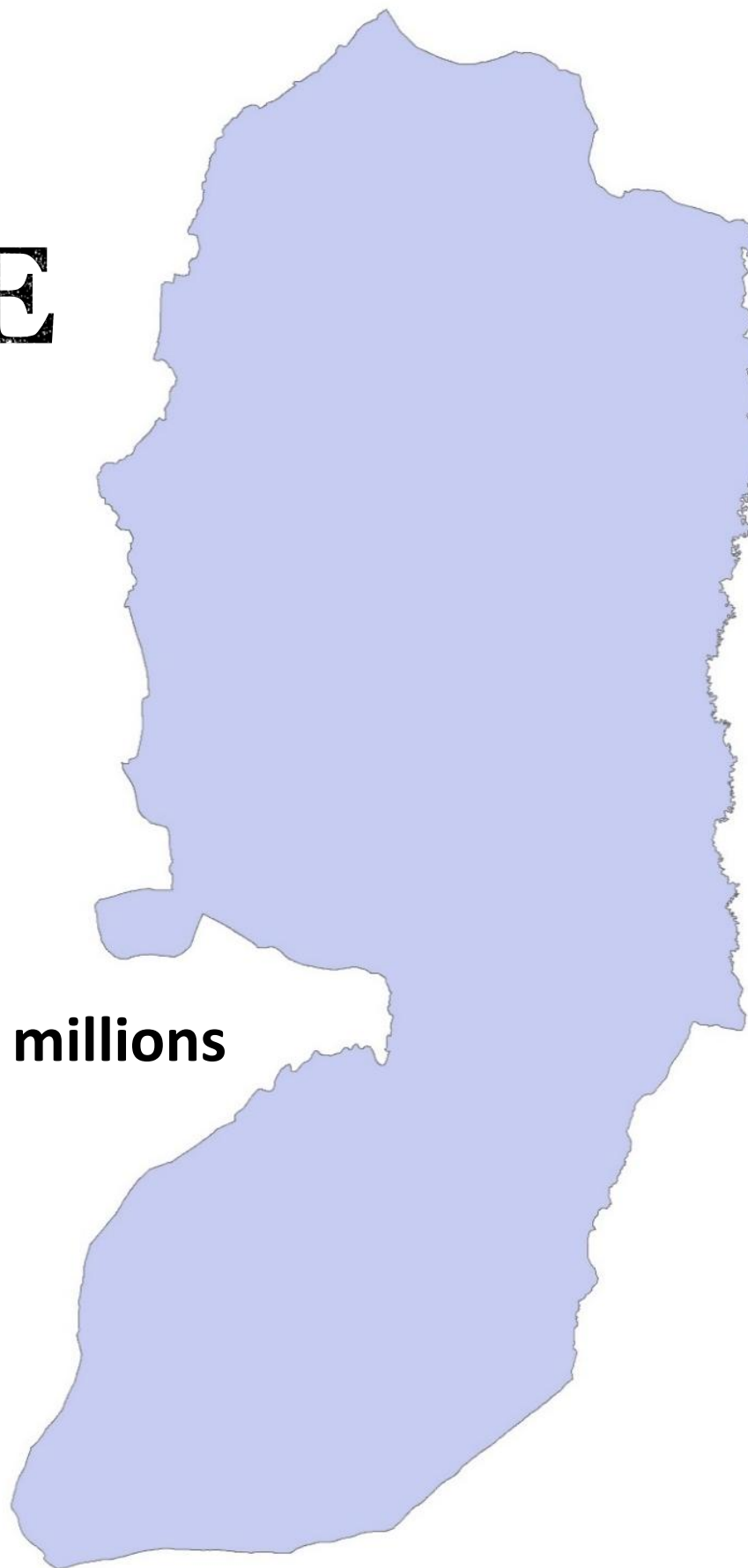
# The project justification

- Urban development in the governorates
- Poor distribution of health service in some areas in the West Bank



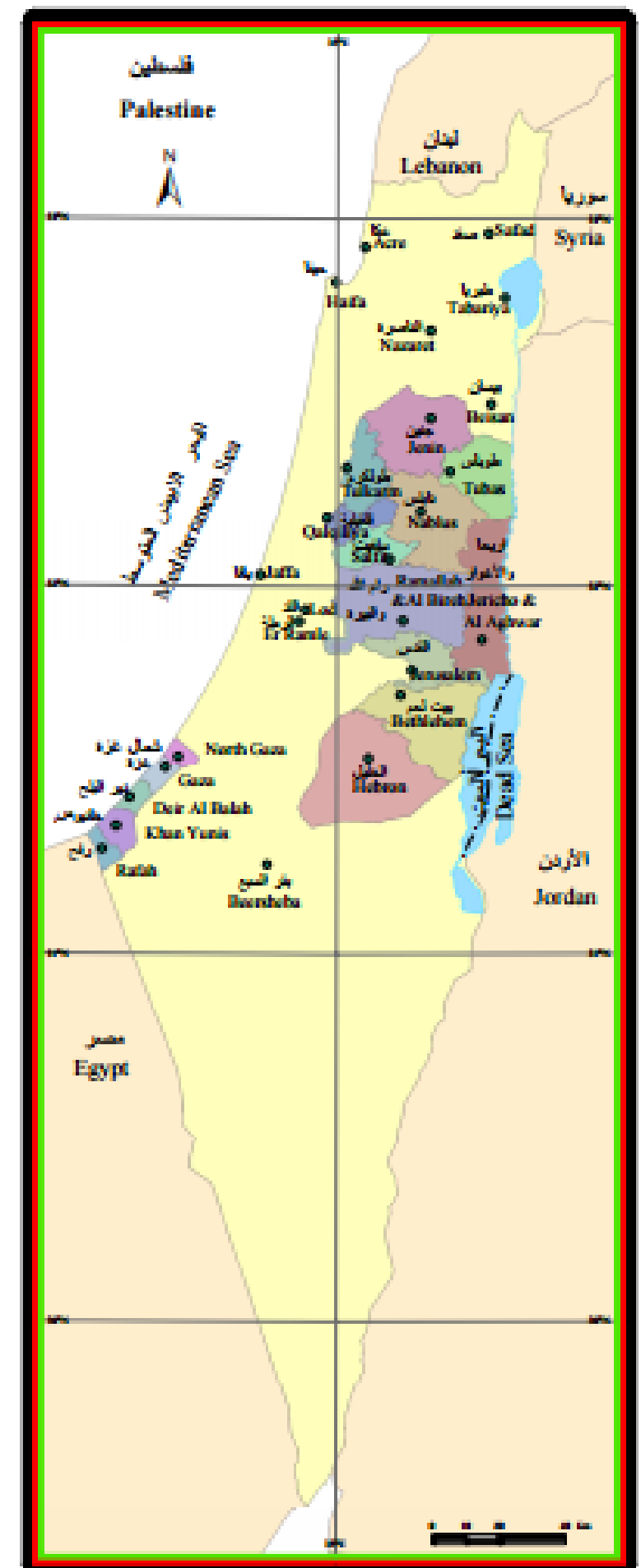
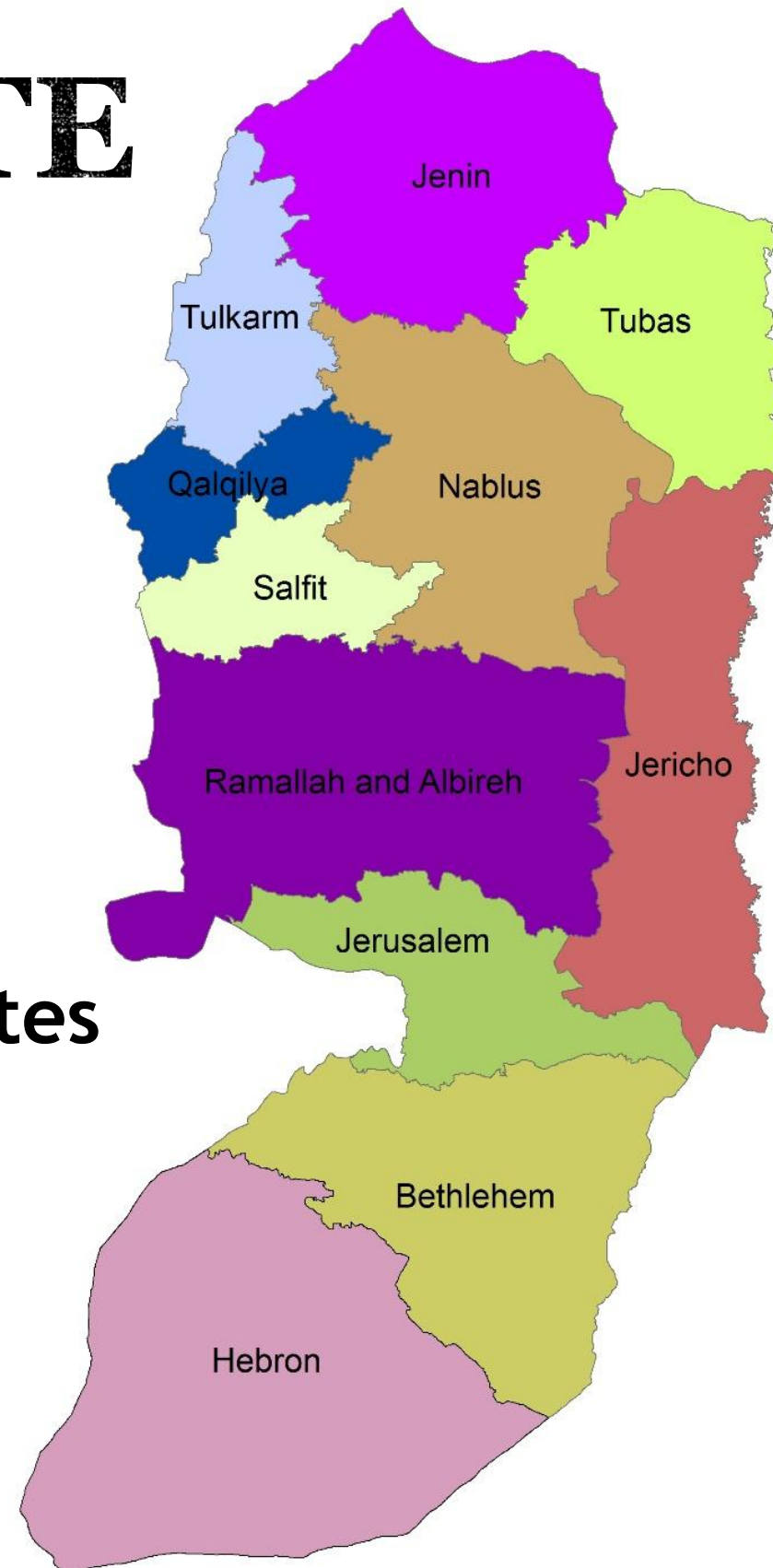
# THE SITE

The Population of WB is 2.9 millions



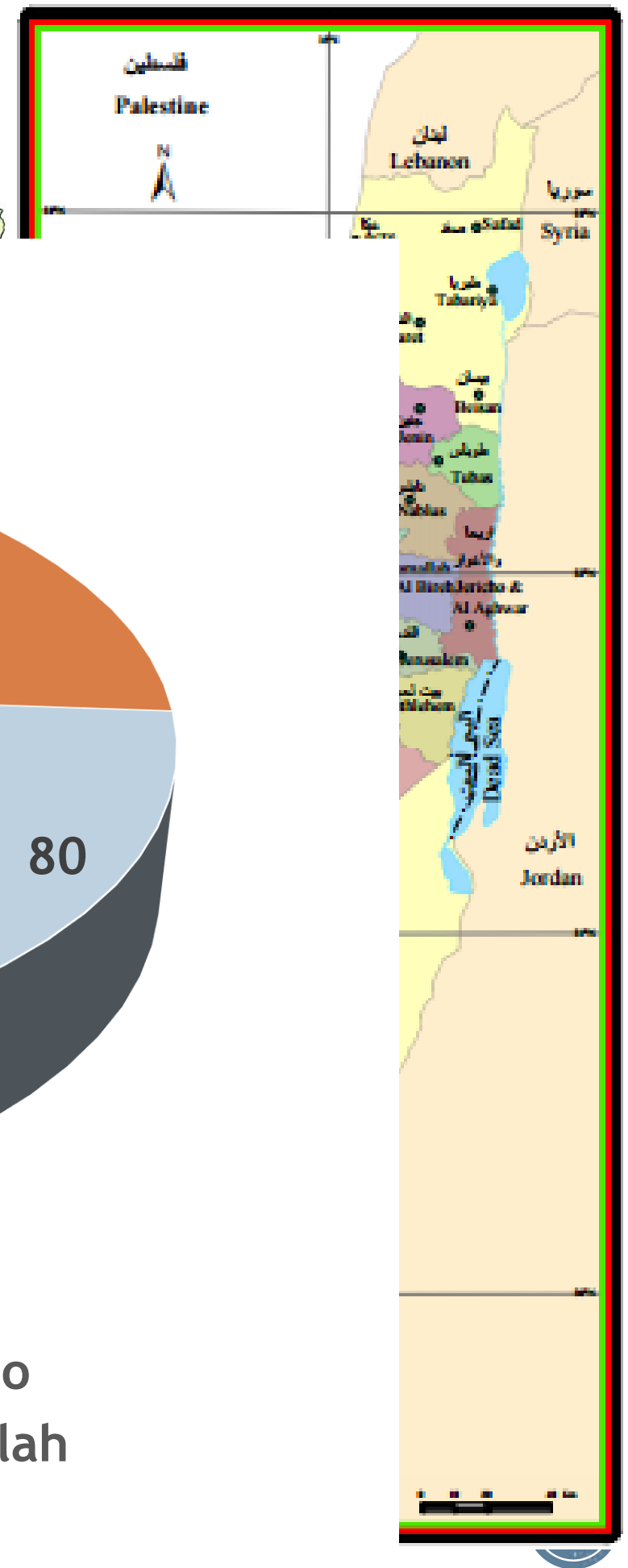
# THE SITE

- 11 governorates

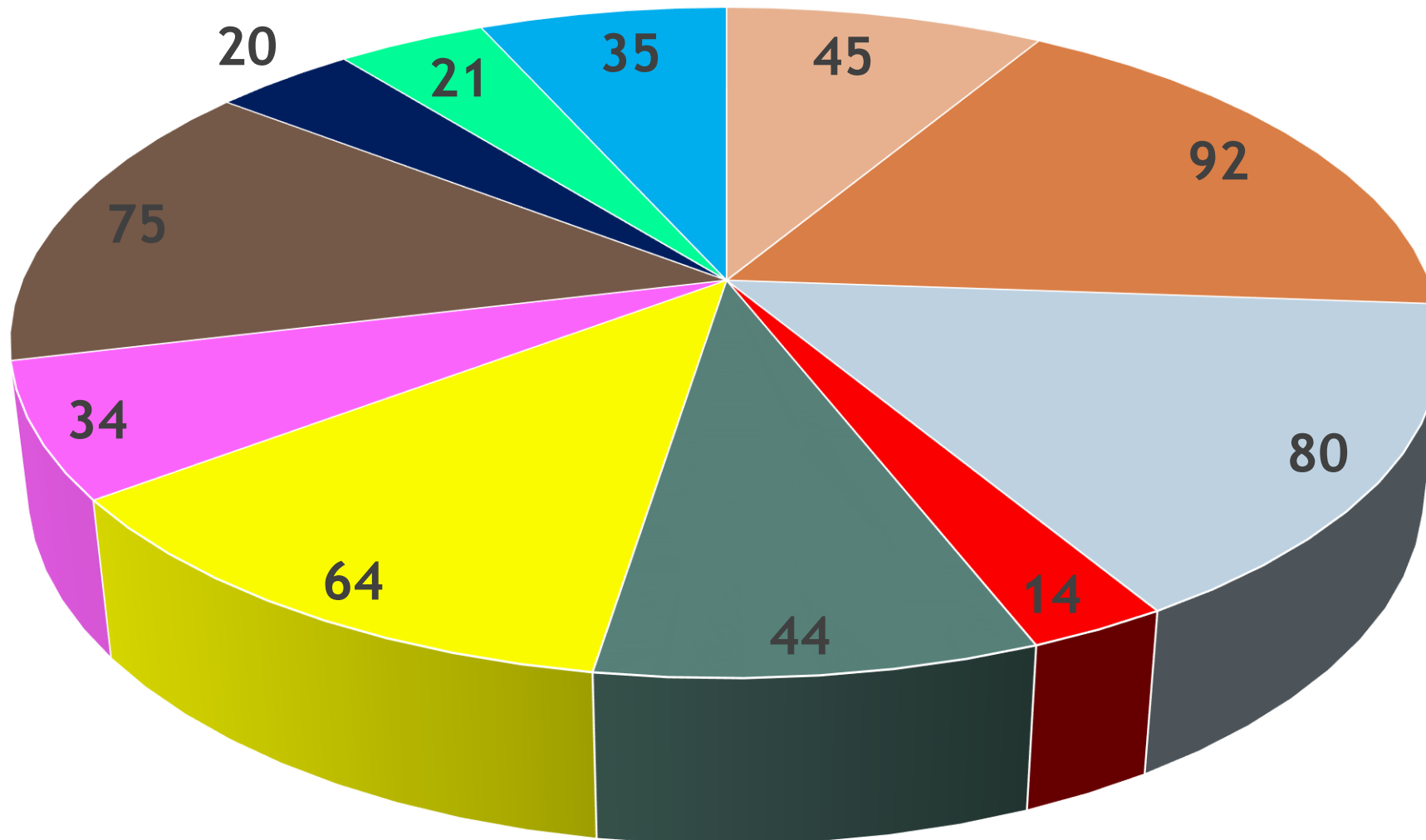




# THE SITE



Num of communities



- |           |        |          |          |
|-----------|--------|----------|----------|
| Bethlehem | Hebron | Jenin    | Jericho  |
| Jerusalem | Nablus | Qalqilya | Ramallah |
| Salfit    | Tubas  | Tulkarm  |          |

# **Services Centers and Hierarchy in the WB**



# Public services centers



## Legend

-  regional center
-  sub-regional center
-  local center
-  Neighborhood center
-  regional roads
-  main roads
-  Governorate

0 1.75 3.5 7 10.5 14 Kilometers

## Public services centers



# Levels Of HF





# Levels of health services according to MOP study

level	Description
level1	health center& health clinic Primary health care
level2	comprehensive health center
level3	General hospital
level4	Specialized hospital



# Levels of health services according to MOH

levels		Description
Primary “Level 1”	primary1	Health points association
	primary2	health clinic
	primary3	health center
	primary4	comprehensive health center
Secondary “level 2”		General hospital
Tertiary “level 3”		Specialized hospital



# How to deal with two classifications ( Moh & MOP study

MOH	MOP Study
primary1	level1
primary2	
primary3	
primary4	level2
Secondary “level 2”	level3
Tertiary “level 3”	level4



Level description	Health level	Centers hierarchy			
		Regional center	Sub-regional center	Local center	Neighborhood center
Primary health centers	Health level one	X	X	X	X
Comprehensive health center	Health level two	X	X	X	
General hospitals	Health level three	X	X		
Specialized hospitals	Health level four	X			

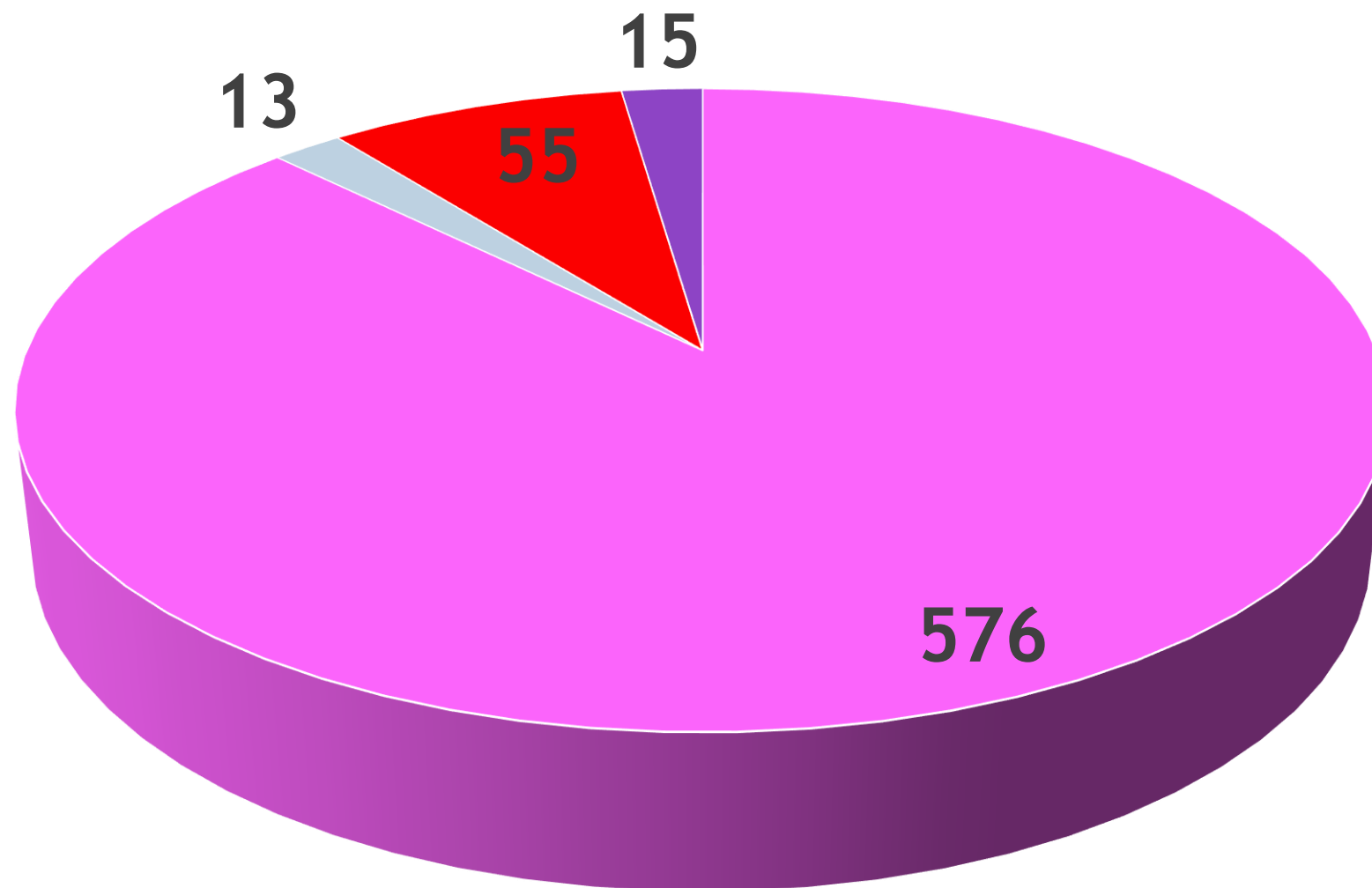




# **The distribution of HF in WB according to level of service**



## Number of HF



■ 1st level

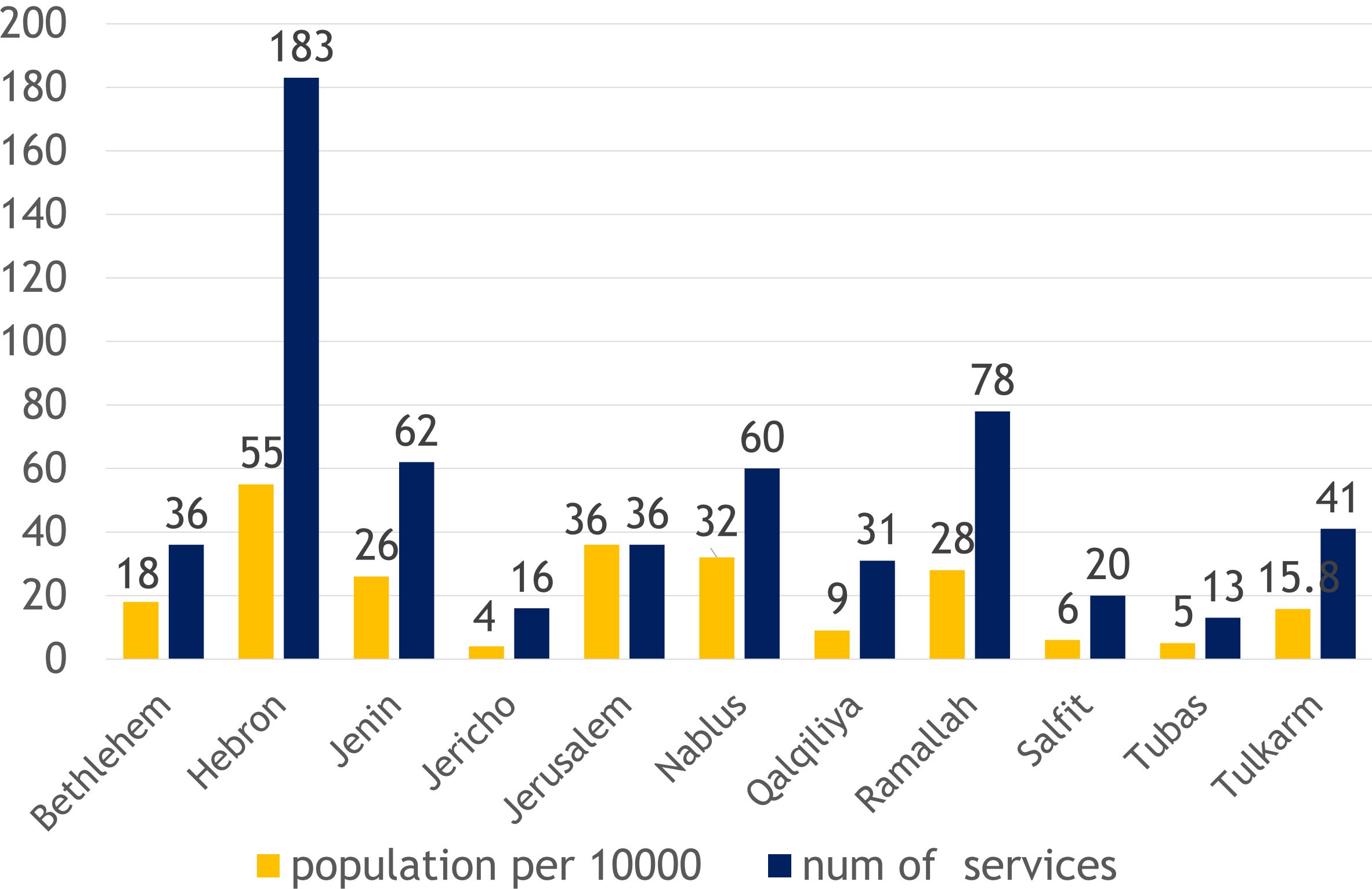
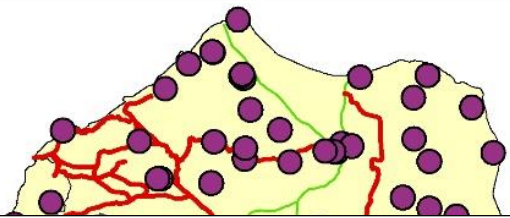
■ 2nd level

