

# NATO NATO CCMS Pilot Study Meeting

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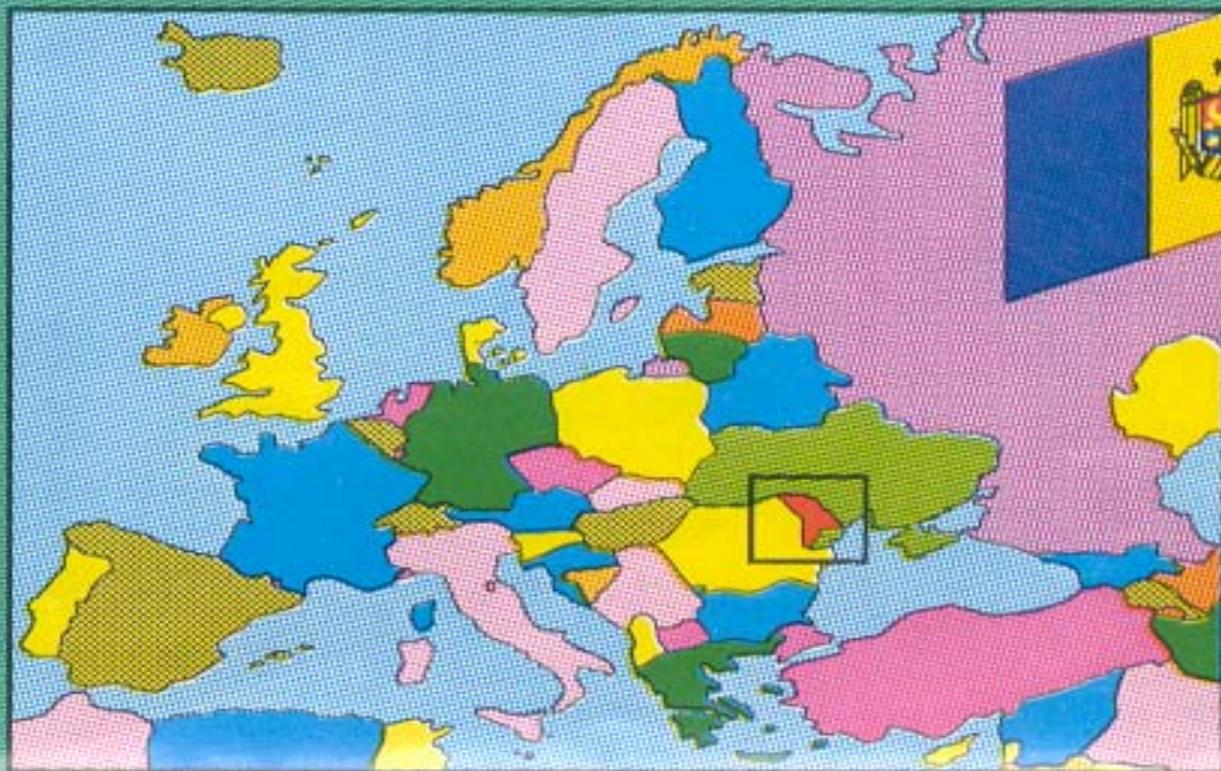
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# Geographical Location of Moldova

condition and dynamics



# Geographical Specific Dates



# General Geographical Information

- Total area of Moldova is nearly 33,700 sq.km
- The length from North to South \* 350 km.
- From West to East is compiling around 150 Km.
- With moderate continental climate.
- The population of the country – 4. 4 Millions of Habitants.
- Fifty three percent living in rural sector
- The land resources are distributed as follows:
  - 86 % for agricultural purposes
  - woodlands – 8,9 %
  - protected areas – 1,29%
  - built upon lands ,roads ,lakes and rivers – 4,1 %

The Republic of Moldova is situated in the south-east part of Europe. Moldova's territory is 33.7 thousand square kilometers.

