ITALIAN NATIONAL AGENCY FOR NEW TECHNOLOGIES, ENERGY AND SUSTAINABLE ECONOMIC DEVELOPMENT

SAHYOG
Stakeholders Meeting

SEVENTH FRAMEWORK PROGRAMME

Strengthening networking on biomAss researcH and biowaste conversion – biotechnologY for EurOpe India inteGration

Neeta Sharma, Coordinator SAHYOG
ENEA Research Centre, Italy

7 November, 2012
New Delhi, India

ENEA Italian National Agency for New Technologies, Energy and Sustainable Economic Development

ENEA's activities are targeted to "research, innovation technology and advanced services in the fields of energy and sustainable economic development".

India-EU & Member States Partnership for a Strategic Roadmap in Research and Innovation, 11 - 12 Nov. 2010, New Delhi, India

EU – India Pilot Initiative on Biomass and Wastewater;
R&D agreement signed 12 February 2012

European Union Priority

The Bioeconomy - for Smart, Sustainable & Inclusive Growth

To Build a sustainable Bioeconomy

Innovation Union: Turning innovative ideas into products and processes for growth and job creation -

- using research and innovation to produce renewable raw materials sustainably in **agriculture, forestry, fisheries and aquaculture**…
- to process renewable raw materials into value added products in the **food, bio-based and energy industries**.

SAHYOG will give a way towards

Renewable Biomass & biowaste feedstocks conversion to higher value products including bioenergy, biofuels and renewable chemicals to develop a successful, flourishing "biobased economy", ***based on cascade approach leading to the priority food/feed,chemicals/materials, energy while conserving carbon and nutrients in the soil.***

FACT SHEET SAHYOG

- Type of funding scheme: **Coordination Action**
- Topic Code: FP7-KBBE. 2011.4-05: **EU - India Partnering Initiative** on biomass production and biowaste conversion through biotechnological approaches - Mandatory India - Call: FP7-KBBE-2011-5
- Project duration: 3 years (December 2011–November 2014)
  Kick-off meeting: January 2012
- 13 partners in the SAHYOG consortium

Website: http://www.sahyog-europa-india.eu/

SAHYOG Funding

Department of Biotechnology
Ministry of Science & Technology,
Government of India

SAHYOG is co-funded by the European Commission in the 7th Framework Programme (Project No. FP7-289615)

and

by the Department of Biotechnology (DBT) of the Indian Ministry of Science and Technology.

SEVENTH FRAMEWORK PROGRAMME

Indian partners follow different financial guidelines according to the Indian government rules.

PROJECT CONSORTIUM

1. Italian National Agency for New Technologies, Energy and sustainable Economic Development (ENEA), Italy
2. Ministry of Economic Affairs, Agriculture and Innovation (NL Agency), Holland
3. Deutsches Zentrum Fuer Luft - Und Raumfahrt Ev (DLR), Germany
4. Wageningen University & Research Centre Food & Biobased Research (WUR)
5. Vlaamse Instelling voor Technologisch Onderzoek (VITO), Belgium
6. Wirtschaft Und Infrastruktur GMBH & Co Planungs KG (WIP), Germany
7. National Technical University of Athens (NTUA), Greece

8. The Energy and Resources Institute (TERI)
9. Council for Scientific & Industrial Research (CSIR/IICT)
10. GB Pant University of Agriculture & Technology (GBPUAT), Pantnagar
11. Tezpur University (TU), Assam
12. Appropriate Rural Technology Institute (ARTI), Pune
13. Jawaharlal Nehru University (JNU), New Delhi