■ 3rd level

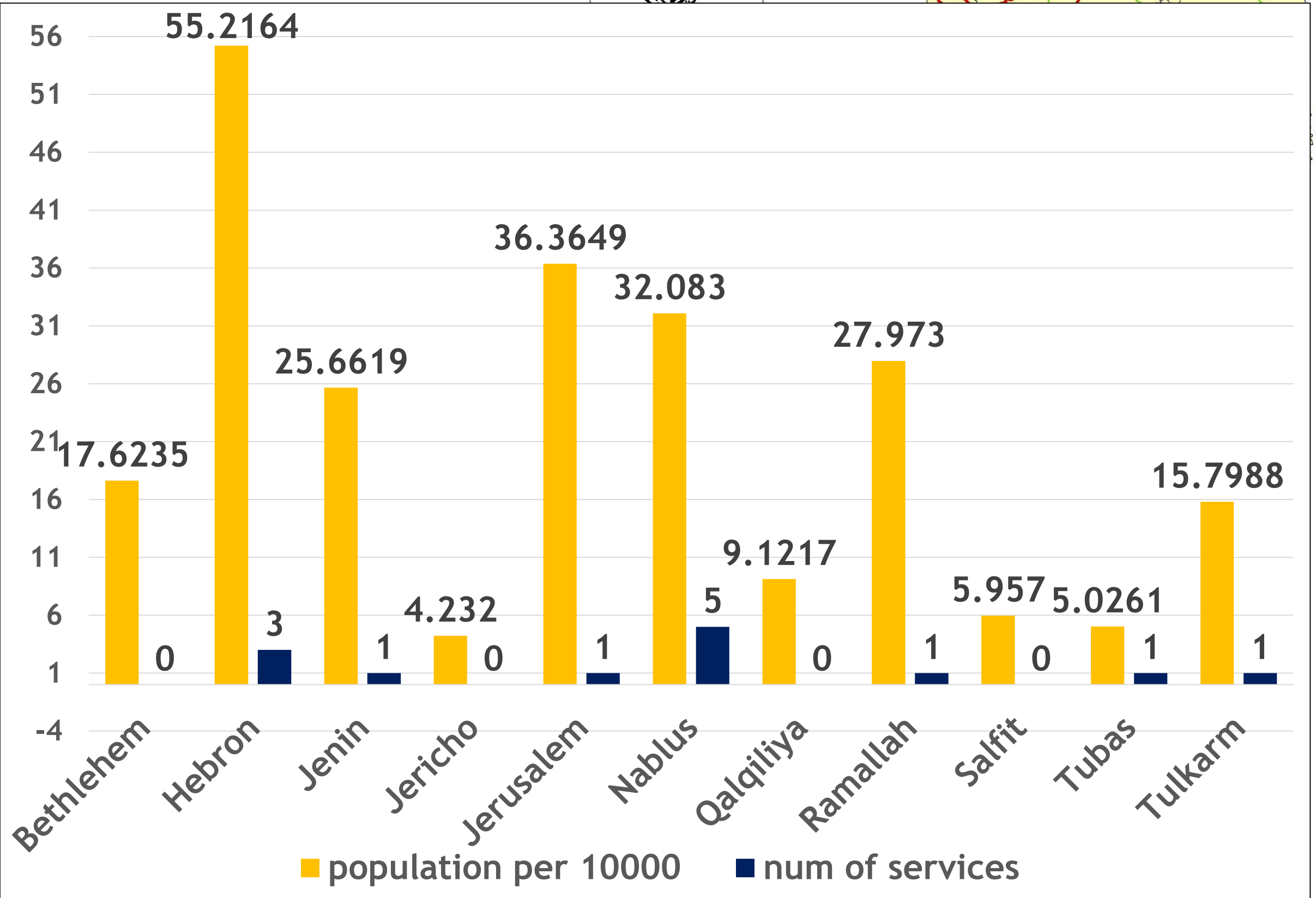
■ 4th level



# 1<sup>st</sup> level

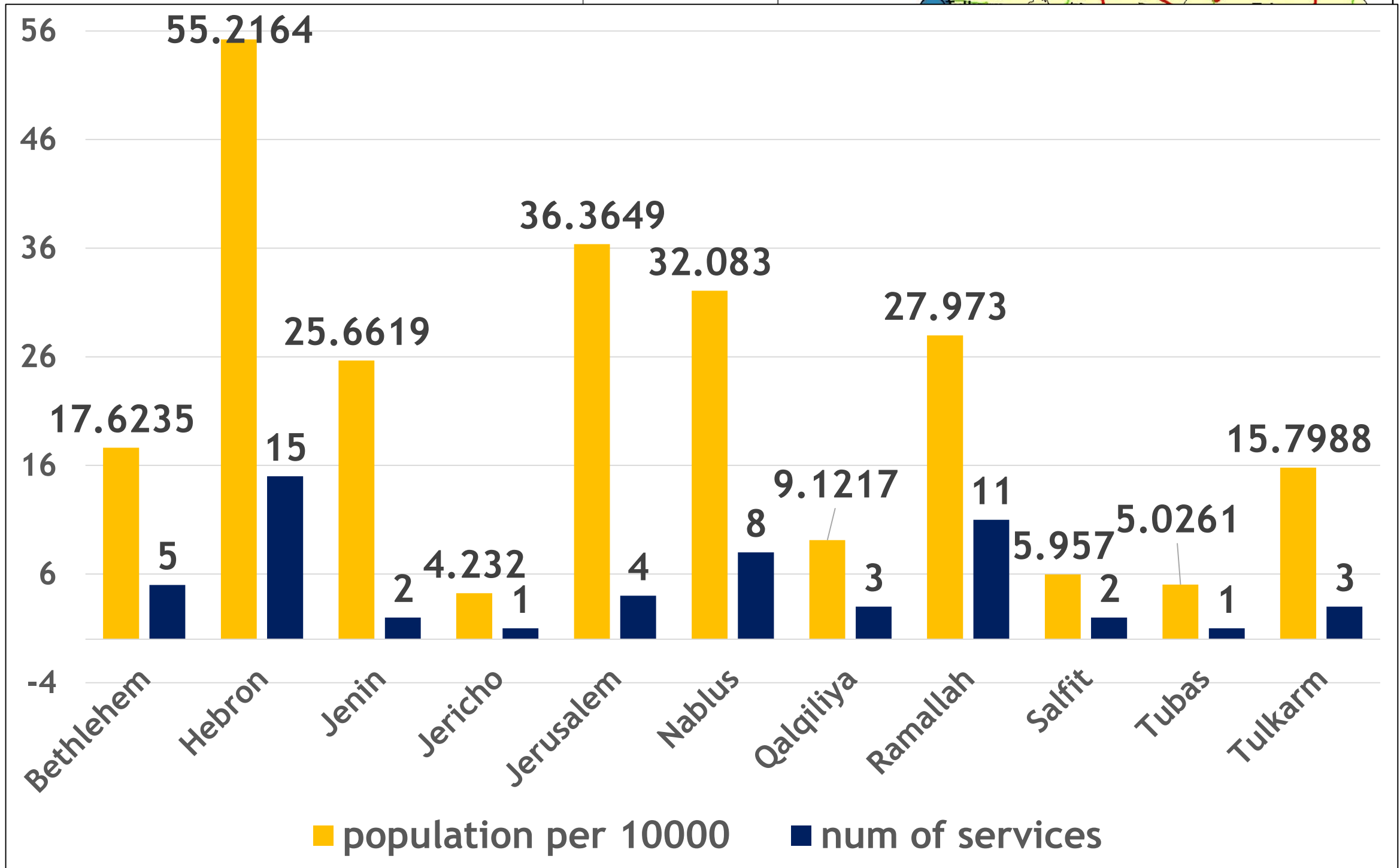
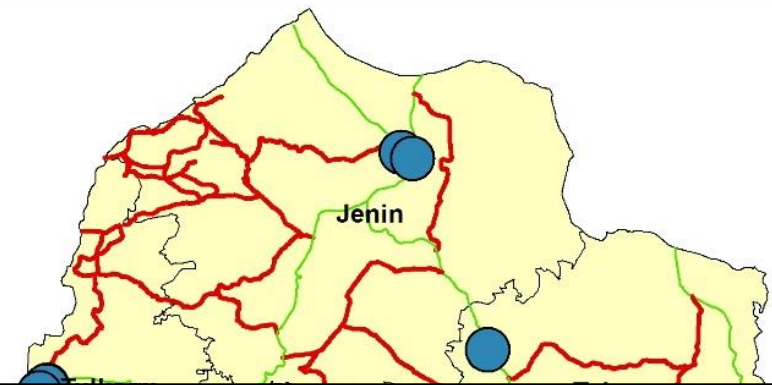


# 2<sup>nd</sup> level

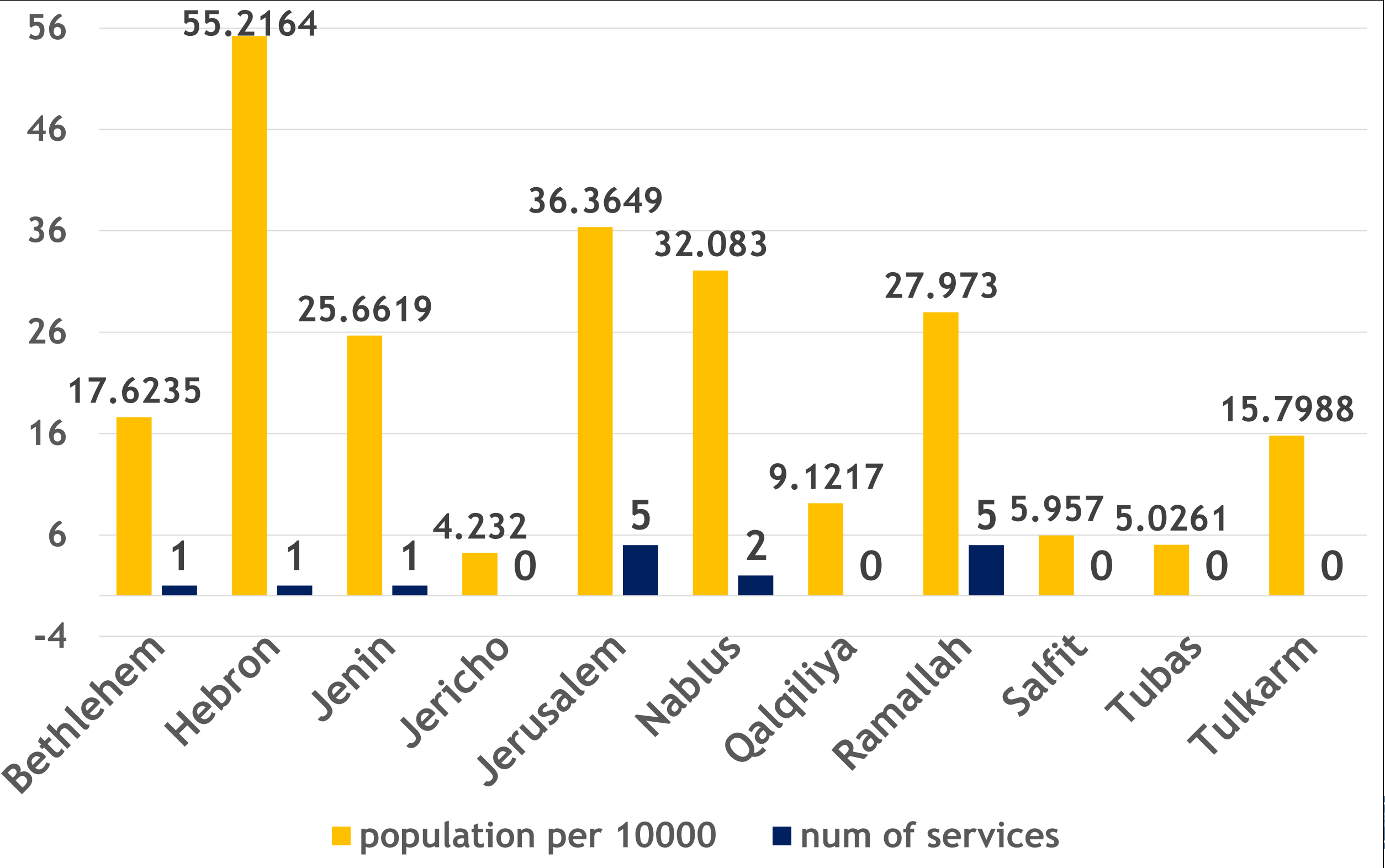




# 3<sup>rd</sup> level



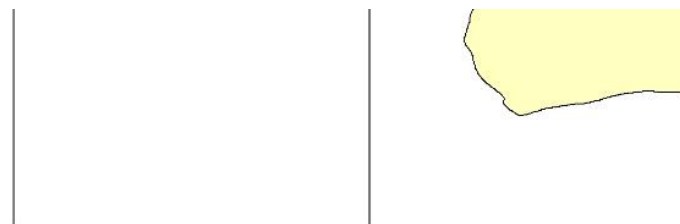
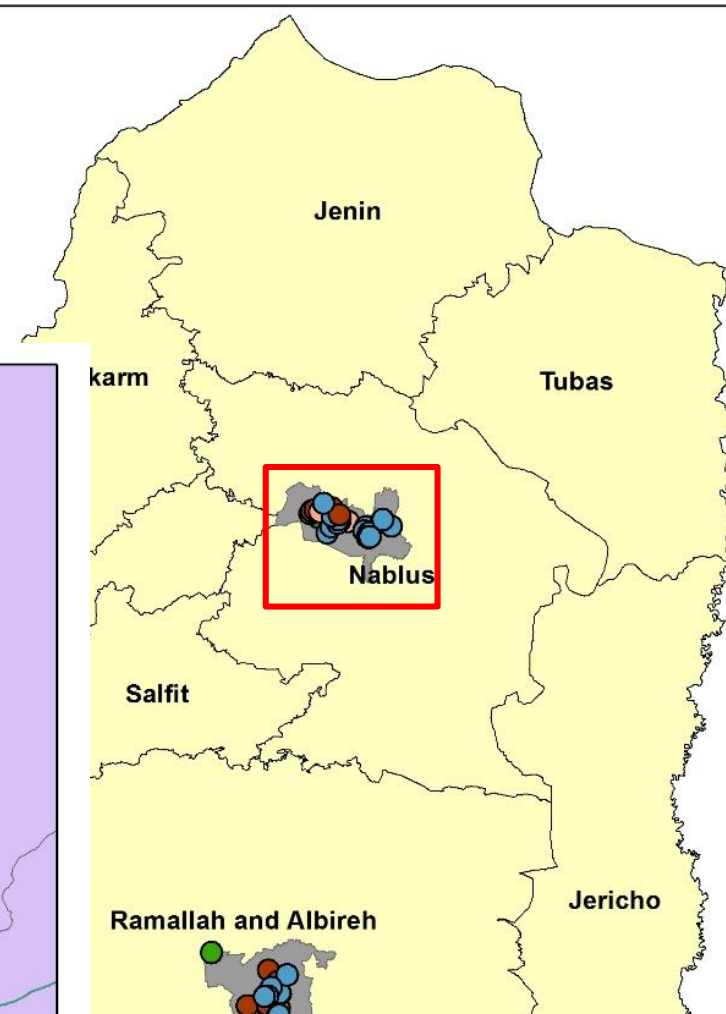
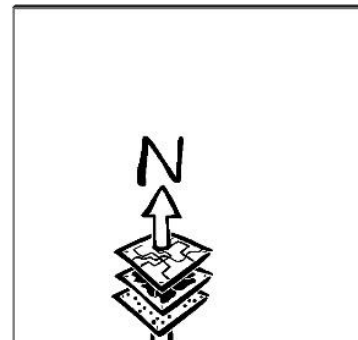
# 4<sup>th</sup> level



# **The distribution of HF in each level of communities in WB**



# nabulus

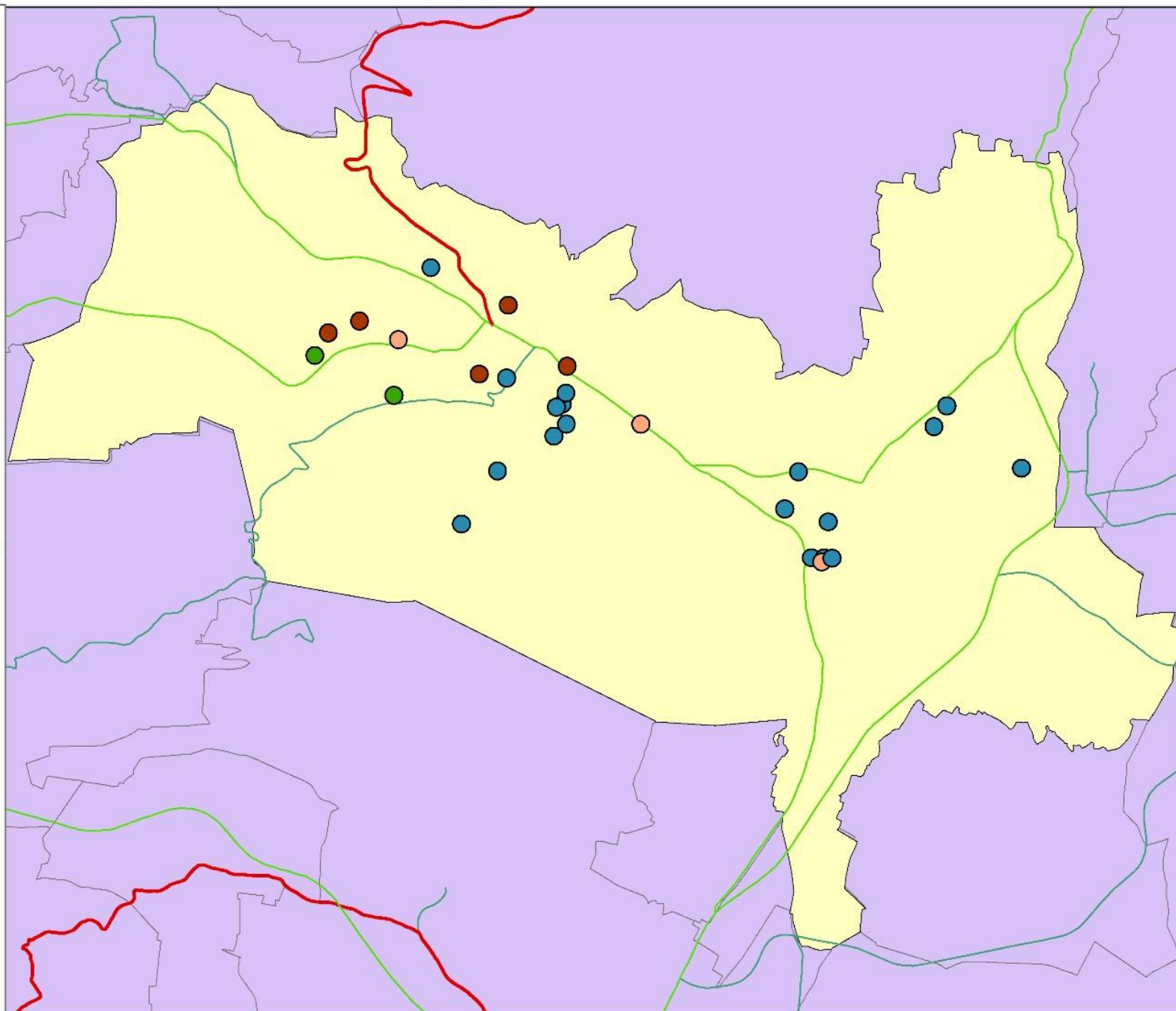


## Legend

- 1st level
- 2nd level
- 3rd level
- 4th level
- regional roads
- main roads
- local roads
- Regional center/Nablus
- Communities

0 0.176.35 0.7 1.05 1.4 Kilometers

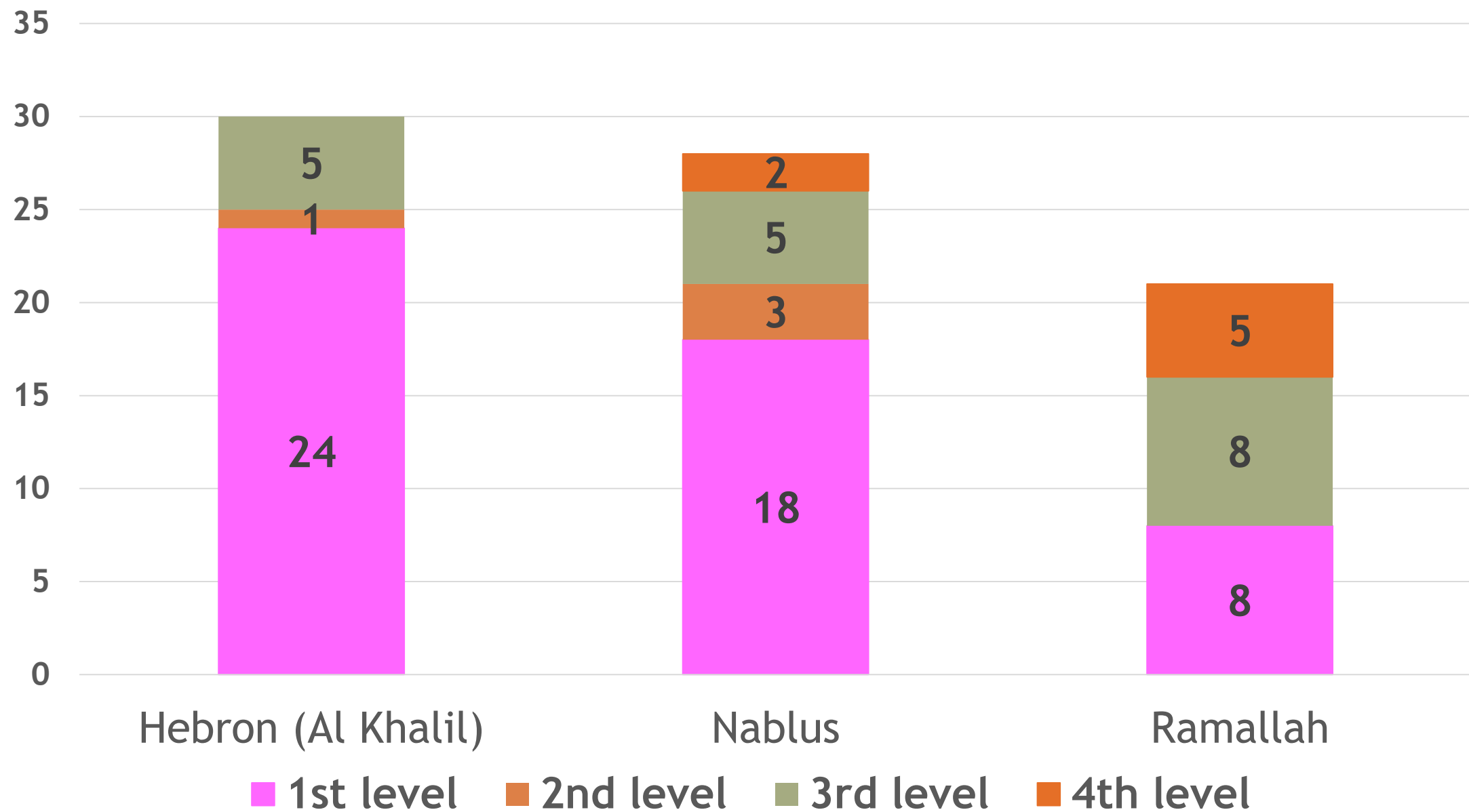
## Health facilities in Nablus



## Legend

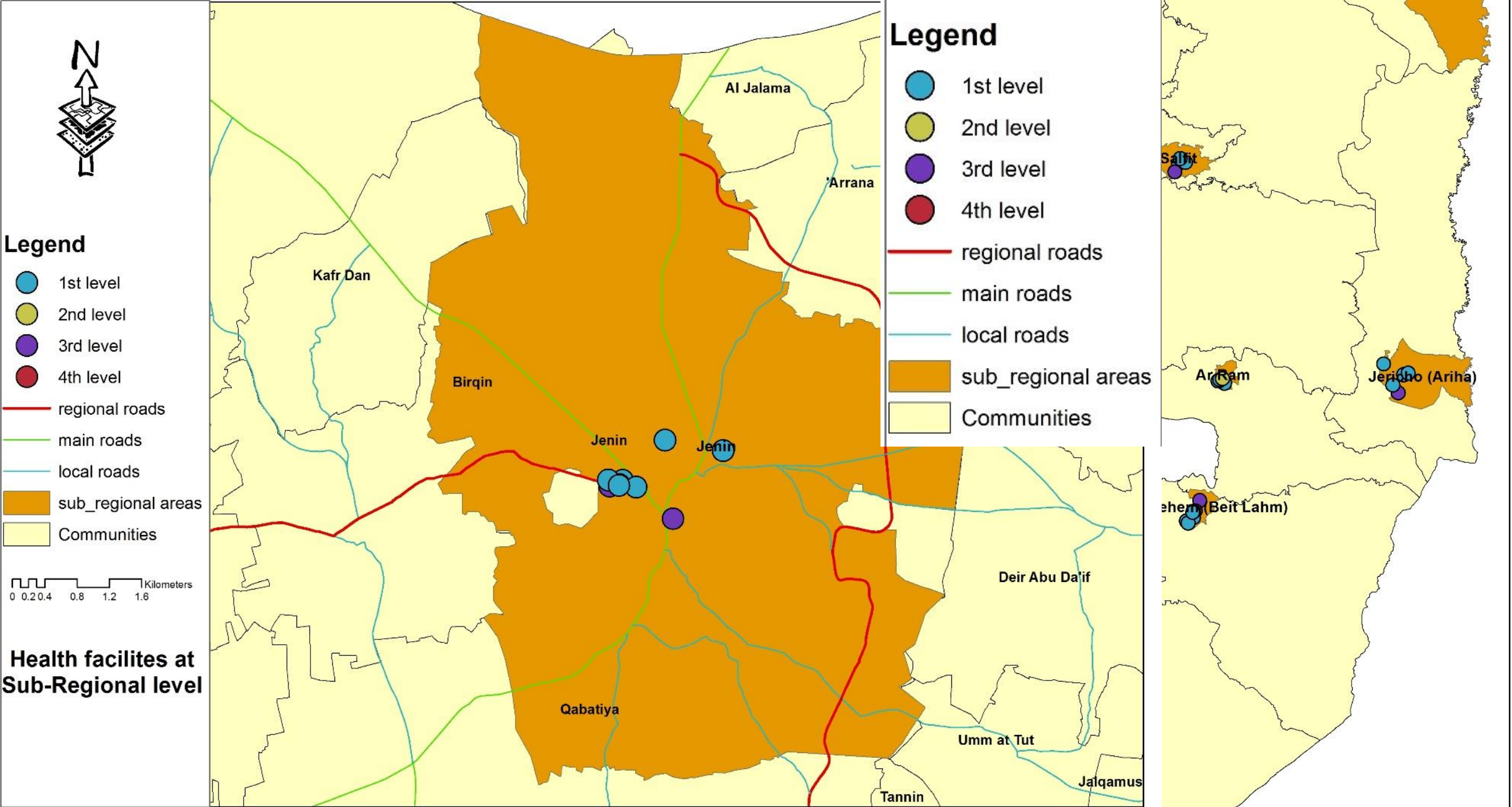
- 1st level
- 2nd level
- 3rd level
- 4th level
- regional roads
- main roads
- local roads
- Regional center/Ramallah
- Communities

