



# SAHYOG Conference and Brokerage Event on Bio-economy

*New Delhi, 3 - 4 February 2014*





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## **Current Biomass scenario in EU, Member States and India – Glimpse of SAHYOG inventories**

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## **Main Objective**

**To integrate the dispersed findings from Europe and India for the identification of common areas and knowledge gaps in the biomass production and conversion in the both Regions**

# WP2 - INVENTORIES

**Objective:** to bring together the available databases existing both in EU & India, leading to a detailed inventorisation of resources & scientific interventions and understanding the current bottlenecks.

- **Biomass & Biowastes**
- **Existing Research Projects & Programs**

*Indispensible tool for all work to be performed to prepare the Roadmap for the SRA that will be used as main cooperation tool to fill in the gaps for biotechnology interventions*

- ❖ *The focus on inventories so far has been limited mainly to Bioenergy. SAHYOG wants to make it more broad based*

## Direct and Indirect Supply of Biomass and Biowaste Resources

- **Forests**
- **Agriculture & Fisheries**
- **Wastes**

# Biomass from Forests (EU)

## 1. Direct supply of wood biomass from forests and other wooded land includes:

- Fellings
- Residues from fellings (tops, branches, bark, stamps)
- Landscape management residues (woody biomass from parks, gardens, tree rows, bushes)
- Others

# Biomass from Forests (EU)

## 2. Indirect supply of wood biomass includes:

- Residues from sawmilling, woodworking, furniture industry (bark, sawdust)
- By-products of the pulp and paper industry (black liquor, tall oil)
- Processed wood-fuel
- Post consumer recycled wood (recycled wood for energy generation, household waste wood)
- Others

# Biomass from Agriculture and Fishery (EU)

**1. Agricultural crops and fishery products** directly provided for energy, materials and chemical production includes:

- dedicated biomass crops (grasses)
- oil crops
- sugar crops
- starch crops
- short rotation trees
- algae
- sea weeds
- other



# Biomass from Agriculture and Fishery (EU)

**2. Agricultural by-products/processed residues and fishery by-products** for energy, materials and chemicals production includes:

- Straw
- Waste oils
- Animal fats
- Manure
- Meat and bone meal
- Cake by-products (incl. Oil seed and olive oil cake for energy)
- Fruit biomass (including shell, kernel)
- Fishery by-products
- Clippings from vines, olives, fruit trees
- Other

## Main database sources and recent reports consulted for Biomass Inventories

### In Europe

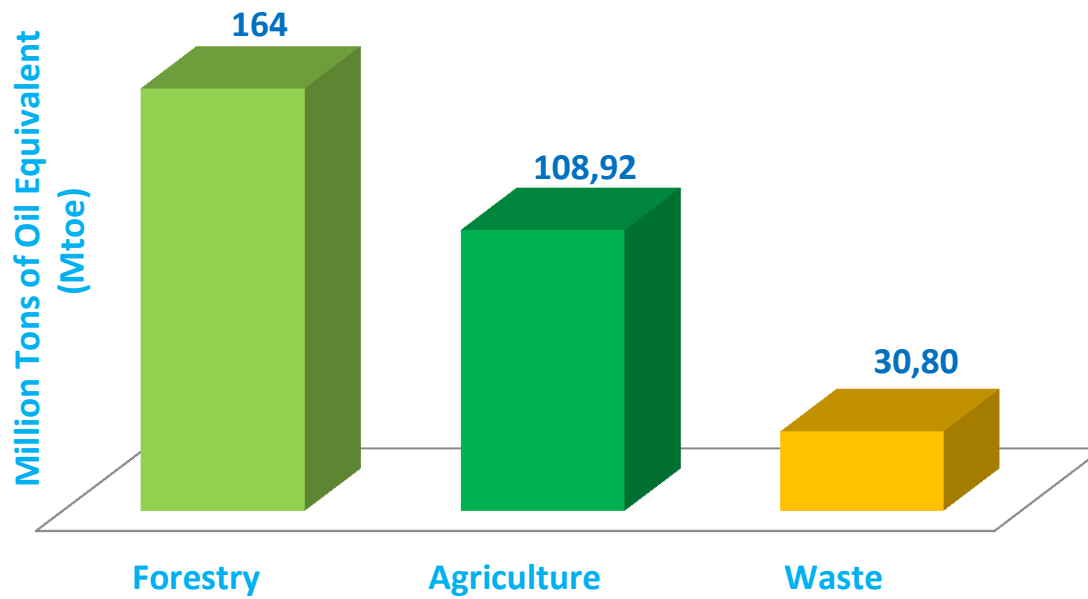
1. The NREAP - **templates as a base** - extended with other relevant biomass sources.
2. **IPCC SRREN report**
3. EUBIONET III
4. AEBIOM
5. BIOMASS FUTURES
6. Nova Institute Report published in Feb. 2012
7. For Greece
8. recent national project reports

