Governance in mountain forests: the problem of minimum size of management units. The case of “forestry consortia” in Piedmont Region, Northern Italy

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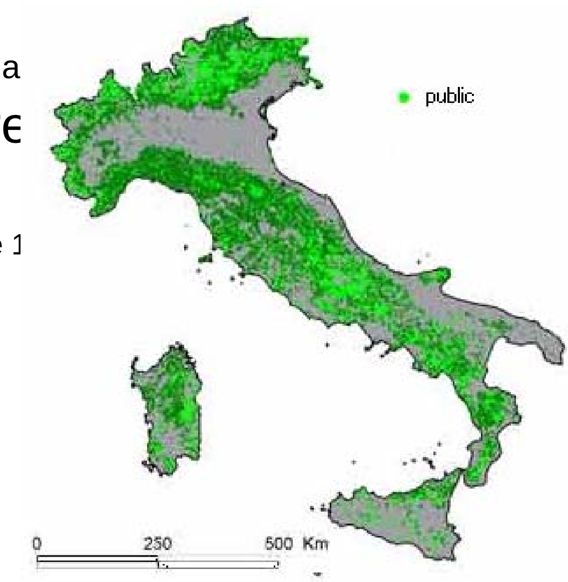
- Some figures about Italian and Piedmont forests
- What is a *consortium?*
- Why dimension are important?
- Solutions and limits for the management units
- Final considerations

Italian forests (in small doses)

- Large heterogeneity of environments
  - → Boreal forests, Alpine f., Appennines f., Montane beech f., Mixed oak f., Mediterranean evergreen f.
- Mountain forests >90%
  - → Protection is the first function. Multifunctiona
- Forest Cover = 10,5 M hectare

(**8,7** forests+1,7other stands) (2005)

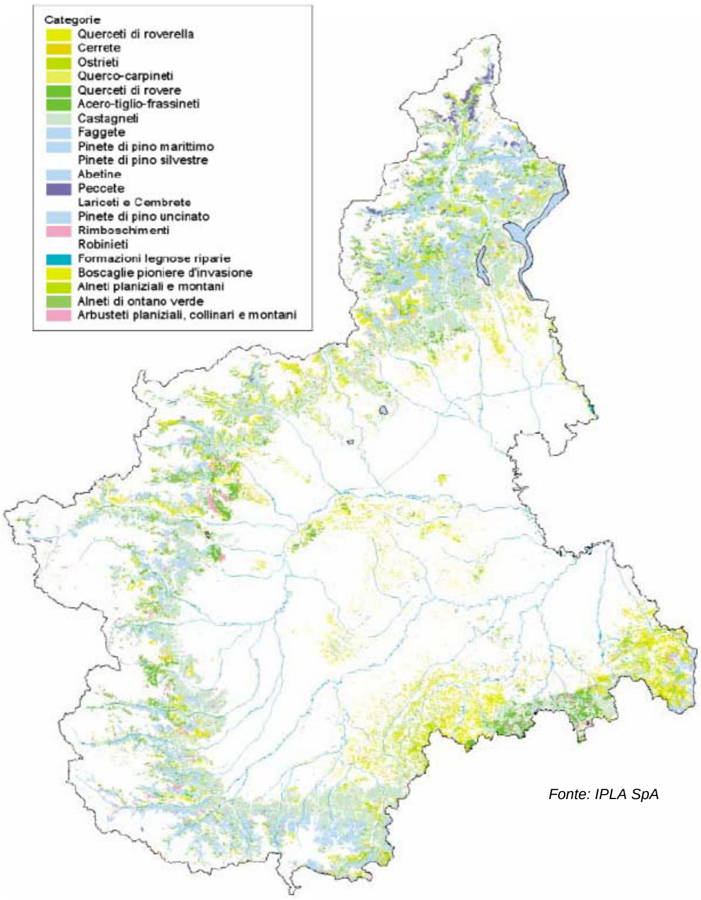
- Expansion (ab. 3Mha in 1920, 5 Mha in the 1
- 3 Mha under "*natural conversion*" to forest
- 2/3 are coppices (fuelwood)



