The Hashemite Kingdom of Jordan
Ministry of Agriculture

Status of soil information in Jordan

Soil Survey in Jordan - Context and History

- 1950s at a scale of 1:1,000,000, using USDA of 1938, twelve great soil groups being recognized, the most common of which being:
- grey desert soils,
- alluvial soils developed under desert climate, yellow soils developed under steppe conditions,
- yellow and red Mediterranean soils developed where annual rainfall exceeds 250mm.
- 1960s, mapped the soils of Baqa'a Valley at a scale of (10,000) using the using Soil Taxonomy (7th Approximation).
- 1970s to Irbid and Karak regions. A detailed survey was carried out for 2,500 ha, and a semidetailed survey for 70,000 ha in Irbid region.

Soil Survey in Jordan - Context and History

- 1975 Land Regions for Jordan were defined by Mitchell and interpretation of 1:250,000 scale LANDSAT MSS imagery to refine these units provided the basis for the soil mapping programme of the National Soil Map and Land Use Project (NSM&LUP) 1989-95.

The study consists of 3 levels

- The Level 1 soil survey, a broad reconnaissance of the soils of the whole Kingdom with mapping at 1:250,000 scale.
- Level 2 involved semi-detailed soil survey and production of soil, land use and land suitability maps of 9000 km2 at 1:50,000 scale.
- Level 3 presents soil, land cover and land suitability maps at 1:10,000 scale of about 800 km2 based on a detailed soil survey.

Soil Survey& Land Use Division

OBJECTIVES

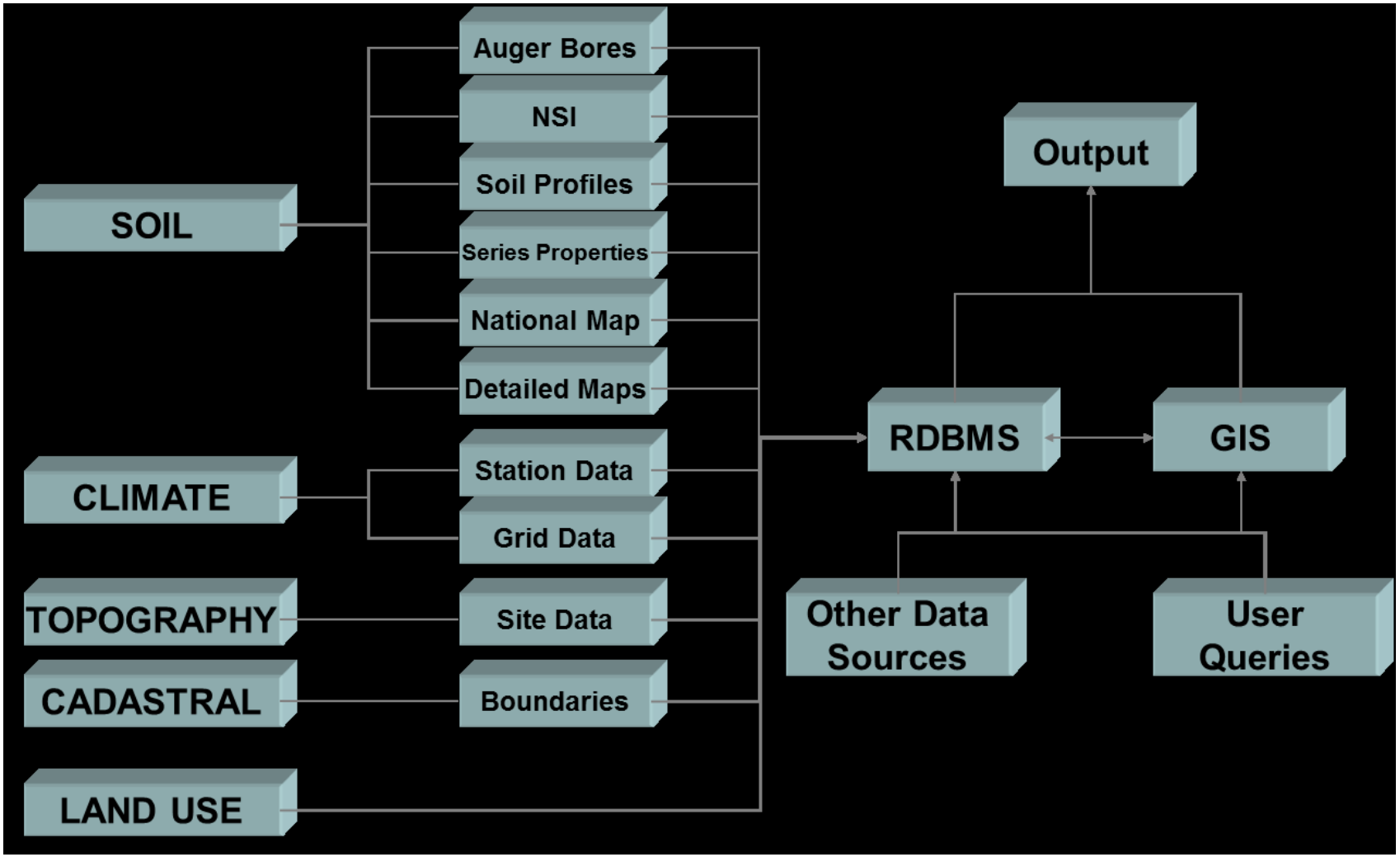
- Create a Computerized Data Storage System and Geographical Information System (GIS).
- Select and Train a Cadre of Scientists in Soil and Land Evaluation, Data Management Techniques, and Digital Map Production.
- Provide Needed Information in Land Resources to Planning Bodies and Decision Makers.