# regional- HF Levels





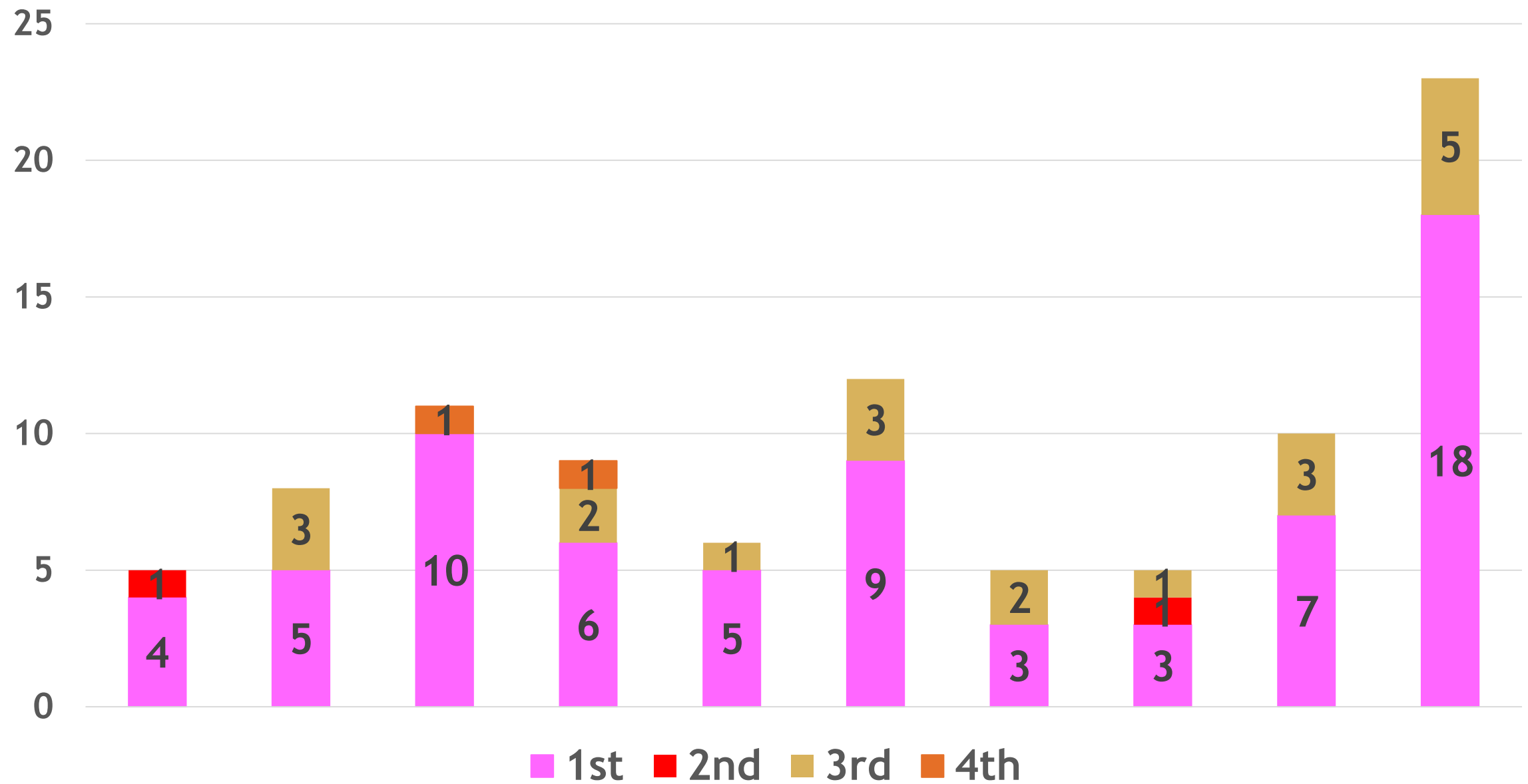
# Sub-regional



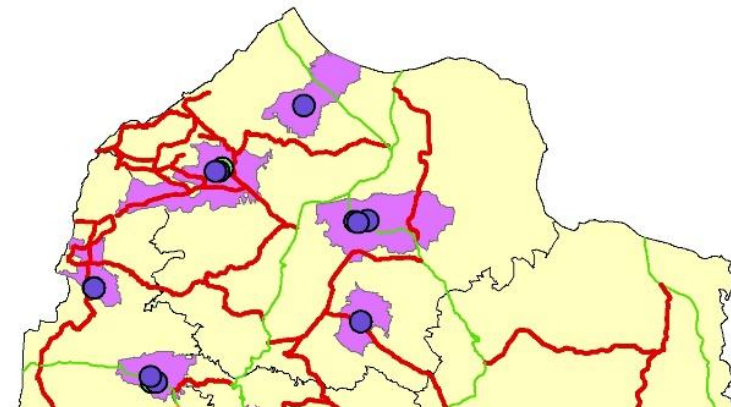


# Sub-regional

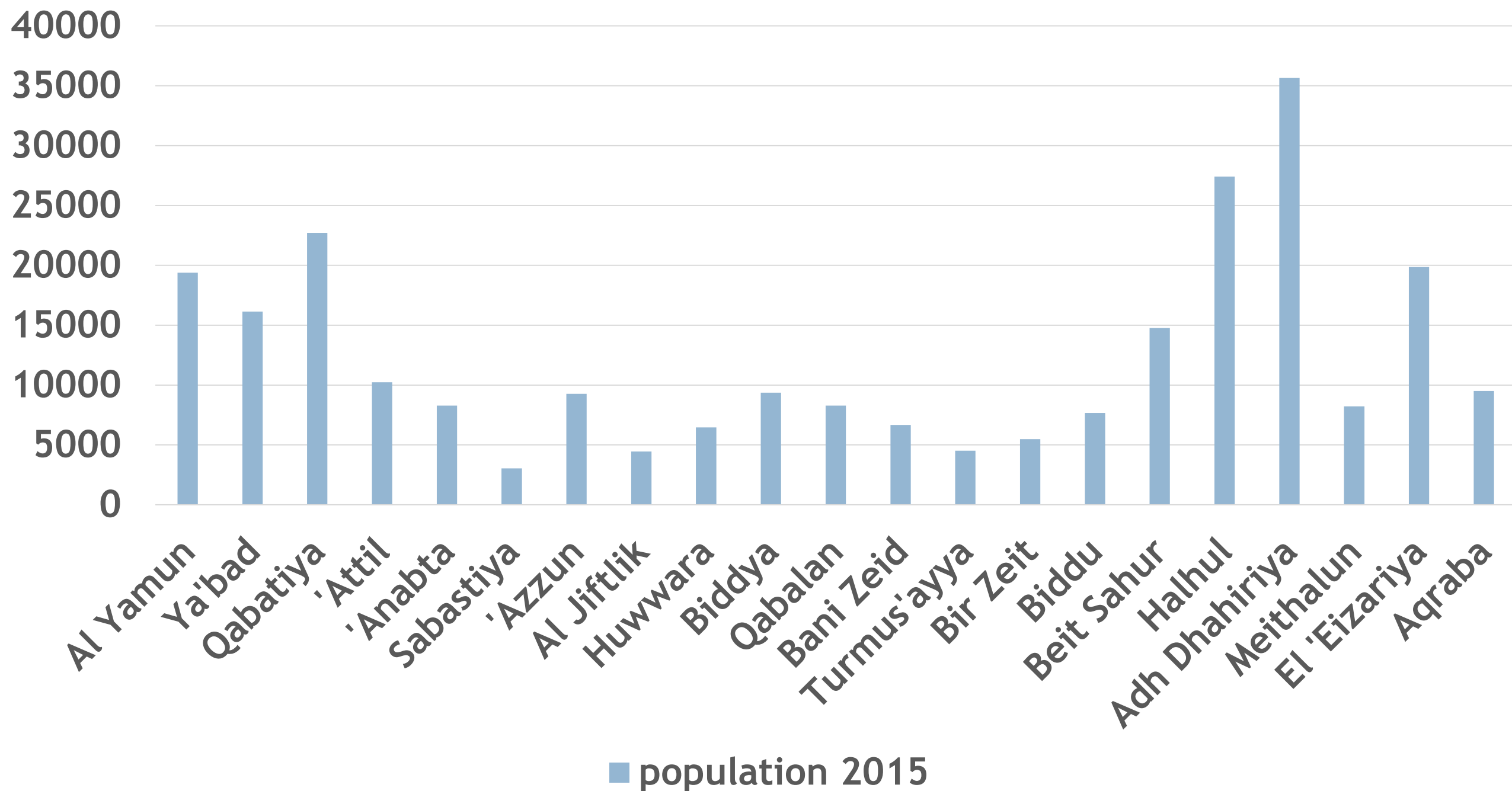
The distribution of HF at sub-regional level



# local

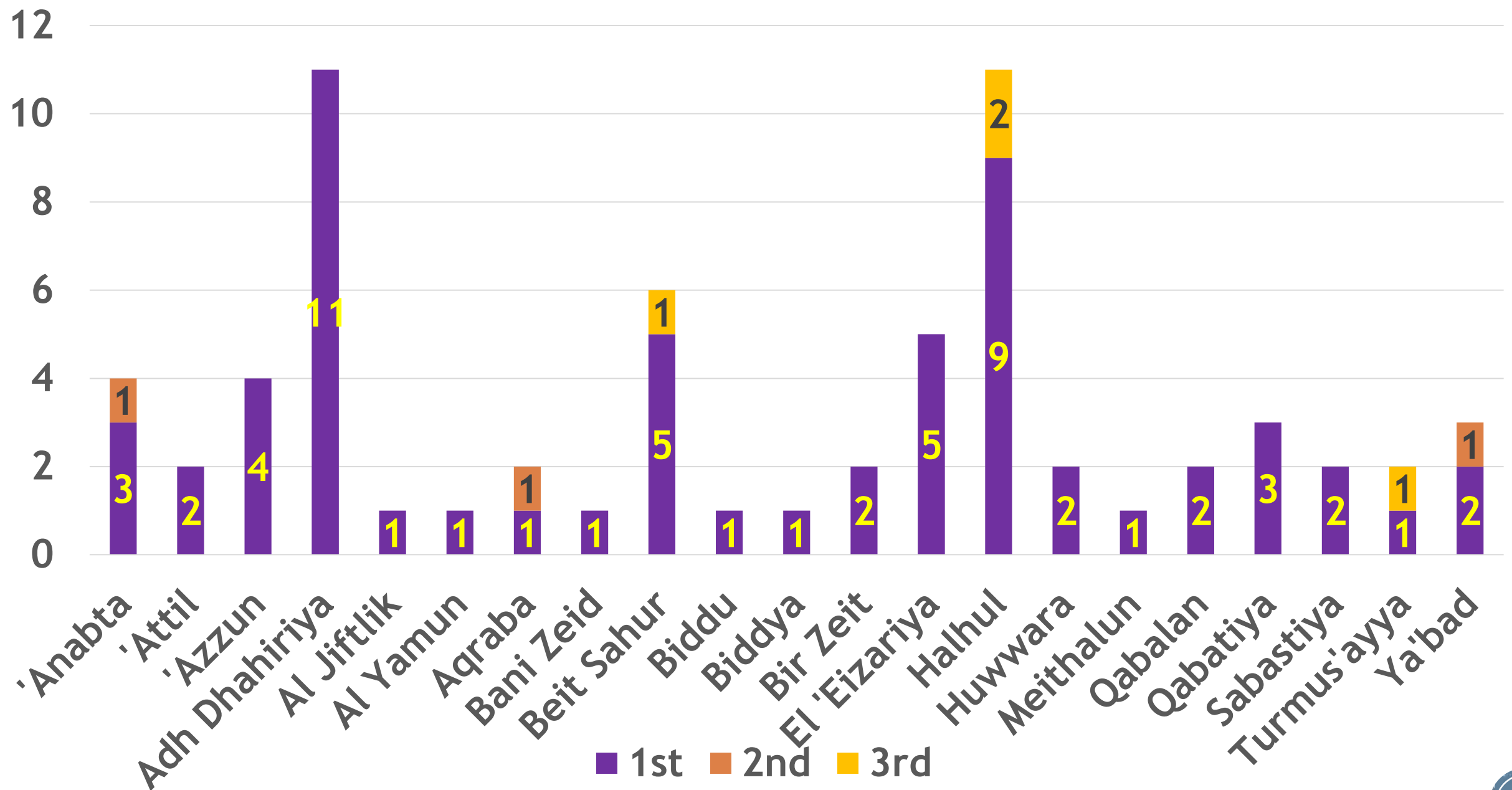


## Population 2015

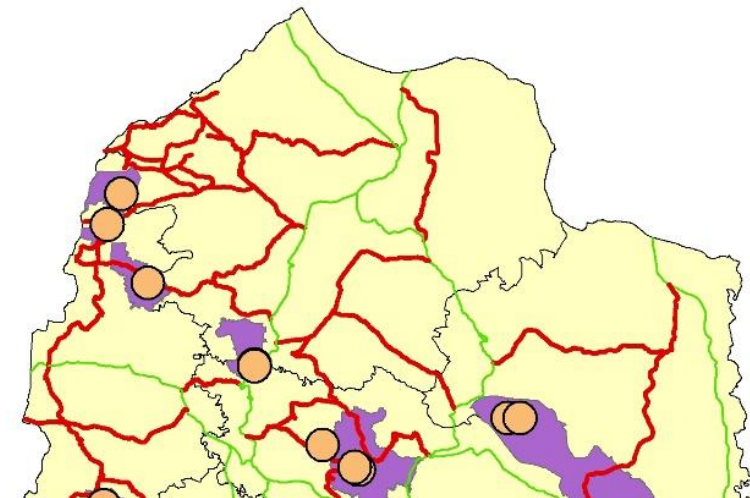


# local

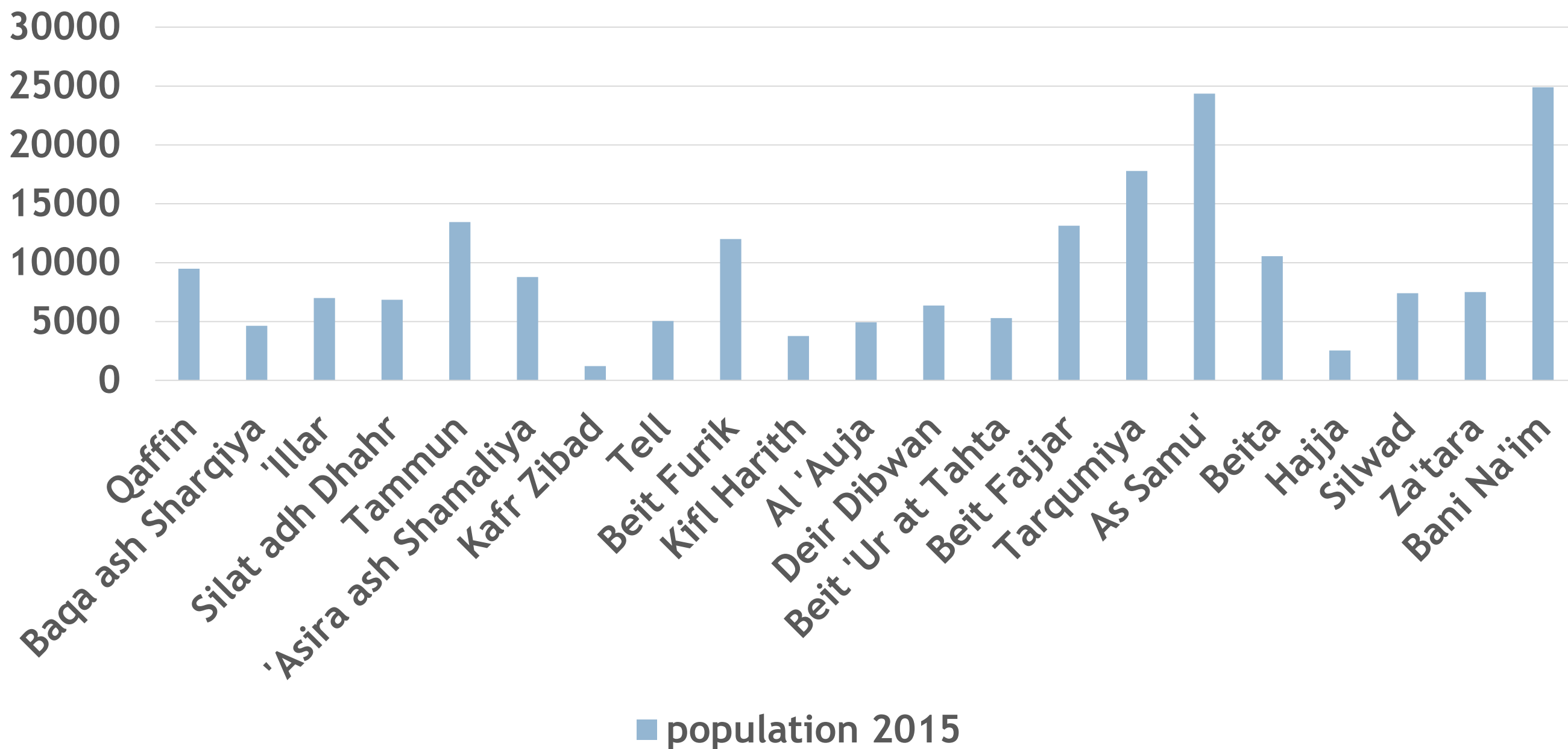
The distribution of HF at local level



# Neighborhood

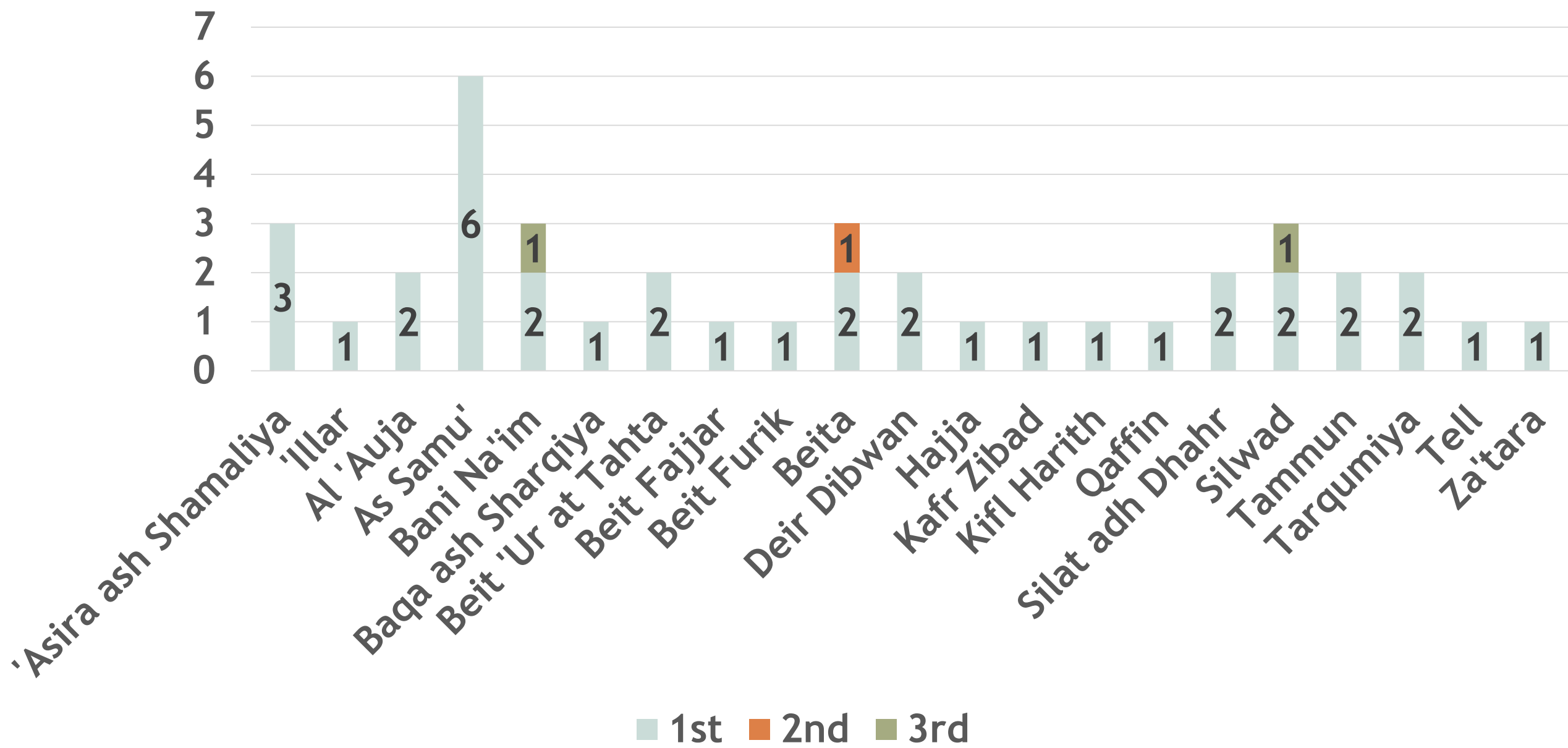


population 2015



# Neighborhood

The distribution of HF at NEIGHBORHOOD level



# National SWOT analysis













# Weaknesses



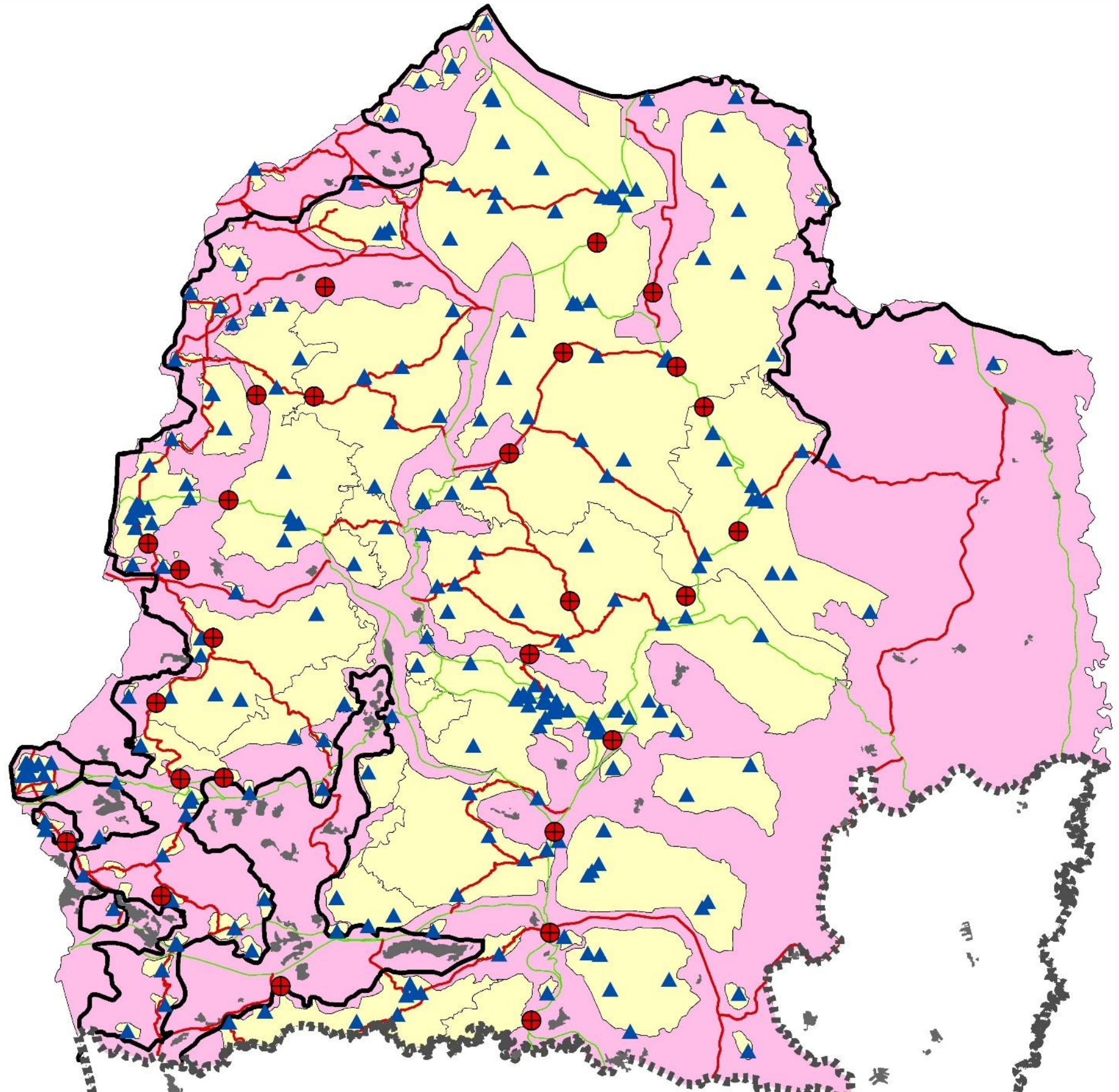


## Legend

-  regiones
-  Hleath facitlites
-  regional roads
-  main roads
-  Governorate
- threats**
-  checkpoints
-  ApartheidWall
-  Area C
-  Colonies

