



SUSTAINABLE FOREST MANAGEMENT



Greenheart Group
always growing

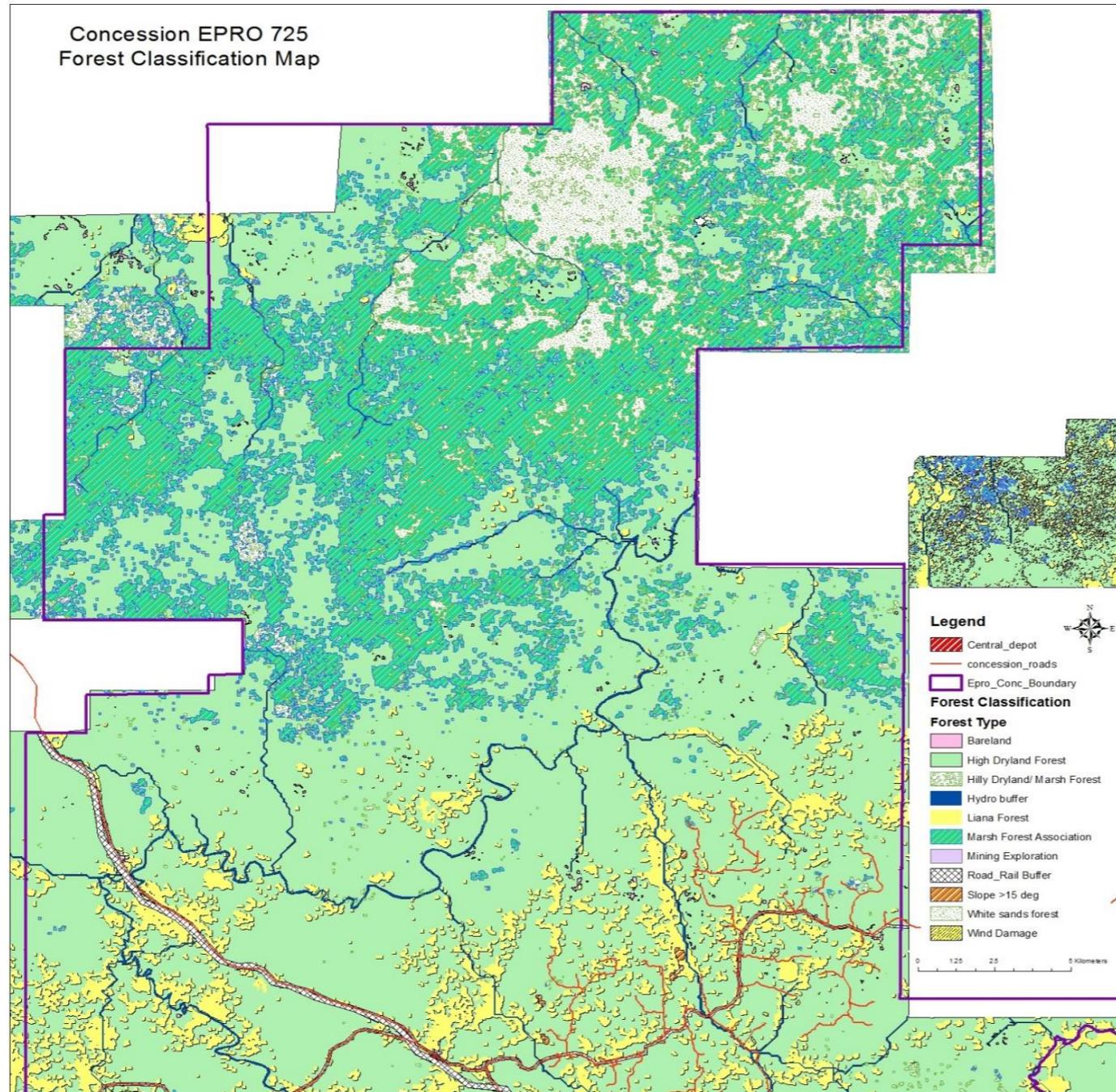
Greenheart Forest Management System

1. Surveying of the harvesting area
2. Planning of the harvest activities
 - ✓ Planning of roads and water crossings
 - ✓ Planning of harvesting blocks
3. Pre-harvest activities
 - ✓ Block demarcation and inventory
 - ✓ Tree selection
 - ✓ Flagging of skid trails
4. Harvest activities
 - ✓ Directional felling
 - ✓ Extraction