Soil Survey& Land Use Division

OBJECTIVES

- Prepare SOIL MAPS of Jordan.
- Identify, Describe and Locate Areas of Arable Land
- Classify Arable Land According To Suitability For Various Agricultural Uses

LANDIS INFORMATION



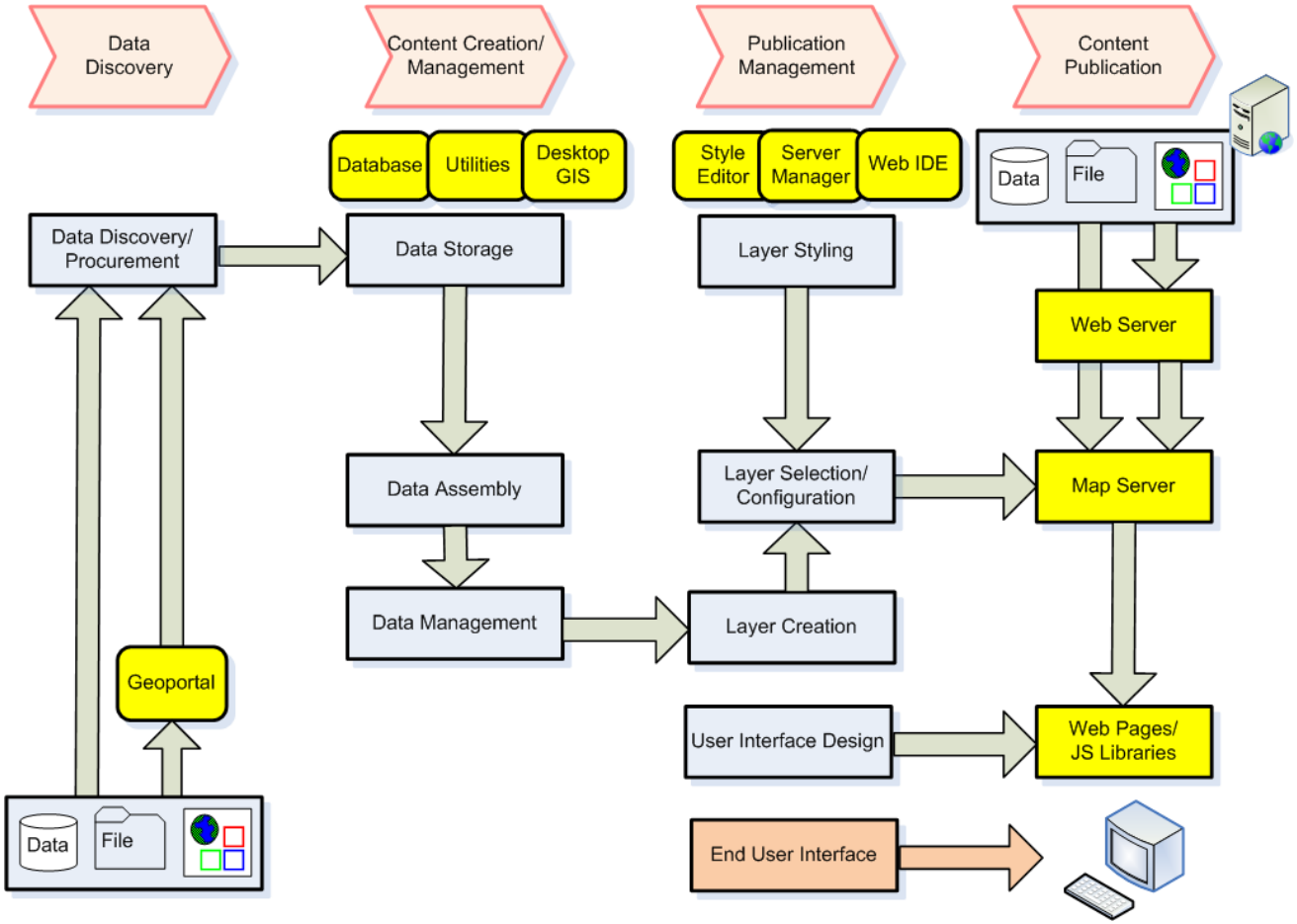
Jordanian soils data sources

The Jordan Soil and Climatic Information System, (JOSCIS) established in 1993,. The original JOSCIS system reported on held a broad range of environmental thematic data, for instance soil, land use, land qualities and climatologically data.

Data that available from the (JOSCIS) are:

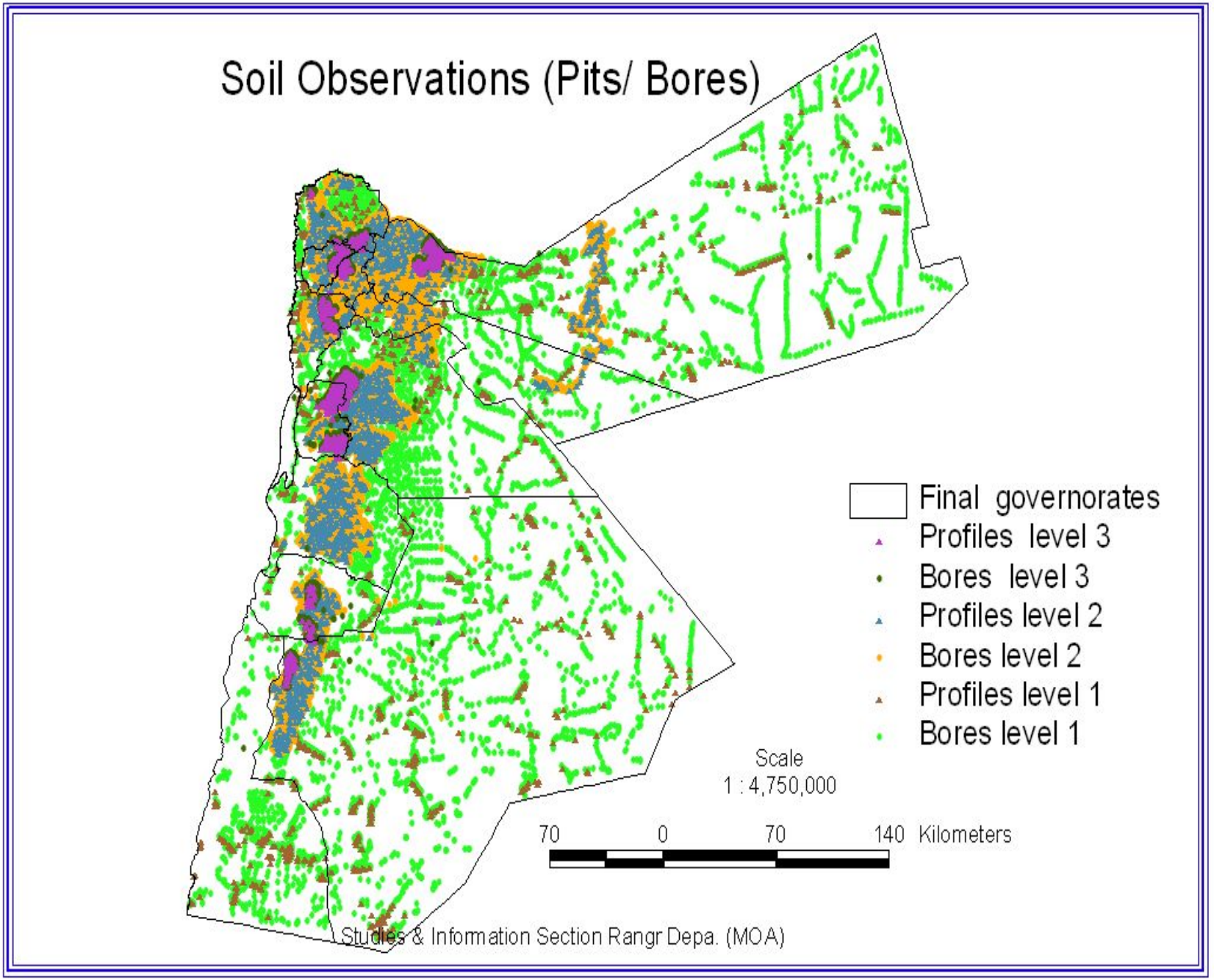
Rainfall, soil depth, temperature, available water holding capacity, slope, altitude, surface stoniness, erosion type and class, surface cover type (stones, boulders, rockiness), and drainage class. In addition, some data about salinity, alkalinity, and Calcium Carbonate percentage were available from the National Soil Map and Land Use Project reports.

