Seychelles

USE OF ADVANCED TECHNOLOGIES FOR FAMILY AGRICULTURE

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Outline of presentation

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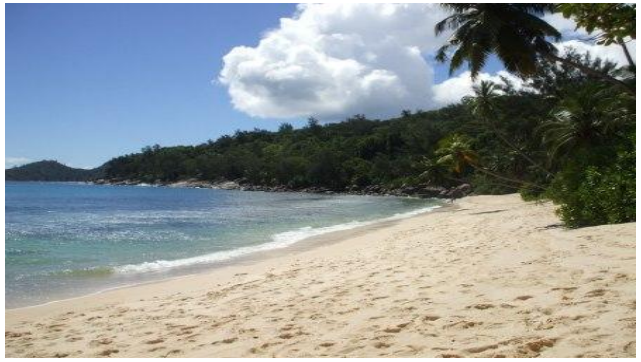
- Use of advanced technologies in agriculture
  - Irrigation technology
  - Use of soil moisture and salinity monitoring sensors
  - Green house Technology
  - Fertigation technology
  - Use of ICT
- Challenges and constraints to use of advanced technologies

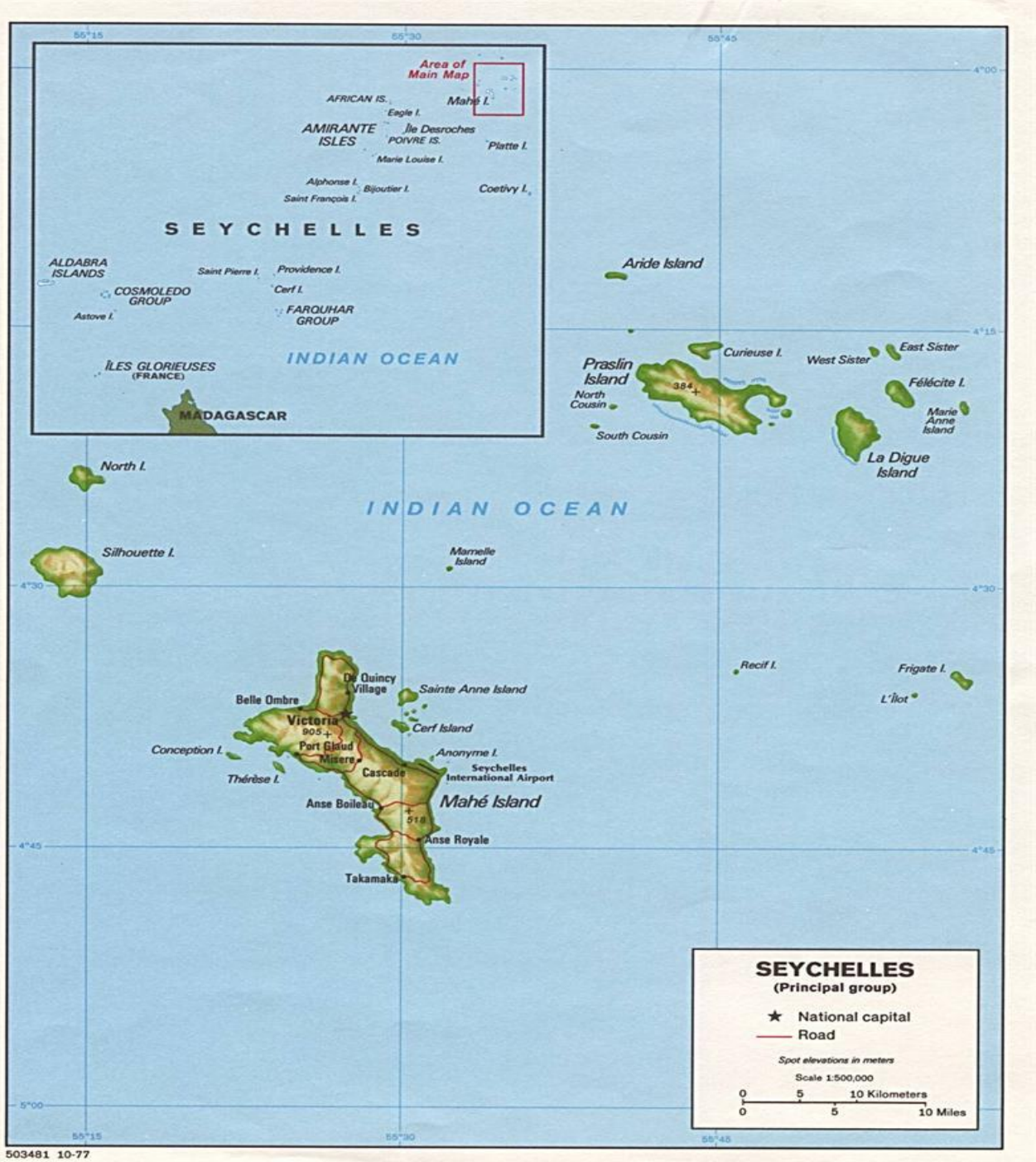
Introduction

Country Information

- Archipelago consisting of 115 islands
- Located in the Western part of the Indian Ocean and lie between 4° - 10° South of the equator, and 46° - 57° east
- Spread over an Exclusive Economic Zone (EEZ) of 1.34 million km^2
- Total land area is 455 km^2
- Out of the 115 islands, forty-one (41) are of granitic origin
- Main island of Mahe covers an area of 15 539 hectares and is 27 km long by 12 km in width
- Population stand at 93,000

