Sustainable non-food products from bio-resources: an underexploited opportunity?

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Findings from the IENICA studies

- Science and technology were not limiting the uptake of non-food products from bio-resources.
- Massive markets which were significantly under-supplied were identified.
- A range of non-scientific issues were holding up development – a key one was lack of awareness of the opportunities..

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Opportunities identified by the IENICA projects

- Oils- bio-lubes; bio-inks ; surface coatings; biosolvents and surfactants; linoleum.
- Fibres- Industrial textiles of many descriptions (eg filters; geo-textiles; composites); insulation
- Sugars- massive existing markets in food and non-food sectors. Novel markets in polymers; cosmetics; pharmaceuticals etc.
- Speciality products – wide and diverse range including pharmaceuticals; pesticides; personal care products; OTC medicines; colourants and dyes.

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But, are these opportunities noticed and exploited by policymakers and strategists?

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Sadly, whilst some issues like biofuels have been developed the wider non-food markets for bio-resources have yet to be fully exploited. Politics has overtaken science and technology to a degree.

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Nuremberg Declaration-Fuelling the Future.

- Setting of ambitious targets for biofuels
- Realising the potential of renewable resources
- Assuring sustainable production of bio-resources
- Promoting innovative technologies
- Expanding industrial utilisation of renewables.

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If it is that simple and governments recognise the potential, why is something not happening?

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There is some development but many constraints still exist

- Government priorities tend to be short term and not interlinked.
- Industry and the general public are still broadly unaware of the potential of bioresources.
- Change involves risk and costs money. Shareholders and investors tend to be averse to these things.
- Planners, for example are inhibiting progress

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But, things may be changing for the better?

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Drivers for change

- Climate change
- Worries about reliability of supply of oil
- Needs to recycle because of pollution and waste disposal problems
- Recognition of value of insulation and reduction of oil demand through similar mitigating developments
- Inter-linkage of science and technology in for example bio-refining

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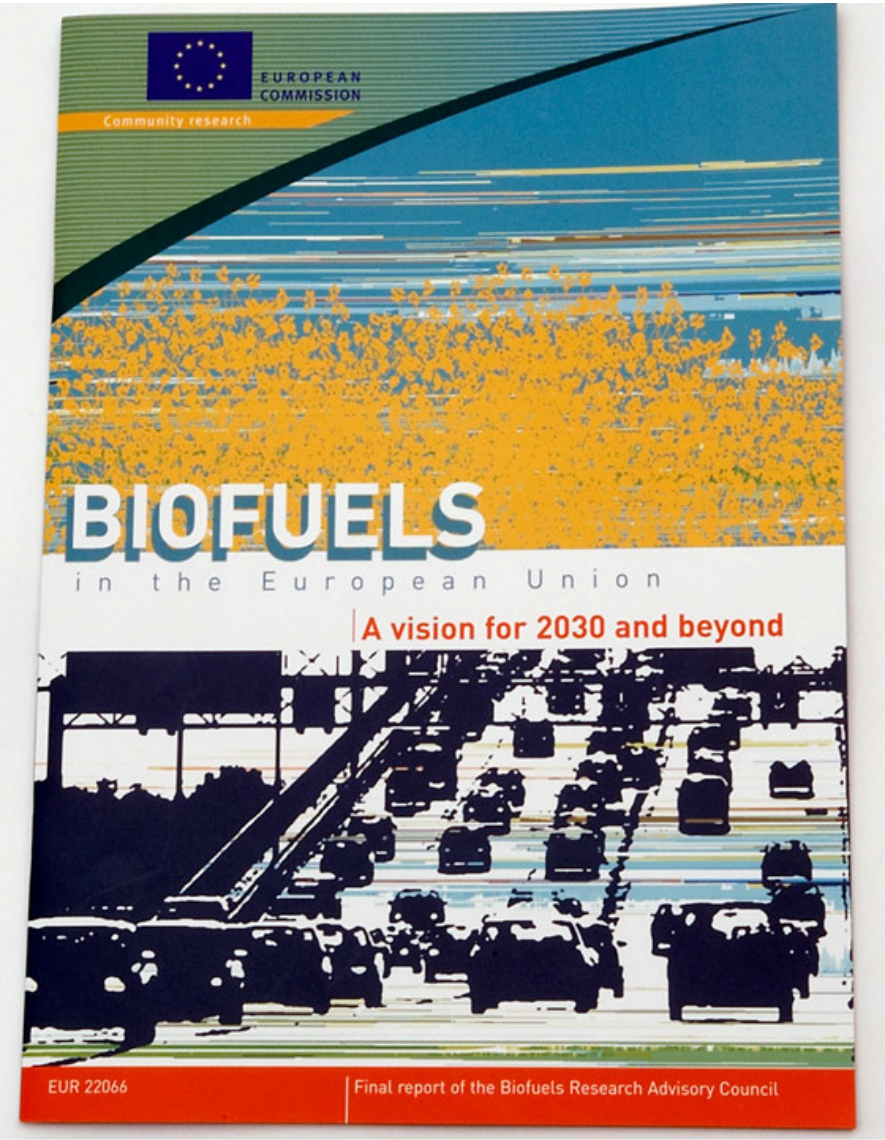
Biofuel Vision for 2030.



