“Sustainable Integrated Pilot Water / Agricultural Projects”

Contract 155/2010/LC/ZU

FEASIBILITY STUDY AND PROJECT DESIGN
INDEX OF CONTENTS

EXECUTIVE SUMMARY 5

MAP OF THE PROJECT AREA 8

1. INTRODUCTION 9
  1.1. BACKGROUND 9
  1.2. PROJECT OBJECTIVES, EXPECTED RESULTS AND DELIVERABLES 9

2. ANALYSIS OF THE EXTERNAL ENVIRONMENT 11
  2.1. CONSTRAINTS TO AGRICULTURE DEVELOPMENT 11
  2.2. THE SITUATION IN THE PROJECT AREA 11

3. PROJECT STRUCTURE 18
  3.1. PROJECT CONCEPT 18
  3.2. PROJECT AREA 18
  3.3. PROJECT COMPONENTS 19

4. STAKEHOLDER ANALYSIS 21
  4.1. OBJECTIVES AND METHODOLOGY 21
  4.2. RESULTS 21

5. OPTIONS ANALYSIS 23
  5.1. INTRODUCTION 23
  5.2. AQUACULTURE: CARP HATCHERY/NURSERY AND GROW-OUT POND PROPOSALS 24
    5.2.1. HATCHERY/NURSERY FOR JUVENILE PRODUCTION 24
    5.2.2. GROW-OUT OF CARP FROM JUVENILES TO COMMERCIAL SIZE 25
    5.2.3. PROCESSING, PACKAGING AND STORAGE 26
    5.2.4. OPTIONS PROPOSED FOR SELECTION 27
  5.3. HORTICULTURE AND CROPS 27
    5.3.1. OPTIONS CONSIDERED 28
    5.3.2. OPTIONS PROPOSED FOR SELECTION 31
  5.4. ANIMAL HUSBANDRY 32
  5.5. WATER PURIFYING 33
  5.6. SYSTEM ACCESSORY MODULES 33
    5.6.1. IRRIGATION SYSTEM 33
    5.6.2. STRUCTURES AND BUILDINGS 35
    5.6.3. MECHANIZATION 37
  5.7. ENERGY PROVISION 37
    5.7.1. OPTIONS CONSIDERED 37
    5.7.2. OPTIONS PROPOSED FOR SELECTION 38

6. RISK ANALYSIS 39
  6.1. RISK IDENTIFICATION 39
  6.2. DEFINITION OF RISK ADOPTED FOR SIPWAP 39
  6.3. RISKS CATEGORIES 39
  6.4. RISKS 39
6.5. RISK QUANTIFICATION 40
6.6. RISK MITIGATION PLAN 42
6.7. KEY STRATEGIES 47

7. ECONOMIC AND FINANCIAL EVALUATION OF PRODUCTION MODELS 48

7.1. OBJECTIVES 48
7.2. BASIC HYPOTHESIS AND METHODOLOGY 48
7.2.1. INDIVIDUAL MODULES AND INTEGRATION OF MODULES 48
7.2.2. PILOT FARM 49
7.3. ECONOMIC AND FINANCIAL EVALUATION 51
7.3.1. DATA COLLECTION AND MAIN ASSUMPTIONS 51
7.3.2. INDIVIDUAL MODULES AND INTEGRATION OF MODULES 52
7.3.3. ECONOMIC IMPACT FOR NEW FARMS START-UP AND MODULES REPLICAION 54
7.3.4. MODULES FEASIBILITY RANKING 55
7.3.5. PILOT FARM STRUCTURE, NEEDS AND SCHEDULES OF WORK, AND ECONOMIC RESULTS 56

8. INVESTMENT ANALYSIS 61

8.1. OVERALL INVESTMENT ANALYSIS 61
8.2. RISK ASSESSMENT AND SENSITIVITY ANALYSIS 63
8.3. RISK ASSESSMENT FOR MODULES REPLICAION TO LOCAL FARMERS 66
8.4. A TWO-STAGES INVESTMENT OPTION 67

9. MANAGEMENT GUIDELINES AND OWNERSHIP STRATEGIES 69

9.1. MAIN CRITICAL FACTORS 69
9.2. LOCATION CHOICES 69
9.3. ORGANIZATION AND GOVERNANCE OPTIONS 70

10. MONITORING 72

11. LOGICAL FRAMEWORK ANALYSIS 73

ANNEXES 76

ANNEX 1 PEOPLE MET 76
ANNEX 2 STAKEHOLDERS MATRIX 78
ANNEX 3 BASRA GOVERNORATE: ADMINISTRATIVE ORDER N. 18386, 13/11/2011 85
ANNEX 4 MEMORANDUM OF UNDERSTANDING 86
ANNEX 5 TECHNICAL AND ECONOMIC ASSUMPTIONS 89
ANNEX 6 MODULES BALANCE SHEETS 95
ANNEX 7 MODULES FEASIBILITY RANKING 106
ANNEX 8 PILOT FARM STRUCTURE DETAILS 107
ANNEX 9 PILOT FARM: DETAIL OF COSTS, REVENUES AND MARGINS 110
ANNEX 10 PILOT FARM: INVESTMENT ANALYSIS 118
ANNEX 11 PICTURES 119