

# Overview of Technical Analyses by the Core Team after the 1<sup>st</sup> Workshop in Zaghouan, November 2016

Quang Bao Le

System-based Options by Context



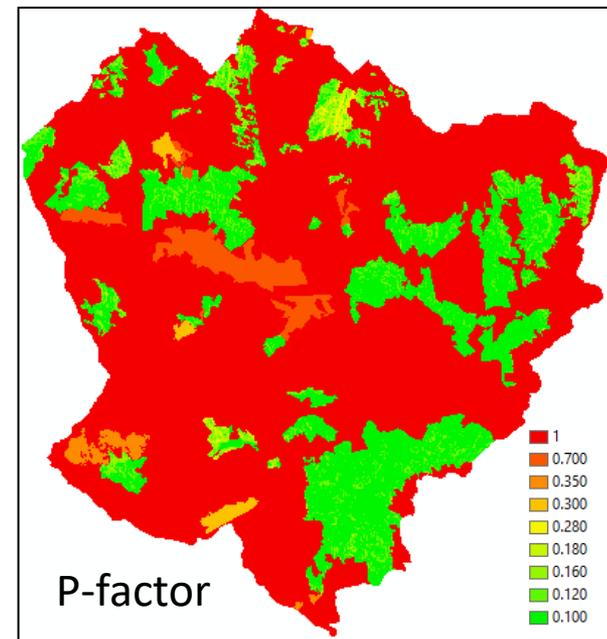
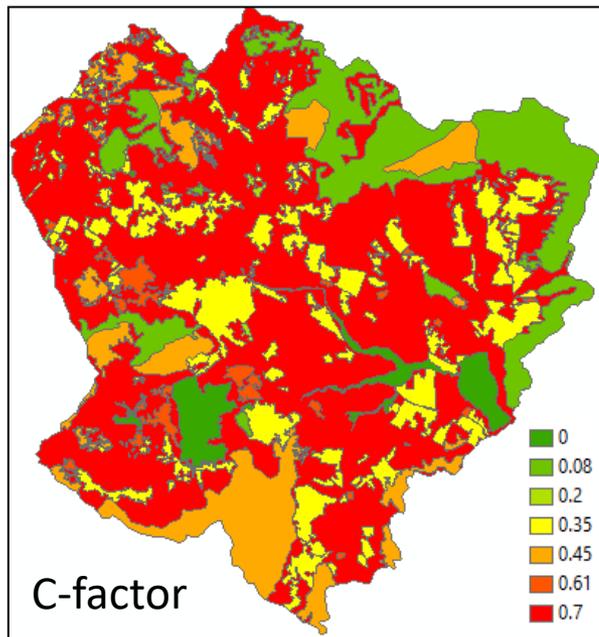
A tool for better investment  
decisions in agriculture and  
rural development

Projet financé par la GIZ

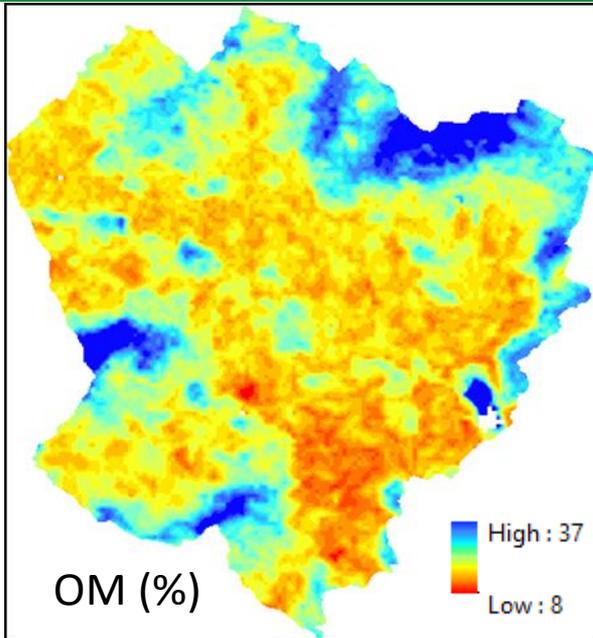
“Evaluation de l’impact des options de GDT pour l’atteinte de la Neutralité  
en matière de Dégradation des Terres”

- Land use/cover: Improved/rectified by using Google Earth
- Mapping current Soil Water Conservation (SWC) practice: Digitized based on Google Earth
- Cover (C) and management (P) factors:
  - C-factor: calculated based on the improved land use/cover map
  - P-factor: calculated based on SWC map
- K factor calculated based on soil Organic Matter (OM) and soil texture (sand : silt : clay) (see next slide)

