REGIONAL OVERVIEW

Drivers of terrestrial degradation in Europe and Central Asia

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OUTLINE

1. Forest resources
2. Definitions
3. Status and trends in forests
4. Drivers of deforestation and degradation
5. Monitoring systems by FAO
6. The ‘green economy’ scenarion

Focus Countries:

Albania

Armenia

Belarus

Bosnia and Herzegovina

Georgia

FYR Macedonia

Kyrgyzstan

Moldova

Montenegro

Tajikistan

Ukraine

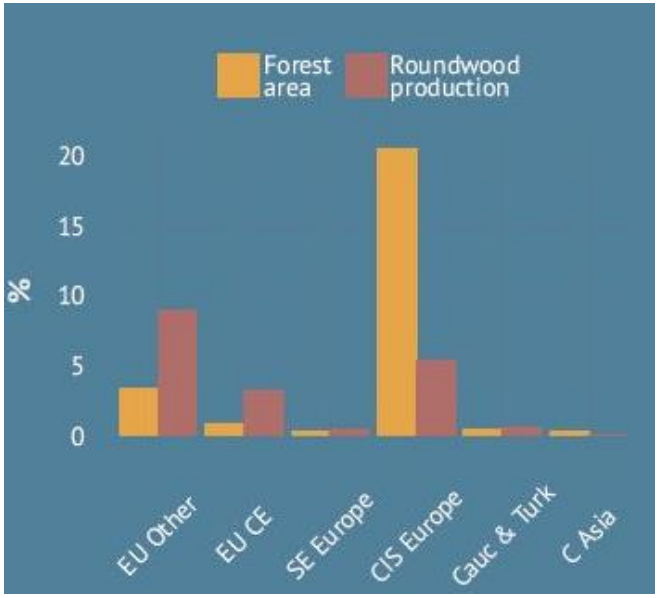
UNMIK Kosovo*

Uzbekistan

Forest resources in Europe and Central Asia

- Ranging from dry open forests, temperate broad leaved and coniferous forests to boreal forests in the north.

	Forest cover	Other wooded land	Annual change (20 years)
FAO REU	38%	5%	+ 0.08%
REU Europe	45%	5%	+ 0.08%
REU Central Asia	6%	6%	+ 0.34%



Area of forests and production of roundwood, share of world total (2009)

Definitions

- **Land use change:** A *change in the use or management* of land by humans, which may lead to a *change in land cover*. Land cover and land-use change may have an impact on the albedo, evapotranspiration, sources, and sinks of greenhouse gases, or other properties of the climate system, and may thus have an impact on climate, locally or globally. (IPCC 2000b)

- **Deforestation:** The conversion of forest to other land use or the *long-term reduction of tree canopy* cover below the minimum 10 percent
  - Excludes areas where trees have been removed as a result of harvesting or logging and where the forest is expected to regenerate naturally or with the aid of silvicultural systems (FRA 2015).