0 1.5 3 6 9 12 Kilometers










## Political threats in the north region





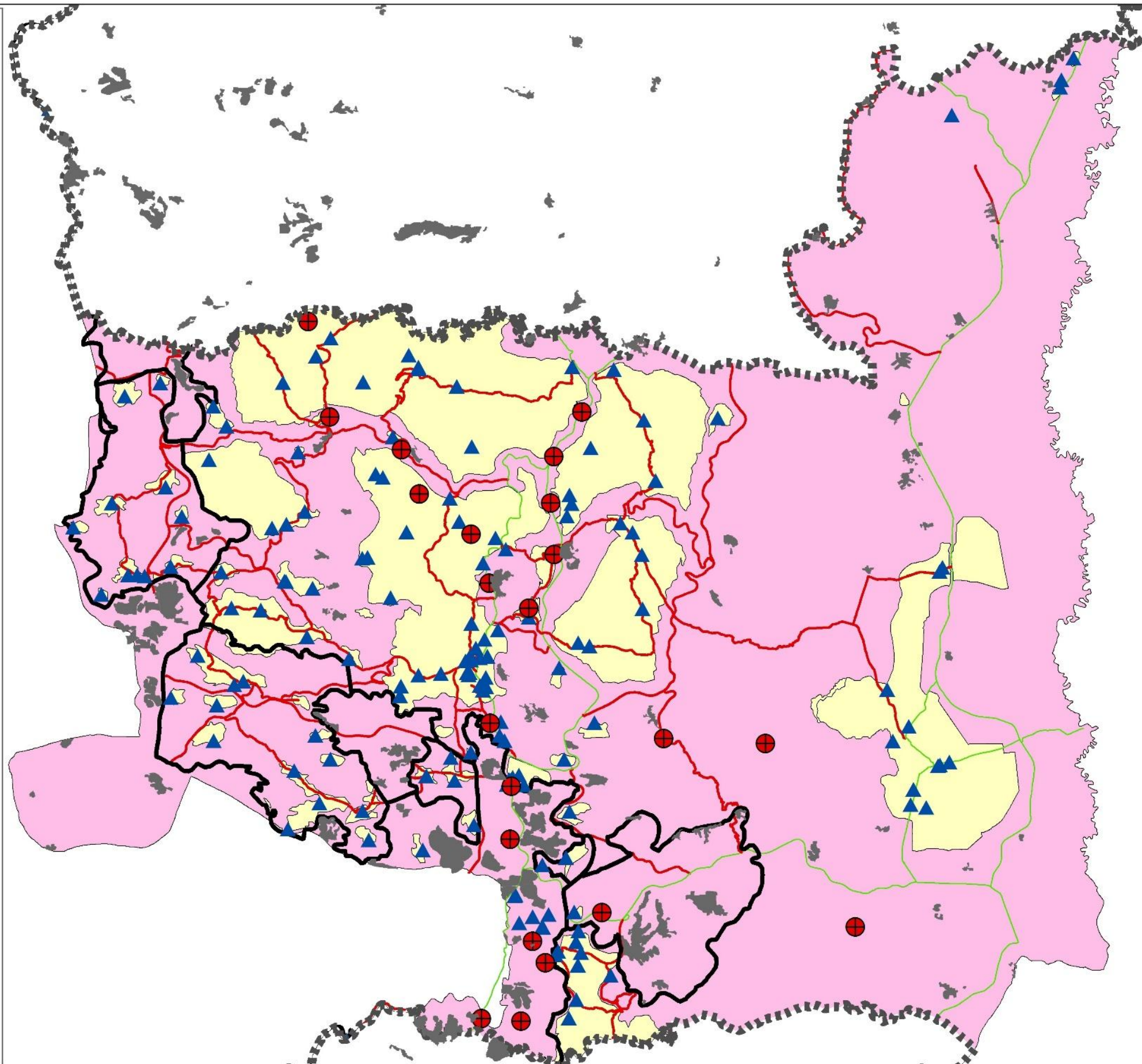


## Legend

-  regiones
-  Hleath facitlites
-  regional roads
-  main roads
-  Governorate
- threats**
-  checkpoints
-  ApartheidWall
-  Area C
-  Colonies

0 1.5 3 6 9 12 Kilometers







## Political threats in the middle region





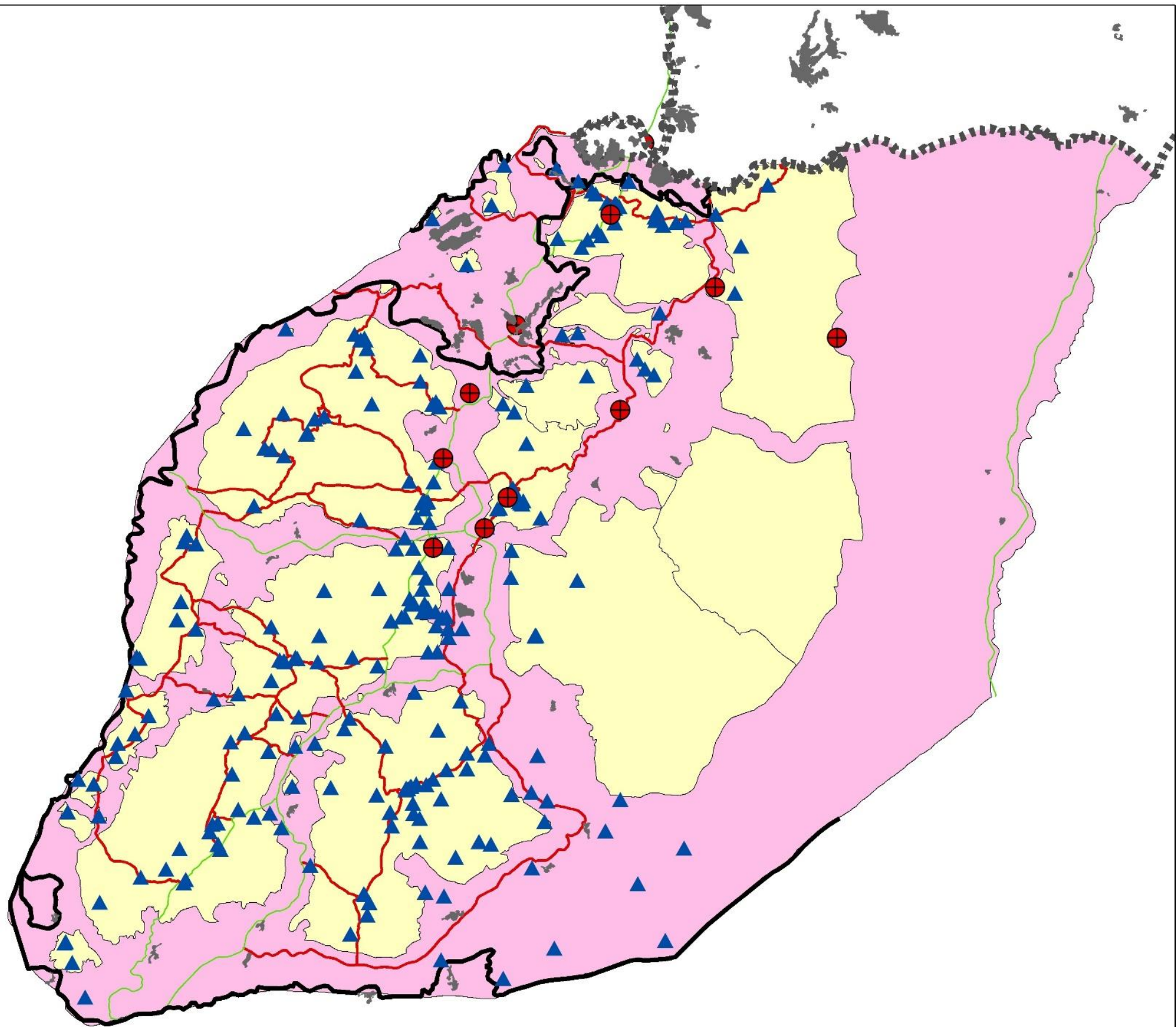


## Legend

-  regiones
-  Hleath facitlites
-  regional roads
-  main roads
-  Governorate
- threats**
-  checkpoints
-  ApartheidWall
-  Area C
-  Colonies

0 1.5 3 6 9 12 Kilometers

## Political threats in the south region





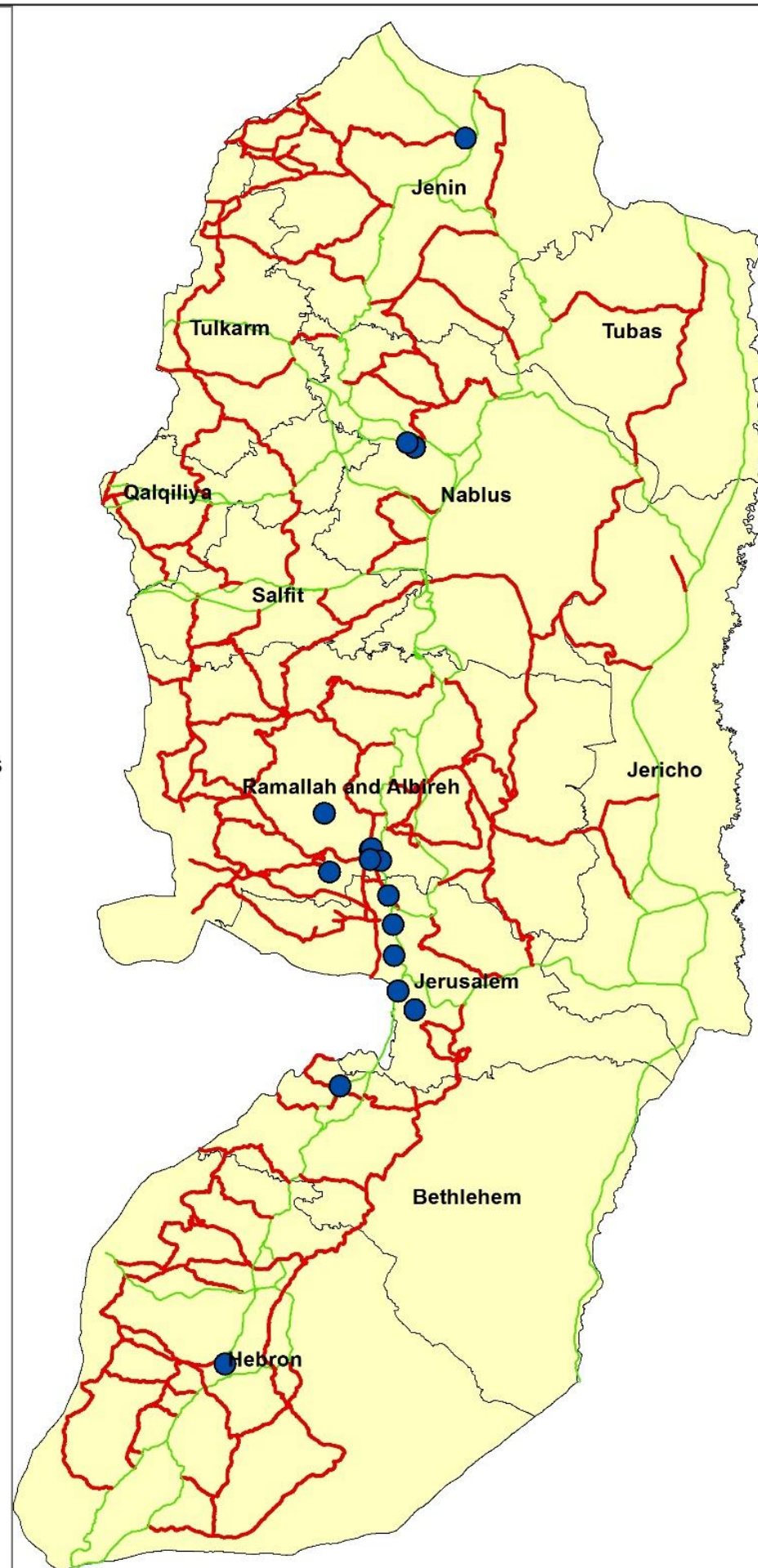
### Legend

- Specialized hospitals
- regional roads
- main roads
- Governorate

0 2.75 5.5 11 16.5 22 Kilometers

### Threats






**Bad distribution of  
Specialized  
hospitals in WB**







### Legend

-  camps
-  UNRWA hospital
-  regional roads
-  main roads
-  Governorate

0 2.75 5.5 11 16.5 22 Kilometers

### Threats

Lack of  
UNRWA  
hospital in  
WB





# Strengths





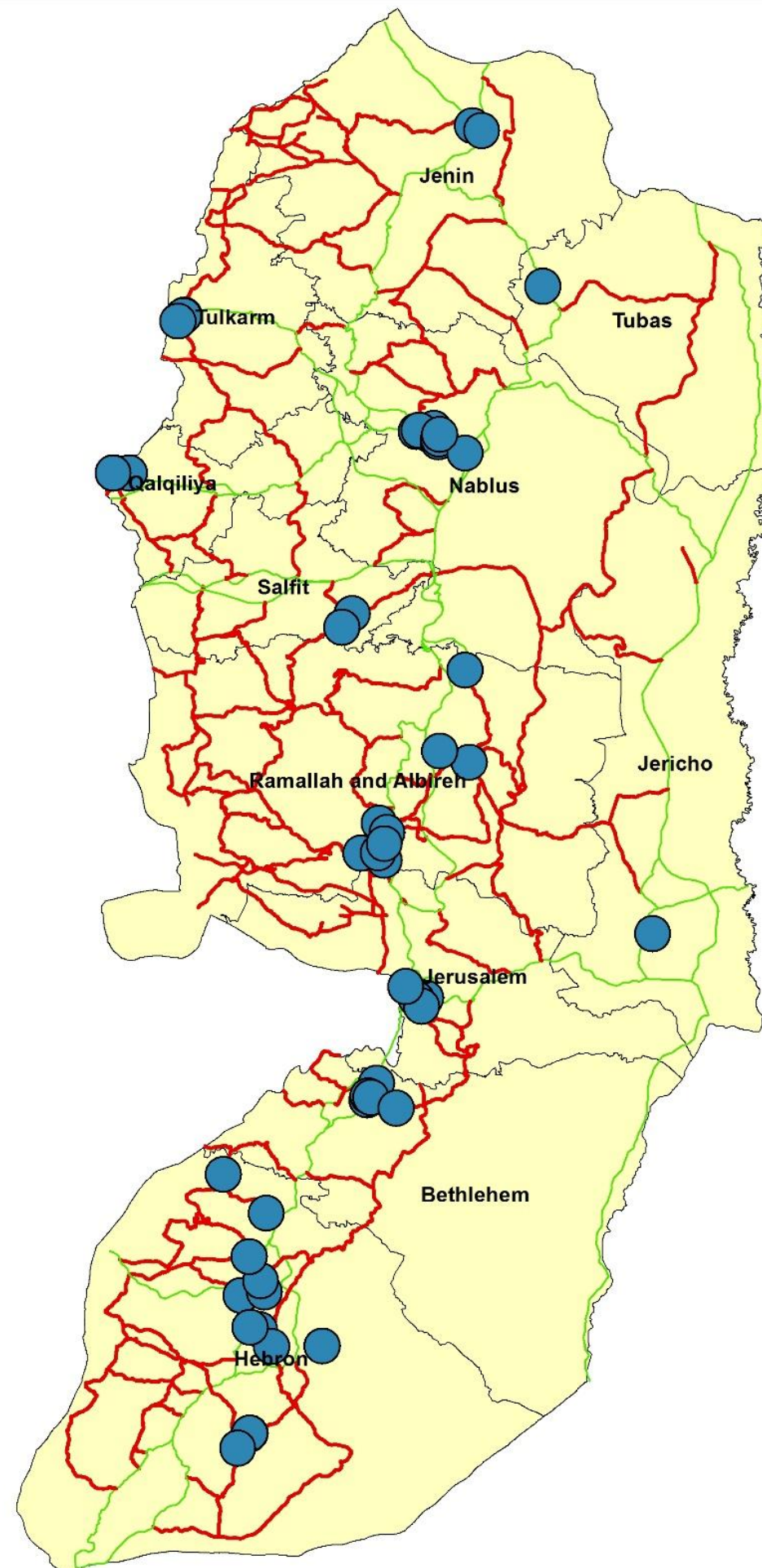
### Legend

-  level three
-  regional roads
-  main roads
-  Governorate

0 1.7 3.5 7 10.5 14 Kilometers

### Strengths

### Health facilities level three





### Legend

-  Multi specialization
-  Children with disabilities
-  Elderly
-  Rehabilitation
-  Eyes
-  Heart
-  Maternity hospital

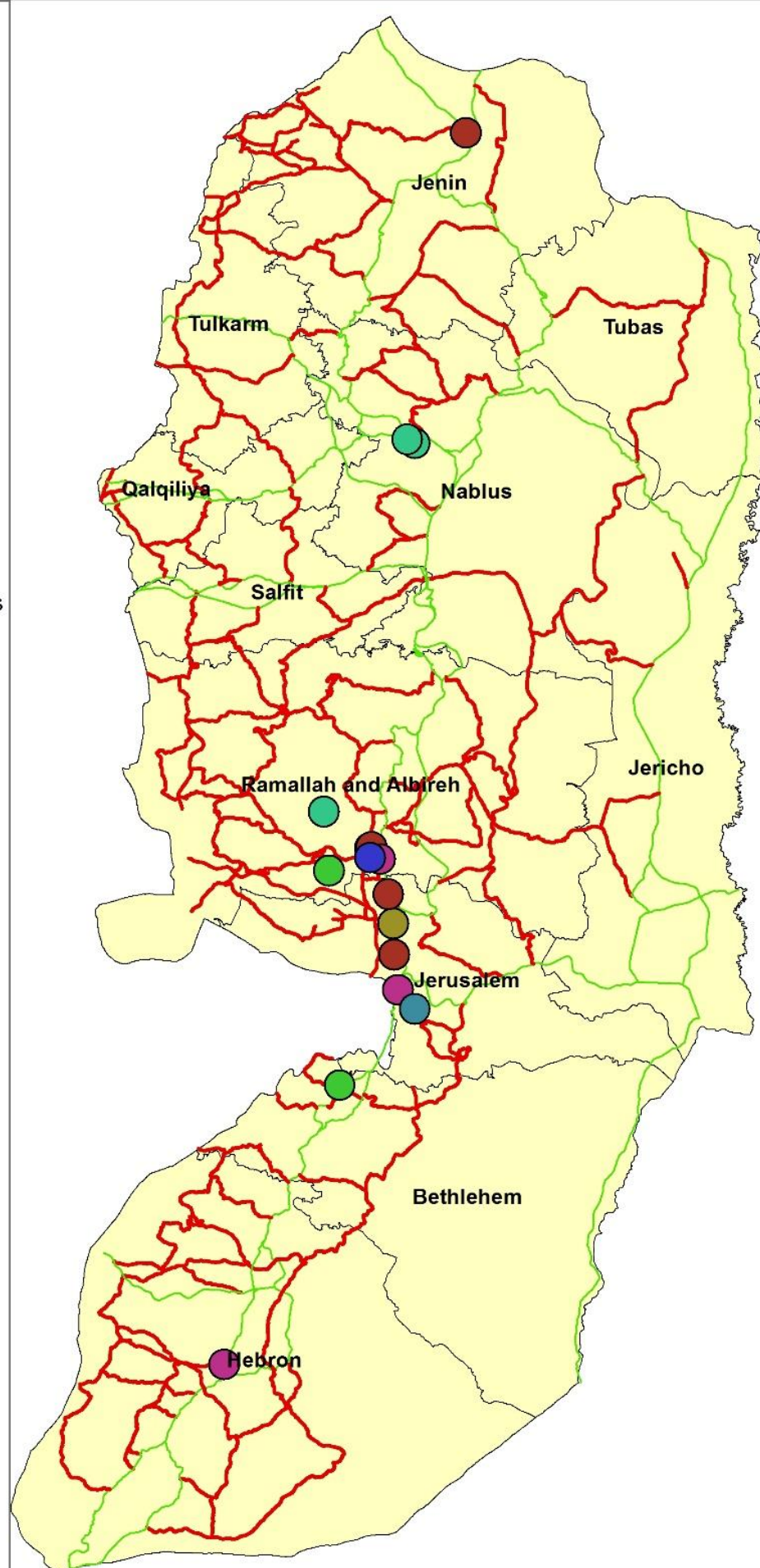
-  regional roads
-  main roads
-  Governorate

0 2.75 5.5 11 16.5 22 Kilometers

### Strengths

#### Specialized hospitals in WB

(ther are many types of specialized hospitals)



