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Al-Quds University**



**Selection Criteria For Water Harvesting Technique in  
Sanour Plain –Jenin**

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**Selection criteria for water harvesting technique in  
Sanour Plain –Jenin**

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Jerusalem –Palestine

2019/1440

## Dedication

بعد عام من العمل لإنجاز هذا البحث أتقدم للإنسان الذي علمني أن عز الإنسان وقيّمته  
في الأشخاص الذين يحبهم ...

لمن علمني أن الصدق مفتاح الحياة والنجاح ....

معكم أحبتي أثق بأن أعظم ما انجزته بعمرى هو أنكم بعمرى...

أشكركم لأنكم أضفتُم لشخصى الكثير ولأنكم موجودون دائماً حتى فى أصعب حالاتى ..

أبى وأمى ملجأ أمانى، زوجتى الحبيبة بنتى الغالية وأخوتى سندی وعزوتى ، واصدقائى

الغالبين

شكراً للوقت والصدفة التى جمعتنا ...

لكم جميعاً أقدم هذا العمل ...

## **Declaration**

I certify that this thesis submitted for the degree of Master is the result of my own research, except where otherwise acknowledged and that this thesis (or any part of the same) has not been submitted for a higher degree to any other University or institution.

Name: Raed Yosef Mohamad Abualrob

Signed: .....

Date: 17/4/2019

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**Abstract:**

The study handle the flooding of Sanour Basin (16 km<sup>2</sup>) in the northern part of the West Bank. Due to flooding water during winter season about 60% will cover with water causing restrictions of Land use. The objective of this research is to select optimum collection sites for surface water harvesting in addition to artificial injection boreholes. The methodology used in this research is the combination of land cover-land use, soil curve number (SCN), and GIS technique. Depending on the hydrological data during the period 1953 and 2019, the volume of flooding water range between 0.0 in dry year, and 15 MCM/a in extern wert year 1991/92, with an average of about 2.5 MCM/a. According to this study, 40 collection ponds sites are found to store about 3MCM, and 10 proposed injection boreholes with total capacity of about 0.33 MCM could be installed in the basin and feed the groundwater regim. Due to this fact an annual total volume of 3.33 MCM could be stored and used in improvement of the agricultural sector, and avoid flooding of the basin.

## Table of Contents

Declaration .....	I
Acknowledgment.....	II
Abstract: .....	III
Table of contents .....	IV
list of figures.....	VI
list of tables.....	VIII
list of appendices .....	X
list of abbreviation .....	XI
<b>Chapter one.....</b>	<b>1</b>
Introduction .....	1
1.1 general introduction.....	1
1.2 water resources.....	3
1.3.problem statement: .....	5
1.4: research objectives. ....	6
1.5 specific objective:.....	6
1.5.1research thesis contents.....	7
<b>Chapter two .....</b>	<b>8</b>
Literature review .....	8
<b>Chapter three .....</b>	<b>12</b>
Description of the case study.....	12
3.1climate data.....	12
3.2 rainfall: .....	12
3.3 temperature .....	16
3.4 relative humidity.....	16
3.5 evaporation.....	17
3.6 Geomorphology of Sanour plain .....	17
3.6.1 Highlands.....	18
3.6.2 Sanour plain.....	20
3.7. geology and hydrogeology: .....	21
3.8.ground water:.....	21
3.9. soil characteristic .....	25
3.10.land cover land use: .....	25