Definitions

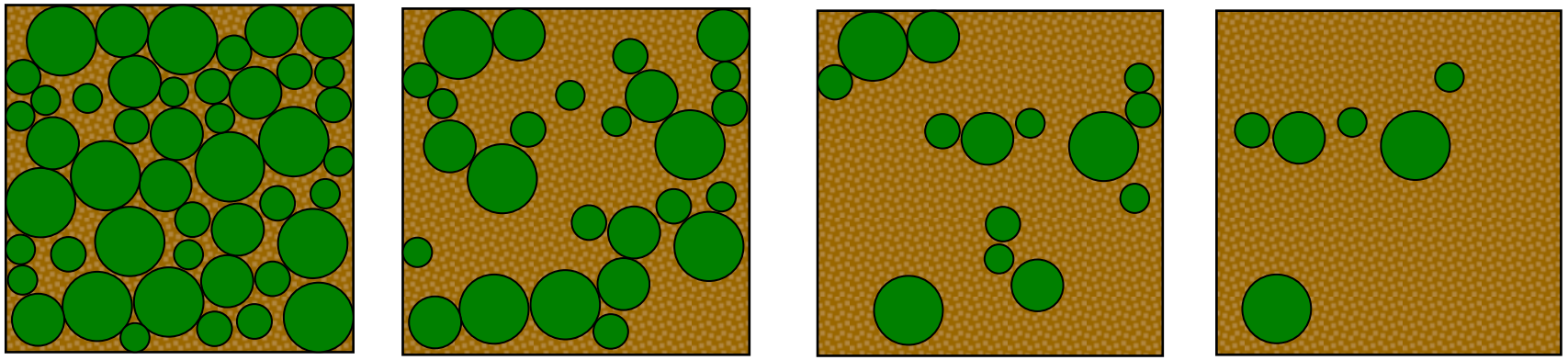
- **Land degradation:** *reduction or loss*, in arid, semi-arid and dry sub-humid areas, *of the biological or economic productivity* and complexity of rainfed cropland, irrigated cropland, or range, pasture, forest and woodlands resulting from land use or from a process or combination of processes, including processes arising from human activity and habitation patterns. (UNEP 2007)

- **Forest degradation:** The *reduction* of the capacity of a forest *to provide goods and services* (FRA 2015)