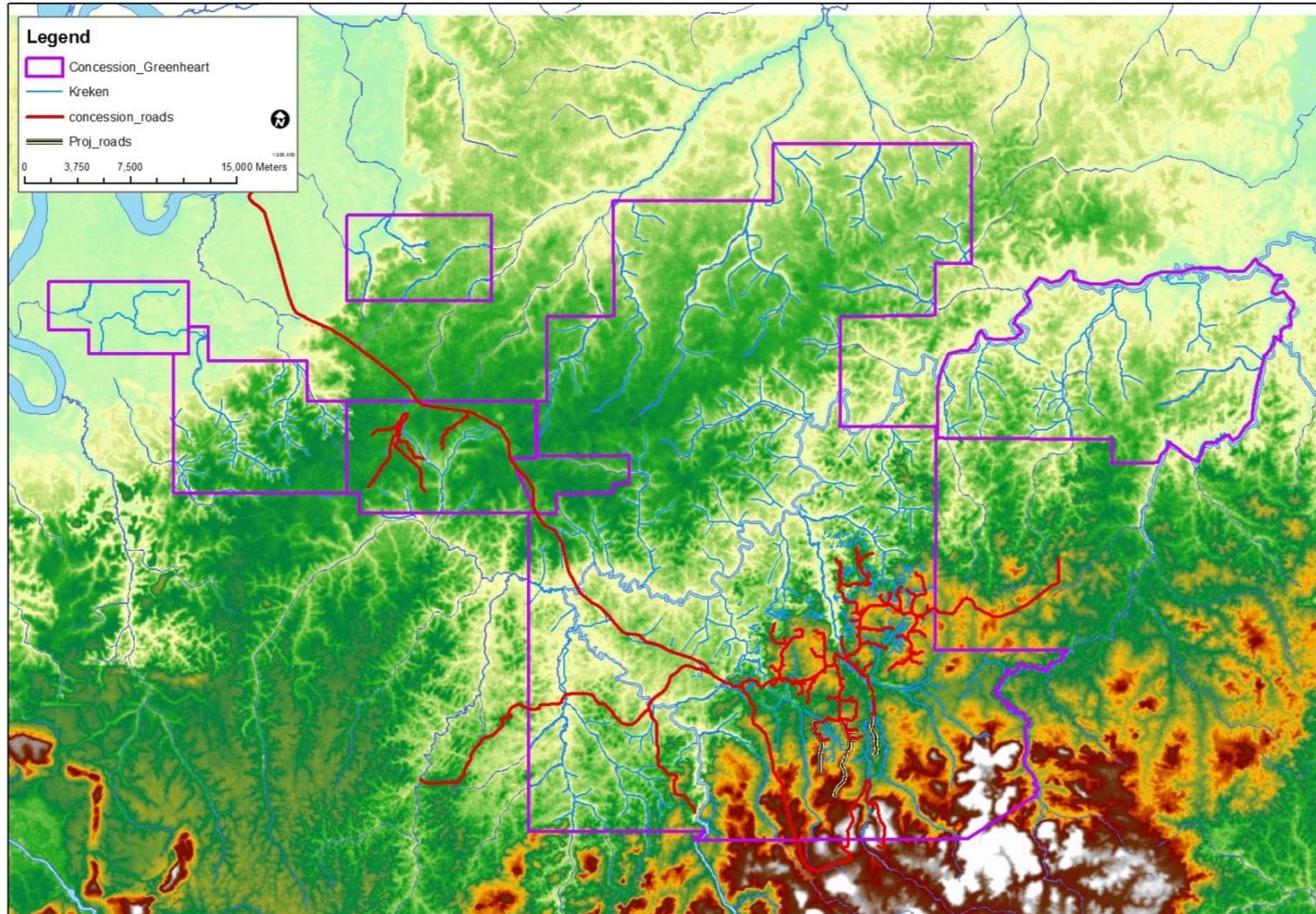
- Accurate planning and precise execution is required for sustainable harvesting in natural hardwood concessions
- Greenheart follows a key 4 – stage process when undertaking harvesting operations