<b>Chapter four</b> .....	<b>28</b>
Materials and methods:.....	28
4.1. introduction.....	28
4.2. data used .....	29
4.3 GIS software packages.....	30
4.4. digital elevation model (Dem) analysis:.....	30
4.5.Delineating the watershed.....	33
4.5.1. fill sinks: .....	34
4.5.2.flow direction: .....	34
4.5.3flow accumulation: .....	36
4.5.4. Slope & Aspect.....	37
4.5.5delineating stream network.....	39
4.5.5.1 Stream Links &Junctions.....	39
4.5.5.2 Stream Order.....	41
4.6 hydrological soil group (Hsgs): .....	43
4.7 soil conservation services (scs) method: .....	45
4.8 field works: .....	49
<b>Chapter five</b> .....	<b>55</b>
Results: .....	55
5.1division sanour plain basin: .....	55
5.2 monthly runoff depth:.....	60
5.3 annual and monthly runoff volumes:.....	60
<b>Chapter six</b> .....	<b>72</b>
Conclusion & recommendations .....	72
6.1. Conclusion:.....	72
6.2 Recommendation:.....	73
6.3References .....	74
Appendices .....	78
:الملخص.....	79

## List of Figures

figure 1: location of the sanour plain.....	2
figure 2: sanour plain flooding during the hydrological year 2019.....	5
figure 3: average rainfall in sanour plain.....	13
figure 4: annual rainfall amounts of maithalon (mm).....	14
figure 5: potential distribution of rainfall in sanour plain area.....	14
figure 6: distribution of the minimum, average, standard deviation, and maximum monthly rainfall.....	15
figure 7: topographic area of the catchment area in sanour plain.....	19
figure 8: governorates and groundwater basins formation .....	22
figure 9: outcrop of land recharge area of different aquifer system .....	24
figure 10: sanour hydrogeology map.....	24
figure 11: land cover land use.....	26
figure 12: chart represents the steps of dem analysis for deriving surface characteristic.....	31
figure 13: Sanour digital elevation model dem.....	32
figure 14: panoramic view for sanour watershed showing the plain and the surrounded ridges .....	32
figure 15 : sanour main watershed map.....	33
figure 16 : filled sink and removed peak.....	34
figure 17 : flow direction aspect.....	34
figure 18: flow direction map .....	35
figure 19: flow direction over the areas of sanour watershed.....	35
figure 20: grid network a) represent flow direction and b) represent flow accumulation.....	36
figure 21: flow accumulation over the areas of sanour watershed.....	37
figure 22: shows the slope variation in degree over the surface of sanour watershed ...	38
figure 23 : aspect slope .....	38
figure 24: sanour water shed aspect slope .....	39
figure 25: stream network in sanour plain .....	40
figure 26: stream links .....	40
figure 27: methods of stream principal.....	41
figure 28 : stream order .....	42
figure 29: sanour soil type.....	43
figure 30: soil texture triangle, usda soli texture classification .....	44
figure 31: pond location in sanour plain.....	49

figure 32: suggestion construction pond was built in sanour plain 2015 .....	54
figure 33: 8basin, and 40 small catchment area from a1-a40).....	59
figure 34: annual runoff in the sanour plain basin in thousand cubic meters during the period from 1953/1954 to 2018/2019.....	63
figure 35: average, minimum and upper values and standard deviation of monthly runoff per thousand cubic meters of sanour plain. (1953 – 2019).....	63
figure 36: probabilistic distribution of annual turf runoff per thousand cubic meters ....	66
figure:37 suggestion selected water harvesting ponds .....	69
figure 38: suggestion recharge well.....	69