### In India

1. academic reports and publications - specific to the objective of that study or limited to local or regional levels.
2. Other available information – mainly focused on the production and yield of various agricultural and plant products
3. Non-availability of central databases for biomass resources

**Considering limitations, the inventory was prepared by doing certain extrapolations on the data from available sources.**

## Biomass availability in EU-27



# EU Aggregate data

Only 40% of 27 EU MS inventories are complete for total available aggregate data (tons/m<sup>3</sup>)

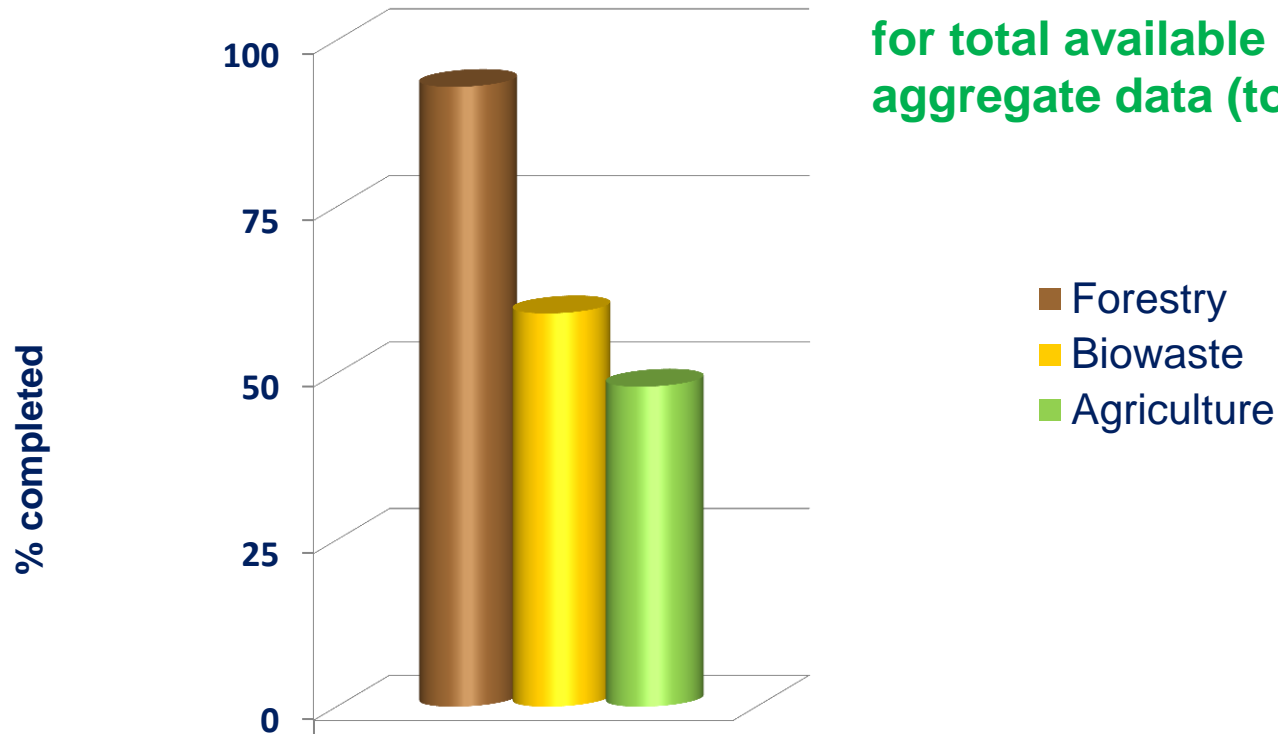
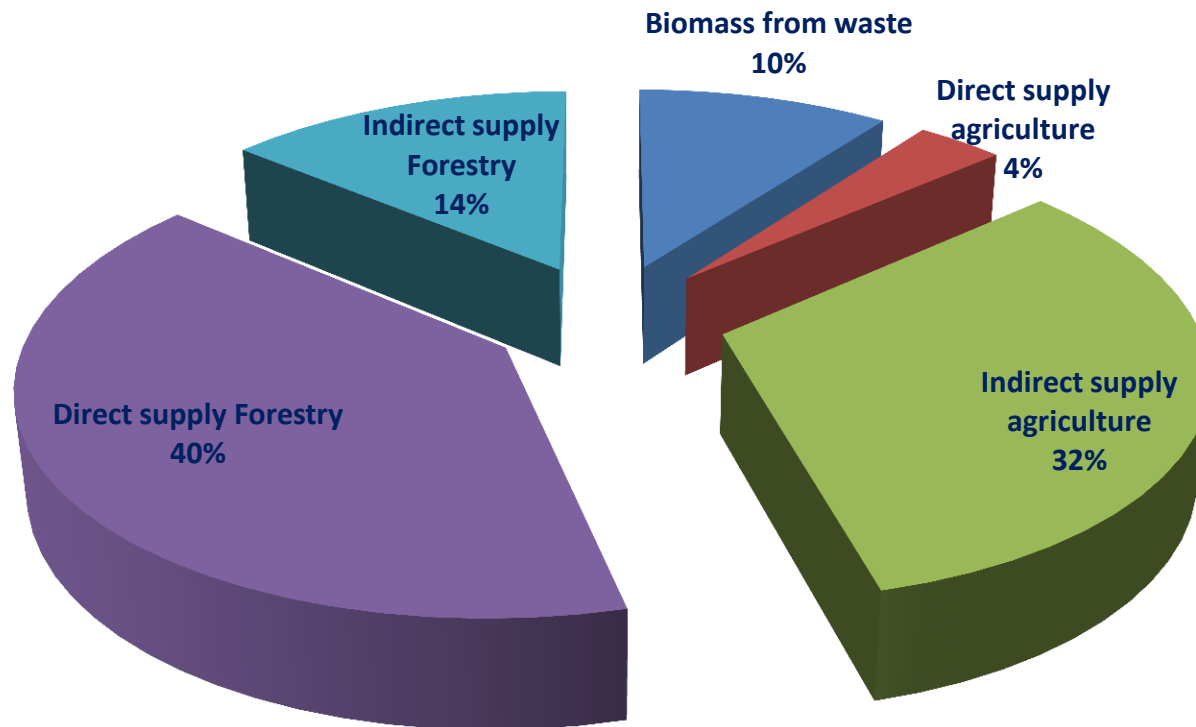


Figure: Percentage of EU countries with complete aggregate data in the three main biomass categories of the database