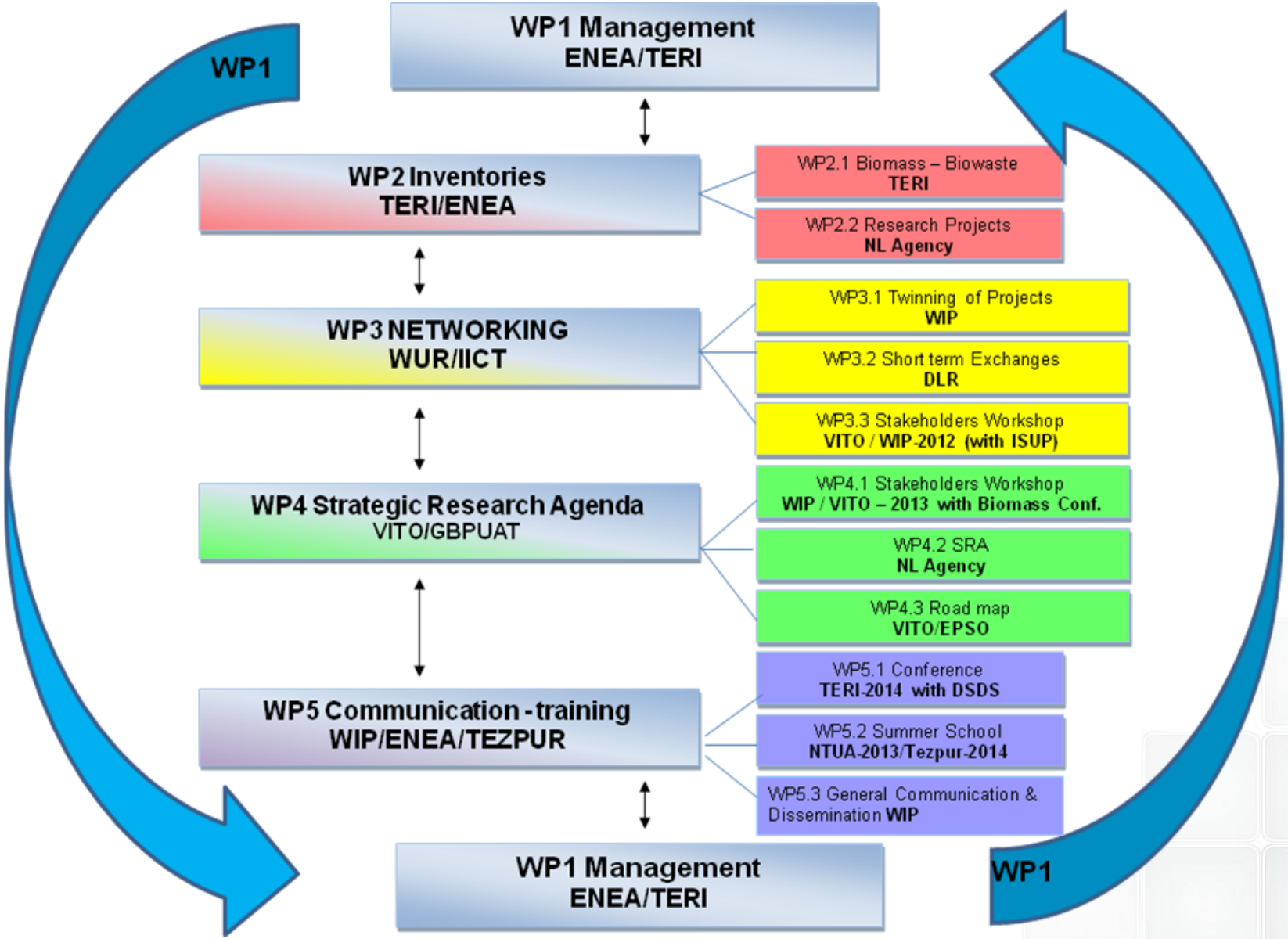
Sub-contractor EPSO - European Plant Science Organisation

OBJECTIVES

The main aim of India Partnering Initiative is to map out what the European Union and its Member States could do together with India to find solutions to challenges/needs – to help accelerate economic and sustainable development in both regions.

Activities: The SAHYOG plans a major coordination approach, split into 5 work packages. Each WP have one leader from both the EU and India (to enhance India's participation and integration).

PROJECT WORKPLAN



PROJECT HIGHLIGHTS

✓**Bringing together the leading organisations** in the field of biomass production and bio-waste conversion research, carried out on one side by the European research programmes (EU Framework Programmes and EU Member State's national programmes) as well as by related research programmes coordinated by Indian national institutions.

✓**An inventory** of the **biomass and bio-waste potentials** and **existing research projects** is planned to be prepared and analysed during the activity. These inventories will be the basis for the **joint Strategic Research Agenda.**

✓Broad **networking** of respective scientific communities, **twinning** of large sets of research projects, **short term exchange** visits of researchers

✓A **roadmap** will be prepared through consultation with stakeholders at the governmental, research and industrial level that will present a concerted planning of future research initiatives in this area.

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.

Elaboration of the following two inventories:

- 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***

SAHYOG Expert's meeting

The International meeting between SAHYOG partners and experts from Europe and India on "EU-India Cooperation on Biomass Production and Biowaste Conversion", 10 May, 2012 in Bruges, Belgium

Aim of the meeting

Main objective:
to create arena, where Experts from European and Indian research communities, representatives of the industries, logistics, from other biomass projects and existing international biomass networks could meet to get important fine-tuning comments, additions or edits to make inventories.

- methodology, degree of details and units for assessing quantities, chemical composition (mass, carbon, energy)
- identify missing links
- streamline the inventorisation process in India and Europe
- Industrial relevance and expectation (what main information while investing in biobased econony)

Others: to define further possible collaborartion of SAHYOG with other projects, networks etc.