TYPICAL DESIGN ENVIRONMENTAL INFORMATION SYSTEM

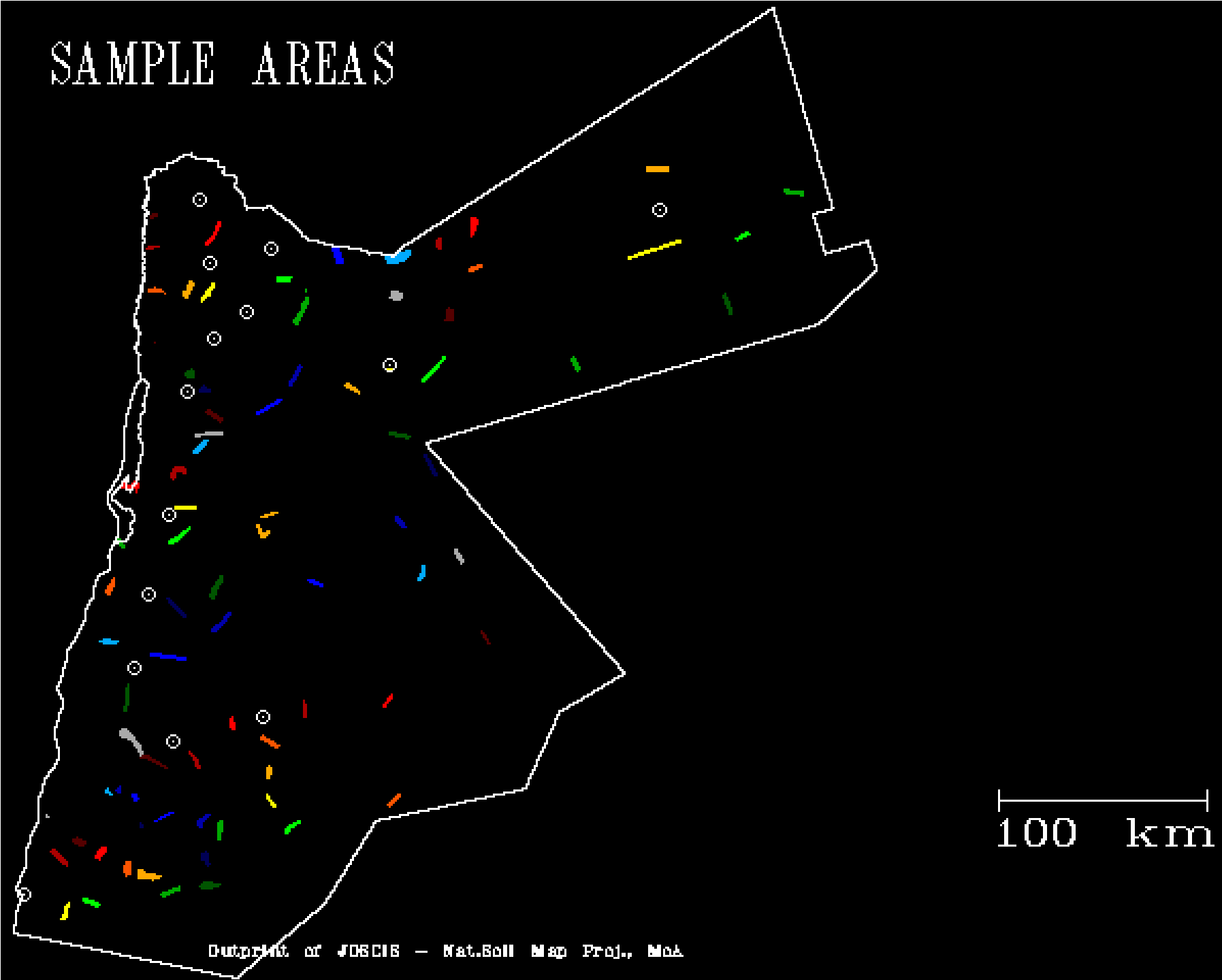


Number of Observation in Three levels

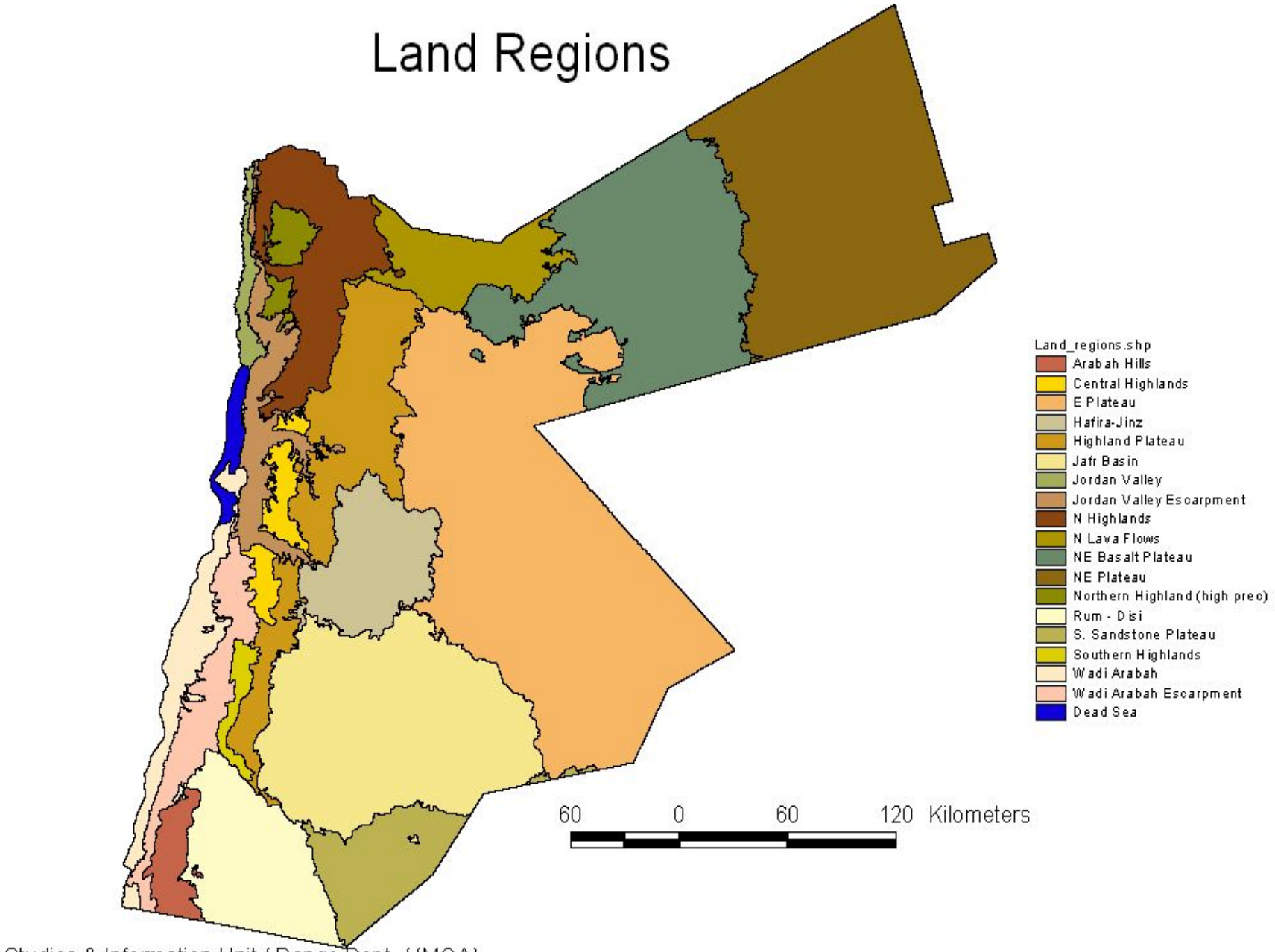
Observation Type	Level I	Level II	Level III	Total Sites
Profile Pits	380	1623	1736	3739
Auger Bores	3848	18131	15895	37874
Total	4228	19754	17631	41613


Soil Observations (Pits/ Bores)
Final governorates
Profiles level 3
Bores level 3
Profiles level 2
Bores level 2
Profiles level 1
Bores level 1
Scale
1 : 4,750,000
70 0 70 140 Kilometers
Studies & Information Section Rangr Depa. (MOA)