## List of Tables

table1: the most important population characteristics in sanour plain area in 2012 according to the data of the seven group management.....	2
table 2: water sources in sanour plain basin. ....	4
table 3: monthly average rainfall rates for maithalon climate station (mm) .....	13
table 4: minimum, maximum and middle values of monthly rainfall in the maithalon weather station for 66 years.....	15
table 5: monthly temperature in the study area.....	16
table 6: distribution of the average monthly relative humidity of air in study area. ....	17
table 7: evaporation in study area.....	17
table 8: topographic information and sub catchment area of the watershed in sanour plain basin.....	19
table 9: land use in sanor plain basin in donoum , while table 10 summarizes the land use of each of the villages in the village. ....	26
table 10: land use in Sanour plain villages.....	27
table 11: stream order and length according to strahler classification. ....	42
table 12: soil hydrological group (nrcs, usda, 1974) .....	44
table 13 :adjustments to select curve number for soil moisture conditions.....	48
table 14: lists the names and locations of ponds and the engineering design size of each pond .....	50
table 15 : actual volume water collected .....	51
table 16 :actual water volume collected .....	52
table 17: actual water volume collected .....	53
table18: land use in the resulted sub catchments (area in donum): .....	56
table19: calculated soil curve number adjustment and show curve number hydrological soil group.....	57
table20: area of sub basin and annual runoff.....	58
table 21: monthly and annual runoff volumes per thousand cubic meters of sub-basins...	61
table 22: standard deviation of monthly runoff in thousand cubic meters of sub-basins ...	61
table 23: maximum monthly and annual runoff volumes per thousand cubic meters of sub-basins: .....	62
table 24: annual runoff volumes of sub-basins per thousand cubic meters for the year 1992/1991:.....	62

table 25: average, median, standard deviation, and maximum and minimum monthly and annual runoffs of the grass basin in thousand cubic meters .....	64
table 26: average daily maximum runoff of sub-basins per thousand cubic meters.....	65
table 27: upper limits of daily maximum runoff of sub-basins per thousand cubic meters	65
table 28: maximum and minimum annual runoff: .....	66
table 29: suggestion selected water harvesting pond in sanour plain: .....	67
table 30: suggestion selected artificial recharge well in sanour plain .....	68
table 31: number of construction ponds comparing with moa implemented ponds.....	70

## List of Appendices

appendix 2: description and curve numbers .....	78
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## **List of abbreviation**

MoA: Ministry of Agriculture

GIS: Geographic Information System

RS: Remote Sensing

USDA: United State Department of Agriculture

SCS: Soil Conservation Services

HSG: Hydrological Soil Group

MCM: Million Cubic Meter

DEM: Digital Elevation Model

CN: Curve Number

NRCS: Natural Resources Conservation Service

USDA: United States Department of Agriculture

## معايير اختيار تقنيات الحصاد المائي في منطقة صانور -جنين

إعداد: رائد يوسف محمد ابوالرب

المشرف: د. عامر مرعي

### الملخص:

تم في هذه الدراسة تقدير كميات مياه الفيضان في حوض صانور حيث تبلغ مساحة الحوض (16 كم<sup>2</sup>) حيث يقع في الجزء الشمالي من الضفة الغربية. يتم غرق حوالي 60 % من الاراضي الزراعية بسبب فيضان مياه الامطار خلال فصل الشتاء ،مما يتسبب في تقييد استخدام الأراضي. الهدف من هذا البحث هو اختيار مواقع التجميع المثلى لجمع مياه الامطار السطحية بالإضافة إلى تحديد اماكن آبار الحقن الصناعي. المنهجية المستخدمة في هذا البحث هي مزيج من استعمالات الاراضي في الفترة 1953 و 2019 بناء على بيانات حفظ التربة واستخدام عدد منحى التربة واستخدام تقنية نظم المعلومات الجغرافية، حيث يتراوح حجم مياه الفيضان ما بين 0.0 في السنة الجافة و 15 مليون متر مكعب في عام 1992/1991 بمعدل حوالي 2.5 مليون متر مكعب سنويا ،وفقا لهذه الدراسة تم اختيار 40 موقع لانشاء برك ترابية زراعية من احواض التجميع لتخزين حوالي 3 ملايين متر مكعب ، وتم تحديد اماكن انشاء 10 ابار حقن صناعي بسعة اجمالية تبلغ 0.33 مليون متر مكعب لتغذية نظام المياه الجوفية. وعليه يبلغ الحجم الكلي السنوي لتخزين المياه حوالي 3.33 مليون متر مكعب واستخدامه في تحسين القطاع الزراعي وتجنب حدوث الفيضان في حوض صانور .