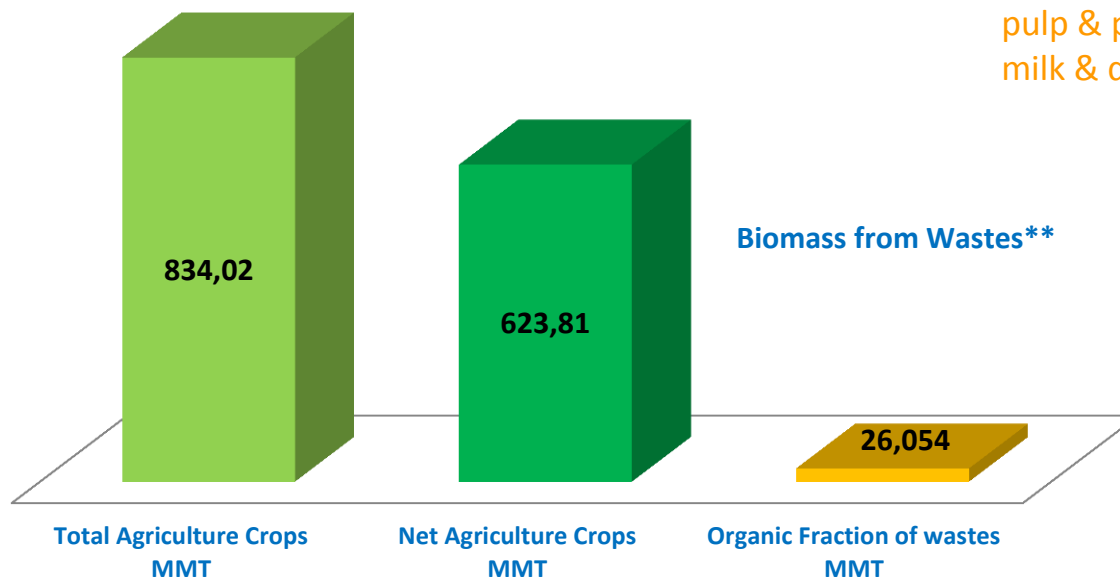
# Biomass in EU27 (ktoe)

(reference years 2006-2010)



# Biomass availability in India

**Biomass from Agriculture (Direct & Indirect)\***  
As per Govt. Crop production data, 2012



**Industrial Wastes** – no data is available on the Organic Solid Waste generated from agro-industries, sugar industries, pulp & paper, tanneries, Sago, milk & dairy industries.

**Biomass from Wastes\*\***

\*Direct Biomass - Sugar, Oil & Starch; Indirect Biomass - Rice, Wheat, Maize, Pulses, Bajra, Jowar & Cash crops

\*\* Municipal Solid Waste and Sawage Sludge

## Sources for Biomass from Forestry- India

- No information available from authenticated sources or in any secondary sources.

Data not reported in SAHYOG Inventories

The on-line searchable database of both inventories, with proper guidelines for its use and searchable with respect to the categories, are available at the following two web-sites <http://www.sahyog-biomass-database.eu>.

# Inventory - Research Programs and Projects

The inventory presents an overview of existing programs and research projects in Europe and India, with **proper guidelines for its use and searchable with respect to the categories:**

- Upstream / Downstream
- Type of biomass
- Production and pretreatment
- Biomass Conversion technologies
- Products
- Type of research
- Type of organization
- Drivers &
- Sectors