SAMPLE AREAS



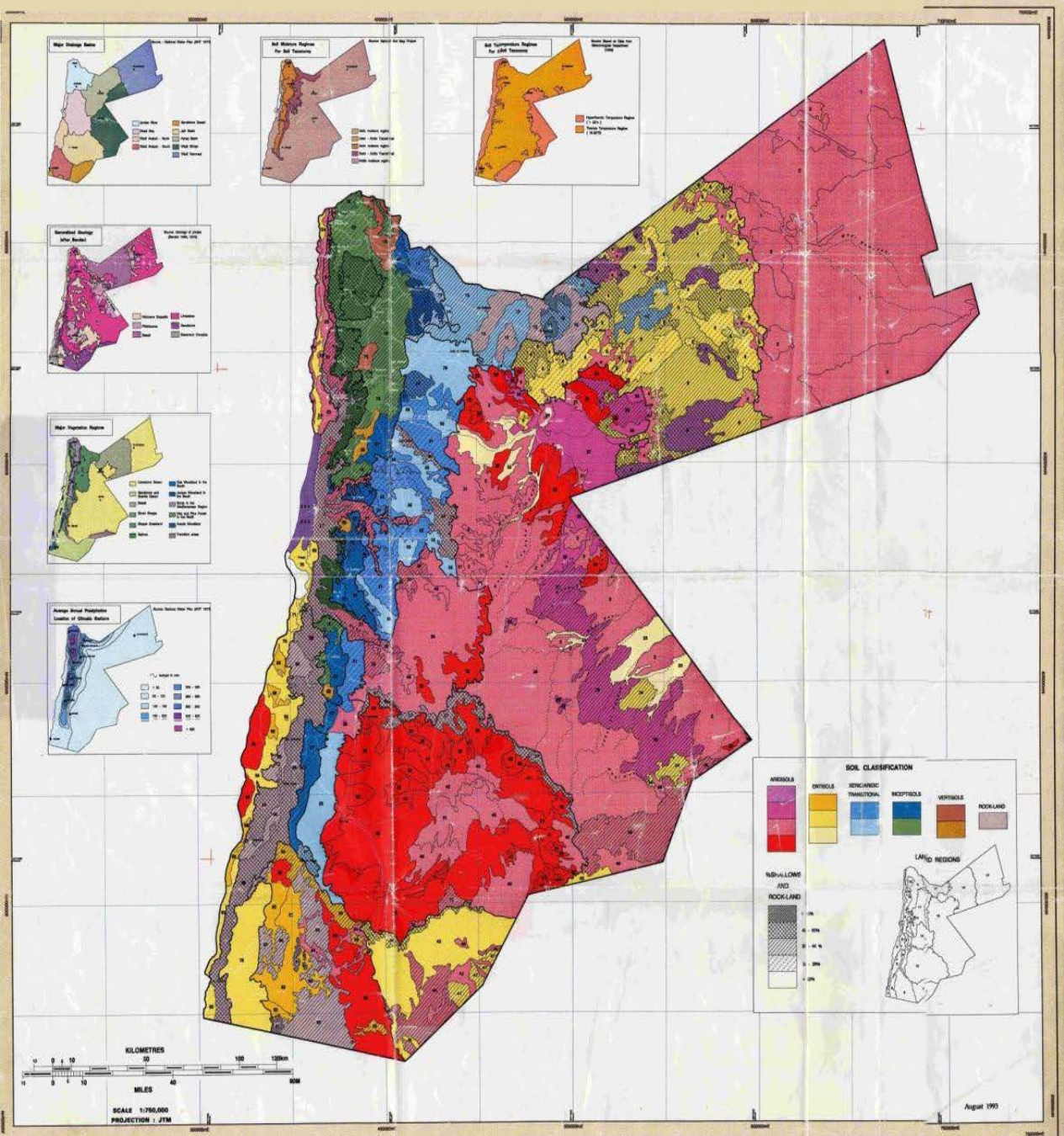
Land Regions



Studies & Information Unit / Range Dept. / (MOA)

THE SOILS OF JORDAN

National Soil Map and Land Use Project



LOCATION	LAND REGION	DESCRIPTION	SOIL UNIT	Major USDA	Major %	SUBGROUP USDA	SUBGROUP %	SUBGROUP USDA	SUBGROUP %	Minor USDA	Minor %
	REGION 1 JORDAN VALLEY										
	REGION 2 WADI ARABAH										
	REGION 3 WADI ARABAH ESCARPMENT										
	REGION 4 YARMOUK VALLEY ESCARPMENT										
	REGION 5 ARABAH HILLS DISSECTED ESCARPMENT PLATEAU										
	REGION 6 AJLOUN HIGHLANDS										
	REGION 7 NORTH AJLOUN - DISSECTED SANDSTONES PLATEAU										
	REGION 8 NORTHERN LIMELAND DISSECTED LIMESTONE PLATEAU										
	REGION 9 CENTRAL HIGHLAND LIMESTONE PLATEAUX										
	REGION 10 SOUTHERN HIGHLANDS DISSECTED LIMESTONE PLATEAU										
	REGION 11 JORDAN HIGHLAND PLATEAU										
	REGION 12 JAFR BASIN										
	REGION 13 EAST JORDAN LIMESTONE PLATEAU										
	REGION 14 HARYA-AINE DEPRESSION										

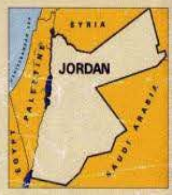
LOCATION	LAND REGION	DESCRIPTION	SOIL UNIT	Major USDA	Major %	SUBGROUP USDA	SUBGROUP %	SUBGROUP USDA	SUBGROUP %	Minor USDA	Minor %
	REGION 15 SOUTH JORDAN BASALT PLATEAU										
	REGION 16 NORTH-EAST JORDAN BASALT PLATEAU										
	REGION 17 NORTH-EAST JORDAN LIMESTONE PLATEAU										
	REGION 18 NORTH JORDAN LIMESTONE DUST PLATEAU										

USDA Soil Taxonomy Subgroups

THE HASHEMITE KINGDOM OF JORDAN

Ministry of Agriculture

Commission of the European Communities



DEPARTMENT OF AFFORESTATION AND FOREST
HUNTING TECHNICAL SERVICES LTD
in Association with
SOIL SURVEY and LAND RESEARCH CENTRE

Topographic detail from the 1:750,000 topographic map
ROYAL JORDANIAN GEOGRAPHIC CENTRE

This map is not an authority on international boundaries and such boundaries are indicated without prejudice

National Soil Map & Land Use Project

LEVEL I - Reconnaissance Survey:

Scale 1:250.000

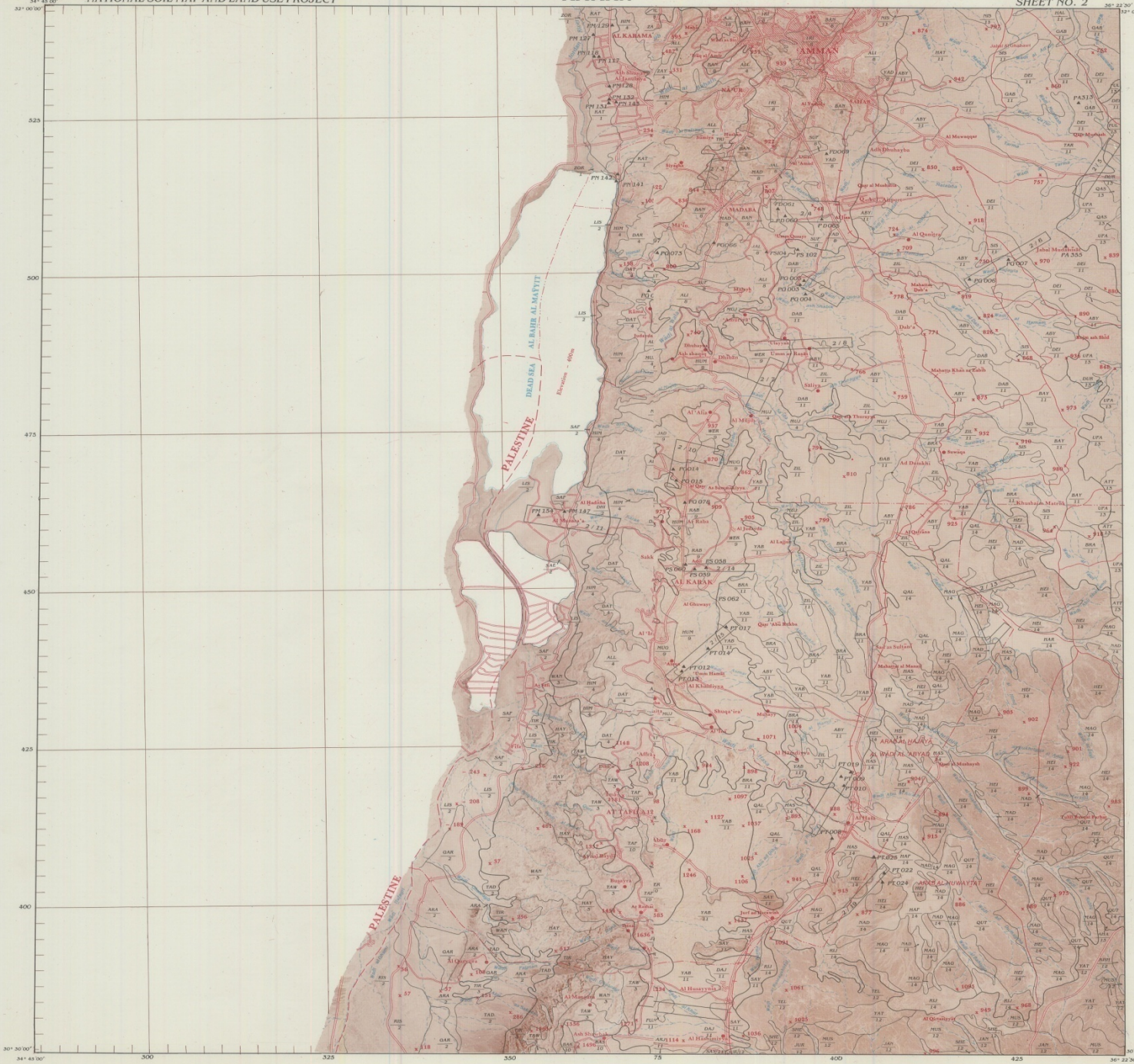
- Collation And Analysis Of All Existing Data

- Collection Of Soil Data By Field Surveys Over 89.3 Thousand Km Sq.
  - Classification Of Soil Data And Delineation Of Soil Mapping Units
  - General Analysis of Suitability For Agricultural Development.
  - Identification Of Priority Areas For Future Study At More Detailed Levels.
  - Production Of Maps And Reports.

NATIONAL SOIL MAP AND LAND USE PROJECT

'AMMĀN

SHEET NO. 2



THE HASHEMITE KINGDOM OF JORDAN

MINISTRY OF AGRICULTURE

COMMISSION OF THE EUROPEAN COMMUNITIES

SEM / 03 / 628 / 039

NATIONAL SOIL MAP AND LAND USE PROJECT

SOIL MAP OF JORDAN

LEVEL 1: RECONNAISSANCE SOIL SURVEY

'AMMĀN

SHEET NO. 2

SCALE 1: 250 000

0 5 10 15 20 25Km

LEGEND

- Built up area
- Town / village
- Spot elevation (x 853)
- Primary road
- Secondary road
- Track
- Railroad
- International boundary
- Armistice line
- Administrative boundary
- Wadis: Perennial / Intermittent
- Sample area and number (4 / 2)
- Analyzed soil pit and number (▲ PA068)
- Land region boundary
- Soil unit boundary
- Soil unit symbol (MAD 8 — Soil unit / Land region)

Mosaic of Landsat MSS Bands 7,5,4 (RGB) (1987/88)

Projection JTM

Spheroid International

Grid interval 25Km

Soil survey by:

Soil Survey and Land Classification Section:

Dept of Afforestation and Forests

Hunting Technical Services LTD. UK.

Soil Survey and Land Research Centre UK

Sheet Layout

1 IRBID	4 AS SALT	7 AR RUWAYSHID
2 'AMMĀN	5 AL AZRAQ	
3 'AQABA	6 AL 'INĀB	

Cartographic works and printing by:

THE ROYAL JORDANIAN GEOGRAPHIC CENTRE

'AMMĀN

Edition: 1 - 1994

National Soil Map & Land Use

LEVEL I *Reconnaissance Survey:*

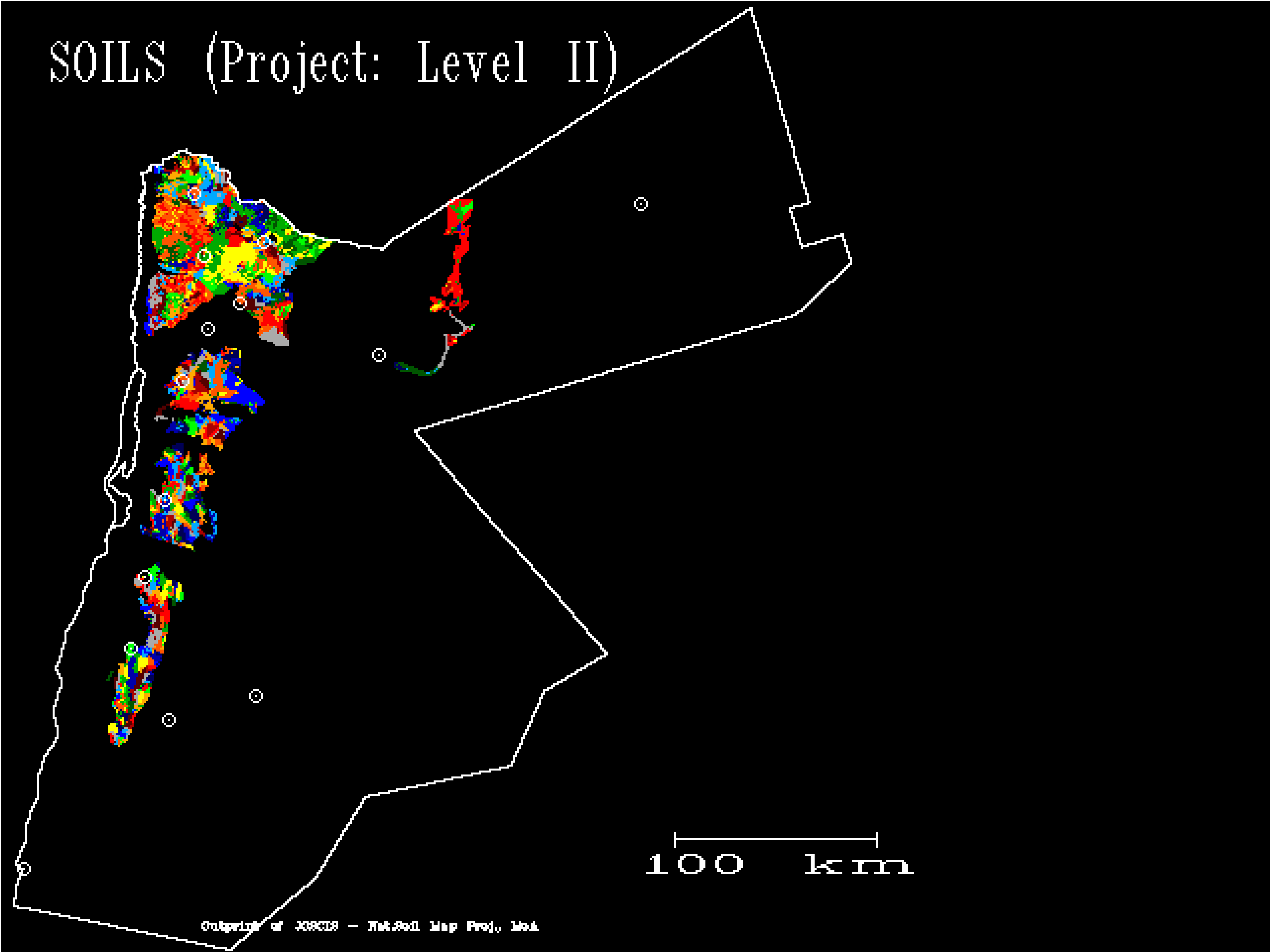
Scale 1:250.000 Cover 89.3 Thousand Km Sq.

The level I Report consists of three volumes
Volume 1- Summary Report in Arabic.
Volume 2- The Main Report.
Volume 3-Representitve Profile and soil analyses.

Map Album Consists : 7 Sheets at scale 1:250.000

LEVEL 2 SOIL SURVEY