# **Current condition of HF in each governorate in WB**



# Hebron

Hebron			
Regional	Sub Regional	Local	Neighborhood
X	X	X	X







## Legend

 Governorate

### Levels of HF

 1st level


 2nd level

 3rd level

 4th level

 regional roads

 main roads

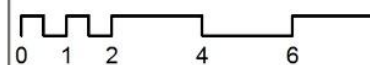
 regional community

 sub\_regional community

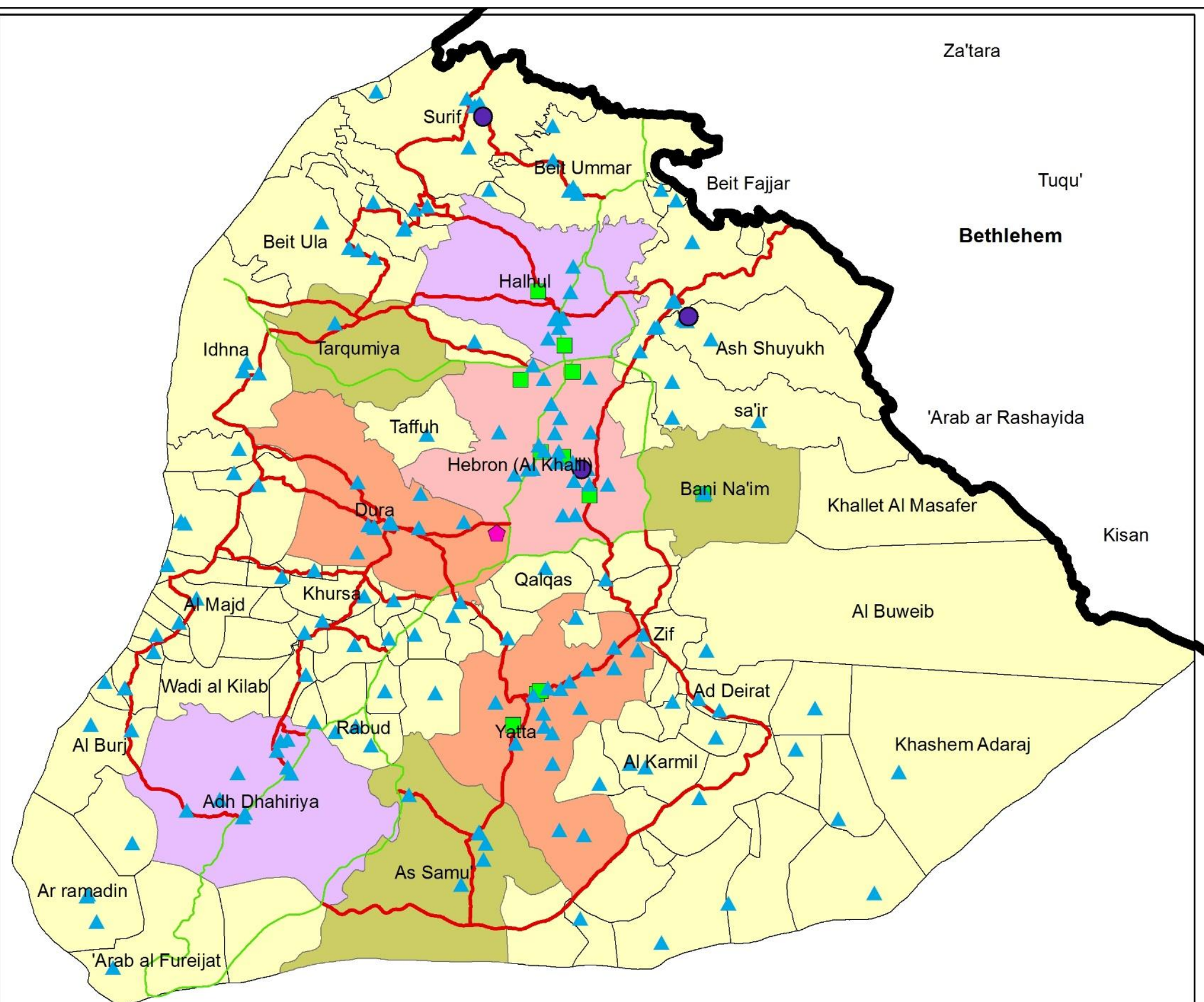
 local community

 Neighborhood community

 Community

 Kilometers

## communities levels &Healt facilities in Hebron







## Legend

 Governorate

### Levels of HF

 1st level

 2nd level

 3rd level

 4th level

 regional roads

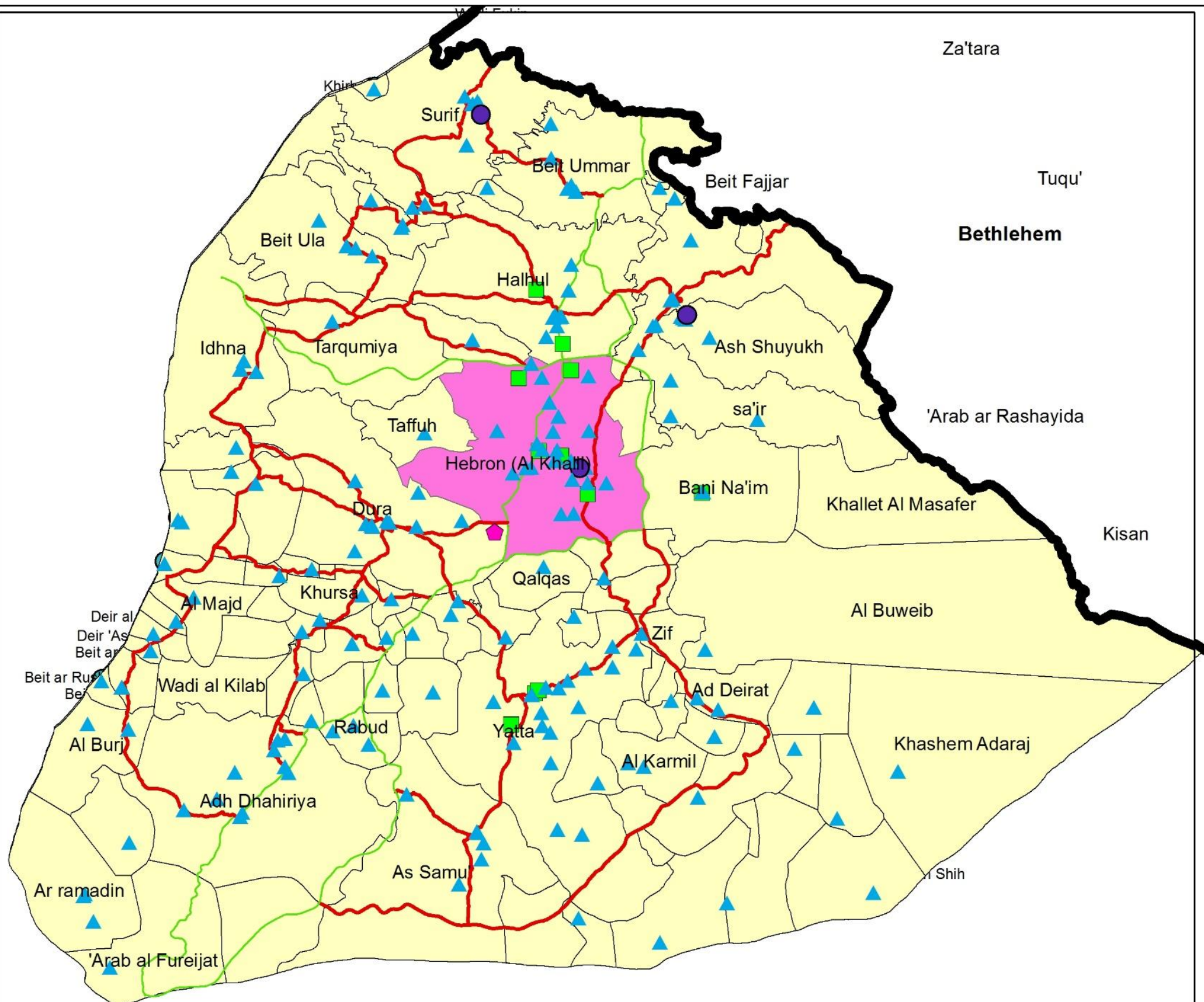
 main roads

### status

 regional without 4th level

 Kilometers

**current condition**  
**of regional**  
**communities**







## Legend

 Governorate

### Levels of HF


 1st level

 2nd level

 3rd level


 4th level

 regional roads

 main roads

### comm with pop and c le

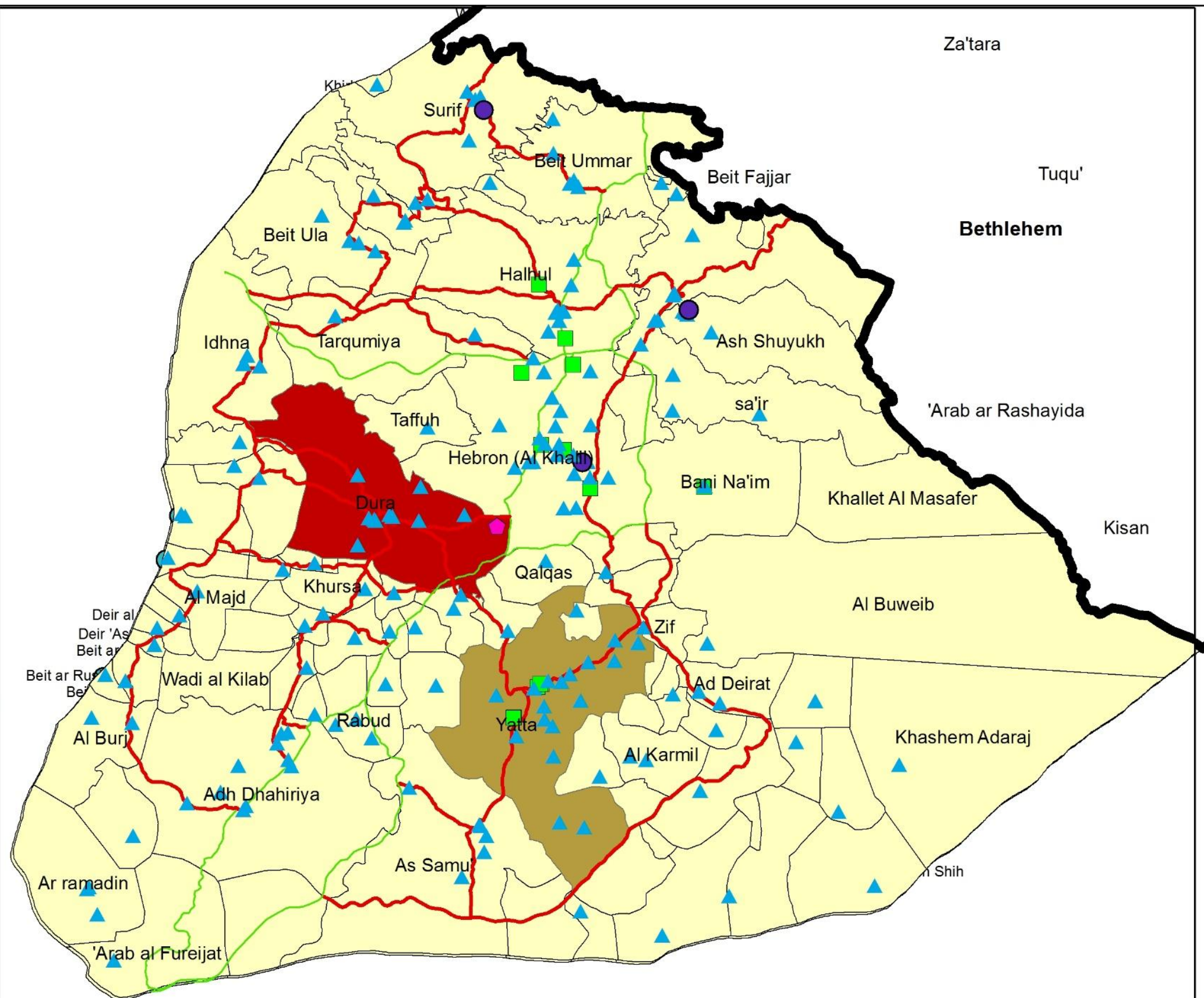
#### status

 sub regional without 2nd level

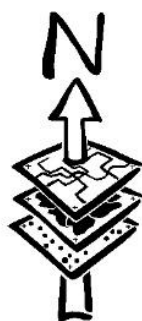
 sub regional without 2nd & 3rd level

 Kilometers

**current condition**  
**of sub-regional**  
**communities**







## Legend

 Governorate

### Levels of HF

 1st level

 2nd level

 3rd level

 4th level

 regional roads

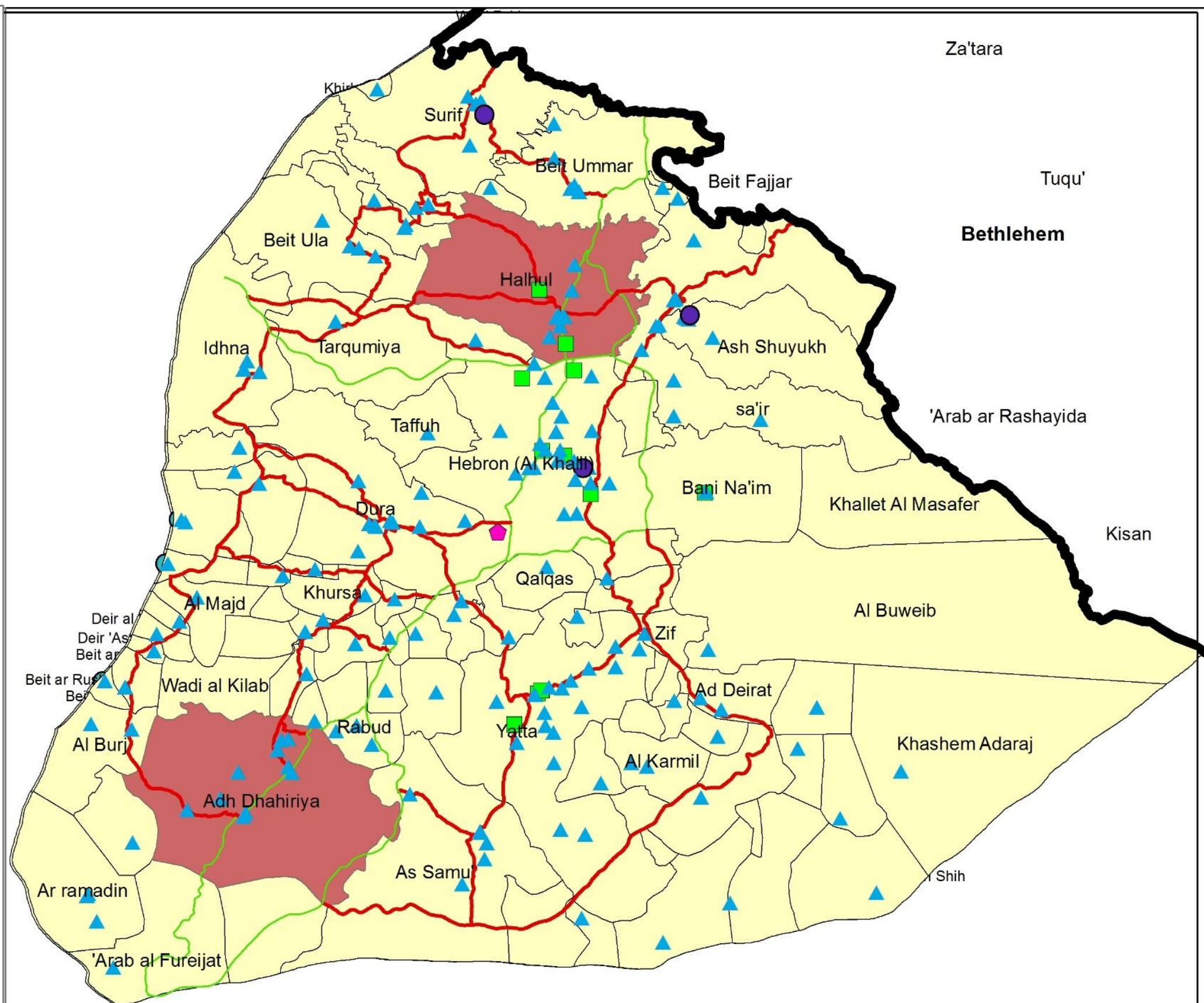
 main roads

### status

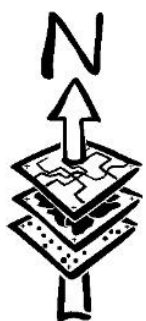
 local without 2nd level

 Kilometers

**current condition**  
**of local**  
**communities**








## Legend

 Governorate

### Levels of HF

 1st level

 2nd level

 3rd level

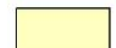
 4th level

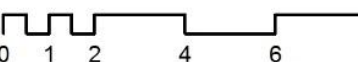
 regional roads

 main roads

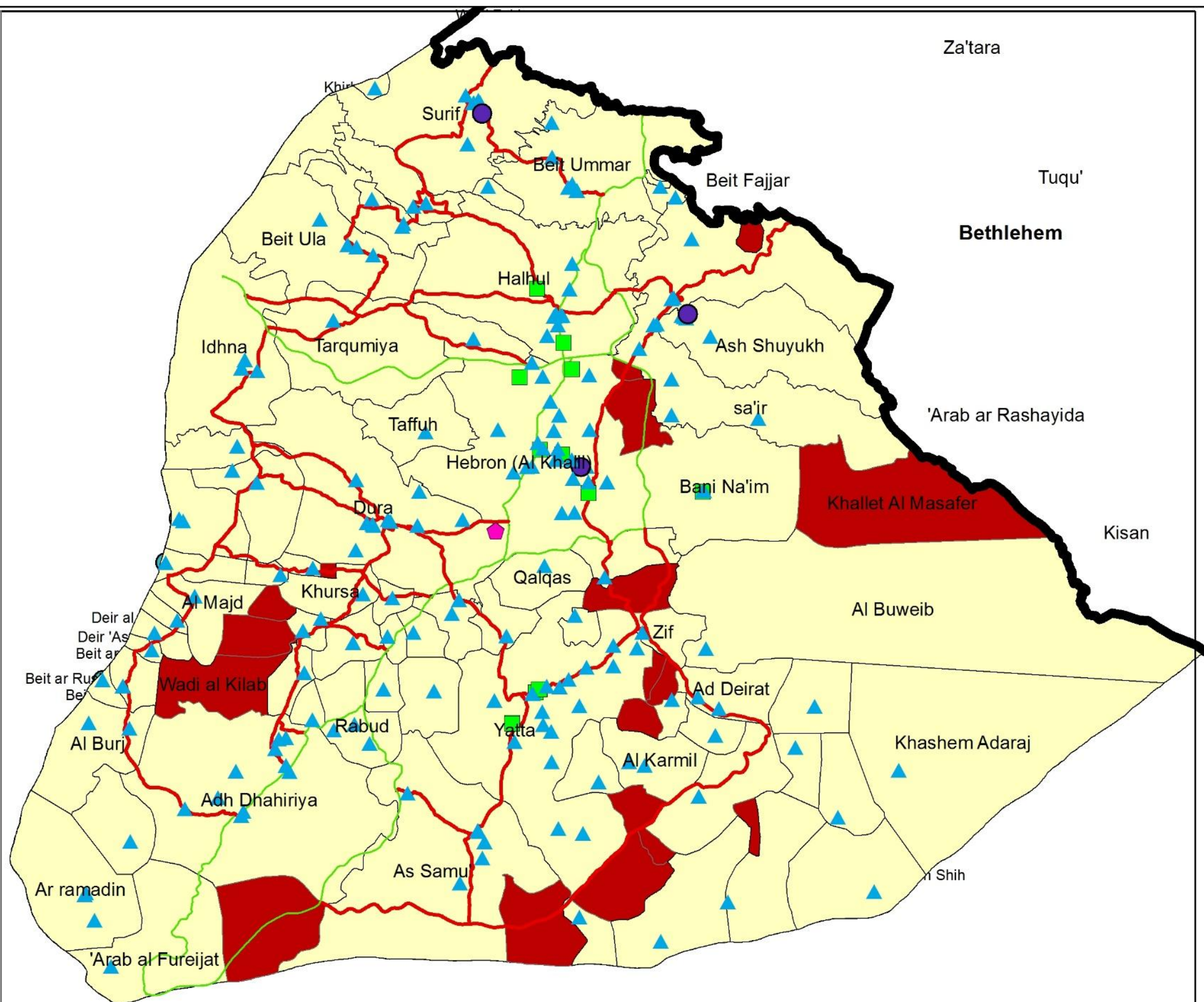
### status

 community without HF

 community contains HF

 Kilometers

**current condition**  
**of communities**











## Legend

### level



4th



3rd



2nd



1st

— regional roads

— main roads

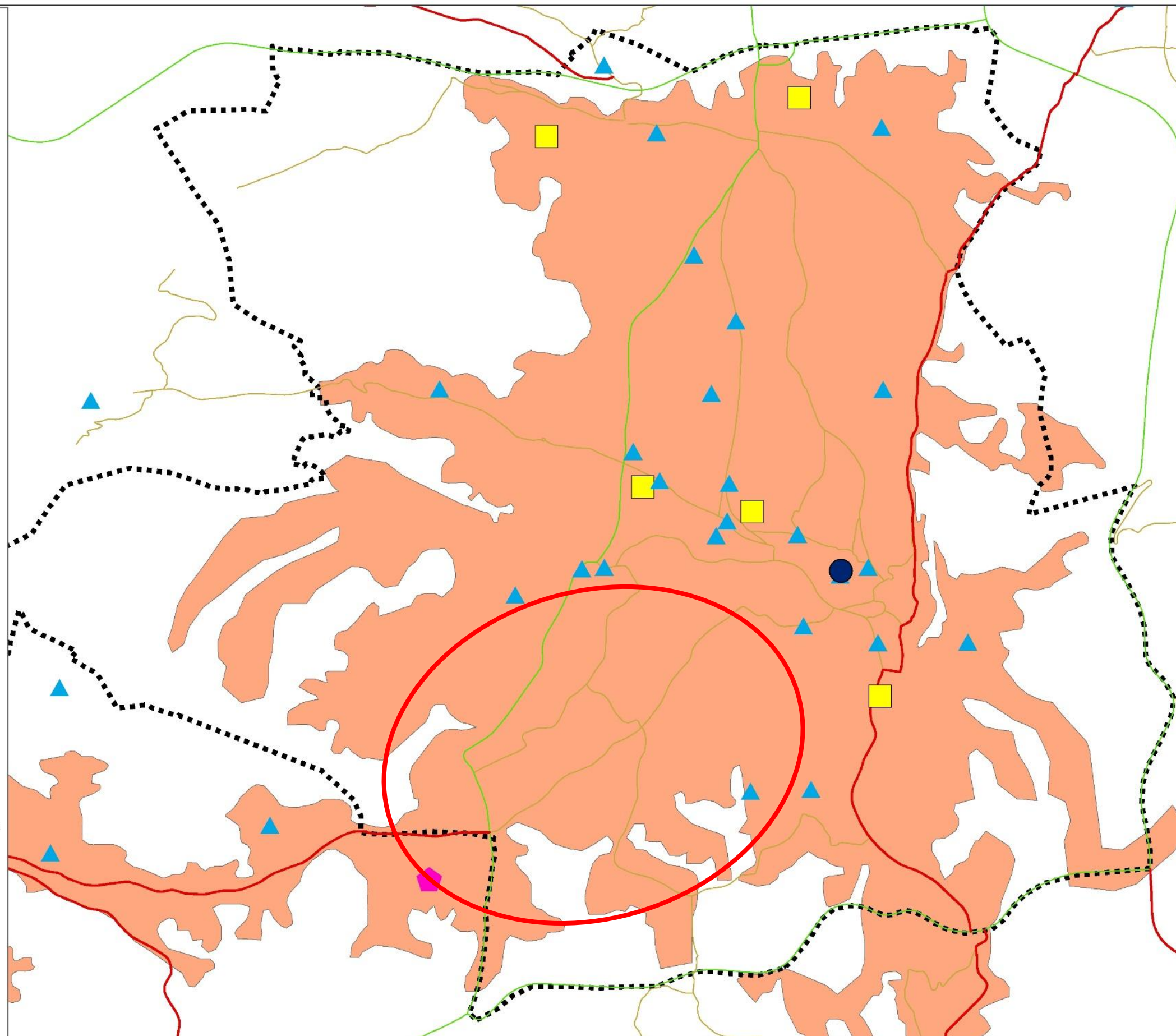
— local rods

⋯ Hebron border

■ BuiltUp Areas

0 0.2 0.4 0.8 1.2 1.6 Kilometers

**Bad  
distribution of  
HF in Hebron  
city**





# Table for the current condition of HF according to level of community

<u>regional Name</u>	<u>pop 2015</u>	<u>Pop 2025</u>	<u>pop 2050</u>	<u>gov</u>	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>	<u>status</u>	<u>Description</u>
Hebron (Al Khalil)	202172	285889	628333	Hebron	24	1	5	-1	×	regional without 4th level

**(-1)**: lack of service

**more than 0** : value indicate the number of services

**(0)** : indicate no services but no need for it

**×**: lack of services

**✓**:enough services



# lack in each governorate

Governorate	Lack										
	UC	NC	LC		SRC			RC			
	1 <sup>st</sup>	1 <sup>st</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
Hebron	13	-	-	1	-	1	1	-	-	-	1

RC :Regional Community

SRC: Sub-Reginal Community

LC: local Community

NC: Neighborhood Community

UN: Undefined Community ( other communities)



# Vision

“To get sustainable health sector with appropriate spatial distribution of health services for all society levels, and compatible with the identified hierarchy of services centers and identified spatial planning visions”



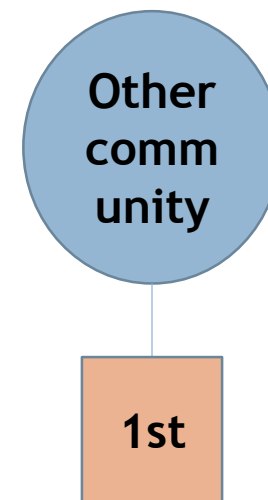
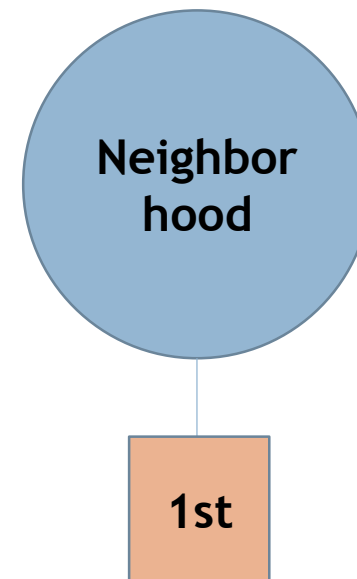
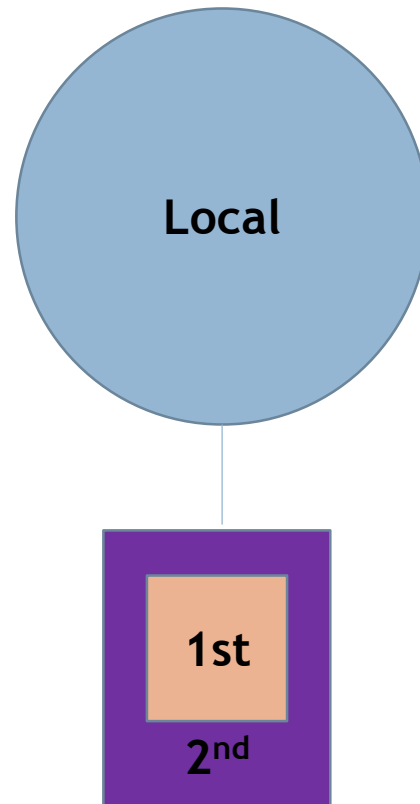
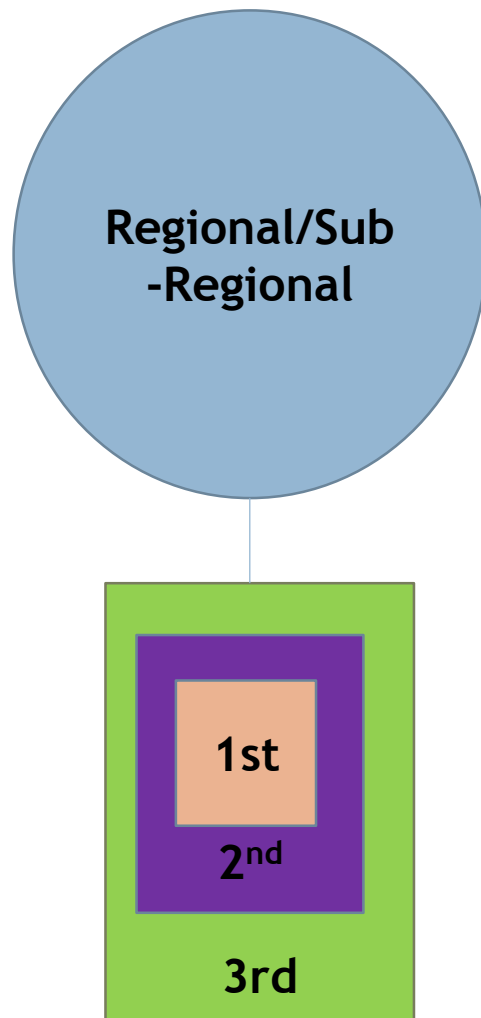
# objectives

- Good distribution of all levels of HF in the WB.
- Good and sustainable health sector .