From:
http://www.sian.it/inventarioforestale/img/cartogrammi/proprieta.jpg

Some figures about Piedmont forests

- Forests Surface 1 Mha
- 68% private - 28% municipalities
- 84'000 farms with forests < 4 ha/farm
- Wood production (2005) 325'000 m^3
- 300-900 harvesting firms
- 160-350 sawmills



Fonte: IPLA SpA

Italian forests (in small doses – 2nd part)

Productions (From *Italian National Forest Inventory* 2005) :

- Growth **35.9** M m³/y (4.1 m³/ha/y) (2004)
- Total wood production ab. **5.6** Mm³/y (2007)
  - ab. 3.6 M m³ fuelwood (BUT several studies suggest to **quintuplicate** this amount)
  - ab. 2 M m³ industrial wood (larg
- Strong industry consumptio

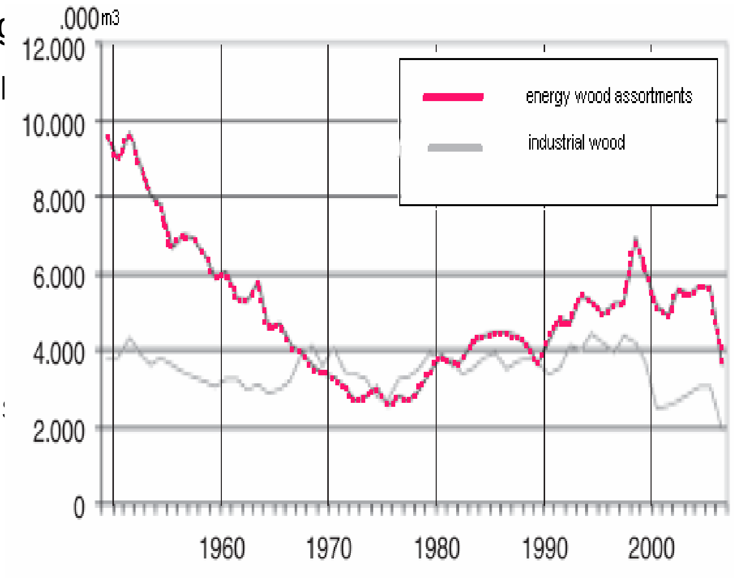
(40-45 M m³/y)

→75% of wood imported from anywhere and in anyway

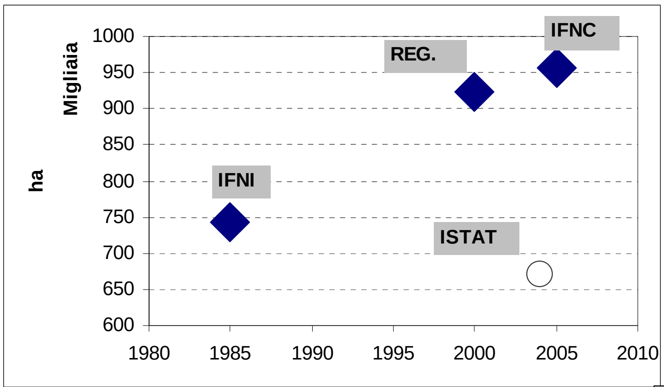
Furniture 2nd world exporter

>400'000 employed in 90'000 firm

39.77 Bill€ industrial turnover (2008) = 2.6% of Italian GNP



Trends for Piemonte



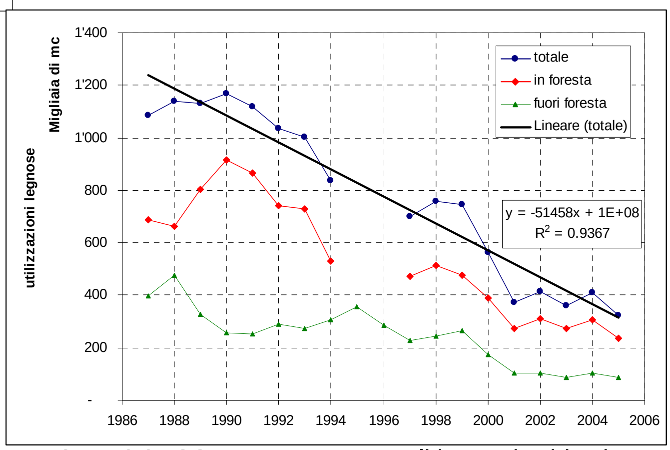
Forest surfaces are "officially" growing

IFNI&IFNC= Italian National Forest Inventories

REG: = Piedmont regional inv.

