Energy from biomass

Albania has a popularity density relatively low compared with other Mediterranean Countries. The total area of 28.7 thousand km2, less than 2 thousand km2 is occupied from lakes and rivers while the agricultural activities occupy around 7 thousand km2. The cities and other urban infrastructure including ports, streets and railways occupy less than 1.5 thousand km2. In the upper alpine height over 1500 m are placed more than 90% of 18.7 thousand km2, while the least 11.0 thousand km2 are placed in the height less than 1000 m. The production of the agricultural products in our country are relatively low in comparison with other European countries, which means that the potential possibility of the use agricultural remnant is limited for the possibility to justify their economic use.
The biomass potential in our country can be grouped in 4 main categories:

- Woods and woods remnant from different processes in wood industry;
- Plants remnants (stem, seed) after their productive cycle end, which is not going to be use in other economy branches;
- Energy plants (woods) which growth as fuel wood.
- Animal's remnants (fertilizer, bones, skin) not to be use in other economy branches;

The data for forestry is based on inventory of Forestry General Directory in the Environmental Ministry within10 years. Total reserve forecast is around 125 million m3 (14.3 Mtoe). The main categories of forestry are: high forestry which is about 47-50% of total resources, coppice, about 29-30% of total resources and bush which are at 24-25% of total resources. Based on three above categories, 10% of high forestry, 50 % of coppice and 100% of bush are used for fuel wood (energetic fuel). Concerning to providing data, fuel wood sources are respectively 5.87, 18.25 and 30 (million m3 mainland).

In Albania permanent forestry resources is organized in 376 management units, for each of them is known the surface, volume, annual grow up and annual legal cuts, despite from the not well performance of inventory and statistics data in Albania.
Table 1 shows the base possible information of forestall volume in Albania according to species;

Volume			
Coniferous (m^3)	Leaf	Bush	Total
15,292,847	63,744,929	15,148,026	94,185,802

Origin: Marketing Forestry Project, FAO

So about 2/3 of volume in Albania localize with large-leaf forests , meantime conifer and bush make each 1/6 of the total forestall volume in the country.