Stage 1: Surveying the harvest area using satellite photos



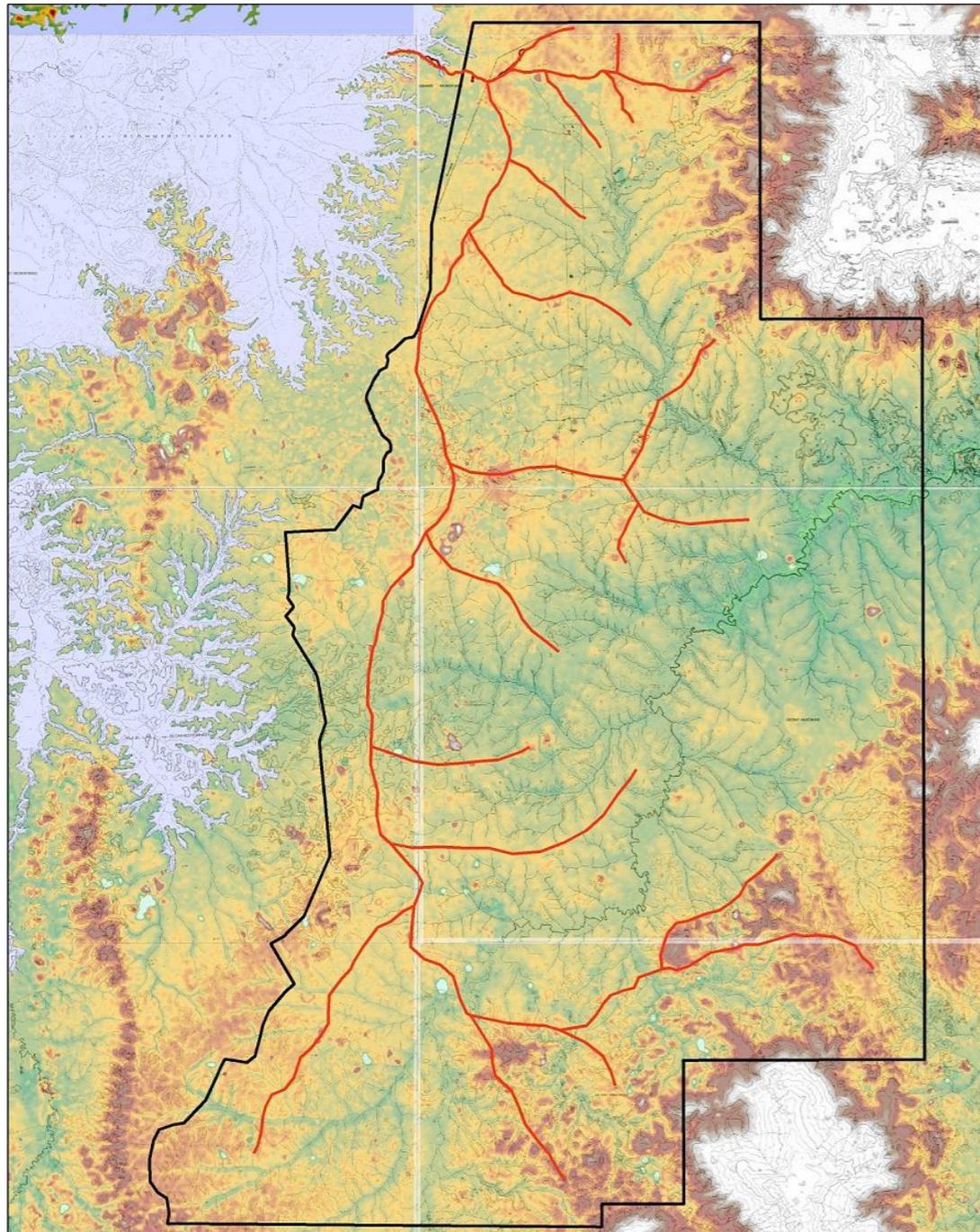
- Stage 1: Surveying the harvest area
- Forest vegetation classification is determined from satellite photos
- Allows planners to find areas of productive forest

Stage 1: Topographical images (DEM, Landsat)



