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 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 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 project justification

- The increasing of population

![Graph showing the increasing of number of hospitals](image)

- GOV hospital
- non GOV hospital
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: 20
- Hebron: 35
- Jenin: 45
- Jericho: 44
- Jerusalem: 80
- Nablus: 92
- Qalqilya: 75
- Ramallah: 64
- Salfit: 34
- Tubas: 21
- Tulkarm: 14

- Total: 434 communities
Services Centers and Hierarchy in the WB
Public services centers

Legend
- blue circle: regional center
- brown circle: sub-regional center
- purple circle: local center
- green circle: Neighborhood center
- red line: regional roads
- green line: main roads
- yellow area: Governorate

Public services centers
Levels Of HF
Levels of health services according to MOP study

<table>
<thead>
<tr>
<th>level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>level1</td>
<td>health center&amp; health clinic Primary health care</td>
</tr>
<tr>
<td>level2</td>
<td>comprehensive health center</td>
</tr>
<tr>
<td>level3</td>
<td>General hospital</td>
</tr>
<tr>
<td>level4</td>
<td>Specialized hospital</td>
</tr>
</tbody>
</table>
# Levels of health services according to MOH

<table>
<thead>
<tr>
<th>levels</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary “Level 1”</strong></td>
<td></td>
</tr>
<tr>
<td>primary1</td>
<td>Health points association</td>
</tr>
<tr>
<td>primary2</td>
<td>health clinic</td>
</tr>
<tr>
<td>primary3</td>
<td>health center</td>
</tr>
<tr>
<td>primary4</td>
<td>comprehensive health center</td>
</tr>
<tr>
<td><strong>Secondary “level 2”</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>General hospital</td>
</tr>
<tr>
<td><strong>Tertiary “level 3”</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specialized hospital</td>
</tr>
</tbody>
</table>
How to deal with two classifications (Moh & MOP study)

<table>
<thead>
<tr>
<th>MOH</th>
<th>MOP Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>primary1</td>
<td>level1</td>
</tr>
<tr>
<td>primary2</td>
<td></td>
</tr>
<tr>
<td>primary3</td>
<td></td>
</tr>
<tr>
<td>primary4</td>
<td>level2</td>
</tr>
<tr>
<td>Secondary “level 2”</td>
<td>level3</td>
</tr>
<tr>
<td>Tertiary “level 3”</td>
<td>level4</td>
</tr>
<tr>
<td>Level description</td>
<td>Health level</td>
</tr>
<tr>
<td>---------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary health centers</td>
<td>Health level one</td>
</tr>
<tr>
<td>Comprehensive health center</td>
<td>Health level two</td>
</tr>
<tr>
<td>General hospitals</td>
<td>Health level three</td>
</tr>
<tr>
<td>Specialized hospitals</td>
<td>Health level four</td>
</tr>
</tbody>
</table>
The distribution of HF in WB according to level of service
2nd level

<table>
<thead>
<tr>
<th>City</th>
<th>Population per 10000</th>
<th>Num of Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bethlehem</td>
<td>17.6235</td>
<td>0</td>
</tr>
<tr>
<td>Hebron</td>
<td>55.2164</td>
<td>3</td>
</tr>
<tr>
<td>Jenin</td>
<td>25.6619</td>
<td>1</td>
</tr>
<tr>
<td>Jericho</td>
<td>4.232</td>
<td>0</td>
</tr>
<tr>
<td>Jerusalem</td>
<td>36.3649</td>
<td>5</td>
</tr>
<tr>
<td>Nablus</td>
<td>32.083</td>
<td>1</td>
</tr>
<tr>
<td>Qalqiliya</td>
<td>27.973</td>
<td>1</td>
</tr>
<tr>
<td>Ramallah</td>
<td>9.1217</td>
<td>0</td>
</tr>
<tr>
<td>Salfit</td>
<td>5.957</td>
<td>1</td>
</tr>
<tr>
<td>Tubas</td>
<td>5.0261</td>
<td>0</td>
</tr>
<tr>
<td>Tulkarm</td>
<td>15.7988</td>
<td>1</td>
</tr>
</tbody>
</table>
4th level

<table>
<thead>
<tr>
<th>City</th>
<th>Population per 10000</th>
<th>Num of services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bethlehem</td>
<td>17.6235</td>
<td>1</td>
</tr>
<tr>
<td>Hebron</td>
<td>55.2164</td>
<td>1</td>
</tr>
<tr>
<td>Jenin</td>
<td>25.6619</td>
<td>1</td>
</tr>
<tr>
<td>Jericho</td>
<td>4.232</td>
<td>0</td>
</tr>
<tr>
<td>Jerusalem</td>
<td>36.3649</td>
<td>5</td>
</tr>
<tr>
<td>Nablus</td>
<td>32.083</td>
<td>2</td>
</tr>
<tr>
<td>Qalqilya</td>
<td>9.1217</td>
<td>0</td>
</tr>
<tr>
<td>Ramallah</td>
<td>27.973</td>
<td>5</td>
</tr>
<tr>
<td>Salfit</td>
<td>5.957</td>
<td>5.0261</td>
</tr>
<tr>
<td>Tubas</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Tulkarm</td>
<td>15.7988</td>
<td>0</td>
</tr>
</tbody>
</table>

(population per 10000 vs num of services)
The distribution of HF in each level of communities in WB
regional- HF Levels