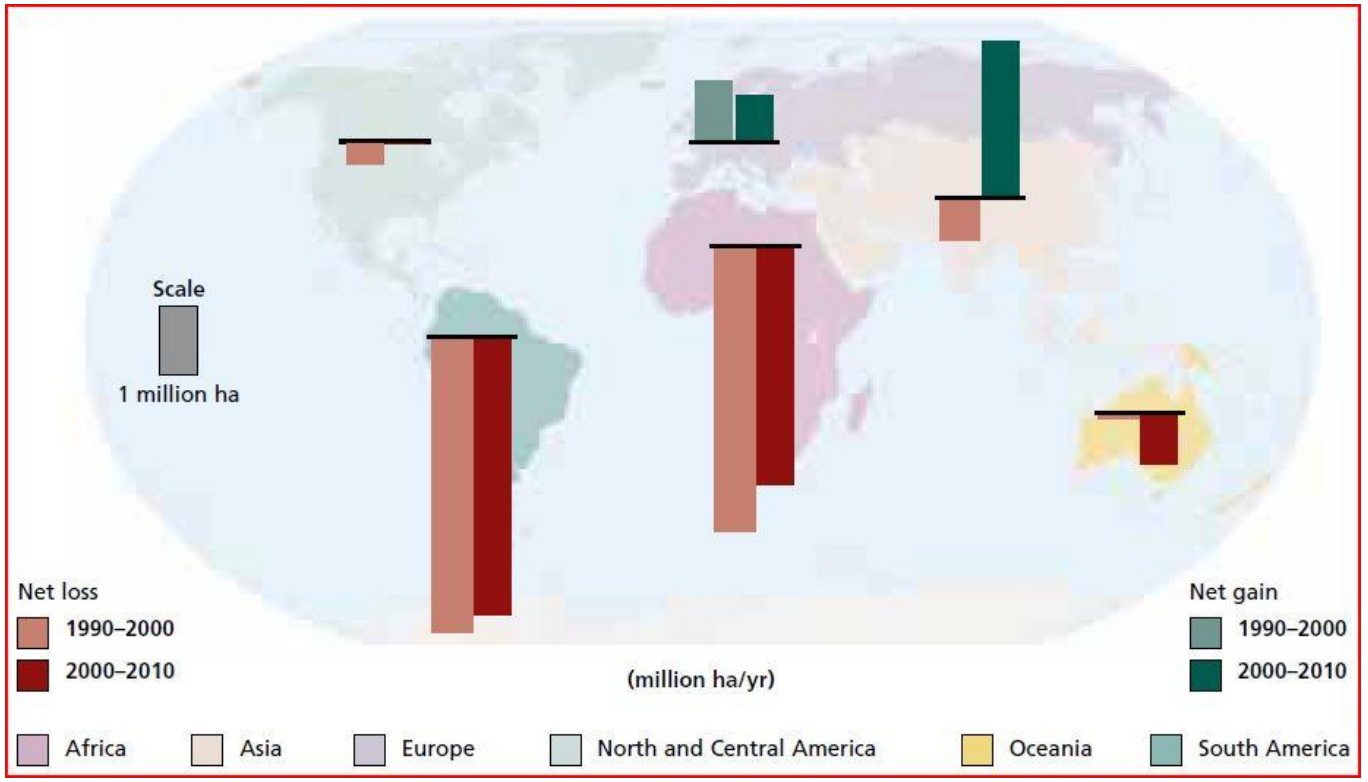
Definition of forest

- **Forest:** Land spanning more than **0.5 ha** with trees higher than **5 m** and a canopy cover of more than **10%**, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use. (FRA 2015)
  - Fails to capture qualitative forest values
  - Forest degradation is difficult to identify

Representations of 70, 40, 20 and 10% canopy cover – all of which constitute "forest"