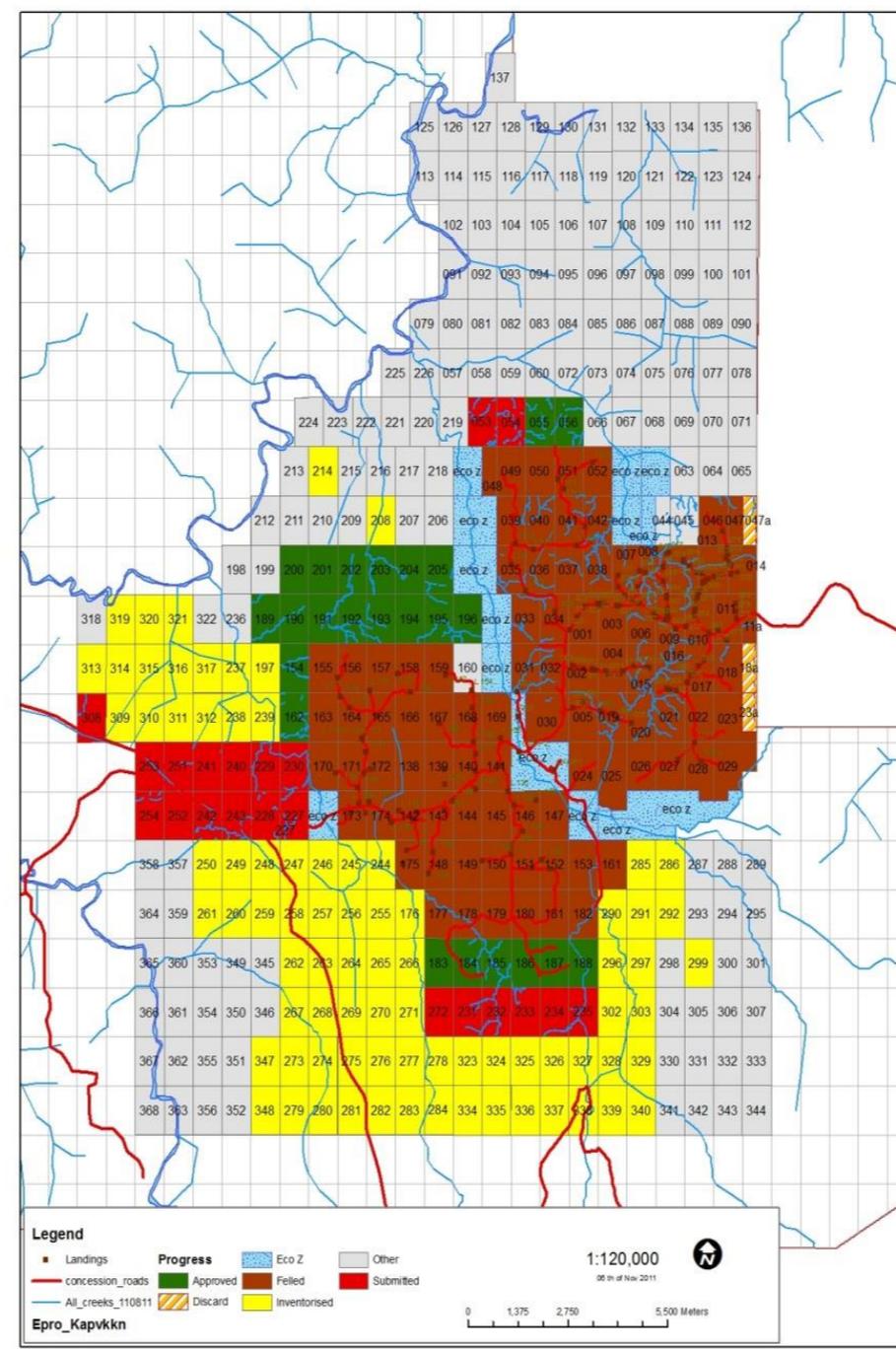
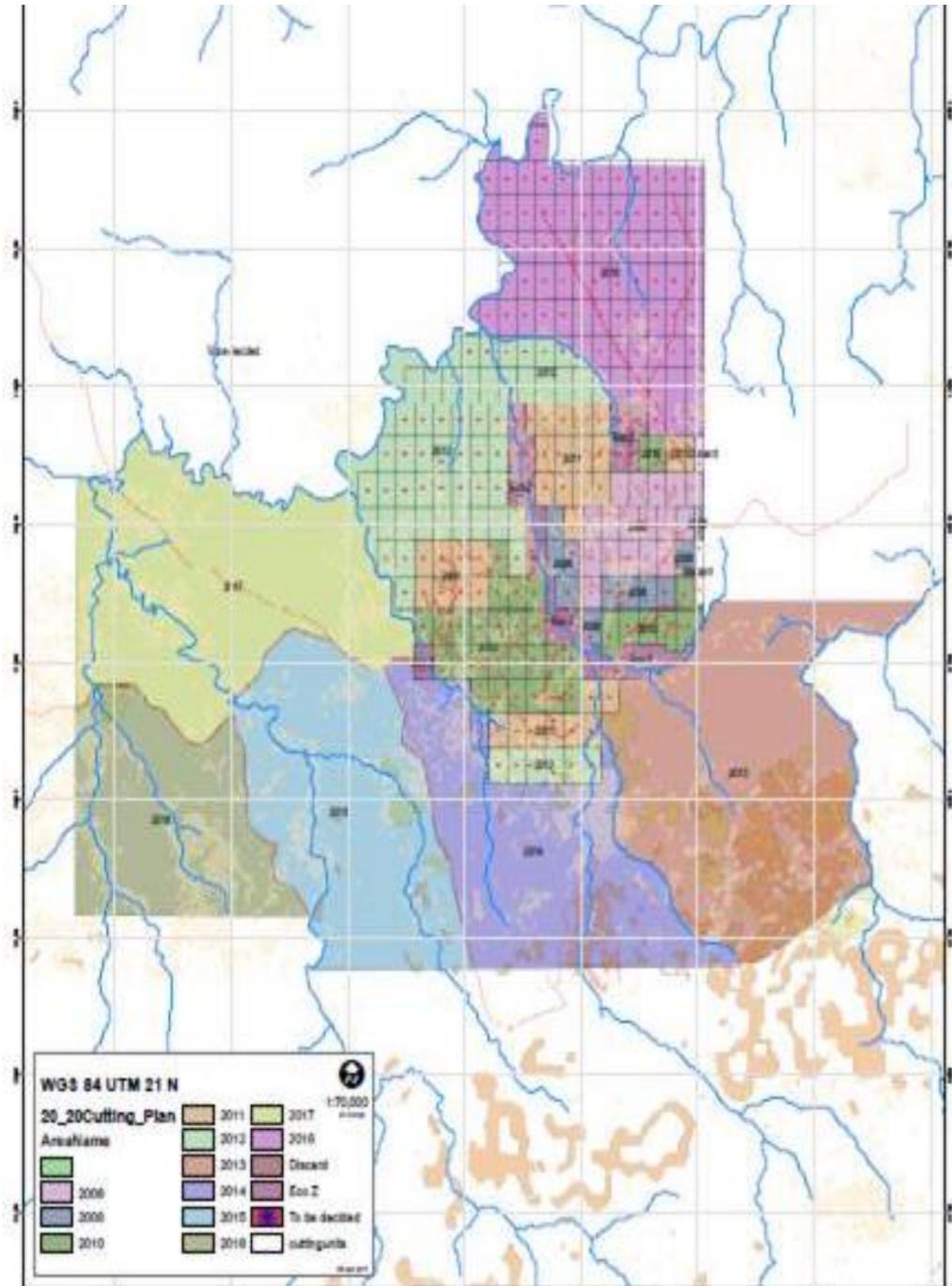
- Topographical images allow planners to find access