Hebron (Al Khalil) -
- 1st level: 24
- 2nd level: 1
- 3rd level: 5

Nablus -
- 1st level: 18
- 2nd level: 3
- 3rd level: 2

Ramallah -
- 1st level: 8
- 2nd level: 5
Sub-regional

The distribution of HF at sub-regional level

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

<table>
<thead>
<tr>
<th></th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>2nd</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>3rd</td>
<td>10</td>
<td>6</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>4th</td>
<td>18</td>
<td>5</td>
<td>7</td>
<td>1</td>
</tr>
</tbody>
</table>
The distribution of HF at local level

- 1st
- 2nd
- 3rd

Localities: 'Anabta, 'Attil, Adh Dhahiriya, Al Jiftlik, Al Yamun, Aqraba, Bani Zeid, Beit Sahur, Biddu, Biddya, Bir Zeit, El 'Eizariya, Halhul, Huwwara, Meithalun, Qabalan, Qabatiya, Sabastiya, Turmus' ayya, Ya'bad
Neighborhood

population 2015

Qaffin, Baqa ash Sharqiya, 'Illar, 'Asira ash Shamaliya, Kafr Zibad, Tell, Beit Furik, Kirli Harith, Al 'Auja, Deir Dibwan, Beit 'Ur at Tahta, Beit Fajjar, Tarqumiya, As Samu, Beit, Hajja, Silwad, Za'tara, Bani Na'im
Neighborhood

The distribution of HF at NEIGHBORHOOD level

<table>
<thead>
<tr>
<th>Neighborhood</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
</tr>
</thead>
<tbody>
<tr>
<td>'Asira ash Shamaliya</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>'Ilar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Al 'Aujja</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>As Samu</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bani Na'im</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baqa ash Sharqiya</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Beit 'Ur at Tahta</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beit Fajjar</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beit Furik</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beita</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deir Dibwan</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hajja</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kafir Zibad</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kifl Harith</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qaffin</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silat adh Dhahr</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silwad</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tammun</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tarqumiya</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tell</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Za'tara</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1st, 2nd, and 3rd indicate the distribution levels of HF.
National SWOT analysis
Weaknesses
Legend
- regions
- Health facilities
- regional roads
- main roads
- Governorate

Threats
- checkpoints

Apartheid Wall
- Area C
- Colonies

Political threats in the north region
Political threats in the south region
Threats

Bad distribution of Specialized hospitals in WB
Threats

Lack of UNRWA hospital in WB
Strengths
Strengths

Health facilities level three
Strengths

Specialized hospitals in WB

(there are many types of specialized hospitals)
Current condition of HF in each governorate in WB
### Hebron

<table>
<thead>
<tr>
<th>Hebron</th>
<th>Regional</th>
<th>Sub Regional</th>
<th>Local</th>
<th>Neighborhood</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
communities levels & Health facilities in Hebron
current condition of regional communities
current condition of local communities
current condition of all levels of communities
Bad distribution of HF in Hebron city
Table for the current condition of HF according to level of community

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

(-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

<table>
<thead>
<tr>
<th>Governorate</th>
<th>Lack</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hebron</td>
<td>UC</td>
<td>13</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>NC</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LC</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>SRC</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>RC</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
</tbody>
</table>

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 (3rd level of HF): 150000 capita in regional and sub-regional communities
- Comprehensive health centers (2nd level of HF): 30000 capita in local communities
- Health centers (1st level of HF): 10000 capita in neighborhood communities
- Health clinics or unites (1st level of HF): 5000 capita in communities
Current needs

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

The Number of the missing 2nd level of HF in local communities based on population in 2016
Future HF needs in communities according to population size
Current needs 2025

Legend

-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
in 2025
Legend
Current needs 2050
-11
-10
-7
-6
-5
-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 in 2050
Legend

future needs 2025

-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 in 2025
Neighborhood communities

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

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

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 2050
Legend

Future needs 2025

-2

Governorate

Regional roads

Main roads

Regional/sub-regional communities

The number of the missing 3rd level of HF in regional communities based on the population in 2025
Table for needs according to population size

<table>
<thead>
<tr>
<th>Community N</th>
<th>Pop 2016</th>
<th>Pop 2025</th>
<th>Pop 2050</th>
<th>Num of current HF</th>
<th>Num of HF should be available in 2016</th>
<th>Num of HF should be available in 2025</th>
<th>Num of HF should be available in 2050</th>
<th>current needs 2016</th>
<th>future needs 2025</th>
<th>future needs 2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hebron (Al Khalil)</td>
<td>683689</td>
<td>966799</td>
<td>2124845</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>7</td>
<td>4</td>
<td>2</td>
<td>-2</td>
</tr>
</tbody>
</table>
Proposals
4th 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
4th 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
Proposed 4th level of HF in north region

Proposed 4th level of HF in WB
Regional and sub regional 3rd 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

- red: proposed 3rd level
- blue: existing 3rd level

Legend

- red: proposed 3rd level
- green: proposed 1st level

level
- purple: 1st
- green: 2nd
- blue: 3rd
- brown: 4th

- yellow: communities
- light blue: local
- green: regional
- pink: neighborhood

Roads
- purple: Regional
- brown: Main

proposed HF in nablus city
Local, neighborhood communities 1\textsuperscript{st} and 2\textsuperscript{nd} level proposals

- In the built up areas
- Outside the services area of the other facilities
- Near to local road
Proposed 1st level of HF in WB

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

Kilometers
0 3.5 7 14

Proposed 1st 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)