ISTAT= Agricultural farm census

whereas wood productions will soon end (!)



Italian forests (in small doses – last)

- Weak structure of owners with a very inadequate land property due to the parceling out of estates
- Different situations but a common decline of management
  - Management based on top-down approach and binding force of laws
  - National forestry law dates 1923: that's history!
  - Devolution in 1977: forestry become Regional competency
  - Federal administrative structure, with some Regions very active (but overlapping competencies with the State)
  - Low participation, low profitability, low awareness of the problems
- New demands and new services by citizens but only few and scattered answers

The key question

- Some crucial issues
  - Increasing wood stocks (& increasing biodiversity)
  - Loss of revenues and employment, structural importations
  - Forest fires
  - Natural services not granted
  - Abandon: more than 50% of Italian forest surface is neglected!
- We can not change the structure of Italian forests but we must try to find solutions to **assure their management** and the consequent protection of mountain territory

De consortia

- “Consortium” comes from Latin, meaning *'partnership, association or society*' and derives from *consors* 'partner', itself from “*con*” ='together' and “*sors*”= 'fate', meaning owner of means or comrade.
- A consortium is an association of two or more individuals, companies, organizations or governments (or any combination of these ones) with the objective of participating in a common activity or pooling their resources for achieving a common goal.
- Practically, private and/or publics owners assign to a management unit their lands so that the same management is **more efficient**, asking therefore that some given services are supplied

Examples of services

- Extension, Business accounting, Practical administrative for authorizations, Licenses, Lobbying...
- Forest Management Plans, Technical Assistance, Forest and territorial design, Formation...
- Supply of equipments, Maintenance of systems and infrastructures ...
- Services of surveillance and wood fire defence
- Forest works (woodland plantations, thinning, logging,…) on behalf of the associates
- Wood concentration, market outlet, management of forest services as recreational activities...
- Supply contracts with the timber industry, Certification…

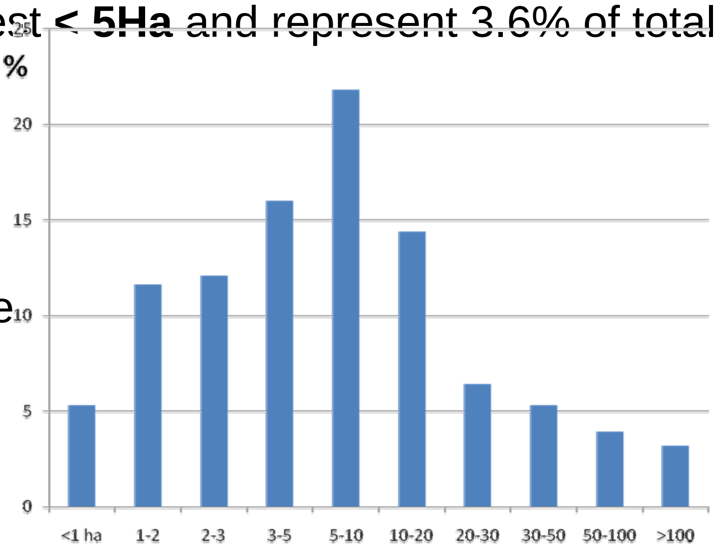
Dimensions matter

Examining more in deep official data (about the "*structure of farms with forests*", from the general agricultural census 2000, on 4,6Mha forests):

–45% of total farms own forest **< 5Ha** and represent 3.6% of total surface

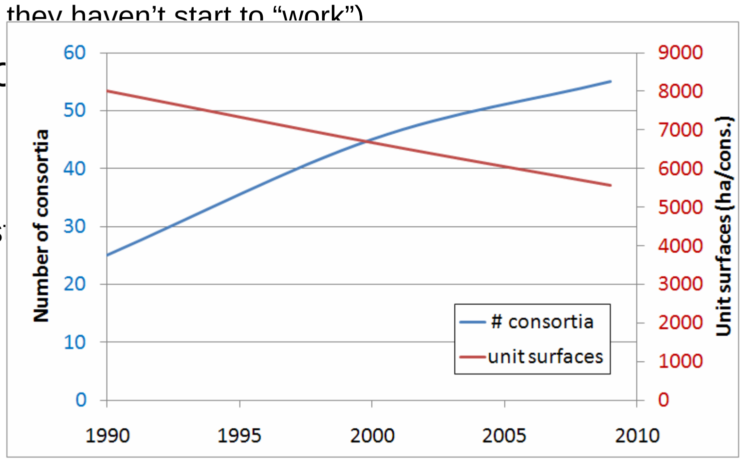
–Only 7.1% of total farms have **> 50ha** of forests