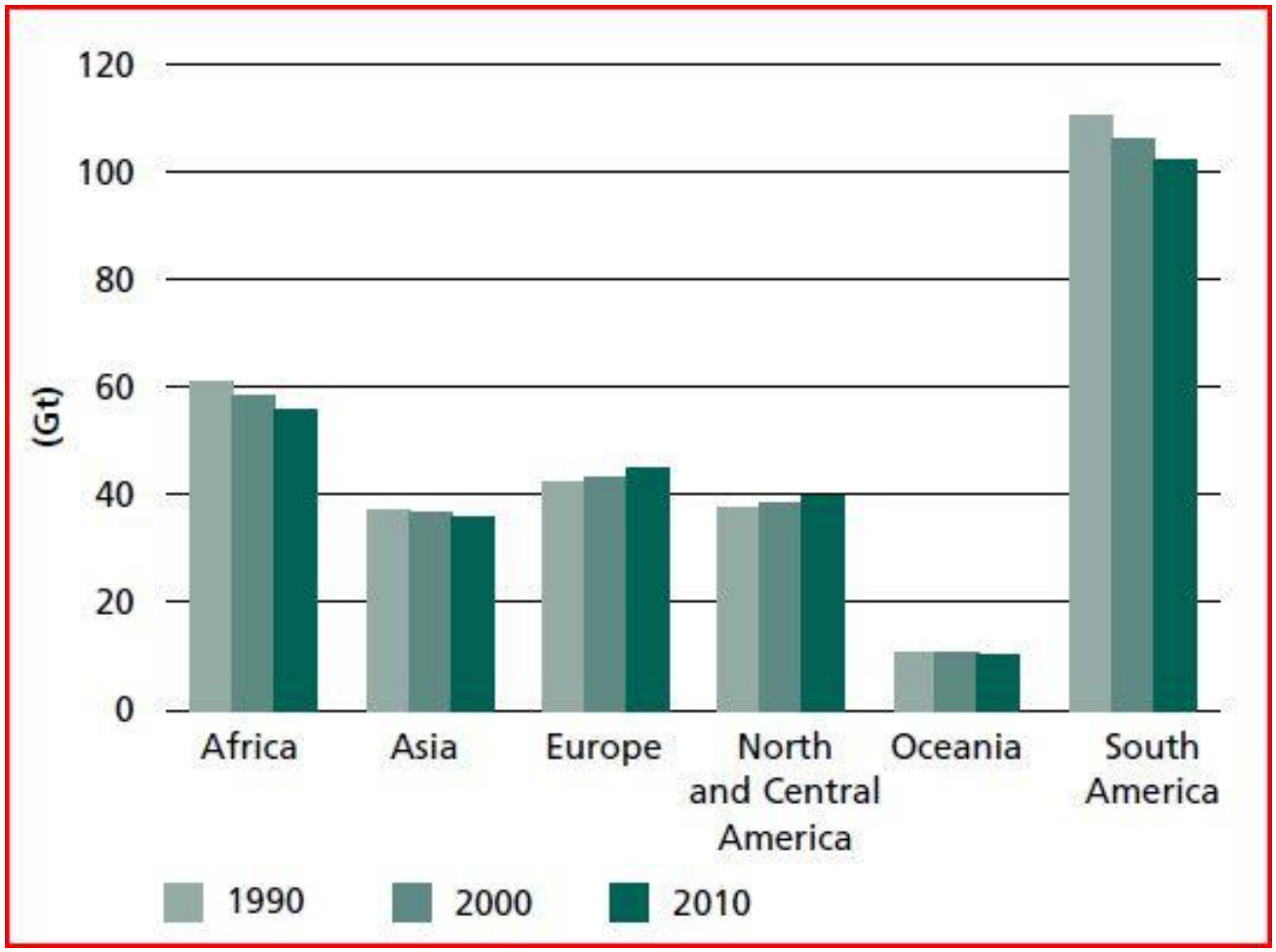


Status and trends in forests



Annual change in forest area by region,1990-2010
(FAO 2010)

Status and trends in forests



Trends in carbon stocks in forest biomass, 1990–2010
(FAO 2010)

Status and trends in forests

Region/subregion	Information availability		Area of primary forest (1 000 ha)			Annual change (1 000 ha)		Annual change rate (%)	
	Number of countries	% of total forest area	1990	2000	2010	1990–2000	2000–2010	1990–2000	2000–2010
Eastern and Southern Africa	23	100.0	7 594	7 024	6 430	-57	-59	-0.78	-0.88
Northern Africa	8	100.0	15 276	14 098	13 990	-118	-11	-0.80	-0.08
Western and Central Africa	23	46.9	37 737	32 540	27 527	-520	-501	-1.47	-1.66
Total Africa	**54**	**74.2**	**60 607**	**53 662**	**47 947**	**-695**	**-572**	**-1.21**	**-1.12**
East Asia	5	100.0	28 179	26 456	25 268	-172	-119	-0.63	-0.46
South and Southeast Asia	17	100.0	87 062	83 587	81 235	-348	-235	-0.41	-0.29
Western and Central Asia	23	96.9	2 924	3 083	3 201	16	12	0.53	0.38
Total Asia	**45**	**99.8**	**118 166**	**113 127**	**109 705**	**-504**	**-342**	**-0.43**	**-0.31**
Total Europe	**42**	**19.1**	**5 183**	**5 360**	**5 438**	**18**	**8**	**0.34**	**0.14**
Caribbean	16	70.4	207	206	205	n.s.	n.s.	-0.07	-0.02
Central America	7	100.0	5 766	5 226	4 482	-54	-74	-0.98	-1.52
North America	5	100.0	274 920	273 795	275 035	-113	124	-0.04	0.05
Total North and Central America	**28**	**99.7**	**280 893**	**279 227**	**279 722**	**-167**	**50**	**-0.06**	**0.02**
Total Oceania	**16**	**99.7**	**41 416**	**39 191**	**35 493**	**-222**	**-370**	**-0.55**	**-0.99**
Total South America	**13**	**94.6**	**684 654**	**653 691**	**624 077**	**-3 096**	**-2 961**	**-0.46**	**-0.46**
World	**198**	**74.3**	**1 190 919**	**1 144 258**	**1 102 382**	**-4 666**	**-4 188**	**-0.40**	**-0.37**

Forest cover by region and subregion, 2010 (FAO 2010)

Drivers of deforestation / degradation

Driver: Any natural or human-induced factor that directly or indirectly causes a change in an ecosystem (Millennium Ecosystem Assessment)

Direct drivers

Physical and biological drivers:

- → Climate variability and change
- → Fertilizer and pesticide use
- → Land conversion
- → Biological invasions and diseases

Drivers interact across spatial, temporal, and organizational scales

In many cases, **multiple direct drivers work in combination**.