As of January 1995 the republic's population was 4347.9 thousand people, comprising urban - 46.7%, rural - 53.3%, women - 52.2%, men - 47.8%. The population density is 129 people per square kilometer:

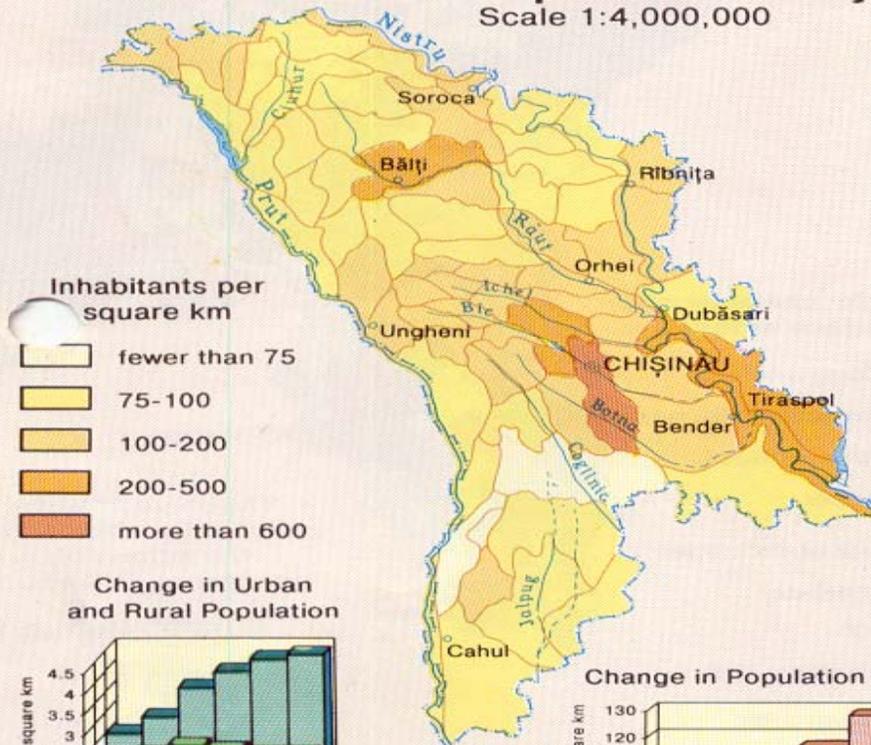
The Nistru and the Prut are the main rivers of Moldova.

Chisinau is the capital of the republic (the population is 661.5 thousand inhabitants).

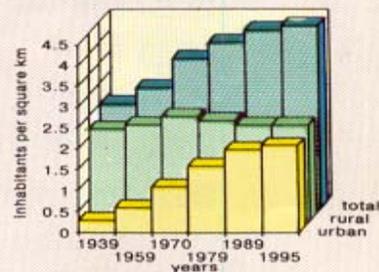
The 27th of August, 1995 was the day when Moldova proclaimed its independence. The Republic of Moldova is a member of the United Nations Organization, Organization for Security and Collaboration and Council of Europe. Moldova maintains diplomatic relations with approximately 100 countries.