Map of Seychelles





Introduction

Climate

- Humid tropical climate dominated by patterns of monsoons
- The southeast monsoon (May to October)
  - cool, windy but dry conditions with little rainfall
  - main vegetable growing season
- The northwest monsoon (November to April)
  - gentle winds, humid and heavy rainfall
  - difficult season for vegetable production
- Annual mean temperature is about 27° C
- Relative humidity is about 80%
- Average annual precipitation varies between 1700 mm-3000 mm

Introduction

Agricultural Background Information

- Agriculture in Seychelles is limited by a lack of arable land, two thirds of the available land resources are mountainous and are unsuitable for agricultural activities
- Out of the total land area (45, 539 ha) only about 600ha is allocated for agricultural production
- 75% of the total cultivable land is found on the coast
  - averaging about 2 m above mean sea level
- The remaining 25% consist of land with slopes in excess of 15%

Introduction

Agricultural Background Information

- Total of 752 farmers farming on both private and state land.
- Main crops produced are vegetables, fruits, root crops, spices and herbs
- All produce are destined for the local market
- Farm sizes ranges between 0.5-2 ha
- 8600 households involved in some form of farming activity

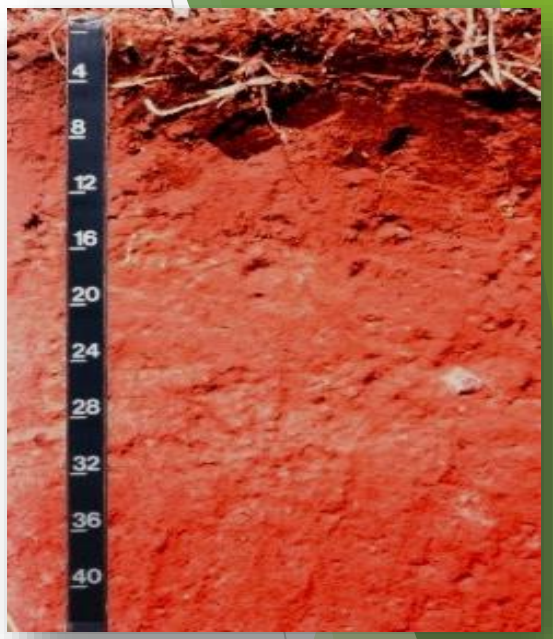
Introduction

Agricultural Background Information

- Predominant soil types are the ferralitic and the calcareous sandy soils.

- The ferralitic soil
  - Originates from the weathering of granitic rock
  - Widely extended over the slopes, hills and mountains
  - 70% of the farms under production are cultivating in red soils

- Sandy Soil
  - Extends on the small plateaus on the coast
  - 20% of farms cultivating in such soils



Use of advanced technologies in agriculture

- Irrigation technology
- Use of soil moisture and salinity monitoring sensors
- Green house Technology
- Fertigation technology
- Use of ICT

Irrigation Technology

- The two major soil types have low water holding capacity
- Hence soils need to be irrigated frequently
- Most farmers irrigate daily
- High water demand and use for irrigation particularly leafy and high value vegetable crops
- Productivity of irrigated land is more than three times that of un-irrigated land

