



CONTENT FOR CONCEPT DESIGN OF WATER SUPPLY

1. Introduction

- 1.1 Project background
- 1.2 Maldives design standards and requirements
- 1.3 Project lifecycle
- 1.4 Scope of work
- 1.5 Island description

2. Existing water supply infrastructure and facilities

3. Protected areas, zones and reserves

4. Population

5. Drinking water usage

- 5.1. Island demographics and population projections
- 5.2. Design Software
- 5.3. Design parameters
- 5.4. Water and demand assessments
- 5.5. Emergency Water storage
- 5.6. Design horizons

6. Surveys

- 6.1. Socio-economical
- 6.2. Physical survey
- 6.3. Groundwater assessments and Geotechnical surveys

7. Stakeholder consultation with attached meeting minutes

8. Water supply and distribution system

- 8.1. Overview
- 8.2. Design approach
 - a) Water Distribution systems
 - 1. Grid Pattern
 - 2. Grid Pattern with loop
 - 3. Radial system
 - 4. Ring System
 - b) Number of Cut-off Zones
 - c) Number of Washout



- d) Water storage and Tank capacity
 - e) Degassifier Capacity
- 8.3. Methods of Water Distribution
- a) Distribution by Gravity
 - b) Pumping without storage
 - c) Pumping with storage
- 8.4. Source of water
- 8.5. Sea water intake options
- 8.6. Pre-treatment of raw water
- 8.7. Rainwater harvesting, collection and storage
- 8.8. Desalination plant
- 8.9. Post treatment and water storage
- 8.10. Distribution network
- 8.11. Water Sampling points
- 8.12. Water connection arrangements
- 8.13. Water meter details
- 8.14. Brine outfall and anchoring details
- 8.15. Power requirements for System Operations
- 8.16. Water quality control strategy

9. Material standards

10. Power supply

- 10.1. Existing infrastructure
- 10.2. Backup power source
- 10.3. Power supply upgrade requirements
- 10.4. Power requirements for the water supply system
- 10.5. Renewable energy integration (100% of energy required for RO plant operations)

11. Land approvals for Water supply system

- 11.1. Land for Approval for Desalination Plant House, Storage
- 11.2. Land approval for Rainwater harvesting roof and collection systems
- 11.3. Land approvals for Material and equipment
- 11.4. Land approvals for Staff quarter (if applicable)

12. Environment Friendly design considerations

13. System Expansion options

13.1. Network expansion

13.2. Capacity expansion

13.3. Area of Expansion

14. Estimated operation and maintenance cost

15. Expected design deviations

16. Conclusions