## Population Density

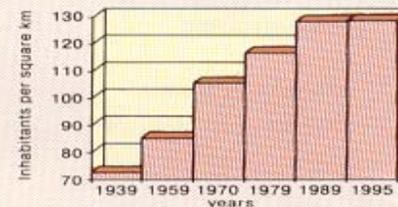
Scale 1:4,000,000



Change in Urban and Rural Population

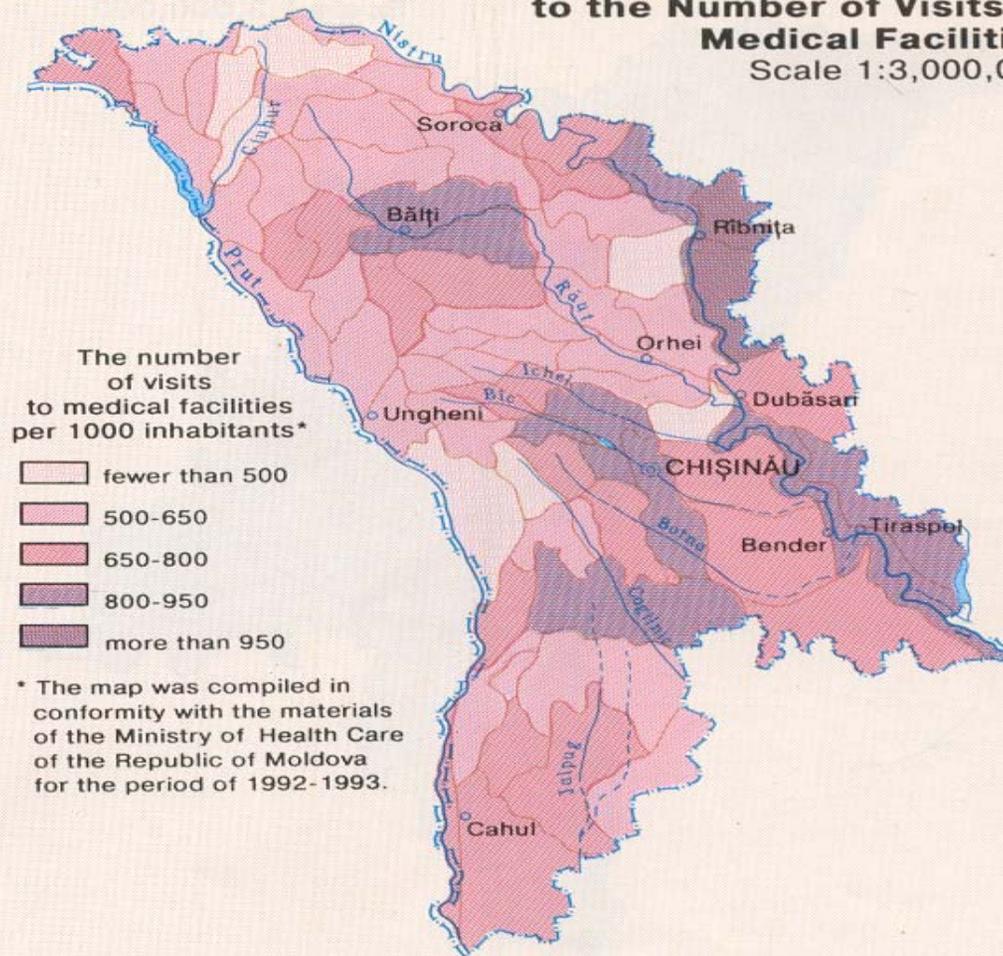


Change in Population Density

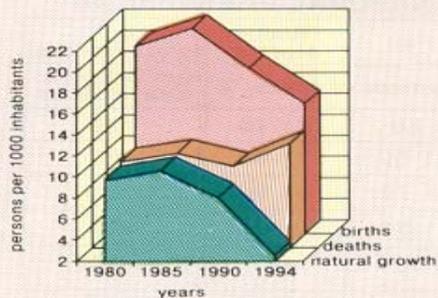


# General Population Morbidity According to the Number of Visits to Medical Facilities

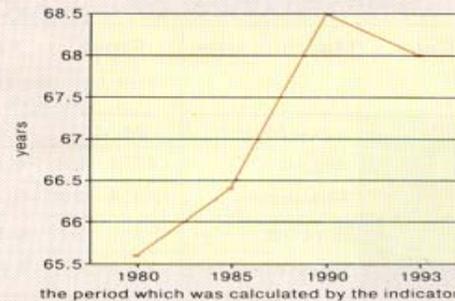
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Population Natural Movement