# Maps of current cover (C) and Management (P) factors



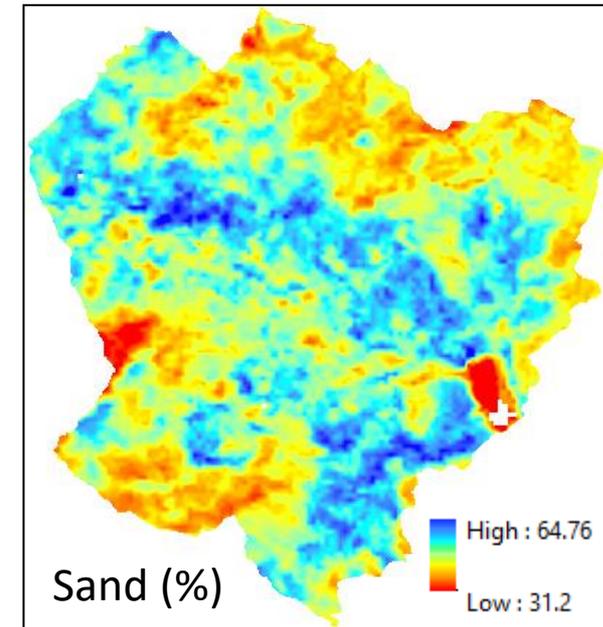
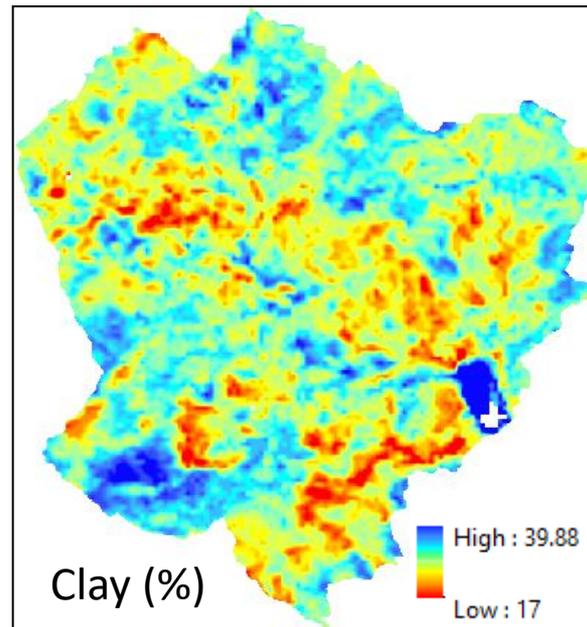
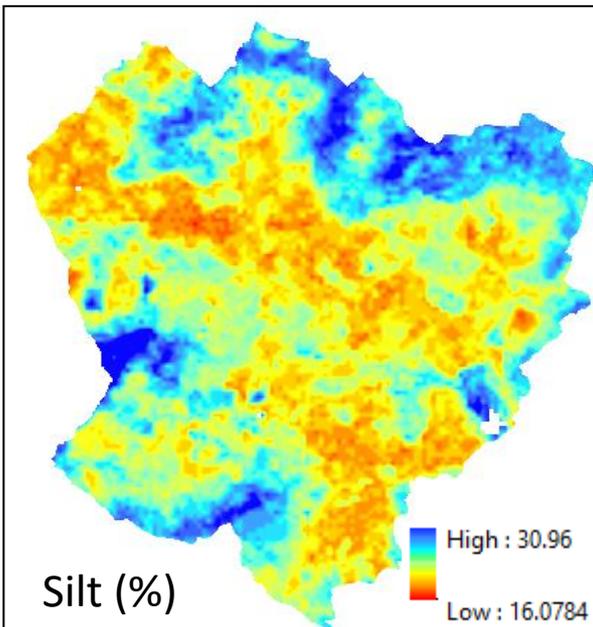
# Calculation of soil erodibility (K factor)