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Technology roadmap: vision for biofuels for 2030+.

A European Vision.

2005		2010/2020		2030 and 2030+
1st Generation, e.g. biodiesel	→	2nd Generation, e.g. bioethanol and sunfuel	→	Integrated biorefineries

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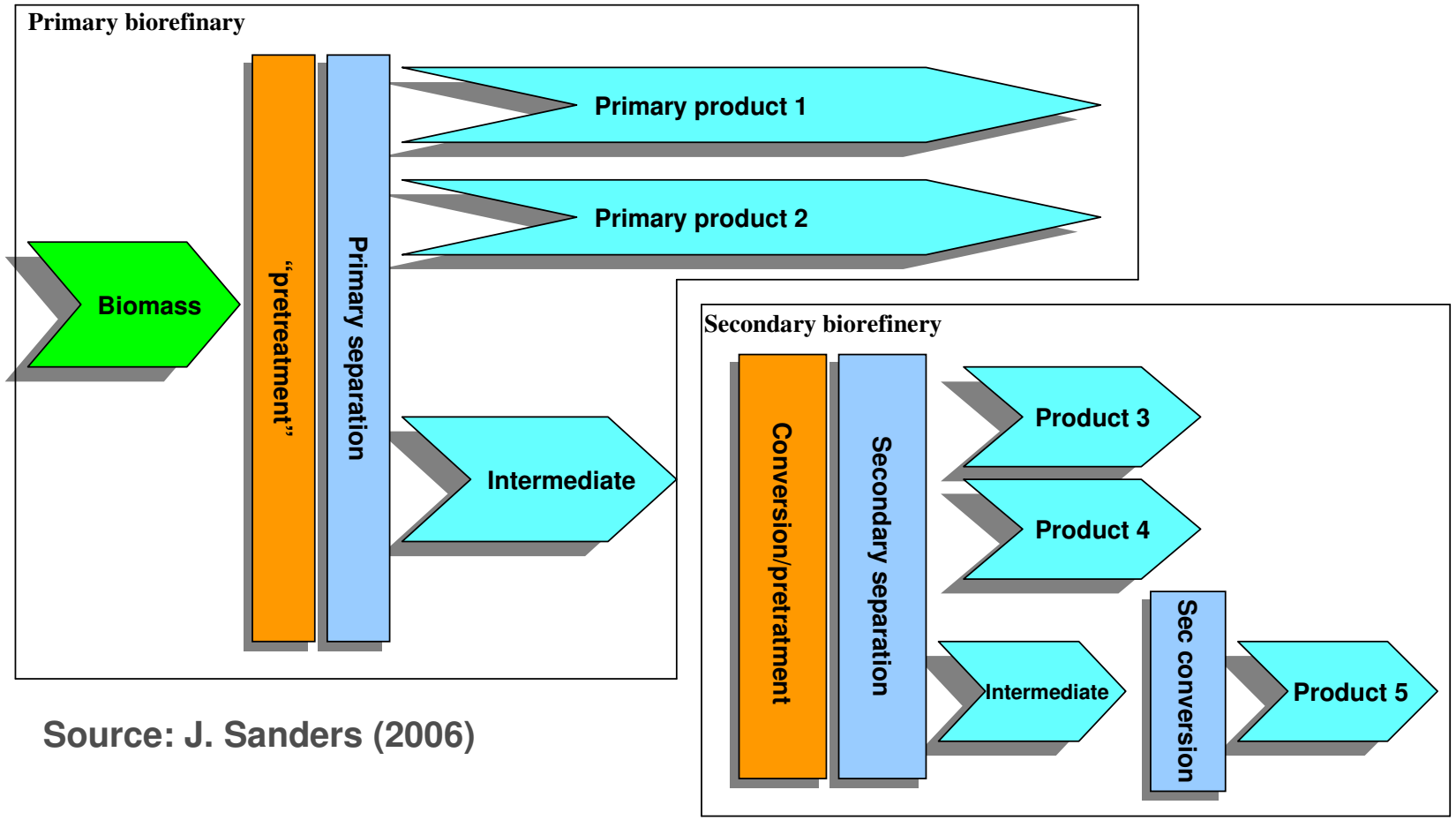
Schematic overview general integrated biorefinery process.



Source: J. Sanders (2006)

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Biorefining should add value to natural feedstocks and make them more economically viable. It will also aid sustainability.

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Hemp.

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Utilisation of sustainable bio-resources will need to be integrated with utilisation of current wastes for most efficient usage of both

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The question was 'Are bio-resources underexploited?'

Most certainly!!

- Resolution may come out of government activities to stimulate sustainable development, recognising that very cheap oil is in fact a negative feature in our longer term sustainability plans and that several opportunities from the past could be rediscovered with huge benefits.
- The informing of the general public of the opportunities needs attention too.

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But here are some early successes in the bio-renewables field

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Current Uses:

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Optimising Use of Bio-Resources.

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New Fibres.

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Wheat field.

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