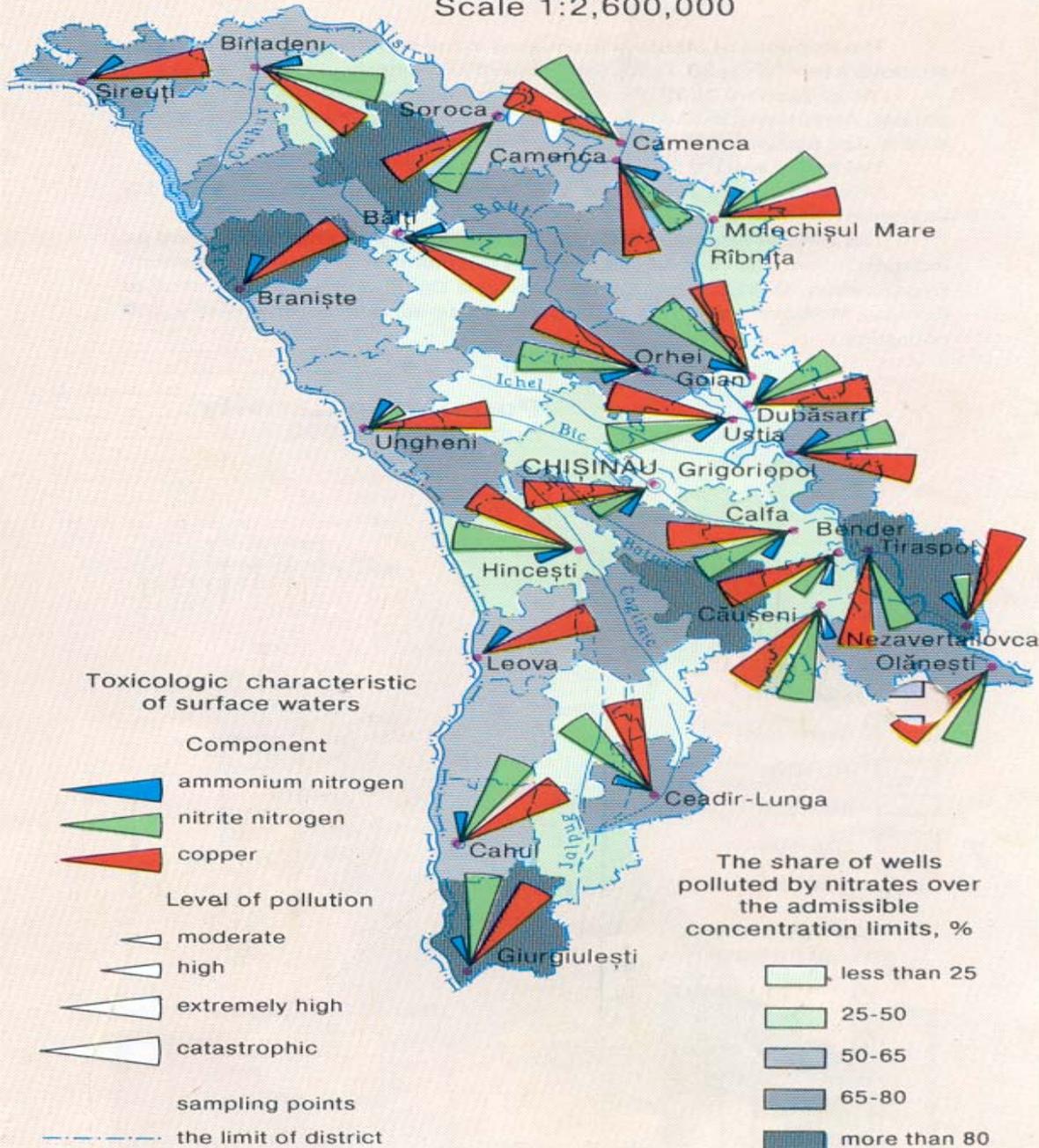


Average Life Duration



# Water Pollution

Scale 1:2,600,000



# Contaminated Land Syndrome in Moldova

## Major Symptoms include,

- Deposits of pollutants in soils, underground Water Resources and Loss of Soil Functions in the result ;