Indirect drivers

- → Demographic drivers
  Population dynamics and primary determinants of population change: fertility, mortality, and migration
- → Economic drivers
  Consumption, production and globalization
- → Sociopolitical drivers
  Policies, regulations, governance, people's attitudes and demands
- → Cultural and religious drivers
- → Scientific and technological drivers

Drivers of change – Environmental concerns

- Protection and conservation roles of forest increasingly recognized
  - Climate change
  - Biodiversity
  - Natural disasters
- Local and national issues and actions
- Global and regional environmental drivers:
  - International commitments and the outcomes of climate change negotiations
  - Pressure from stakeholders in the “global forest resource”

Drivers of change – Infrastructure

- Infrastructure development associated with economic expansion, spread of markets and extraction of natural resources
- Road densities highest in countries with higher population densities and lowest forest cover
- Significant impacts on forests by increasing access (logging, recreation)
- Artifical land in European Union (km^2):
  - 2009: 167 702
  - 2012: 186 908
  - 19 206 has been converted

Land cover in EU-27, EUROSTAT 2012

Drivers of change – Trade

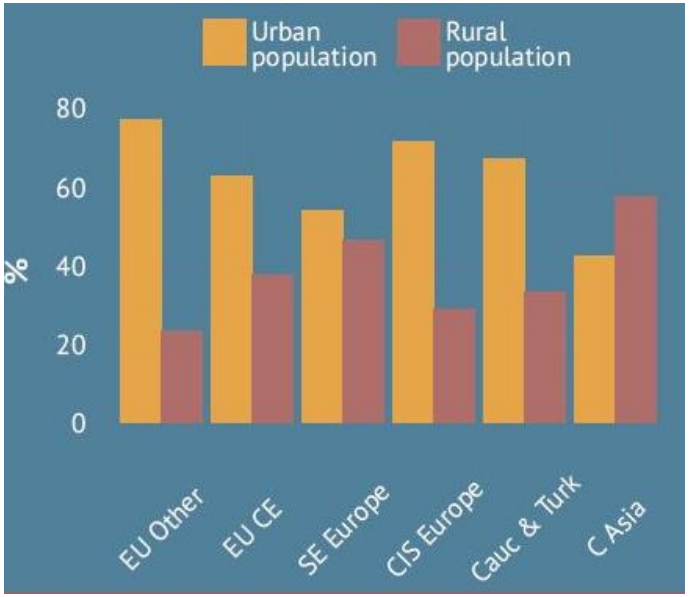
- Intentional transport (biocontrol: introduced natural enemies, conservation purposes)
- Unintentional transport:
  - movement of non-native species as a secondary result of the intentional transfer
  - byproduct of the movement of other goods
  - contaminants

Drivers of change – Demography

- Central Asia and the Caucasus and Turkey population growth is in line with the global rate; across most of Europe population growth has stagnated and, in some countries, even moderately decreased.
- With around 890 million people, the region of Europe and Central Asia is home to about 13 percent of the total world population.
- The highest shares of rural population are in Central Asia.

- Population is aging continuously in many countries of Europe.
- Uzbekistan has the largest share of people under 14 years of age, while Germany and Italy have the highest shares of people over 65 years of age.
- Agricultural employment has the highest share in Albania, and one of its lowest shares is in the United Kingdom.

Rural and urban population, share of total population (2010)



Drivers of deforestation, degradation future scenario

Current situation:

The Eastern Europe and Central Asia region is charactarized high bio-geographical, socio-economical and cultural diversity.

Future scenario:

Predicted climate change impacts are similarly varied, ranging from land use changes in the Balkans, to desertification in the lowlands of Central Asia and melting of glaciers in the alpine zone of the Caucasus.

Predicted increased frequency of droughts and sinking of groundwater levels may threaten the stability of forest ecosystems of this zone.