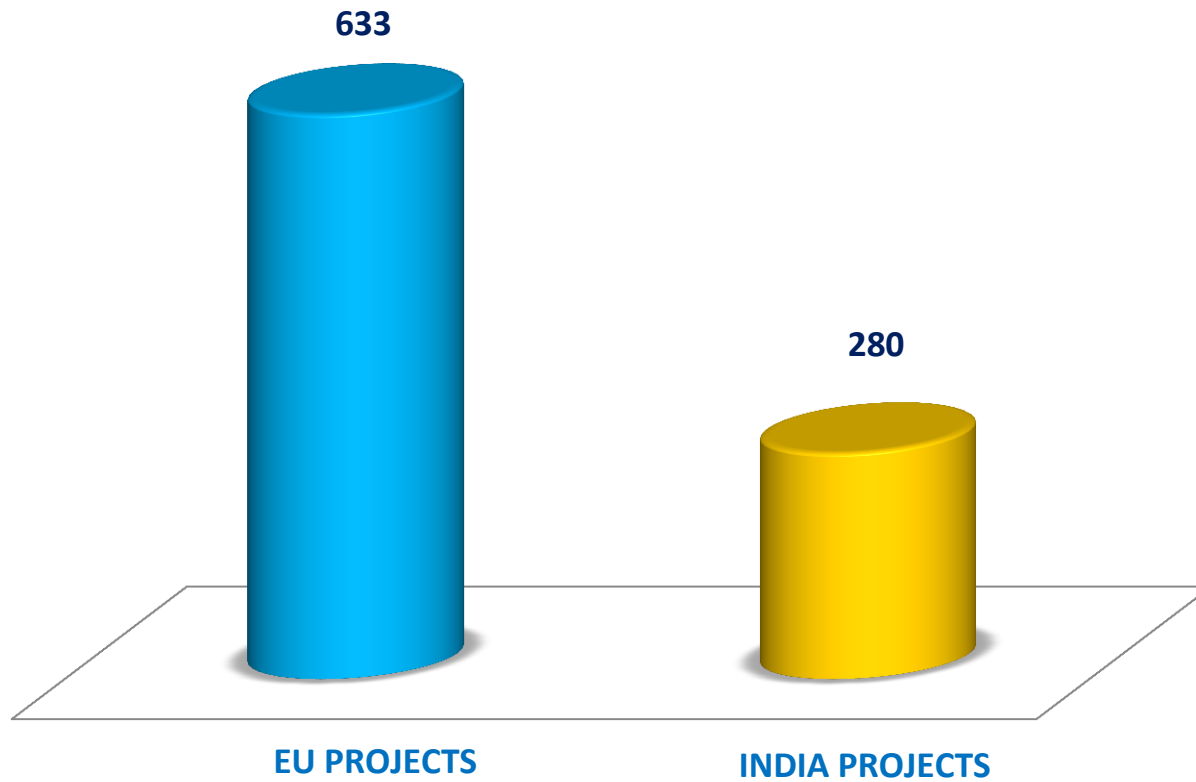
## Criteria:

**Time period:** year 2007 -2012 (completed and on-going);

**Minimum funding: In India** €16.600,00 as per current conversion rate, **in EU** €500.000,00



## Biobased Projects identified in EU & India



## Funding of Projects related to Biobased Economy

Period 2007 -2012

EU: >1,5 billion of Euro

India: 350 million Euro

A fully searchable online database including more than 700 projects has been established under [www.sahyog-projects-database.eu](http://www.sahyog-projects-database.eu)

**The twinning of projects from India and Europe** - supported by the identification & categorization of projects from both regions working in the same research areas, within the database.

**RESULTS of inventories were discussed with stakeholders at the two Stakeholders Workshops organized at both places - Europe and India.**

## Challenges and Recommendations

- In Europe: much attention exists, but no adequate estimation of potential
- In India: only few estimates exists –more improvement required
- Biomass flow chart necessary for each raw mat. from cultivation and import to final application, including sectors food/feed, energy & industrial mat. use at National level.
- Need for consolidated methodologies for estimations and improved data systems and models responsive to changing conditions on long-term basis
- Databases: Good, friendly user with simple access to the information
- Need to create Specific technological platforms bet EU & India
- Development of high yielding biomass crops to be grown in a sustainable way
- Long-term stability of regulations
- Easy proc. in issuing implementation decrees for getting permits and gaining incentives
- Public awareness and support for industrial biotech processes and products
- Involvement of research communities to choose Priority themes

# THANKS!

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