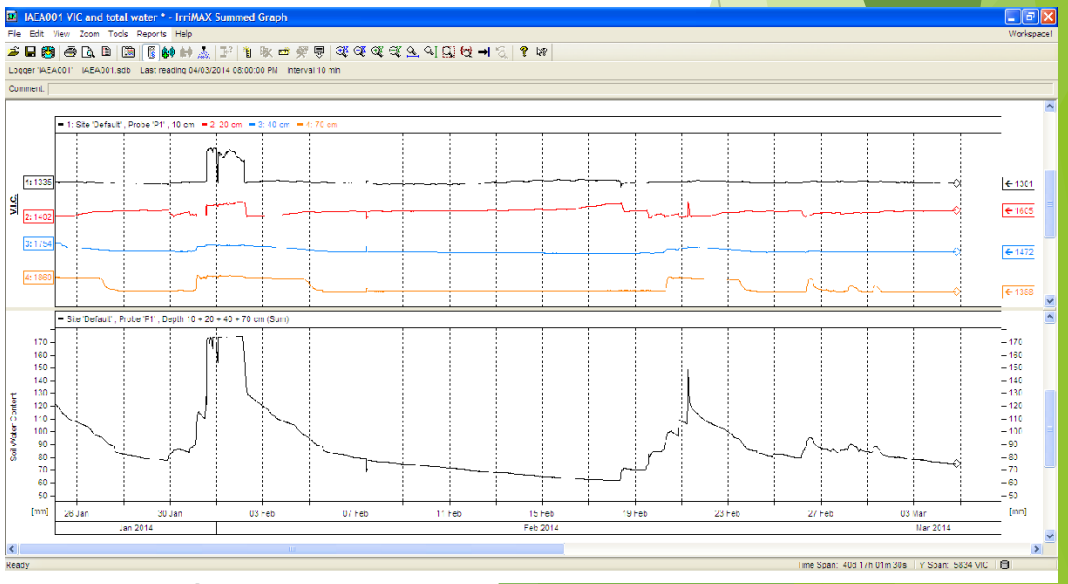
Irrigation Technology

- **Drip Irrigation**
  - High value vegetable crops eg: Tomato, Sweet Pepper
- **Mini Sprinklers**
  - Leafy vegetables eg: Lettuce, Chinese cabbage
- **Over head Sprinklers**
  - Root crops and fruit trees

Use of soil moisture and salinity monitoring sensors

- Sentek TriScan sensors for the real time monitoring of soil water and salinity
  - Long term monitoring of soil moisture and salinity conditions
  - Establish a baseline of the salinity and soil moisture status as influenced by irrigation and fertilizer management practices

- Make improvements in Irrigation and fertiliser management practices



Green House Technology

- Use of shade houses and green houses adapted to local conditions
- Use of UV resistant plastic cover
- Advantages
  - Protect against excessive radiation and rainfall
  - Minimise impact of pest and diseases
  - Extend growing season
  - Maximise crop yield and quality

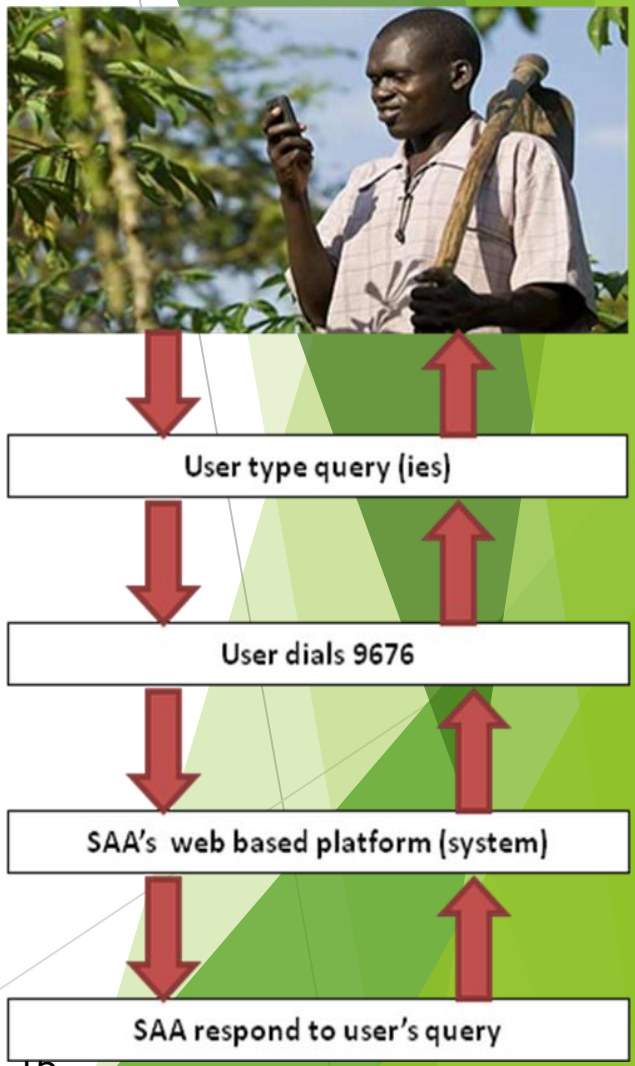
Fertigation Technology

- Injection of soluble fertilizers in combination with micro irrigation techniques

- Advantages
  - Maximize water and fertilizer use efficiency
  - Lower energy consumption
  - Increase crop yield and quality
  - Reduce nitrate losses

Use of ICT

- Mobile-based platform to enable farmers to interact with extension services through SMS
  - The platform enables farmers to ask questions to their extension officers through the short code 9676 and receive instant feedback at no cost
  - Disseminate important extension messages more efficiently and timely through delivery of bulk SMS to specific farmer groups in their native Creole



Challenges and constraints to use of advanced technologies

- Education and Training
  - Lack of knowledge and inadequate skills of farmers
  - Inadequate agricultural extension services
  - Limited institutional capacity
- Climate and Environmental issues
  - Low soil fertility
  - Extreme weather conditions (High temperature, extreme rainfall and extended dry periods)
- Economic and Policy
  - High investment costs associated with advanced technologies
  - Lack of money
  - Limited access to credit facilities
  - Low funding for research and innovation

Thank you for your attention!!