(Mátyás 2010)

Monitoring systems by FAO

Global and regional compilations of comparable statistics

- FAO Statistical Yearbook

  Europe and Central Asia: Food and agriculture (including forestry and fishery)
- FAOSTAT – Yearboook of Forest Products
- Forest Resource Assessment (FRA 2015)

Country support

- Country Capacity Development on Forest Products Statistics programme
  - conducts capacity development activities and training to improve and enhance the quality, reliability and efficiency of national forest products statistical systems;
- National Forest Monitoring and Assessment
  - collection of forest resource statistics aimed at improving the country capacity for planning and policy development
- Spatial planning tool applied in several countries
- LADA

Wisdom – as a tool for spatial planning

Woodfuel Integrated Supply and Demand Overview Mapping

Supply module

Based on:

•National forest inventory, CORINE, FAO STAT, Google Earth

Wood: roundwood and residues from logging operations from forests, tree outside forests, pruning and maintenance of orchards/wine

Other biomass: crop residues, by products and waste? of wood processing industry

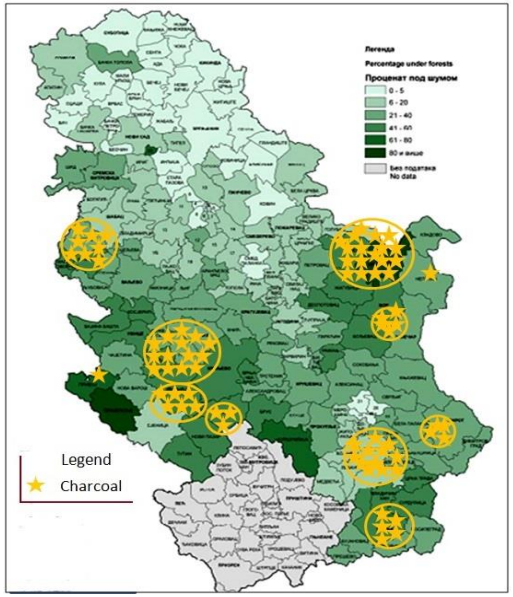
Demand module

Based on:

• Questionnaries

• Survey of the consumption of industry and commerce, households and wood fuel production

Example of cover type digitalization in land use - Land principally occupied by agriculture, with significant areas of natural vegetation