# **Current HF needs in communities according to population size**



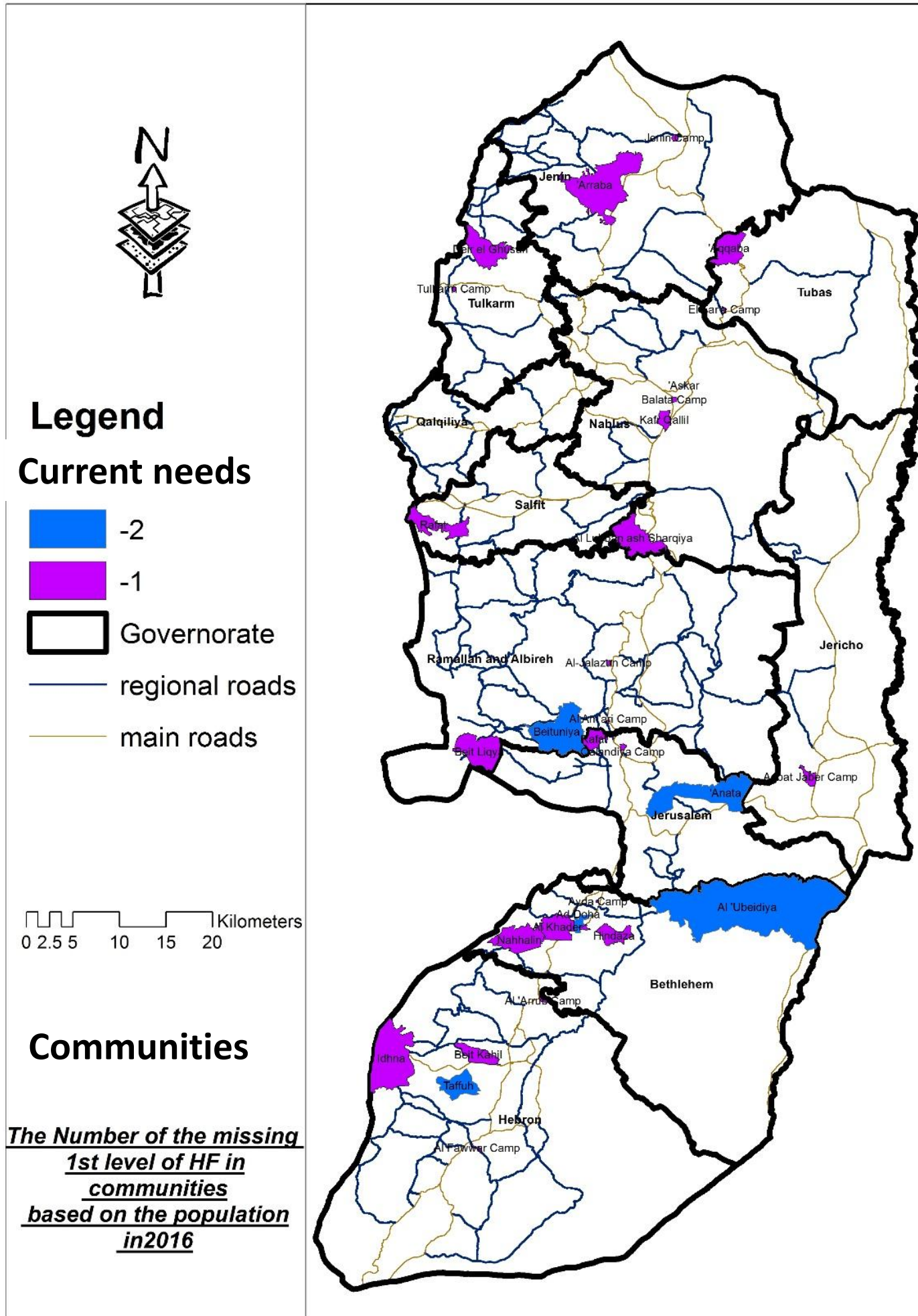




# Standards

- General hospitals (3<sup>rd</sup> level of HF) : 150000 capita in regional and sub-regional communities
- Comprehensive health centers (2<sup>nd</sup> level of HF) : 30000 capita in local communities
- Health centers (1<sup>st</sup> level of HF) : 10000 capita in neighborhood communities
- Health clinics or units (1<sup>st</sup> level of HF) : 5000 capita in communities





**Legend**

**Current needs**

- 2
- 1
- Governorate
- regional roads
- main roads

**Communities**

*The Number of the missing 1st level of HF in communities based on the population in 2016*

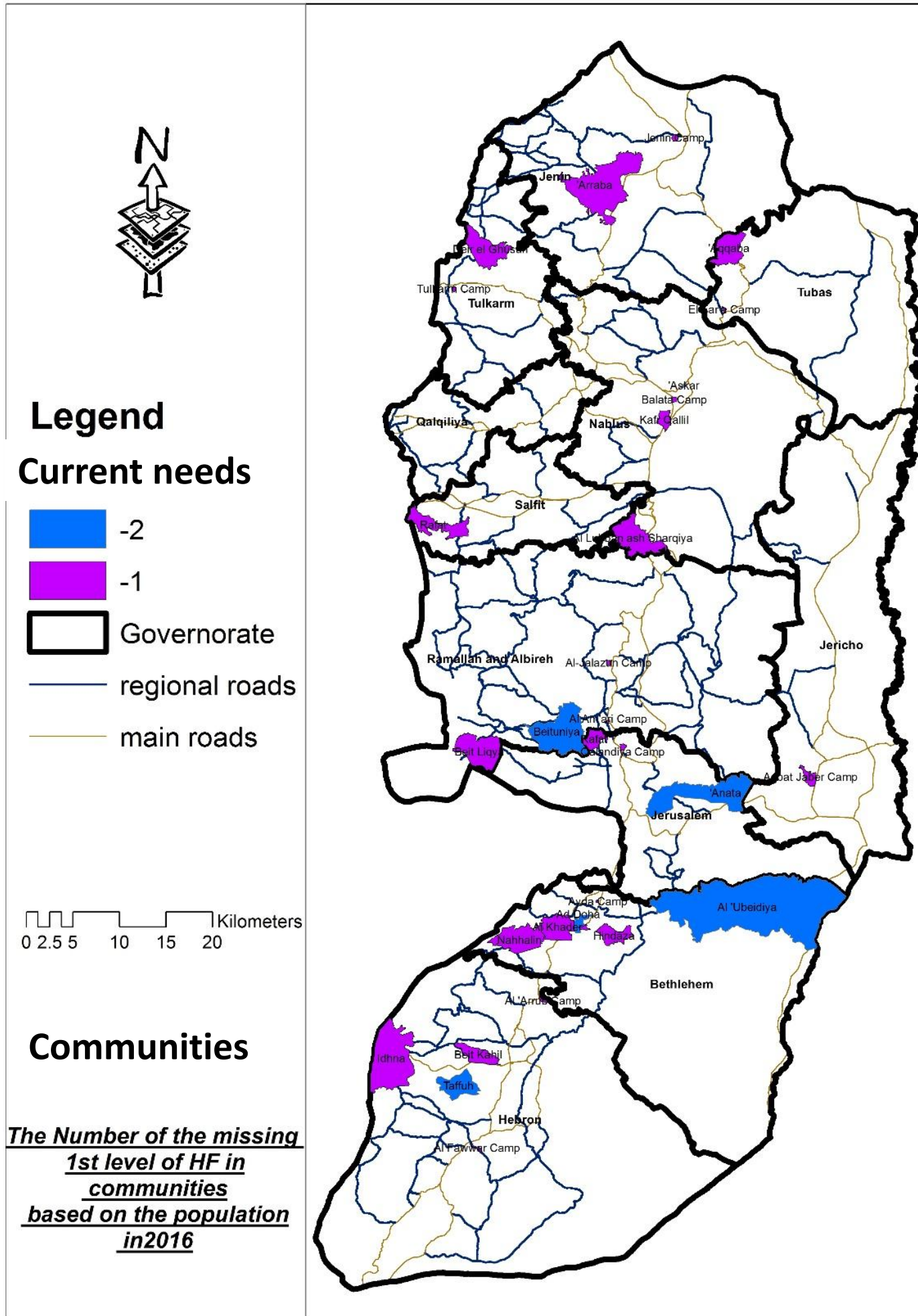
**Legend**

**Current needs**

- 2
- 1
- Governorate
- regional roads
- main roads

**Communities**

*The Number of the missing 1st level of HF in communities based on the population in 2016*



**Legend**

**Current needs**

- 2
- 1
- Governorate
- regional roads
- main roads

**Communities**

*The Number of the missing 1st level of HF in communities based on the population in 2016*

**Legend**

**Current needs**

- 2
- 1
- Governorate
- regional roads
- main roads

**Communities**

*The Number of the missing 1st level of HF in communities based on the population in 2016*

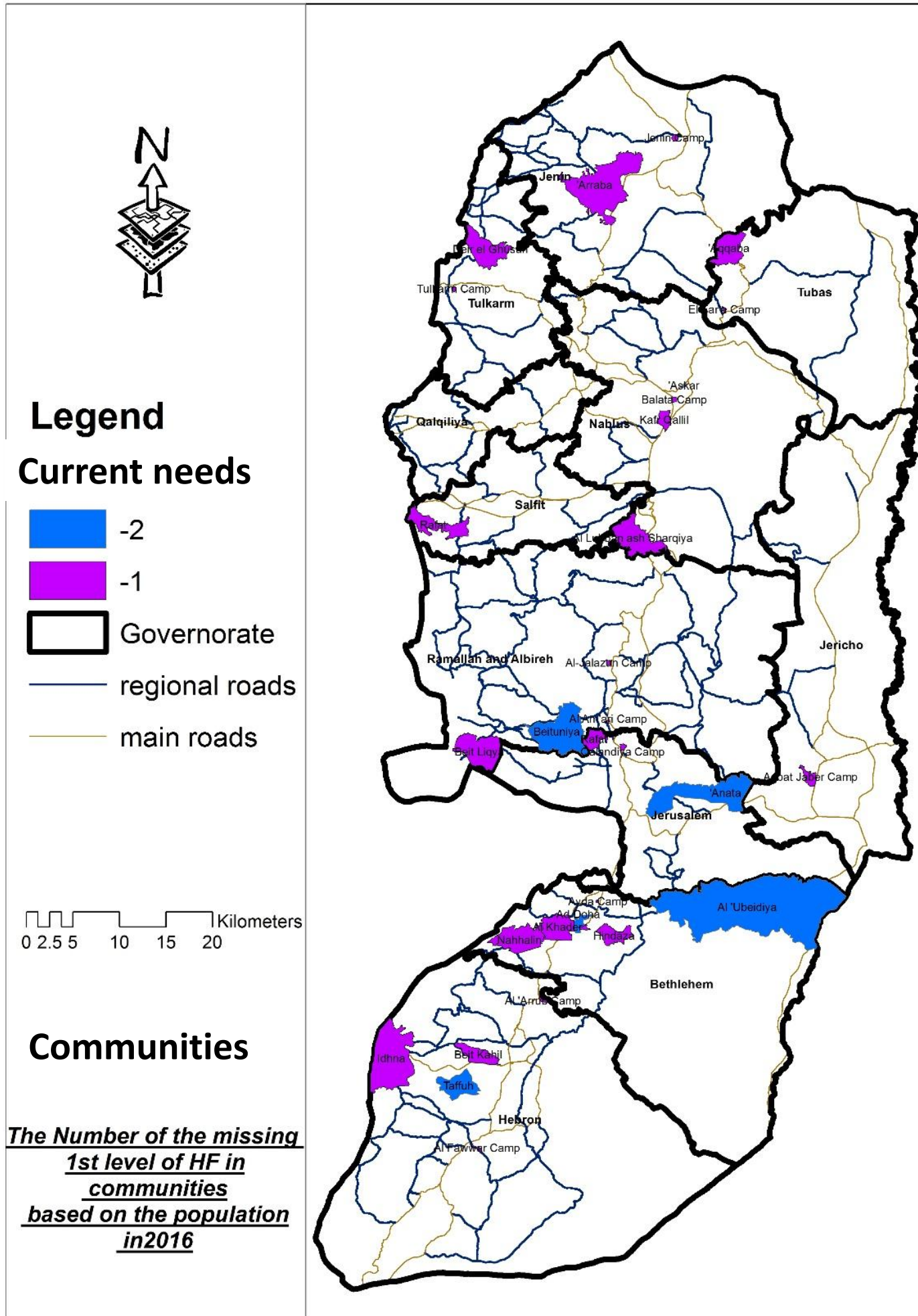
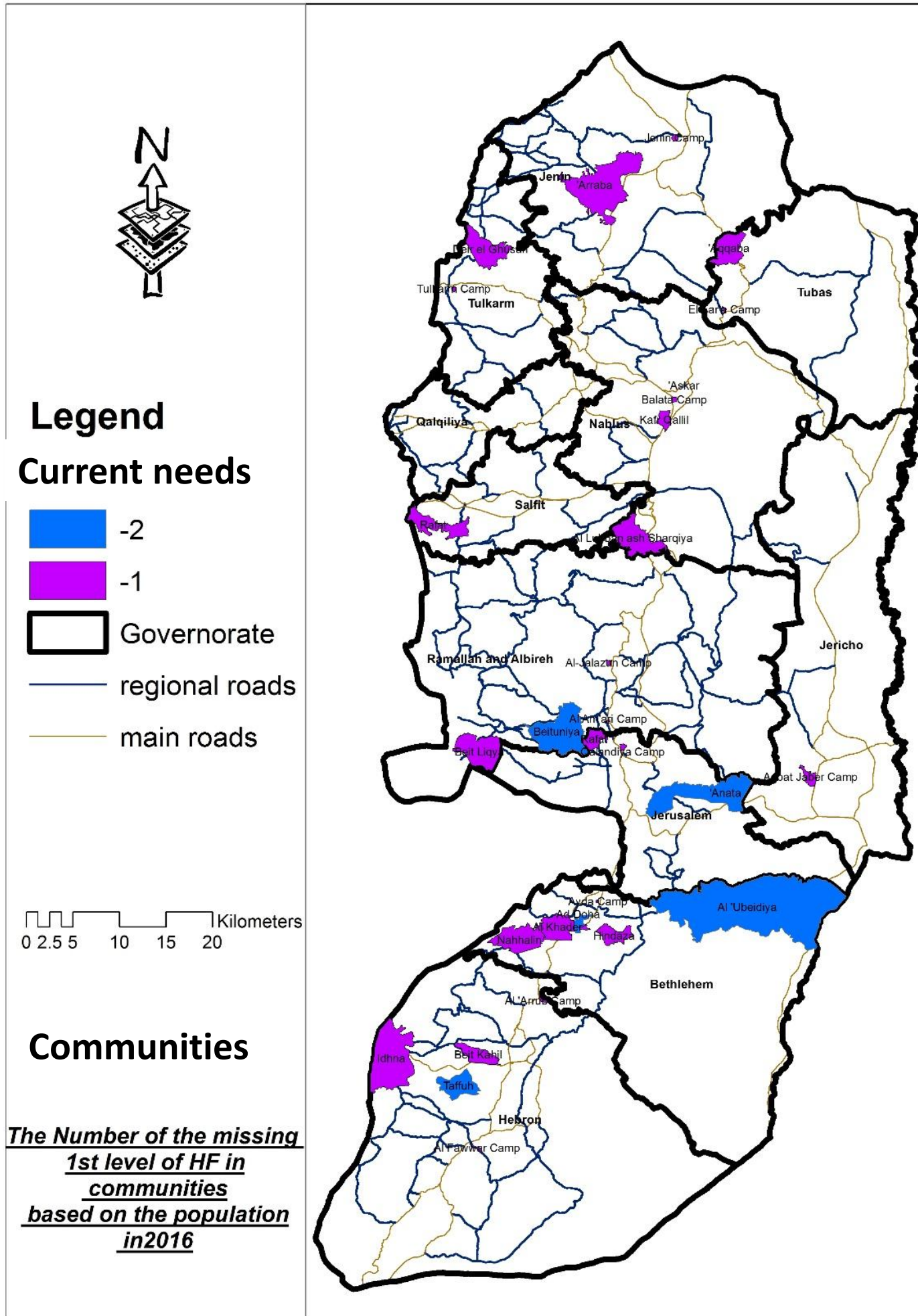
**Legend**

**Current needs**

- 2
- 1
- Governorate
- regional roads
- main roads

**Communities**

*The Number of the missing 1st level of HF in communities based on the population in 2016*

[illegible][illegible]



## Legend

current needs



-1



Governorate



regional roads

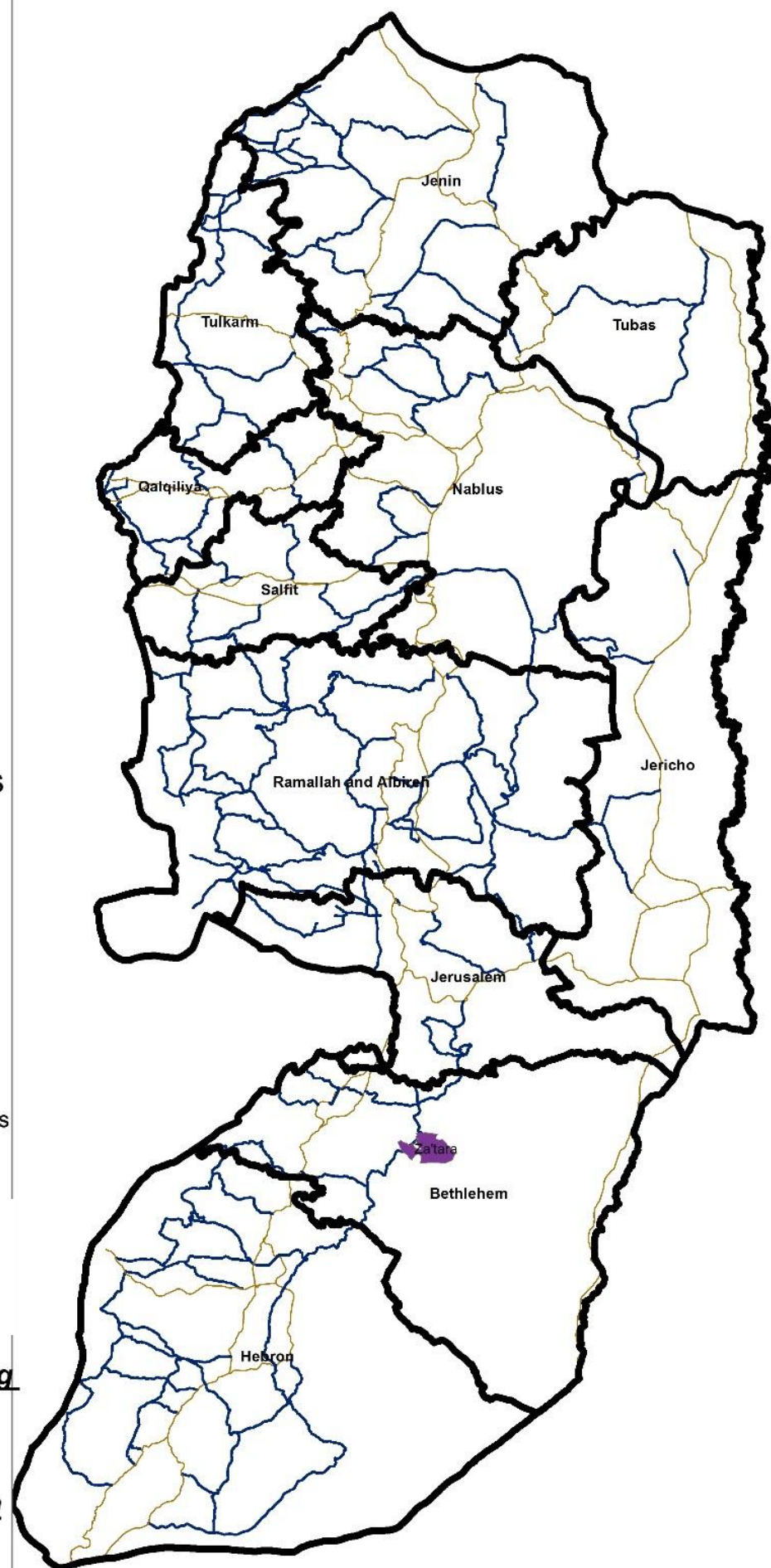


main roads

0 2.5 5 10 15 20 Kilometers

## Neighborhood communities

*The Number of the missing*  
*1st level of HF in*  
*neighborhood*  
*communities*  
*based on the population*  
*in 2016*









# **Future HF needs in communities according to population size**





## Legend

Current needs 2025



-4



-3



-2



-1



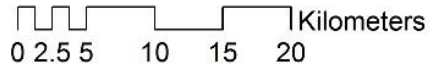
Governorate



regional roads

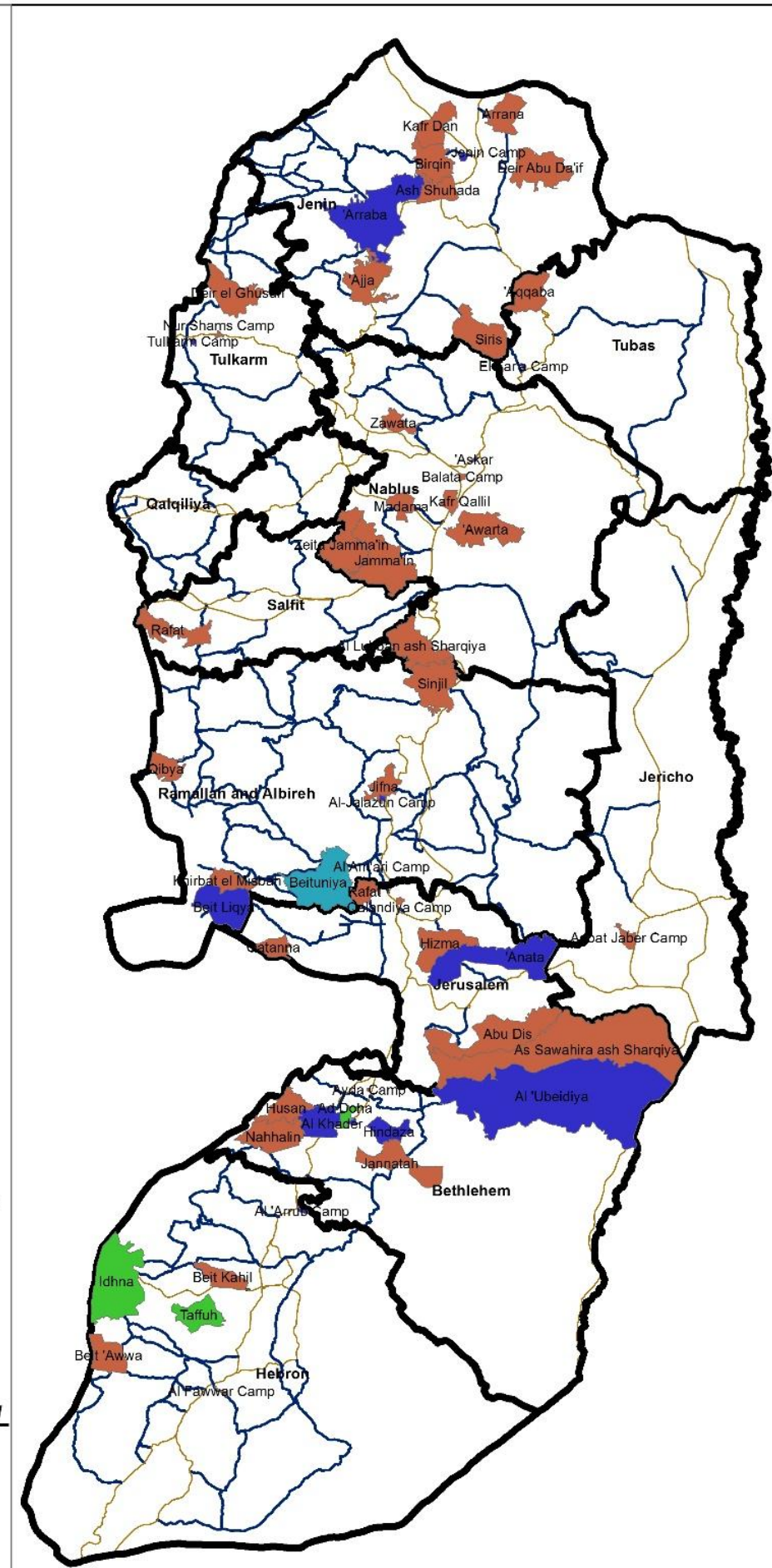


main roads



## Communities

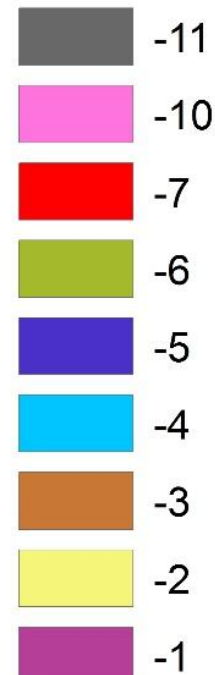
**The Number of the missing**  
**1st level of HF in**  
**communities**  
**based on the population**  
**in2025**





## Legend

Current needs 2050

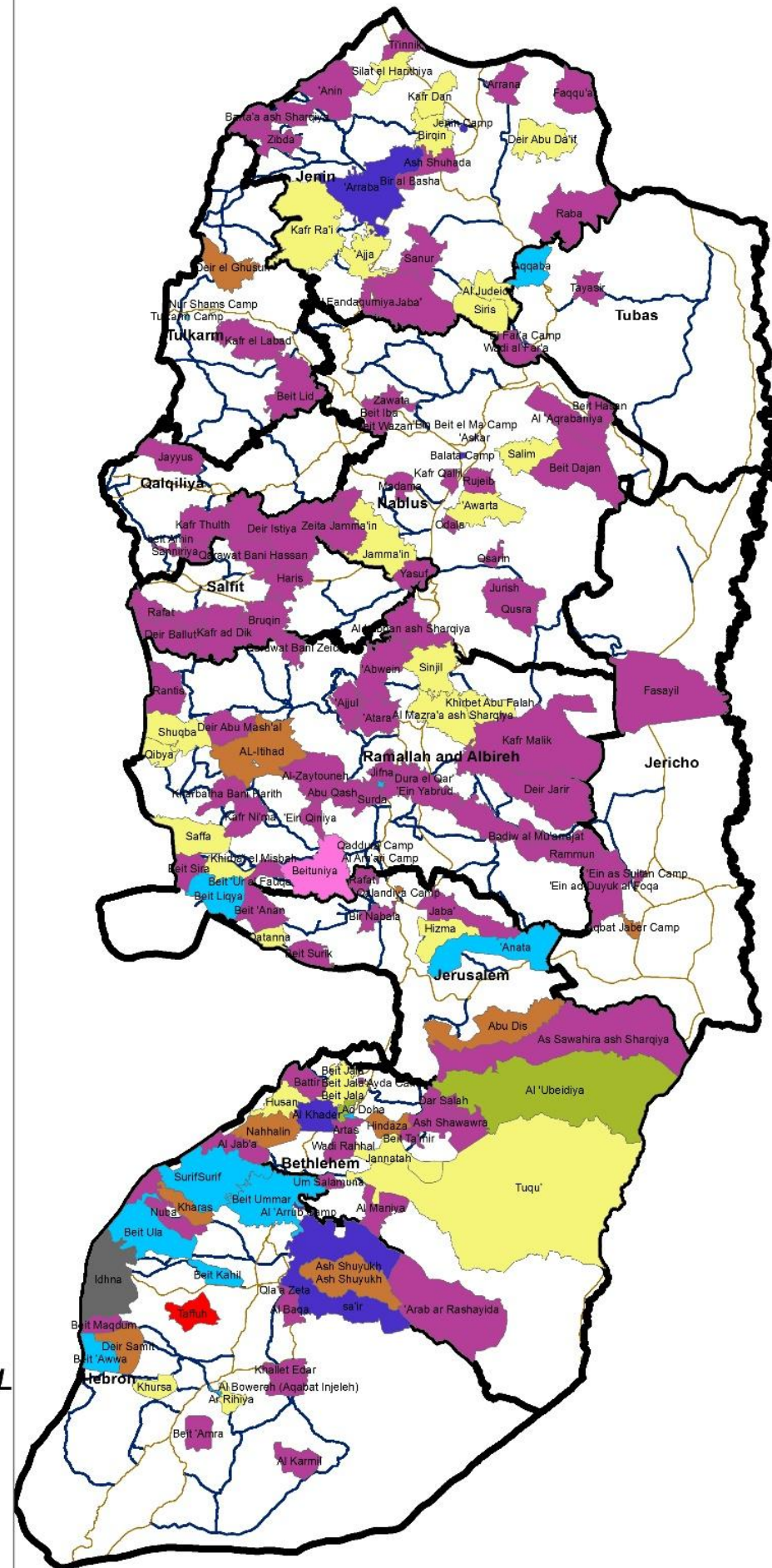


- Governorate
- regional roads
- main roads

0 2.5 5 10 15 20 Kilometers

## Communities

*The Number of the missing  
1st level of HF in  
communities  
based on the population  
in 2050*