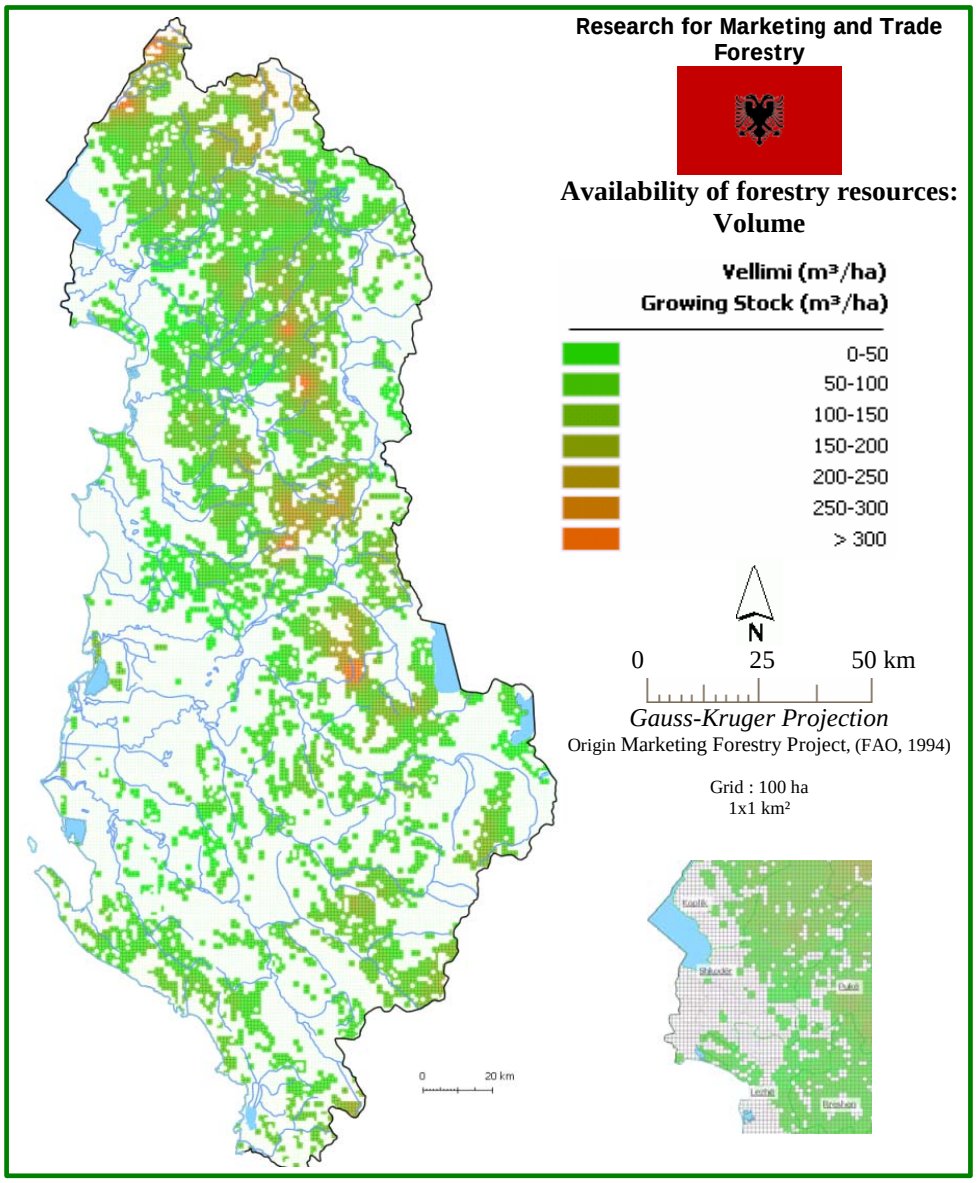
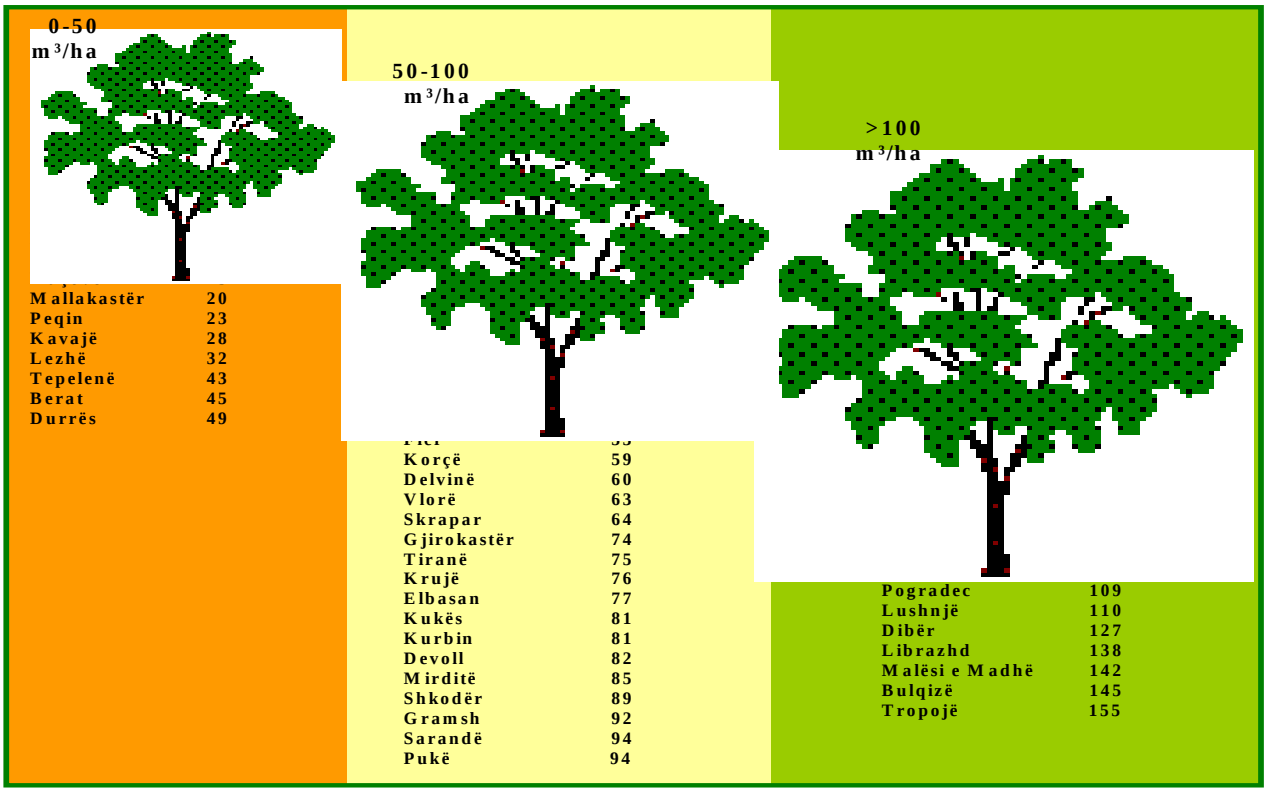