### A.CASE STUDIES

#### 1. Intensive overusing of pesticides in agricultural Sector,

*Details. In the former union Moldova were on experimental site.*

*In the result of excessive using of fertilizers (over 5,5 millions tones ) and pesticides ( annual 500,000 ton.) have bring to on very negative environment impact which can be estimated only in the result of Integral Assessment Program.*

*Roughly, was appreciated the reduction of humus content have been caused the over lowing the soil capacity for nitrogen fixation.*

*What means the soil have loss this important nutritive element and furthmore the nitrogen leached from the soil has caused the pollution of underground water.*

## Contaminated Land Syndrome in Moldova

➤ 2. Pollution of arable fields (roughly 636 ha) dumping of municipal waste and animalier dejections ,

3.loss of Biodiversity , (only 13,3% of forestry remained in Moldova)

4.Soil Erosions (30,4% annual loss of fertile soil 18mln.ton) and Landslides , \*(landslides affects 14% of territory)

Arable land have been also suffered due to erosion and salinization.

At the moment 30,4 % of agricultural lands are effected by mentioned phenomena and further loss of arable area are estimated 0,86 % of the total arable land per year. Actually, 1,205 thousand.ha of agricultural lands are affected by soil erosions.

50 thousands ha. are destroyed by landfills.

5.Deposition of Excavated Contaminated Soil, ( at moment 875,43 need recultivation )

## Contaminated Land Syndrome in Moldova

### ➤ 6.Spills of Petroleum Products, major contaminated areas ;

- **Site 1.** Marculesti , Floresti District – source of pollution the air base of Former Union Army.

*Contaminant – Oil products,*

*Media – Soil, subsoil and underground water.*

*Affected area – 130 ha.*

- **Site 2.** Blijnii Hutor - Military Air Base.
- **Site 3.** Iargara , Leova District – Oil Terminal Storage,
- **Site 4.**Budesti , Chisinau municipal area- Petroleum Products Storage and oil filling station. Around 150 of local habitants have lost the opportunity to drink cleaner water.

# Land Contamination with oil Products.

More details as on example:

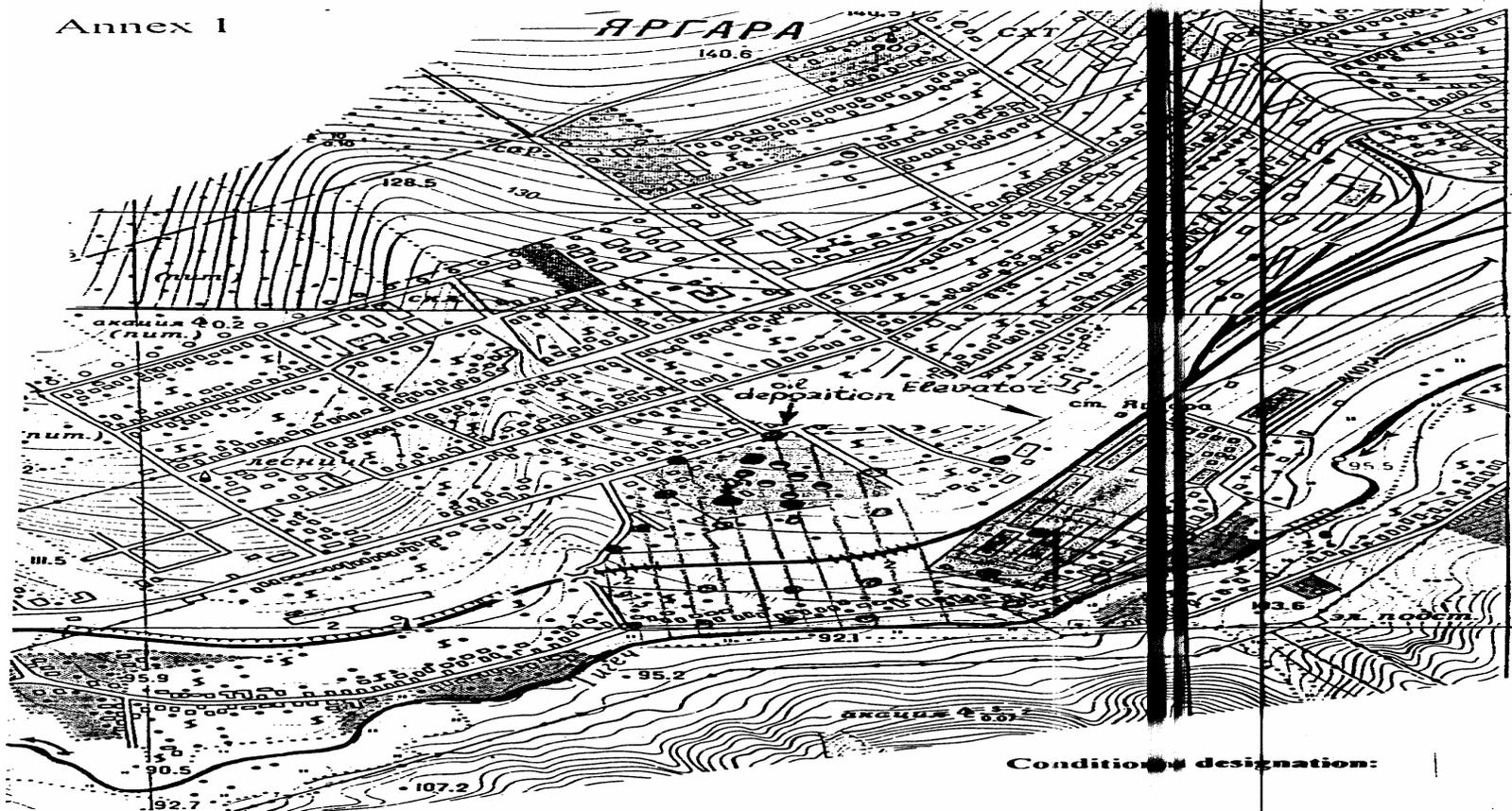
**Site 3.** Iargara , Leova District – Oil Terminal Storage,  
*Contaminants* – Gasoline

Case Study: August 1973 on the petroleum reservoir in Village Iargara happened on accident in result around 628 tons of gasoline flowed out into the soil reaching the underground water level polluting them very hard.

The mentioned accident turned out as on really catastrophe for local habitants as it's deprived them from the unique potable water resources

# Situation Scheme

Annex 1



 Sources pollution  
(Oil deposition; elevator)

 zone of pollution from

 market slit

 r. Tighech and  
Direction of the water's flow

 zone of pollution from  
the elevator

Conditions designation:

# Geological and Hydrological Conditions.

- The common polluted with oil products area 30-40 acres.
- Situated in the Southern part of Village Iragara and on the right stream Tighech.
- On that site in conformity with the available dates horizon of the underground water belong to the alluvial and delluvial stratum which is covered with clays soil of the upper Sarmation – Maeotis stage.
- The level of underground water ranges from 5-7 meters on the lower site till 11-12 m on the upper site of the territory.
- The level of the underground water in conformity with with the available dates it's oscillating from 2 to 4 m.

# Further Threat

- Oil contaminant migrate to different locations and depths , depending on the density of each compound and the local geology.
- Contaminant poses threat to groundwater and local drinking water .
- The total cost of the full complex of research work compile 42 868 \$
- Proposed Remediation Technology – Removal of buildings pump and treat, , venting and biodegradation.
- Costs – Not included.

# Conclusions

- A relatively developed agroindustrial complex with a no rational structure in some branches with outdated and inefficient technologies and techniques in agriculture and processing industries , which leads to low quality , external markets uncompetitive production , no rational uses of natural and material resources have bring Moldova to environment pollution and degradation.
- **Environmentally Sound Operations are the Vision of the Future.**

**Thank you very much for your attention**