Stage 2: Planning of harvest activities



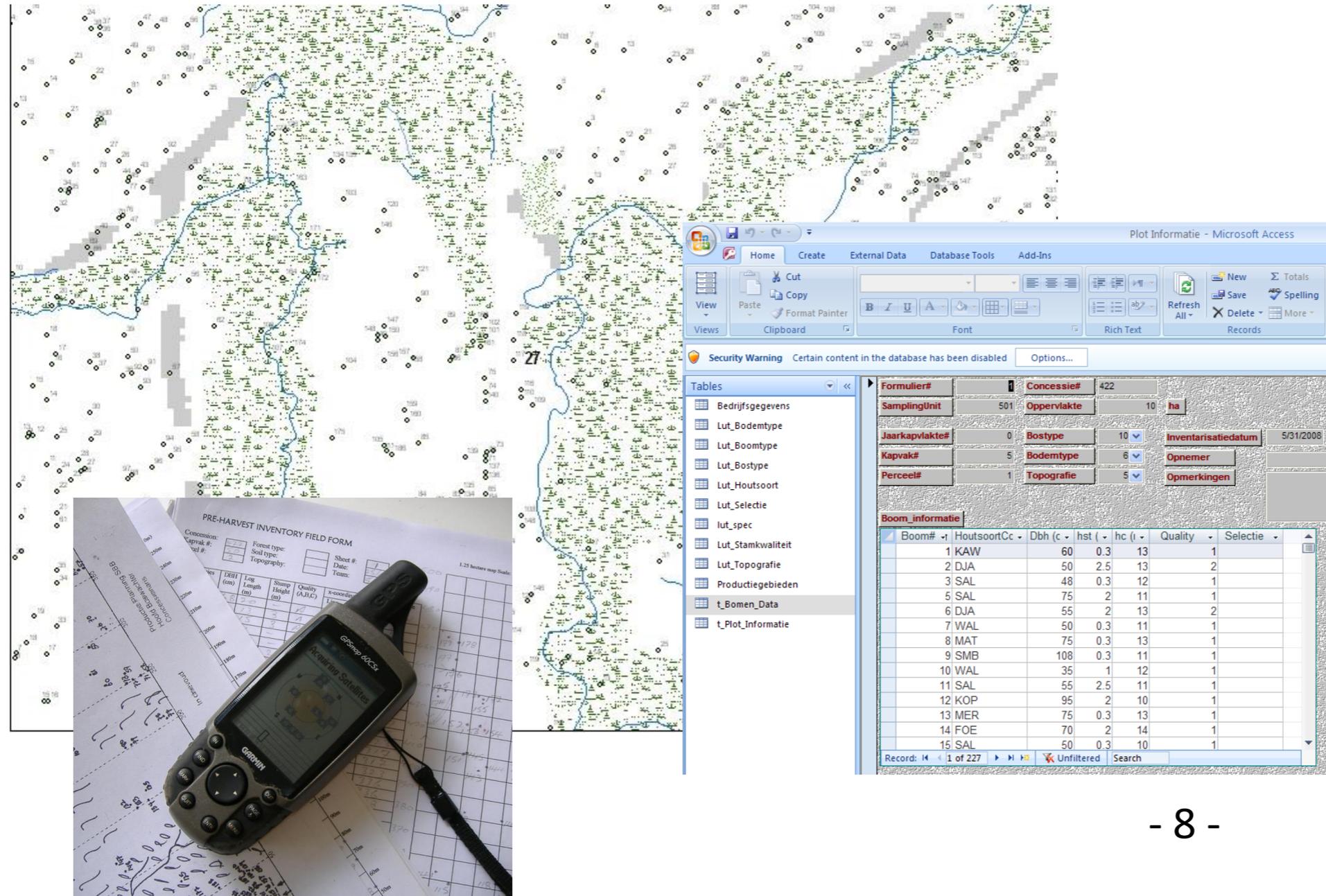
- The first step is to design and map the main roads through the concessions
- Key is to minimize damage to the forest while achieving the highest efficiency

Stage 2: Allowing the forest to regenerate itself



- Concessions are divided into kapvaks (100 hectares)
- Operations move from kapvak to kapvak
- This allows the forest to regenerate itself after harvesting has completed

Stage 3: Pre-harvest activities



- Inventory teams are sent in advance into kapvaks and record all trees with diameters greater than 35cm
- All data is recorded using Geographic Information System (GIS)
- Inventory includes tree location, dimensions and topographical features

Stage 3: Pre-harvest activities – Skid Planning



- Planning of skid trails to minimize damage to forest

Stage 4: Reduced Impact Harvesting



- Trees are harvested using directional felling techniques
- Directional felling minimizes damage to the surrounding trees and forest vegetation

Stage 4: Reduced Impact Harvesting



- Felled trees are dragged out using winches which means surrounding trees are not damaged and there is no need to construct roads right up to trees

Stage 4: Reduction of skidding damage



Without planning of skid trails



With planning of skid trails

- **Planning skid trails and winching means there is no need to drive up to the trees**



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