Towards the de-materialisation of the forest economy: which potentials and challenges for teaching and job creation services?

Davide Pettenella, Mauro Masiero and Laura Secco
University of Padova, Italy

Outline

1. Background: new patterns in the demand of forest products and services
2. Some examples
3. How to support nature-based entrepreneurship
4. Final remarks

Presentation available on the web. Search for “pettenella”
1. **Background: new patterns in the demand of forest products and services**

2. Some examples

3. How to support nature-based entrepreneurship

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Role of plantations in some European countries (Martinez de Arano et al., 2018 and Pra, 2018)

- 75% of Portuguese and Spanish industrial roundwood production
- 42% of the total French softwood production
- In Italy: 50-70% of industrial roundwood production is coming from 60-80,000 ha of poplar plantations (50-30% from the 11.8 million ha of semi-natural forests)

Forest products and services: new demand patterns in an affluent society

Provisioning services: slowly increasing final demand of wood + recycling and substituting
An increasing role of recycling and substituting solid wood products with products made with reconstructed products

Circular economy: already very high performances in the forestry sector!

Production, import and export of industrial roundwood in Italy and other wood raw materials (million cm - 2016)

<table>
<thead>
<tr>
<th></th>
<th>production</th>
<th>import</th>
<th>export</th>
<th>Apparent consumption</th>
<th>coeff cm. eq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial roundwood (cm)</td>
<td>2.91</td>
<td>0.17</td>
<td>5.11</td>
<td>15.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chips, particles, wood waste (cm eq.)*</td>
<td>0.62</td>
<td>0.14</td>
<td>0.19</td>
<td>0.62</td>
<td>3.1%</td>
<td></td>
</tr>
<tr>
<td>Recovered fibres from pulp and paper production (cm eq.)</td>
<td>8.45</td>
<td>0.01</td>
<td>0.19</td>
<td>0.62</td>
<td>25.5%</td>
<td></td>
</tr>
<tr>
<td>Waste paper and paperboard (cm eq.)</td>
<td>24.62</td>
<td>1.32</td>
<td>7.37</td>
<td>18.57</td>
<td>56.0%</td>
<td></td>
</tr>
<tr>
<td>Total wood raw material for industrial use</td>
<td>36.49</td>
<td>4.42</td>
<td>7.74</td>
<td>33.17</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Forest products and services: new demand patterns in an affluent society

Increasing demand for “cultural services”

De-materialization

Tertiarization

Source: Hirons et al., 2016
Unfortunately research and educational institutions are not pro-active

Number of scientific publications on “Ecosystem services” and “Cultural ecosystem services” (Title, abstract and key-words)

A) “Ecosystem service*”

B) “Cultural ecosystem service*”

(only Scopus Database)

Markets surveys for supporting/regulating services in Europe

(no comprehensive survey on cultural services market yet)

www.ecostarhub.com
www.ecosystemmarketplace.com
A raising awareness by international organizations

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Sport activities

Active Forest pilot program (UK), 2014-2017:
- 5 sites monitored
- >700,000 visitors
- 1/3 families with kids <16 years
- >90% new visits in the forest within 3 months
- 2nd phase (2017-2022): 20 sites monitored

A model example
Single sport events

http://trailsacredforests.com

Adventure parks

More 220 sites in Italy (April 2018)

www.parchiavventuraitaliani.it/
Adventure parks

Forest experiences for health and happiness

We all intrinsically think that nature must be good for our health and happiness. A recent analysis of a large-scale nature challenge scientifically shows how important feeling part of nature is to our physical and mental health.


"Here's your prescription, walk in the forest five times a week for an hour."

Forest bathing
Shinrin-yoku (森林浴)

(Park et al., 2009; Akakabe, 2010 e 2012; Nakagawa et al., 2015; Sawada et al., 2016; Kawai e Miyachi, 2016)

www.shinrin-yoku.org
Forest therapy
(Bröderbauer, 2015; Uehara, 2017)

Benefits measured with the *Quality-Adjusted Life Years* (QALYs) indicator
Cost/QALY = 50% of the costs for ordinary treatments
Social forestry

Inclusion of unemployed, disabled, elderly people, prisoners, ...