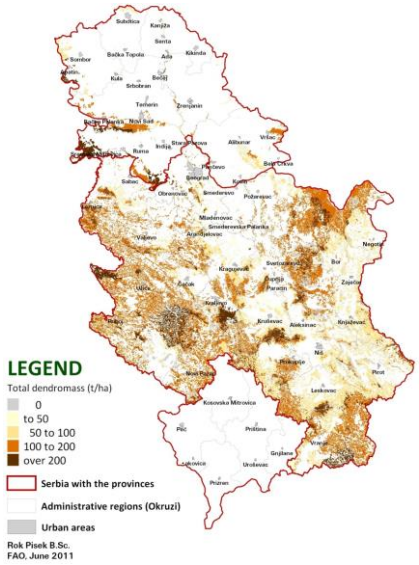


Spatial distribution of charcoal kilns in Serbia

Wisdom – as a tool for spatial planning

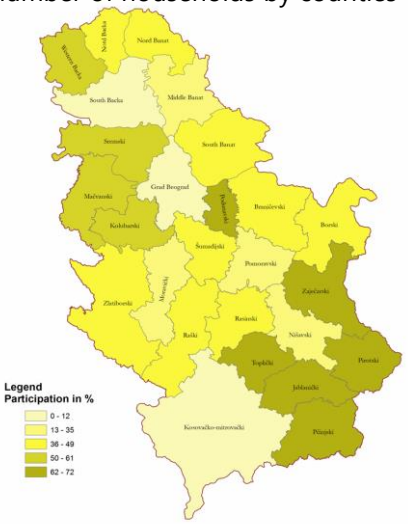
Integration module, Serbia 2011

Map of total woody biomass

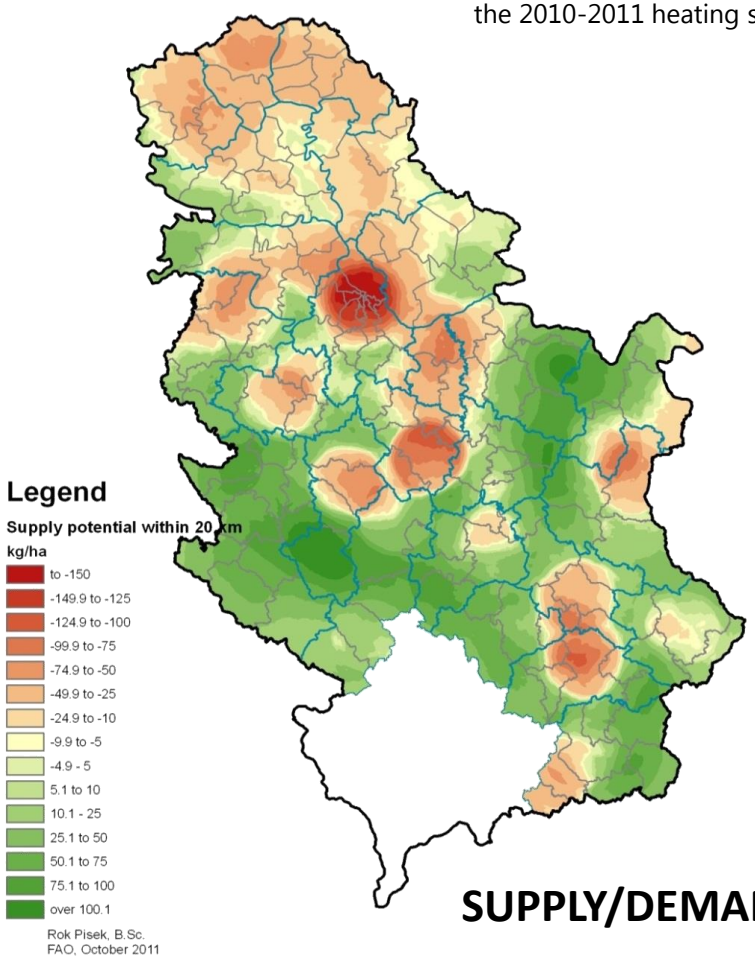


SUPPLY

Presence of households which used wood and wood fuels for heating in the 2010-2011 heating season in total number of households by counties



DEMAND



SUPPLY/DEMAND BALANCE

Map of suitable zones for woody biomass plants

Land Degradation Assessment in Drylands

- Assess the driving forces and quantify the nature, extent, severity, impact a & causes of land degradation

Capacity building to

- Assess and monitor land degradation
- Enable the design and planning of interventions to mitigate its impacts.

Provide incentives for and promote the adoption of sustainable land use and management practices (SLM).

Land Degradation Assessment in Drylands

The methodological approach focused on a participatory, decentralized, country driven and integrated approach, based on participatory rural appraisals, expert assessment, field measurements, remote sensing, GIS and modeling.

Networking is promoted to share information.

Land Degradation Assessment in Drylands

Use of **remote sensing** to determine:

- Land cover (inc. vegetation types and their change over time);
- Landform, landscape;
- Rainfall distribution and related droughts
- Soil state (moisture and level of erosion);
- Indicators based climate and ecological modeling.

LADA-WOCAT (World Overview of Conservation Approaches and Technologies)

The ‘green economy’ scenario

- Balanced growth encompassing **social and ecological sustainability**
- **Improved efficiency** in the use of energy and raw materials
- **Improved** land and water **management**, higher productivity and focus on conserving biological diversity

Implications for forests:

- **Increasing areas** and **improved quality** of forests
- Increased focus on **recycling and reuse of wood products**
- Focus on **ecosystem services**
- **Certification and fair trade** practices expand