

Table of Contents

Abstract.....	i
Acknowledgment	ii
List of Tables	v
List of Figures	vi
List of Abbreviations and Symbols.....	vii
Chapter 1: Introduction	1
1.1 Background	1
1.2 Problem Definition.....	1
1.3 Objectives.....	3
1.4 Structure of the Thesis.....	3
Chapter 2: Literature Review	5
2.1 Assessment of Observed Trends	5
2.1.1 Global climate change trends	5
2.1.2 Observed trends for the Mediterranean and Palestine	10
2.2 Projections of Future Climate Change	12
2.2.1 Global climate change- IPCC 4 th assessment report.....	12
2.2.1 Projections for the Mediterranean	15
2.3 Water Resources in Palestine	17
2.3.1 Groundwater	18
2.3.2 Surface water	19
2.3.3 Water deficits.....	20
2.4 Agriculture in Palestine.....	21
2.4.1 General.....	21
2.4.2 Rain-fed vs. irrigated agriculture.....	22
2.4.3 Constraints on agriculture.....	22
2.4.4 Agriculture and the national economy.....	23
2.5 Climate Change and Agricultural Water Demand	23
Chapter 3: Methodology	27
3.1 General	27

3.2 CROPWAT Computer Model.....	29
3.2.1 Calculating reference evapotranspiration (ET_o)	29
3.2.2 Calculating crop evapotranspiration (ET_c).....	31
3.2.3 Calculating crop water requirement (CWR).....	32
3.2.4 Calculating irrigation water requirements (IWR).....	33
3.2.5 Data required for CROPWAT	33
3.3 Study Area.....	34
3.3.1 General.....	34
3.3.2 Climate.....	36
3.3.3 Land use.....	37
3.3.4 Soils	39
3.4 Data Used in the Study.....	40
3.4.1 Climatic data.....	40
3.4.2 Crop data.....	42
3.4.3 Soil data	44
3.5 Scenarios Applied in the Study	44
Chapter 4: Results and Discussion.....	46
4.1 Impacts of Climate Change	46
4.1.1 Impact of increasing temperature on reference evapotranspiration.....	46
4.1.2 Impact of increasing temperature on crop water requirement.....	46
4.1.3 Impact of changing precipitation.....	48
4.1.4 Water demand deficits under different scenarios for Jericho and Al Aghwar district	49
Chapter 5: Conclusion and Recommendation.....	52
5.1 Conclusion.....	52
5.2 Recommendation.....	53
References.....	54
Annex 1	57