Conclusions on Inventory Databases - Europe and India

Task 2.1 Inventories on Biomass & Biowastes: focus on documenting a detailed regional level analysis for availability of feedstocks for sustainable conversion to biomaterials and bioenergy.

- NREAP template as a base to start with
- IPCC SRREN report on Biomass –for biomass potential
  (limited to FAO data of Agr. Crop production)
- Besides mass parameter, data on energy content
  (Formulas/parameters to decide for the conversion into different units)

Task 2.2 Inventories on Research Programs and Projects: To create an overview of existing programs and res. projects in the EU & India

- An excel sheet/format that can be introduced in the Star Colibri database (giving all details about the project)
- Categorisation of projects into resources, products, conversion and research topic
- Set criteria for project selection

Interaction and integration between SAHYOG and other projects

For the information exchange and to discuss approaches used in the projects with regard to inventories.

- **Crops2Industry**
- **ALCUE**
- **Star Colibri**
- **BIOCORE**

To bring various activities in other relevant projects in a coherent package to provide added value and impact and to further create the synergies at multilateral level.

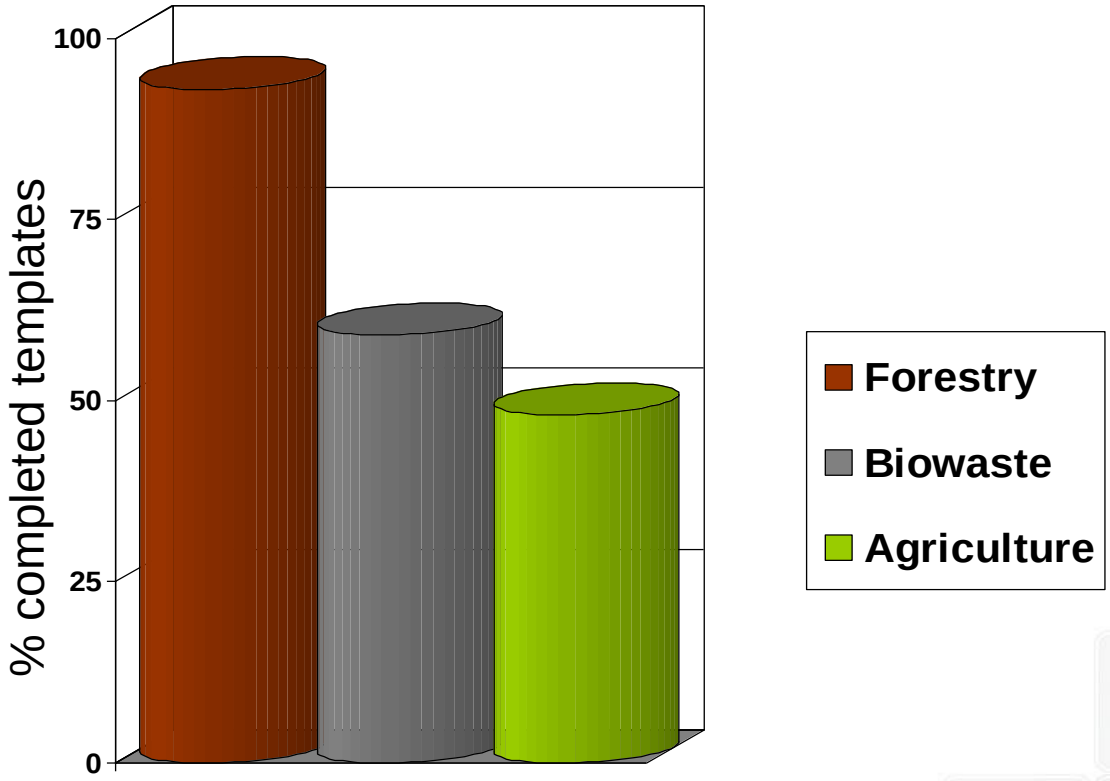
Industrial Participation in SAHYOG

- Agro-industry
- Forest-based industry
- Energy & biofuels industry
- Chemical industry