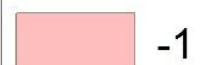


## Legend

future needs 2025



-2



-1



Governorate



regional roads

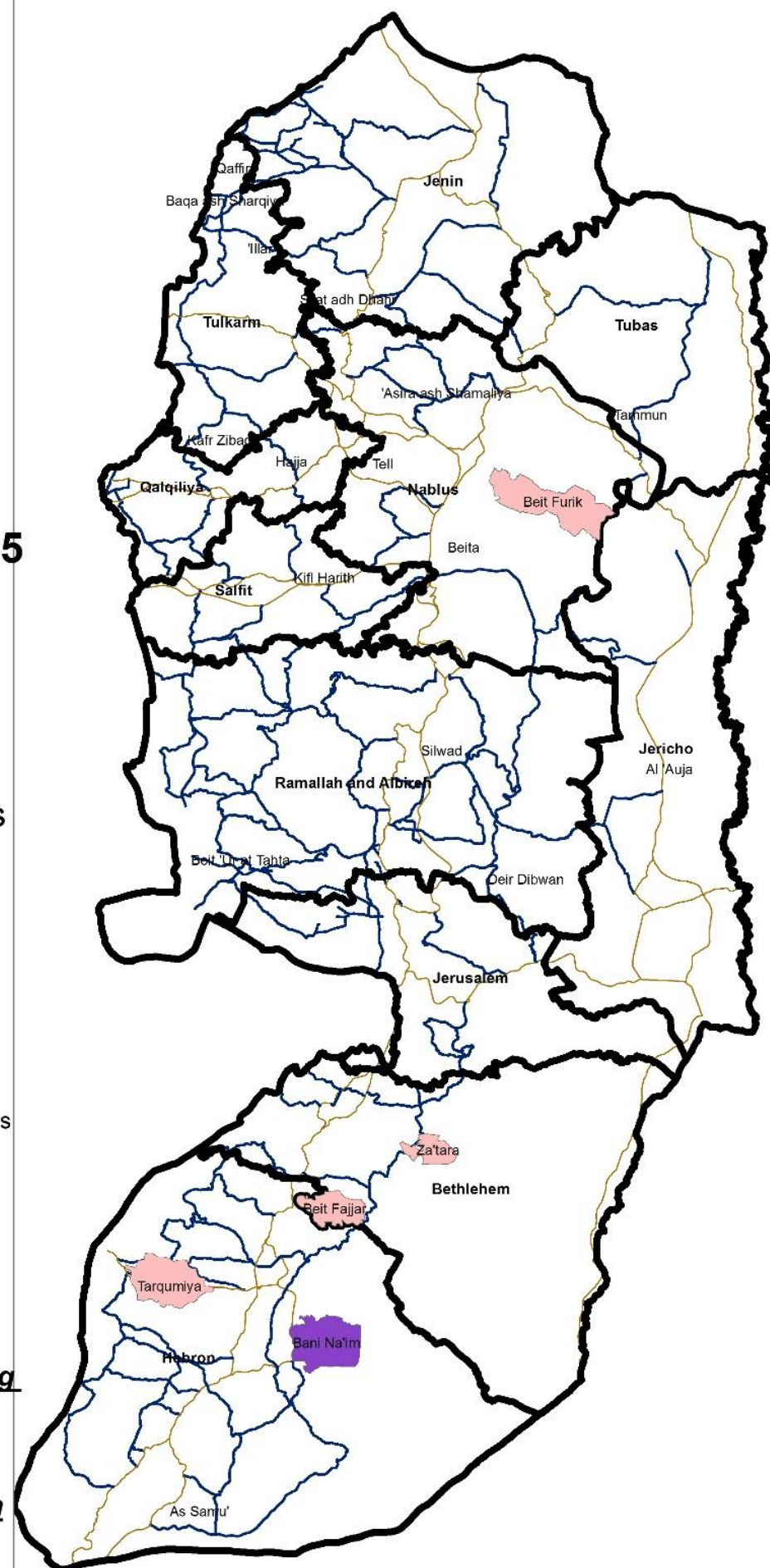


main roads

0 2.5 5 10 15 20 Kilometers

## Neighborhood communities

The Number of the missing  
1st level of HF in  
neighborhood  
communities  
based on the population  
in2025





## Legend

future needs 2050



-6



-4



-2



-1



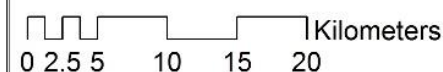
Governorate



regional roads

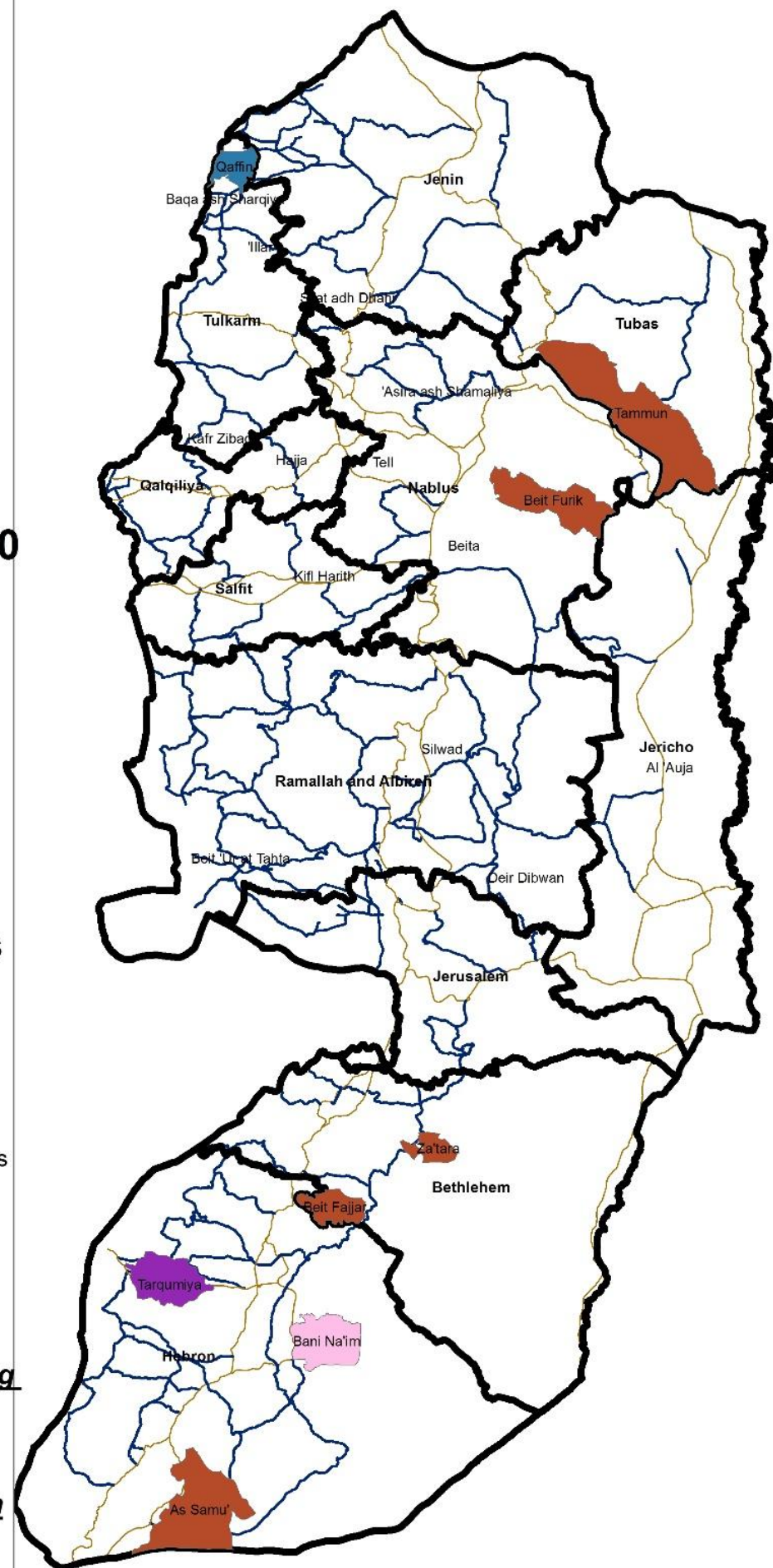


main roads



## Neighborhood communities

*The Number of the missing*  
*1st level of HF in*  
*neighborhood*  
*communities*  
*based on the population*  
*in2050*







## Legend

future needs 2025



-3



-2



-1



Governorate



regional roads

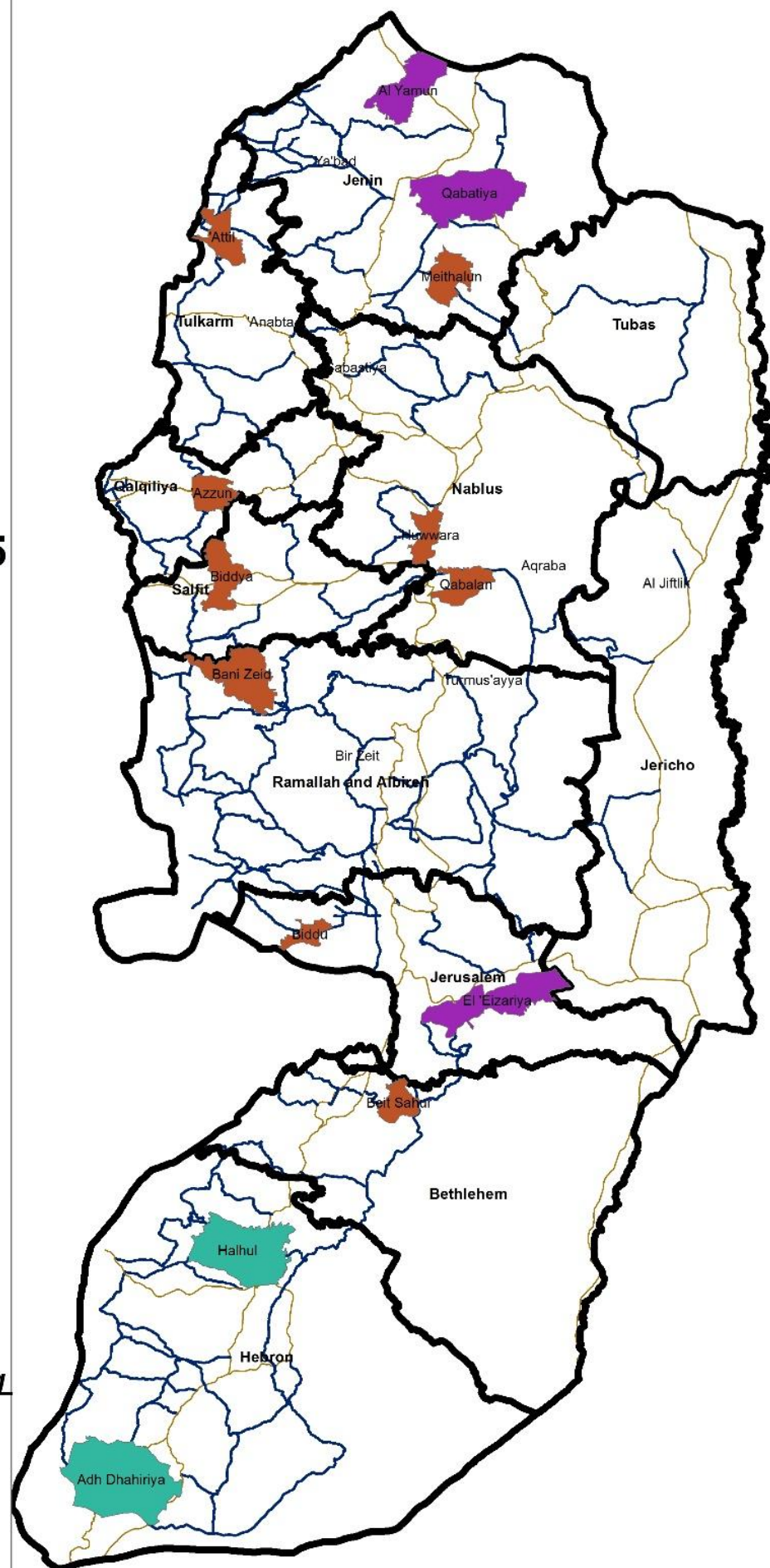


main roads

0 2.5 5 10 15 20 Kilometers

## Local communities

The Number of the missing  
2nd level of HF in local  
communities based on  
population in 2025





## Legend

future needs 2050



-7



-6



-4



-3



-2



-1



Governorate



regional roads

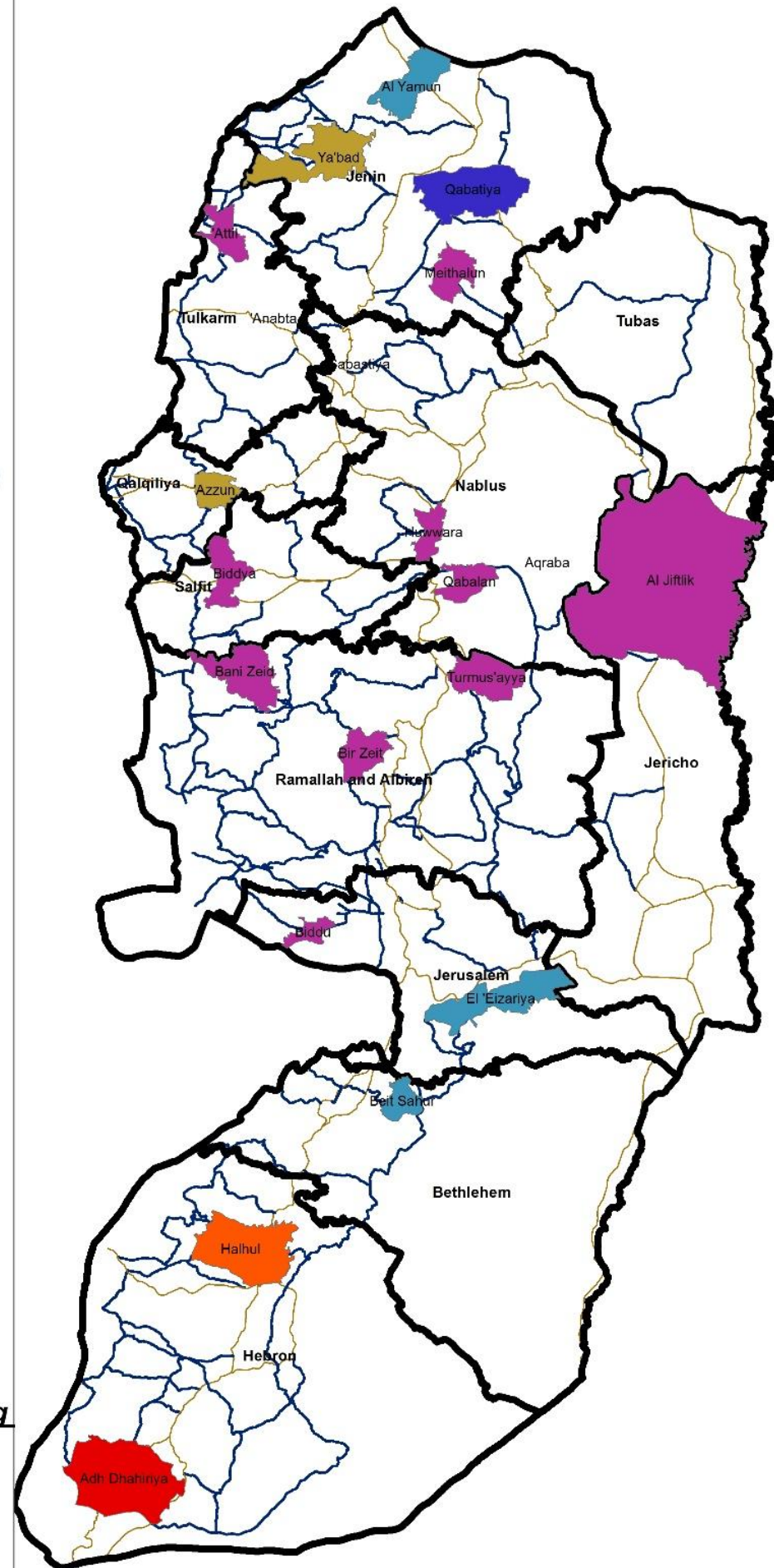


main roads

0 2.5 5 10 15 20 Kilometers

## Local communities

The Number of the missing  
2nd level of HF in local  
communities based on  
population in 2050







## Legend

future needs 2025



-2



Governorate



regional roads

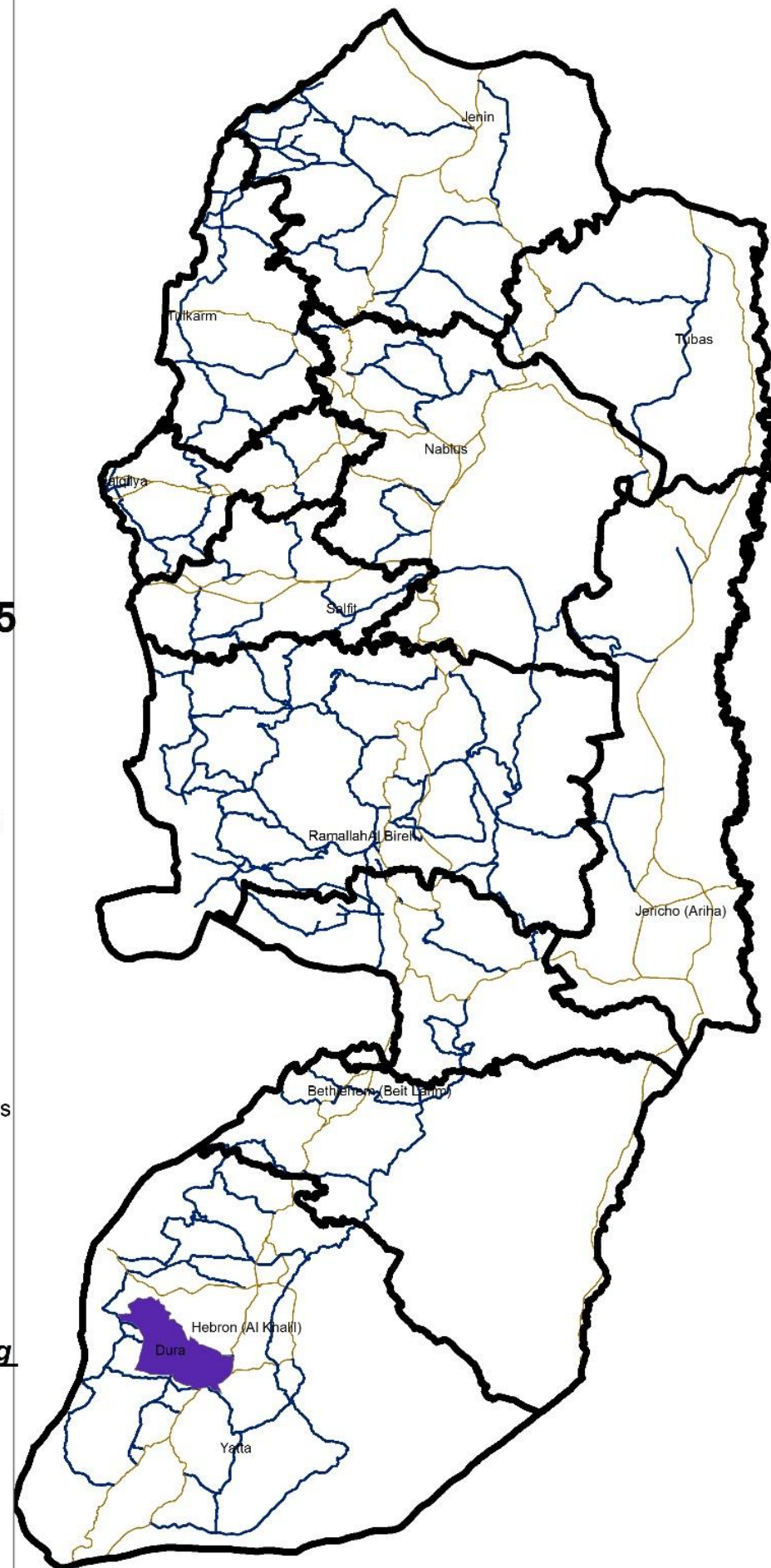


main roads

0 2.5 5 10 15 20 Kilometers

Regional/sub-  
regional  
communities

**The Number of the missing  
3rd level of  
HF in regional  
communities based on  
the population in 2025**





## Legend

future needs 2050



-4



-2



Governorate



regional roads

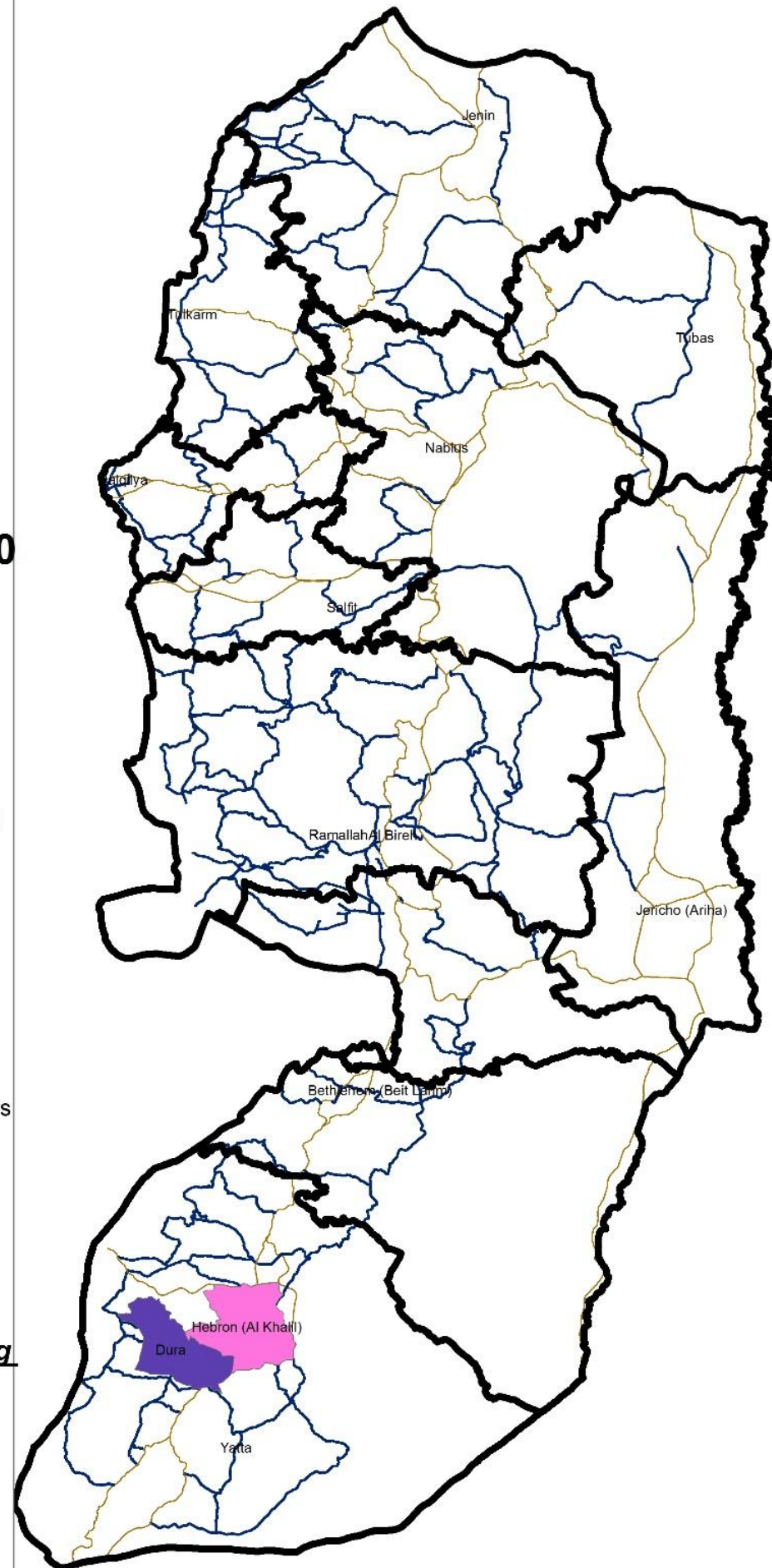


main roads

0 2.5 5 10 15 20 Kilometers

Regional/sub-  
regional  
communities

**The Number of the missing  
3rd level of  
HF in regional  
communities based on  
the population in 2050**



# Table for needs according to population size

Community N	Pop 2016	Pop 2025	Pop 2050	num of current HF	Num of HF should be available in 2016	Num of HF should be available in 2025	Num of HF should be available in 2050	current needs 2016	future needs 2025	future needs 2050
Hebron (Al Khalil)	683689	966799	2124845	5	2	3	7	4	2	-2



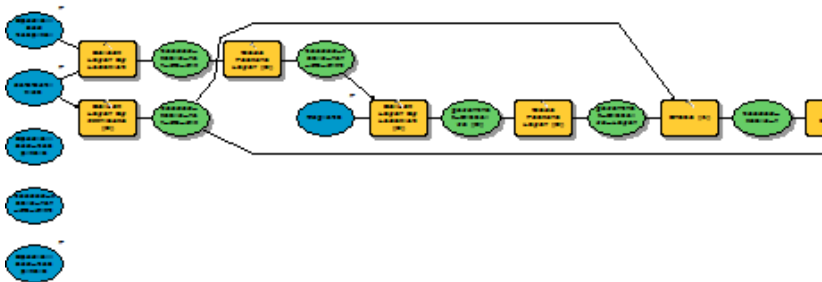


# Proposals



# 4<sup>th</sup> level(Specialized hospitals) proposals

- \*2 models to proposed specialized hospitals:
  - - First model: for Multi specializations , eye, hearts hospitals
1. Evaluate the regions .
  2. Choose the central community according to population and buildings
  3. Near to regional roads
  4. Outside built- up area



normal SPH

Regions

Specialized hospitals (optional)

communities

Regional roads

built-up areas

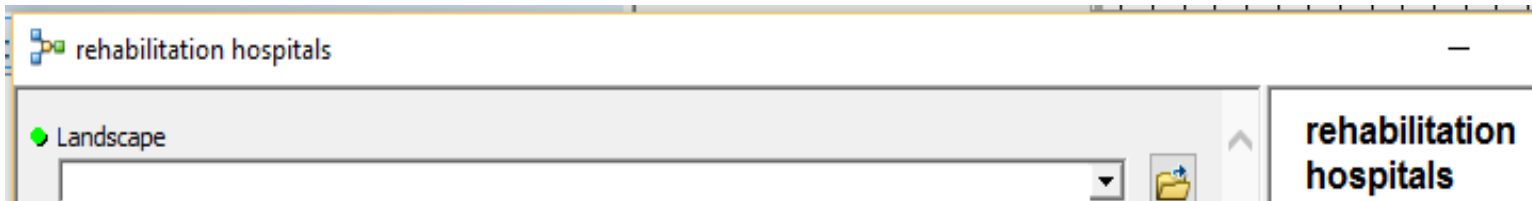
normal SPH

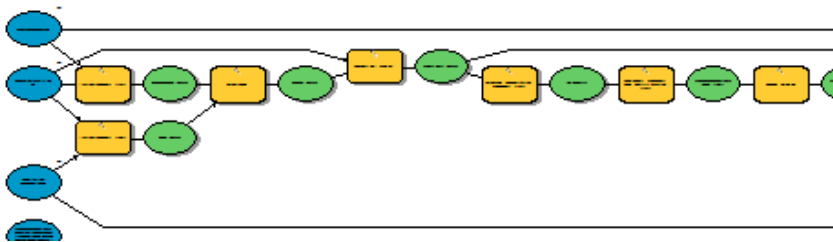
the model is proposed the site of specialized hospitals in the input data take into considerations many criteria