- Level 2 involved semi-detailed soil survey and production of soil, land use and land suitability maps of 9000 km2 at 1:50,000 scale.


SOILS (Project: Level II)
100 km

National Soil Map & Land Use

LEVEL I I *Semi Detailed Survey:*

Scale 1:50.000 - Cover 900.000 ha

level II Report consists of three volumes

Volume 1 - Summary Report in Arabic.

Volume 2 - The Main Report.

Volume 3 - Representative Profile and soil analyses.

Map Album Consists : 84 Sheets which includes:

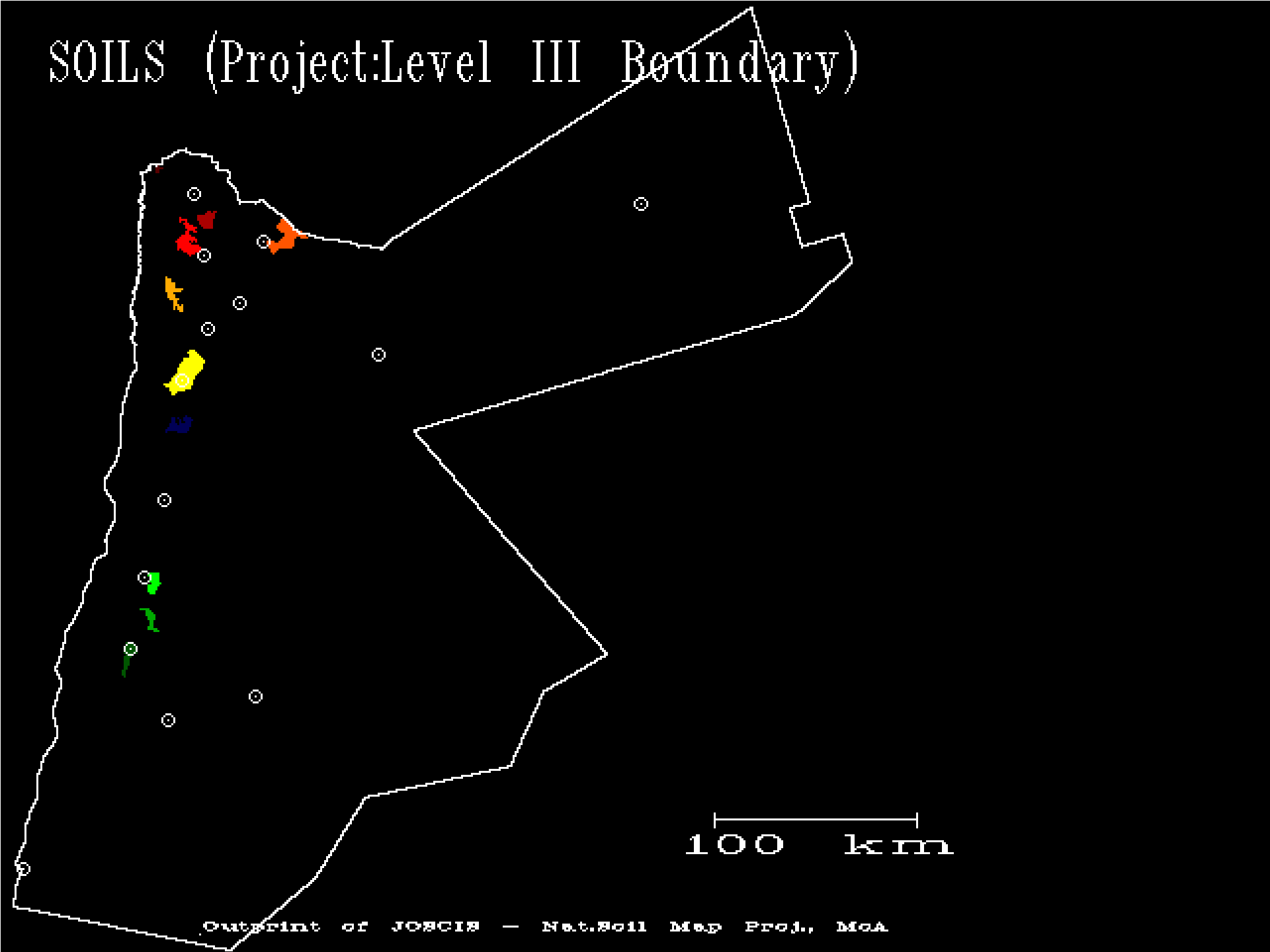
28 Sheet/Soil map.