–The average forest surface is 7.51 per farm with a huge difference between public and private (360000 farms 5.7ha)



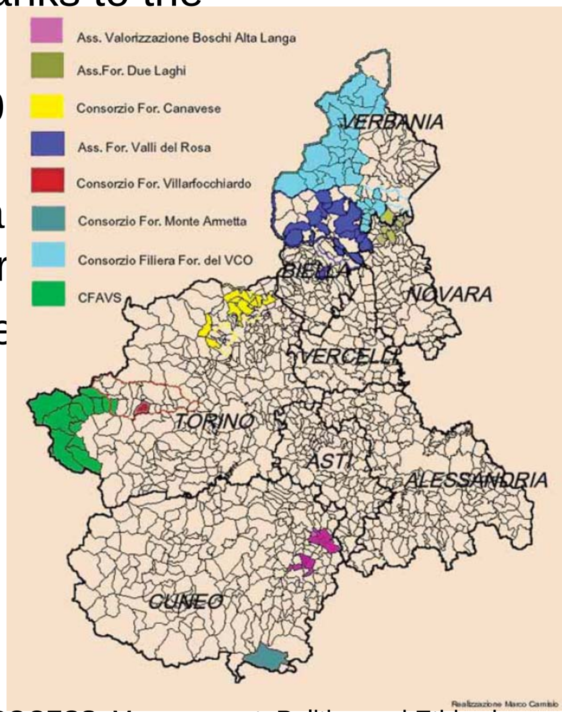
"*United we stand, divided we fall*"

- Italian laws allow different types of consortia (public/private/mixed)
- Since 1923 the law promotes (and finances) the constitution of consortia, both voluntary and compulsory
- But their foundation strictly depends on public funding availability (like the 2.3M€ of CIPE "Foresta appenninica" (*CIPE* n°. 219/1999 --to tickle your curiosity, 5 new consortia were "founded" but still they haven't start to "work")
- Consortia are associated to a national syndicate (FEDERFORESTE) :
  - 1990: #25, 200'000 ha of forest
  - 2000: #45, 300'000 ha
  - 2009: #55, 305'800 ha



The same is for Piemonte

- Where 10 “associations” (Consortia & other) are active the oldest since 1953, the others thanks to the past rural development planning
- Where the new forest law (LR 4/200 is specially addressed to these structures and we expect the naissa of several new consortia in the futur
- So why don’t we manage all our fore with these tools that seems to be useful and responding to our exigencies?

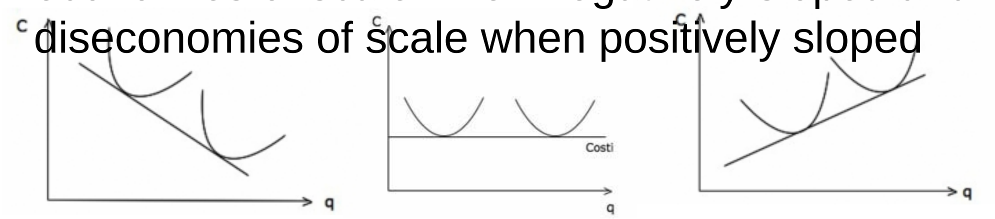


Public funds are not “the” solution

- When they are available, public funds are only a *start-up help* for the first phases of the consortium
- The establishment of a new consortium requests several in-deep considerations on objectives and means, with regard to the sustainability in the middle and long run: it is necessary to build a real enterprise, capable to act on markets AND to supply all the public services demanded to the forest
- The probability of success of a new enterprise depend on different issues:
  - structural
  - economical
  - political
- As the resources of a territory are deeply involved, also its actors should be in the game

The bigger is not always the best

- Economically, the solution of the dimensional problem of a productive unit is found minimizing the “long run average cost” LRAC *(ceteris paribus)*
- The development of such curve depends also on extra-economical issues: so normally after a growing efficiency phase, a constant one follows and a decreasing phase will end: the typical LRAC curve is a large U-shaped, reflecting economies of scale when negatively-sloped and diseconomies of scale when positively sloped



- I.e., soon, doubling the surface of a consortium, the efficiency will raise but not double !