OK Cancel Environments... << Hide Help Tool Help

# 4<sup>th</sup> level (Specialized hospitals) proposals

- \*2 models to proposed specialized hospitals:
- - **Second model** :Rehabilitation , elderly, maternity

1. Evaluate the regions
  2. Choose the central community according to population and buildings and **landscape**
  3. Near to regional roads
  4. Outside built- up area
- 



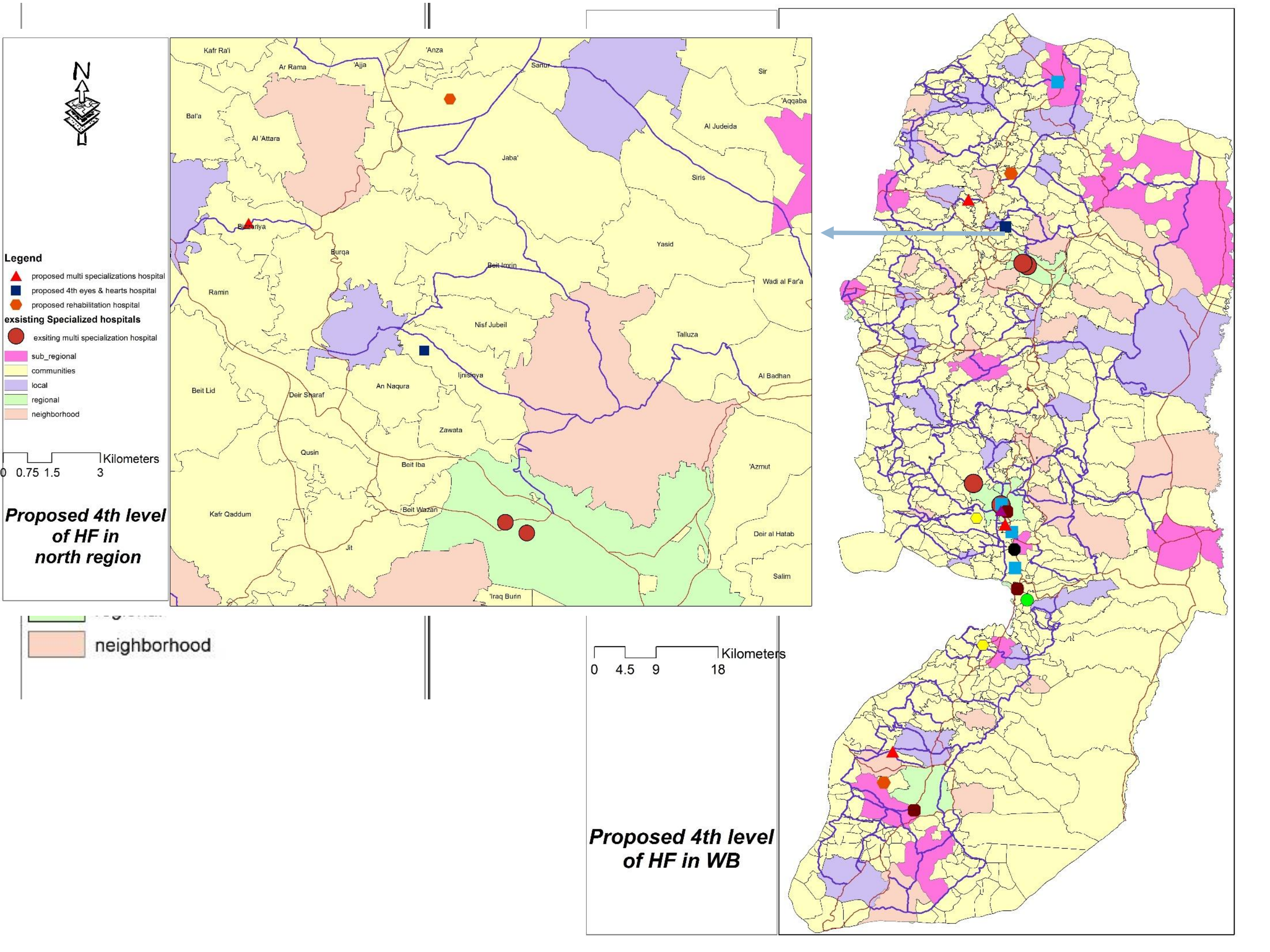
rehabilitation hospitals

Landscape  
 Communities  
 Natural Reserve  
 Specialized hospitals (optional)  
 Regions  
 BuiltUp Areas

the model is proposed the site of specialized hospitals in site take into considerations many criteria

OK Cancel Environments... << Hide Help Tool Help

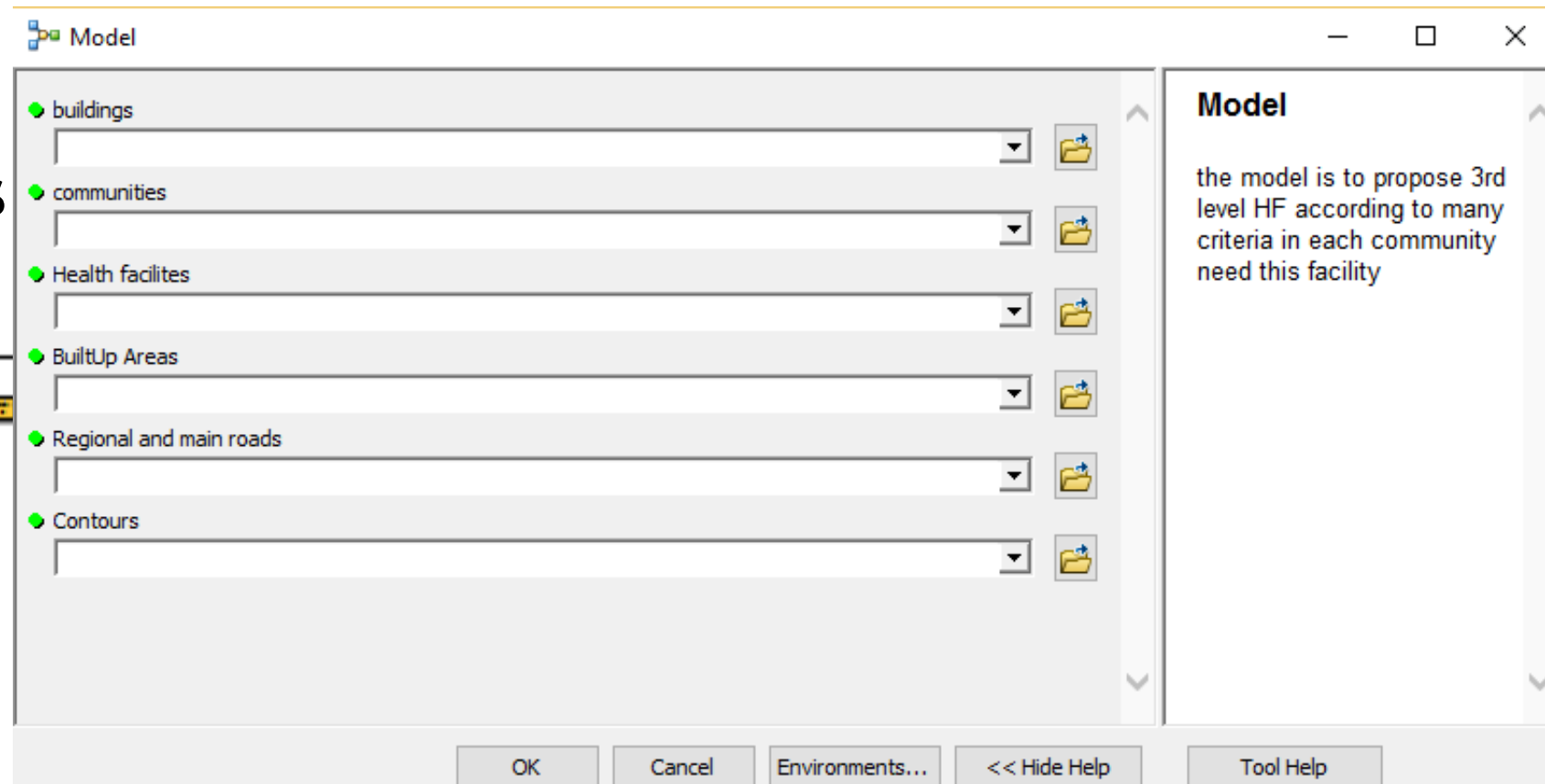






# Regional and sub regional 3<sup>rd</sup> level proposals

- Mean center
- Evaluation of services based on Direction.
- Choose the zone with less services.
- Evaluate the selected zones based on the topography (smooth topo)
- Near regional and main roads
- Outside built-up area
- In the low density area's



# Legend

- proposed 3rd level
- exsisting 3rd lev



## Legend

- proposed 3rd level
- proposed 1st level

### level

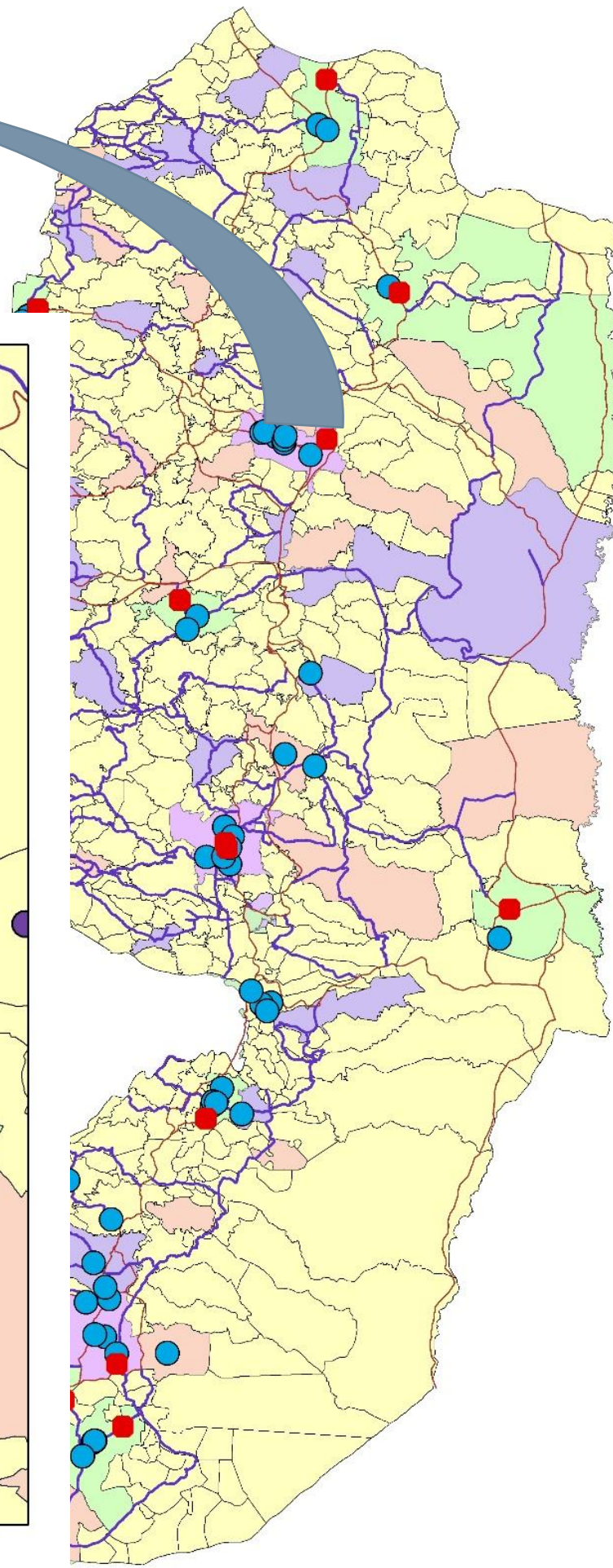
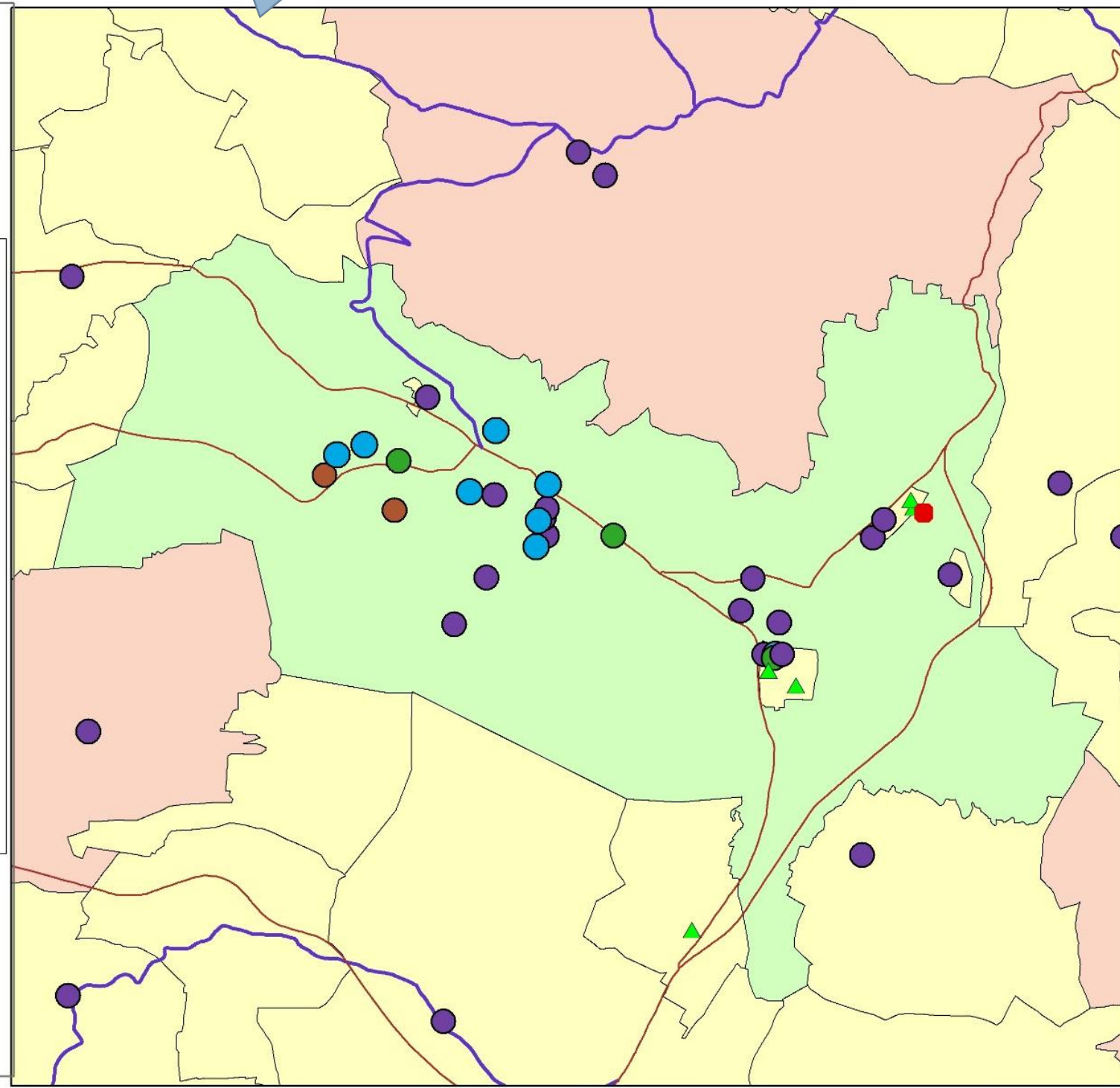
- 1st
- 2nd
- 3rd
- 4th

- communities
- local
- regional
- neighborhood

### Roads

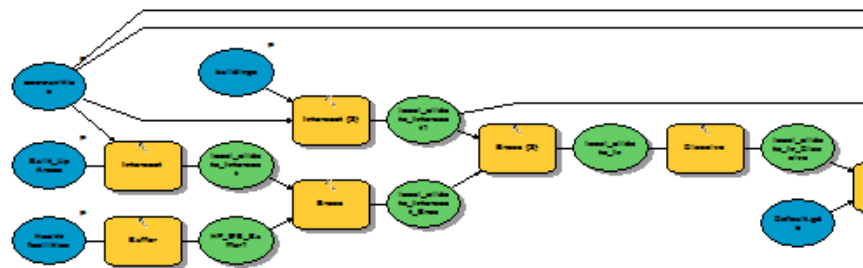
- Regional
- Main

*proposed HF  
in nablus city*



# Local, neighborhood , communities 1<sup>st</sup> and 2<sup>nd</sup> level proposals

- In the built up areas
- Outside the services area of the other facilities
- Near to local road



Model

Health facilities

Built\_Up Areas

communities

buildings

OK Cancel Environments... Show Help >>



## Legend

- proposed 1st level for neighborhood
- proposed 1st level
- existing 1st level

## Roads

- Regional
- main
- communities
- sub\_regional
- local
- regional
- neighborhood



## Legend

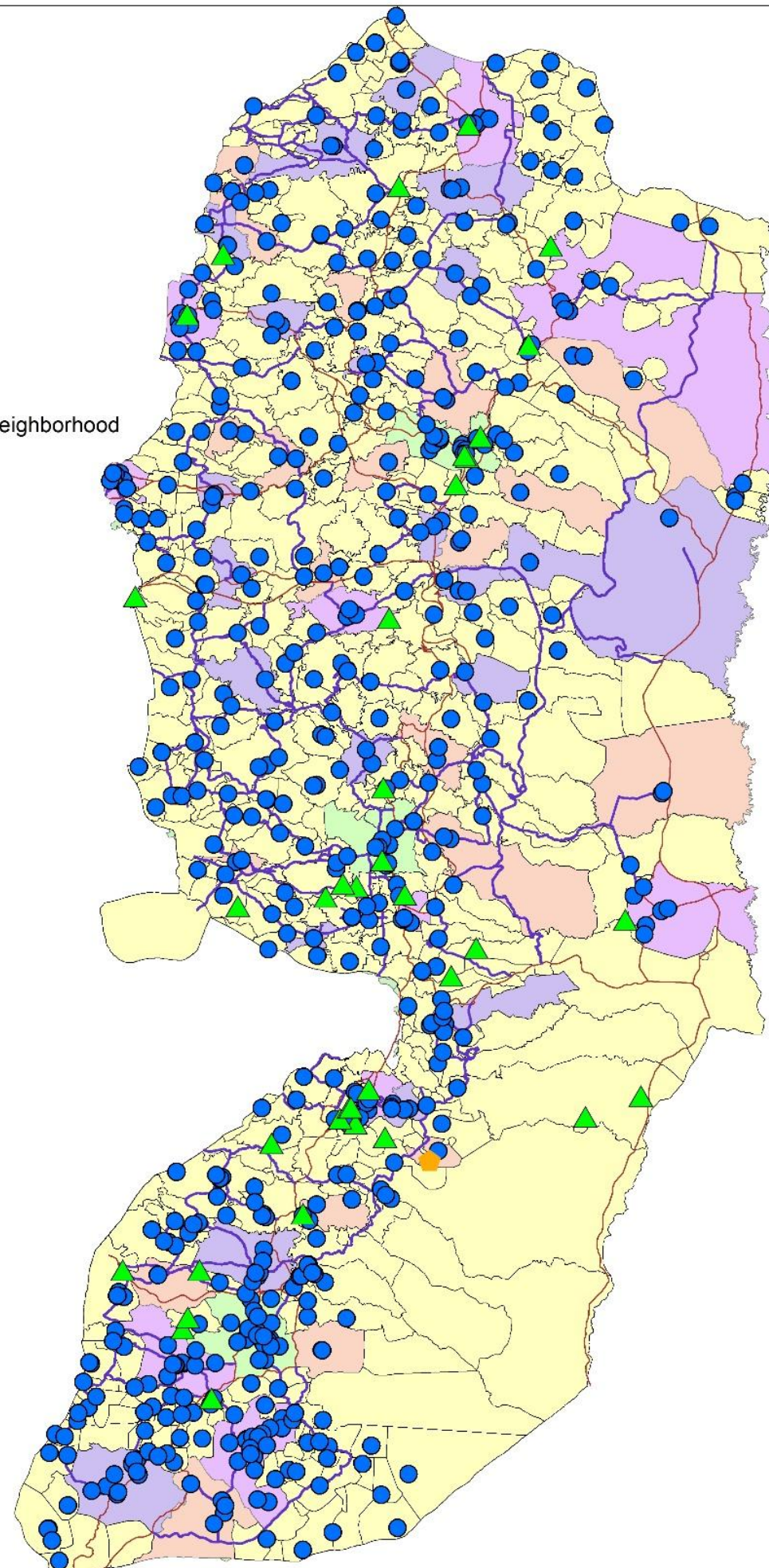
- proposed 1st level for neighborhood
- proposed 1st level
- existing 1st level

## Roads

- Regional
- Main
- communities
- sub\_regional
- local
- regional
- neighborhood

0 3.5 7 14 Kilometers

Proposed 1<sup>st</sup>  
level of HF in  
WB





# Legend

-  proposed 2nd level
-  exsisting 2nd level
-  communities
-  local
-  regional
-  neighborhood

## Roads

-  Regional
-  main



## Legend

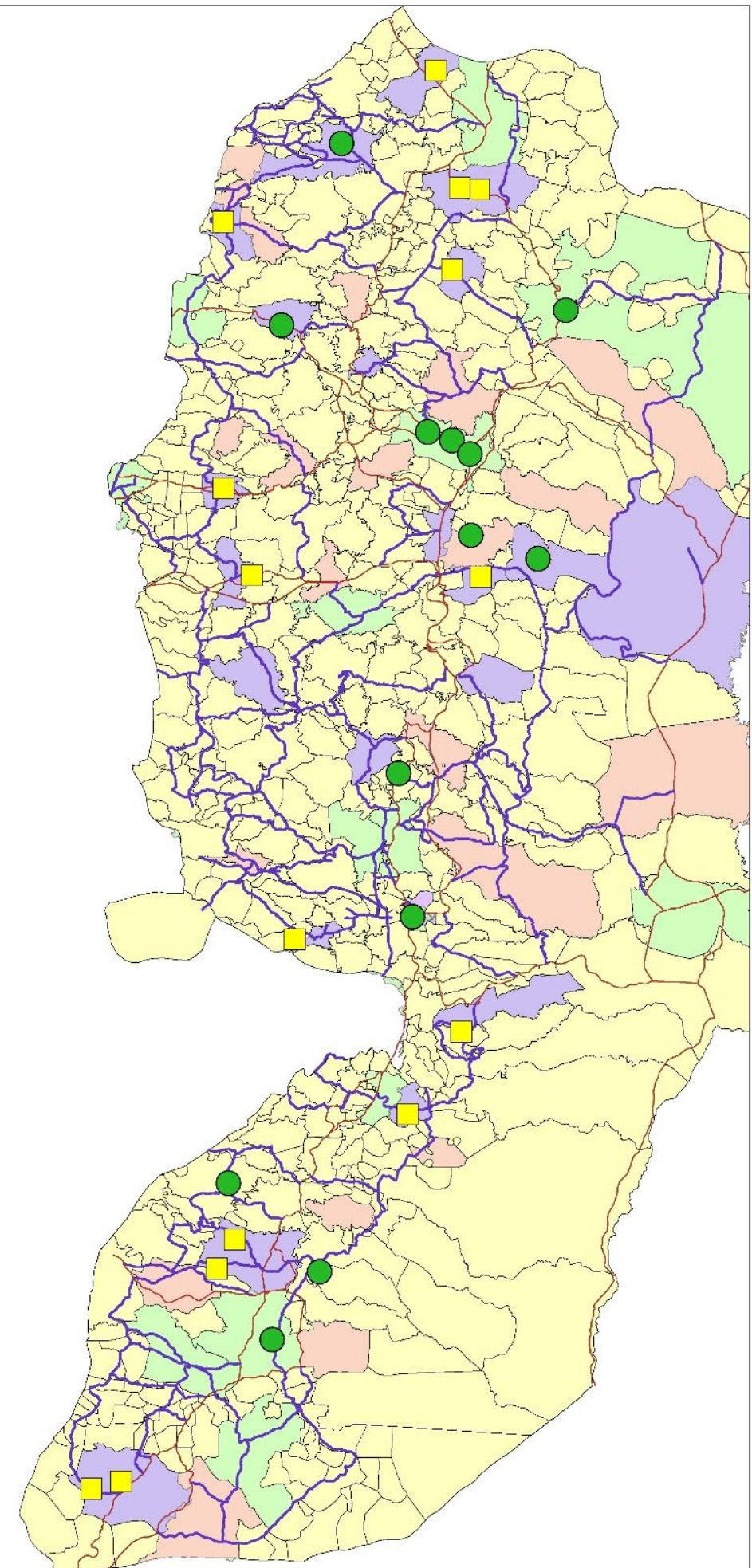
-  proposed 2nd level
-  exsisting 2nd level
-  communities
-  local
-  regional
-  neighborhood

## Roads

-  Regional
-  Manin

0 3.5 7 14 Kilometers

*proposed 2nd level  
of HF in WB*



# References

- Public service centers study
- National spatial plan (NSP)
- National health strategy 2014-(NHS)
- Palestinian central bureau of statistics (PCBS)