28 Sheet/ Land Cover map.

28 Sheet/ Land Suitability map at scale 1:50.000.

LEVEL 3 SOIL SURVEY

- Level 3 presents soil, land cover and land suitability maps at 1:10,000 scale of about 800 km2 based on a detailed soil survey.


SOILS (Project:Level III Boundary)
100 km
Outprint of JOSCIS — Nat.Soil Map Proj., MoA

National Soil Map & Land Use

LEVEL III *Detailed Survey:*

Scale 1:10.000 - Cover 1000 ha

level III Report consists of Six Volumes

Volume 1 - Summary Report in Arabic.

Volume 2 - The Main Report.

Volume 3 - Appendices.

Volume 4 - Soil Physics

Volume 5 - Thin section Studies

Volume 6 – Soil map legends.

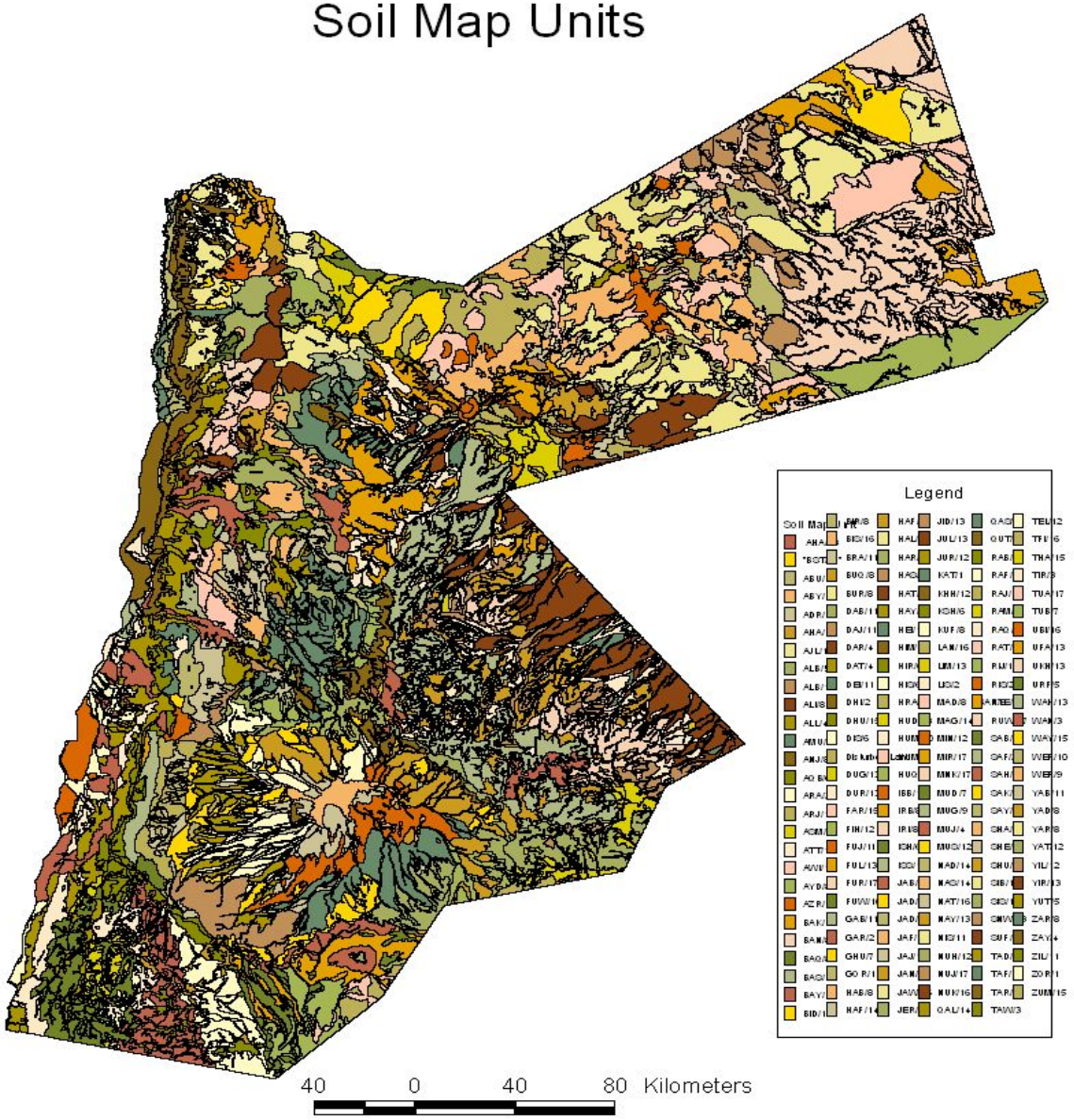
Map Album Consists : 36 Sheet which includes:

Soil map.

Land Cover map.

Land Suitability map at scale 1:10.000.

Soil Map Units



CONSTRAINTS TO DEVELOPMENT

- Population Increase
- Diversity Of Population Needs
- Land Deterioration
- Soil Erosion
- Lower Land Production Capability
- Desertification
- Unbalanced Competition In Land Use

Thank you