Structural characteristics of Piedmont Consortia

Dimensions and kind of associated reflect local exigencies. In Piemonte they both are very heterogeneous

Piedmont consortia	members	enterprises	public	Forest Surface (ha)
Consorzio di Filiera Forestale del VCO	46	13%	85%	38'946
Consorzio Forestale Alta Valle Susa	14	0%	100%	18'000
Ufficio forestale della CM Bassa V Susa	23	0%	100%	15'500
Ufficio forestale della CM Valle Chisone	16	0%	100%	12'500
Ass. Forestale Valli del Rosa	55	31%	53%	8'000
Consorzio Forestale del Canavese	24	4%	96%	3'350
Associazione Valgrande Foreste	12	0%	83%	2'905
Consorzio Forestale di Villar Focchiardo	107	0%	1%	1'382
Ass. Forestale dei Due Laghi	40	25%	38%	1'184
Consorzio Forestale Monte Armetta	35	9%	3%	1'139
TOTALI	*373*			*102'906*
average	*37.2*	10%	46%	10'291
cv%				115%

Their main activities

Also activities are numerous and diverse, perhaps to fix things as best as possible….

Main activities	Ufficio forestale CM Val Chisone	Filiera Forestale VCO	Valli del Rosa	Villar Focchiardo	Monte Armetta	Due Laghi	Valgrande Foreste	Canavese	Alta Valle Susa
Forest works	X	X		X	X	X		X	X
Logging	X	X	X	X	X	X		X	X
Forest plan	X	X	X	X	X	X		X	X
Hydraulic works	X		X					X	X
Design for associated	X	X							X
Management of protection forests	X	X	X	X	X	X		X	X
Grazing district management									X
Watershed management			X					X	X
Public information	X	X	X	X	X	X	X	X	X
Energy management		X							
Forest certification	X	X							X
Education and training	X		X			X		X	
Technical assistance, extension	X	X	X	X	X	X	X	X	X
Other external activities		X							X

So which are the best dimensions?

- As data on management costs are insufficient to draw a LRAC, we have tried to estimate minimum and optimal dimension of a management unit, based only on the economical inputs by simulations
- Assumptions for this estimates are the following:

Revenues:

- Timber sales
- Associates contributions
- Public funds
- Services payments

Costs:

- Management & technical staff
- Workers
- Buildings
- Tools, capitals, vehicles
- Start-up
- Administration

Simplifying

- Assuming that both public and associate contributions are negligible and services provided are not paid since the full capacity, the revenues depend directly on timber yields i.e. dimension of "exploitable forests"
- Costs are dimension-dependent as well, not linearly but with steps, due to repeated investments

Assumptions:

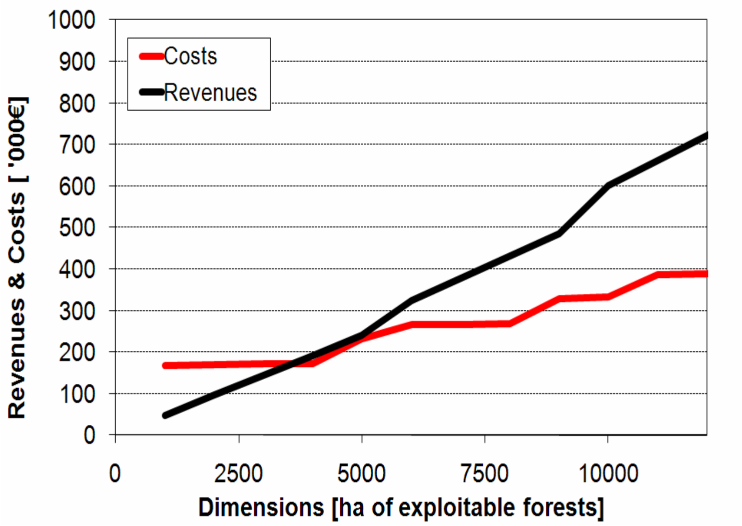
Average yield: 3 m^3/ha/year;