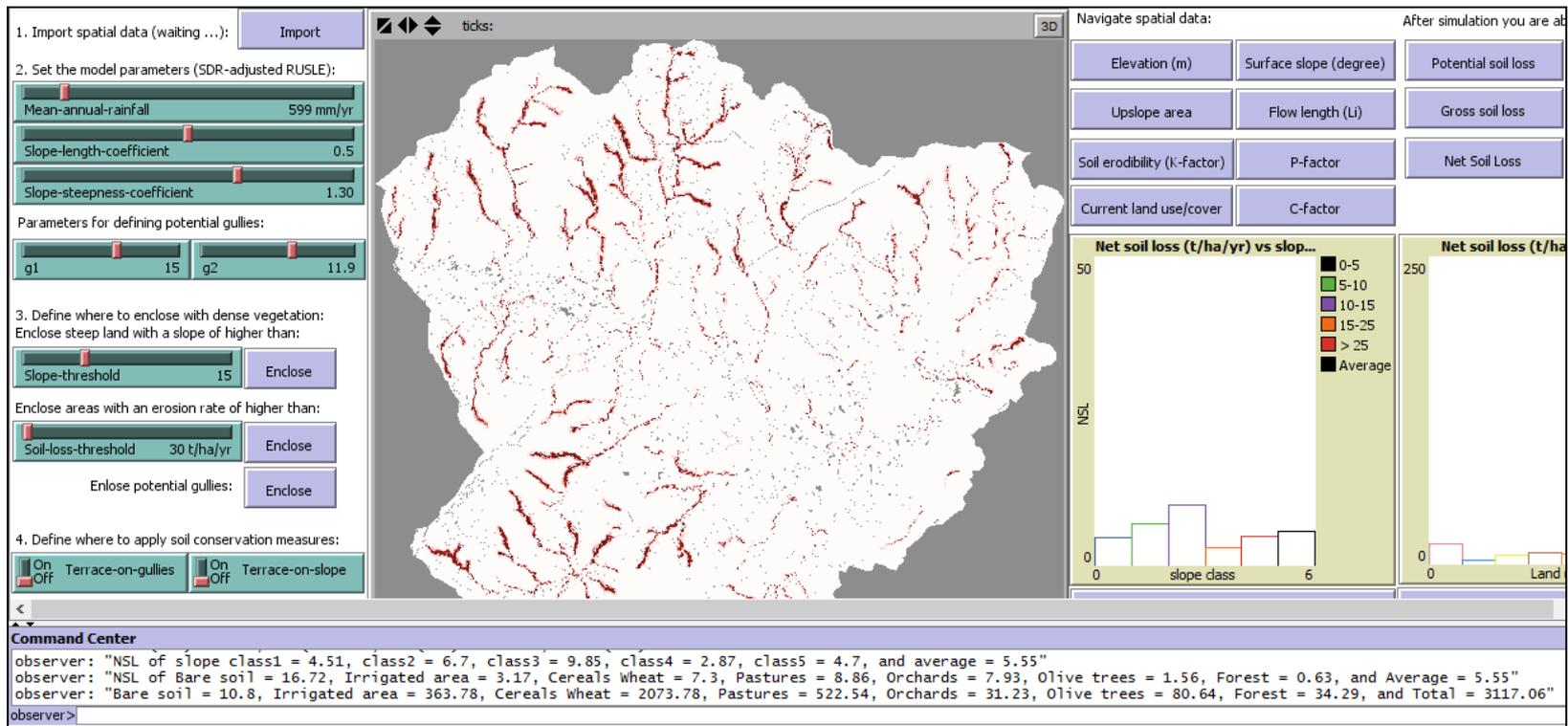


K factor calculated based on soil Organic Matter (OM) and soil texture (sand : silt : clay):

$$K = \frac{[2.1M^{1.14}(10^{-4})(12 - OM)]}{7.59}$$

$$M = ((\%silt + \%sand) \times 100 - \%clay)$$





The screenshot displays the iLAMPT software interface, which is divided into several sections:

- 1. Import spatial data (waiting ...):** Includes an 'Import' button.
- 2. Set the model parameters (SDR-adjusted RUSLE):**
  - Mean-annual-rainfall: 599 mm/yr
  - Slope-length-coefficient: 0.5
  - Slope-steepness-coefficient: 1.30
  - Parameters for defining potential gullies: g1 = 15, g2 = 11.9
- 3. Define where to enclose with dense vegetation:**
  - Enclose steep land with a slope of higher than: Slope-threshold = 15 (Enclose)
  - Enclose areas with an erosion rate of higher than: Soil-loss-threshold = 30 t/ha/yr (Enclose)
  - Enclose potential gullies: (Enclose)
- 4. Define where to apply soil conservation measures:**
  - Terrace-on-gullies: On/Off
  - Terrace-on-slope: On/Off

The central part of the interface shows a 3D terrain map with a red network of gullies overlaid on a white and grey topographic surface.

On the right side, there is a 'Navigate spatial data:' section with buttons for Elevation (m), Surface slope (degree), Potential soil loss, Upslope area, Flow length (Li), Gross soil loss, Soil erodibility (K-factor), P-factor, Net Soil Loss, Current land use/cover, and C-factor. Below this is a bar chart titled 'Net soil loss (t/ha/yr) vs slope...' showing NSL values for different slope classes (0-5, 5-10, 10-15, 15-25, > 25) and an average. The y-axis ranges from 0 to 50. A second bar chart shows 'Net soil loss (t/ha)' for different land types, with a y-axis from 0 to 250.

At the bottom, the 'Command Center' displays the following text:

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observer: "NSL of slope class1 = 4.51, class2 = 6.7, class3 = 9.85, class4 = 2.87, class5 = 4.7, and average = 5.55"
observer: "NSL of Bare soil = 16.72, Irrigated area = 3.17, Cereals Wheat = 7.3, Pastures = 8.86, Orchards = 7.93, Olive trees = 1.56, Forest = 0.63, and Average = 5.55"
observer: "Bare soil = 10.8, Irrigated area = 363.78, Cereals Wheat = 2073.78, Pastures = 522.54, Orchards = 31.23, Olive trees = 80.64, Forest = 34.29, and Total = 3117.06"
observer>
```

- iLAMPT: integrated Landscape Management Planning Tool
- Updated parameters
- Incorporated SWC options identified in the 1st workshop