Table 2: Forestry area and forestall volume according to horizon and elevation

Horizon (Code)	Elevations (m)	Area (hectare)	Volume (m^3)	(m^3/hectar)
Agricultural	0-400	194,198	10,925,496	56
	400-800	97,612	7,364,100	75
	800-1600	41,261	4,382,250	106
Average		*333,071*	*22,671,846*	*79*
Forestry	0-400	117,616	8,601,054	73
	400-800	357,796	37,416,175	105
	800-1600	197,552	25,253,394	128
Average		*672,963*	*71,270,623*	*102*
Urban	0-400	2,642	179,167	68
	400-800	642	64,167	100
	800-1600	0	0	0
Average		*3,283*	*243,333*	*84*
Total	0-400	314,455	19,705,717	63
	400-800	456,050	44,844,442	98
	800-1600	238,812	29,635,644	124
Average		*1,009,317*	*94,185,802*	*95*

Values for forestall volume can classifying along according to:
I levels (0-50 m^3/hectare, 50-100 m^3/hectare, >100m^3/hectare) and
II regions, as shown in following scheme

The scheme suggests that the better part of Albanian regions dominate an average level of forestall volume. We can not identify an especial horizon, even if dominate, within a certain region.



Energy evaluating of biomass that comes from wood is estimate seeing the possibility of their conversion in fuel wood, wood-wool and match-wood, crashed chaffs and canebrake and crashed briquette of wood-wool considering forest maintenance. Table 1 gives possible energy potential of forestry and their remnants.

	Unit	Thin Brunch	Brunch	Bole	Board remnants	Blockhead	Total
Perennial forests	000 m^3/year	8799	22165	4517	1011	4995	41487
Forests greenness	000 m^3/year	442	1345	536	120	340	2783
Annual wood production	000 m^3/year	9241	23509	5052	1131	5335	44269
Energy potential	GWh/year	28	70	15	3	16	132
Advantage potential for energy producing	000 m^3/year	7921	21103	4537	1012	4789	39362
Advantage economic potential for energy produce	GWh/year	24	63	14	3	14	117

Origin: Agricultural University

Pronouncedly that for the other biomass source is made approximation from scientific institutions because there are not used as energetic fuel. Energetic potential from agricultural remnants for 2007 was around 2300 GWh/year, while forecast of the urban remnants potential in biggest regions for 2020 will be approximate 1460 GWh/year. Calculations are made in statistics data from agricultural ministry and INSTAT.

Table 2: Energy potential in Albania

	Theoretic potential	Involvement in Albanian energy balance	Technical energetic-heat Potential	Involvement in energy balance-heat	Technical energetic-electricity Potential	Involvement in energy balance-electricity	Believable economic potential for coming decade
	GWh	%	GWh	%	GWh	%	GWh
Forest remnants	263.63	1.069	234.45	0.951	70.34	1.066	315.10
Grain remnants	1,521.08	6.170	979.81	3.975	293.94	4.454	1,316.78
Fruit-Tree remnants	168.05	0.682	142.90	0.580	42.87	0.650	207.49
Animals remnants	585.25	2.374	521.65	2.116	156.50	2.371	701.47
Oily plants remnants	62.34	0.253	57.10	0.232	17.13	0.260	76.72
Urban remnants	1,576.38	6.395	1,276.12	5.177	382.84	5.801	1,446.64
TOTAL	**4,176.72**	**16.943**	**3,212.03**	**13.030**	**580.77**	**14.600**	**4,064.19**

Resource: National Strategy of Energy

In last decade industrialize countries; have developed the energy production from remnants (industrial, agricultural, urbane). Recalculation of metallic, papers, glasses and plastic products are duplicated in the world during last two decades. Owing to development of technologies of remnant's treatment utilize as energy source, induce increase of their utilization in every year. All that developments are stimulate not only for positive effects in environment but also and for energy profits.

It is important to point out that, our country with relatively limited sources of fossil fuels and with an agricultural economy, has good possibilities to develop in the next future energy related from biomass.

In this context, it will be necessary to stimulate research and development projects, a legal framework to better utilization of biomass for energy issue.