Green care forest program by the Austrian Research centre for Forests (BFW) with the use of EU Rural Development funds

Cervinka et al. (2014)
http://bfw.ac.at/greencareforest
Educational activities
Forest schools

Kids don't need more toys - they need more adventures

http://forestpedagogics.eu

First examples in DK in the ’50s, now in Scandinavian countries, UK, G, ...

German model exported in JAP, CAN, USA,

German 'Wald kindergarten' Association
www.bvnw.de

www.spiegel.de/international/zeitgeist/forest-kindergartens-could-be-the-next-big-export-from-germany-a-935165.html
Sweden - www.friluftsframjandet.se/iurochskur

Czech Rep. - www.lesnims.cz

UK - www.forestschoolassociation.org

Forest Kindergarten International Federation
@forestkindergarteninternationalfederation

www.facebook.com/forestkindergarteninternationalfederation/
Nature art

www.artesella.it

Started in 1986
200,000 visitators/year

Forest concerts

www.isuonidelledolomiti.it/

4 GIUGNO | ORE 10 | CONCERTO TREKKING
UNA FORESTA DI SUONI, LA MUSICA IN CAMMINO PER SASSO FRATINO

www.ravennafestival.org
Burial/funeral forests

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ECOSTAR Erasmus+ KA project

Partners

Co-funded by the Erasmus+ Programme of the European Union

1st step
Training Needs Assessment in EU

Entrepreneurship gaps in 14 forestry departments:

- Evaluation of university commitment to entrepreneurship education: medium-low
- 80% of respondents consider that entrepreneurship could be a useful field of study within their university curriculum
- 27% with specific courses made available by their university (12% within their faculty/school)

More info at: www.ecostarhub.com/reports/
2nd step: an e-course

aimed at guiding students and professionals to acquire high level entrepreneurial skills by working with private sector, to convert innovative ideas into successful business plans for impact investments, in the field of natural resources.

https://www.ecostarhub.com/

- 4 partner Universities
  - UNIPD, Italy
  - Madrid, Spain
  - Brasov, Romania
  - Manchester, UK

- 15 e-moderators (1 coordinator, 1 assistant coordinator, lecturers: initially trained for consistency in the approach)

- 150 learning hours/student (30 direct online interaction with e-moderators/lecturers)

- 6 to 7.5 ECTS

- 5 online e-modules + assignments
Evaluation of participants' performance:

- **25% active online participation**
- **25% mid term evaluation**
- **50% final examination**

**Participants:**

- 171 involved participants & lecturers
- **156 enrolled participants**
  - 67% students formally enrolled in a University (BS, MSc and PhD)
  - 33% non students (e.g., entrepreneurs)
- 135 active participants
- **69 participants who completed the e-course (51.1%)**
- 26 nationalities (9 EU countries)

**Level of satisfaction (anonymous evaluation form):**

- **93% of participants are satisfied**, the e-course met their expectations
- 78% of participants think there is not much duplication/repetition of contents with other courses
3rd step: the Nature Accelerator

Business idea

Start up

Incubator
(logistic, technical assistance, …)

2-3 years (mortality of 50-70%)

Start up

Accelerator
(partners, seed money, …)

University of Padova incubator
3rd step: the Nature Accelerator

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• Still great emphasis on provisioning and regulating/supporting services by policy makers, academia and forest institutions

• Several examples of niche, very innovative cultural services, rarely the outcomes of formal educational programs run by the forest schools

• To promote these services we need to integrate our curricula with topics related to entrepreneurship creation and in such a way discover new links between university and the job market

• More generally, we need to give new values to forest products and services…

The progression of economic value

- Extract commodities
- Make goods
- Deliver services
- Stage experiences

- Un-differentiated
- Competitive Position
- Differentiated

- Pricing
- Market
- Premium
...giving new values with a change in the economic approaches

Provisioning services ← Neo-classical economics
Societal marketing

Regulating services (mainly non priced P&S) ← Environmental economics

Cultural services ← Experience economics
(Pine and Gilmore, 1999 and 2011)

We still have quite a lot to discover assuming a long-term and wide perspective