Average stumpage price 16 - 20 €/m^3;

Minimum staff: 1 director + 1 techn. part-time;

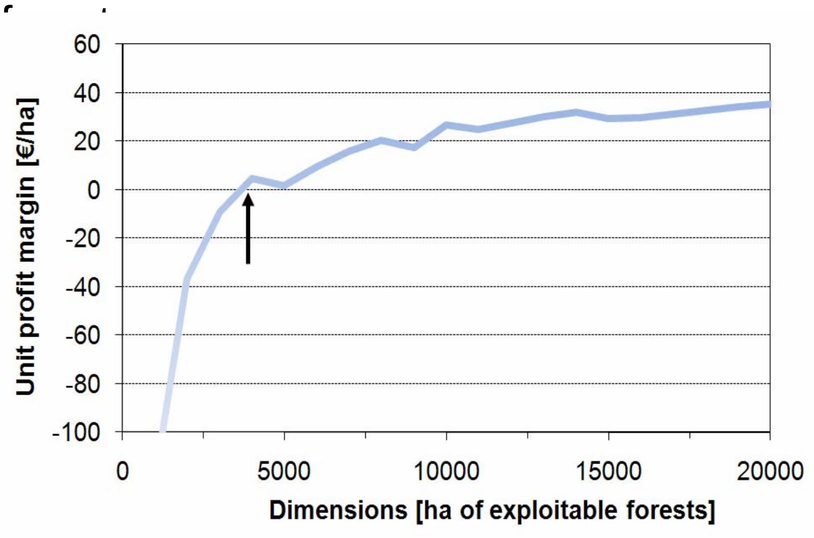
Maximum staff: 1 director + 5 units

Administration, capitals, vehicles, building costs



Between 3'000 and 10'000 ha of productive forests

- Results of simulation show that the minimum dimension is ab. 3500 ha of **exploitable forests**: i.e. forests with **positive stumpage** prices, which are only 1/3 of the total surface
- So, in Piedmont conditions, we need a total surface of 10-30'000 ha
- Notice that after a steep climb of **unit margins** (€/ha) until 4000 ha of exploitable f... the trend becomes flat: face to large growth of dimensions , one obtains small advantages



Why not more surfaces?

- Among **limits** to the growth of the management unit dimensions there are numerous factors :
  - Environmental (more services to be supplied)
  - Infrastructural
  - Technological (innovations, work capability)
  - Markets (wood demand, labour supply)
  - Organisation ability (specialization and division of work)
  - Logistic (managing 2 valleys is not like managing a bigger one)
- Particular importance must be given to **socio-political features**:
  - Bigger means more heterogeneity and more complexity,
  - Often exaggerated local pride (parochialism) can arise,
  - Loosing local dimensions can obfuscate enthusiasm of

Final consideration 1/3

- Lets come back to results: what does it means 3’500 ha of exploitable forests are the minimum dimension?
  1. 3’500 ha allow to cover all the direct management costs, but land owners will not be remunerated!
  2. 2/3 of our forest will rest unexploited, due to negative stumpage prices of protection forests
- So, even in these conditions, private investors will not be induced in participate in such business
- And other incomes are necessary, both for managing protection forests and for grant structural investments

Final consideration 2/3

- Italian forests have strong structural limits, mainly due to their location in mountain areas and a weak owner structure, which, combined, reduce the entrepreneurial ability of the sector
- The negative trends of forest management profitability is worsen by a poor public action, with a traditional and obsolete vision of forest management and a lack of structural programs.
- Owners are demanded to provide more and more services to society but this is not possible unless they adopt optimal management tools and receive from society (never mind in which form, from state-financer or from citizen-payer) a correct compensation of such services.

Final consideration 3/3

- This goal demands a public-private cooperation, giving an **entrepreneurial character** to services producer (payment for environmental services) and helping them to reduce the public expense with suitable tools
- The forest management itself it is an obsolete notion because we must think to a new territory and services management with a more contractual and less restriction-based policy
- Integration and valorisation with a market-oriented management is the key-solution, where revenues of different services compensate each others
- This will permit to let the public action to reach the targets which really need help,
- Otherwise, even big consortia will not survive if private and public will not do their best to help each other.

Governance?