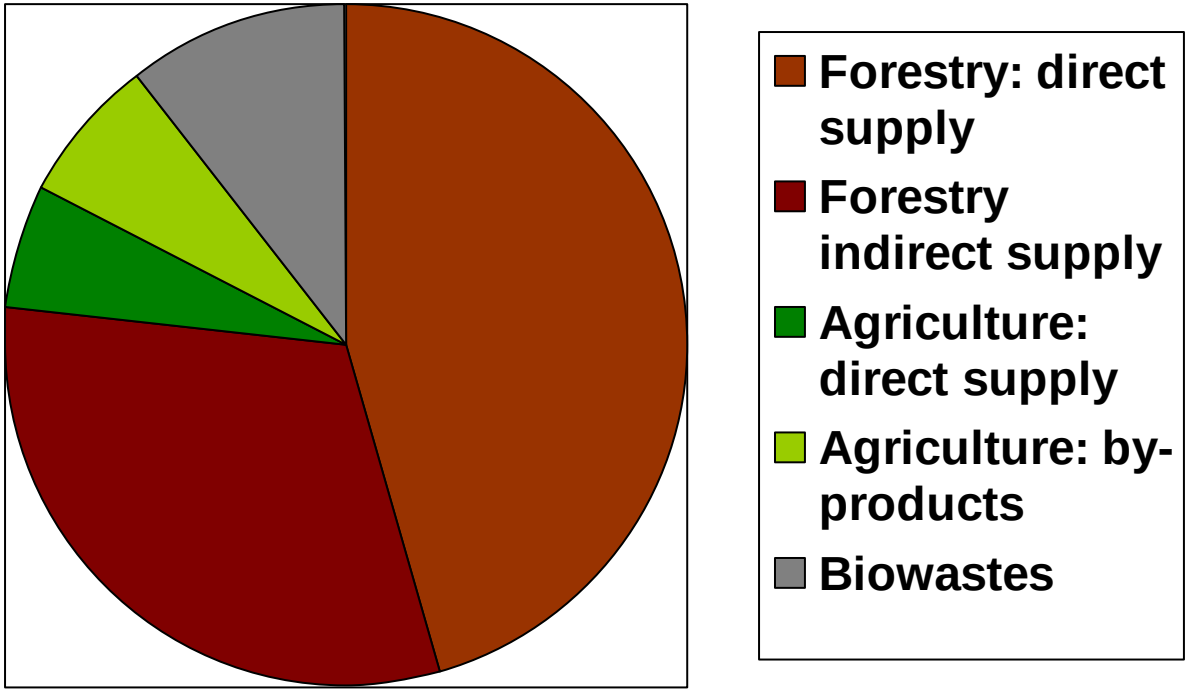
➢ **The companies that participated in the SAHYOG meeting represented a good geographical spread plus good coverage of sizes**

First Results of EU Biomass Inventories

40% of 27 EU inventories are complete as far as total aggregate data are concerned



Availability of different types of biomass in Europe (ktoe)



Direct supply of forest biomass (Ktoe) for energy use

	2006	2009	2010
Belgium	211	267	244
Bulgaria	735	697	756
Cyprus	2.1	1.15	1.87
Denmark	1704	788	858
Estonia	192	314	330
France	6256	6650	7581
Greece	702	251	268
Hungary	540	6352	6601
Ireland	17	43	45
Italy	880	1612	2225
Latvia	2827	880	811
Lithuania	282	941	951
The Netherlands	52	240	264
Portugal	1188	89	208
Slovakia	183	218	228
Spain	1200	1238	1264
Sweden	2045	2790	3780
UK	299	485	500

Agriculture biomass from dedicated & arable crops for energy use

- 48% of the countries show an average 22% increase
- 1% show an average 36% decrease
- 11% are stable
- Rest of the countries have no data

(NREAP 2009-2010)

Biomass from waste (ktoe)

	2006	2009	2010
Belgium	289	360	493
Denmark	561	552	534
Greece	33	56	49
Ireland	7	60	64
Italy	561	1108	1207
Netherlands	1354	1157	1168
Poland	66	859	1096
Portugal	99	198	192
Slovakia	20	8.2	9
Slovenia	1.03	36	37
Spain	377	416	447
Sweden	764	820	1000
UK	2152	4029	4138

NREAP data

Conclusions on EU Inventories

- A great part of available biomass comes from forestry
- Increase of direct forest biomass for energy use (2006-2010)
- Increase in energy crop production (2009-2010)
- Steady increase in biowaste availability (2006-2010)

First Results from Indian Biomass Inventories

- Started from sketch on base information.
- Biomass surplus figure is not defined.
- 22 states are included.
- Diversity in crops and nature of materials identified.

Problem during inventory:

1. Invalid information
2. Incomplete information from different sources and not comparable.
3. Biowaste is not separated from hazardous waste
4. Four authorized databases are used.
5. CRR was used for biowaste potential.
6. Forest residue data is not available.

Projects and Programs Inventories

- Comprehensive preparation of project inventory.
- Two main databases consulted: Cordis & Star Colibri
- Categorization, Drivers, Sectioning, Status are some highlights.
- Indian Inventory is in the same format
- Twinning of projects.

Update of SAHYOG Inventories

- Clearly defined domestic available biomass and biowaste potential and existing Projects/Programs in all partner countries, needs to be regularly updated for all EU Member States and India.

On the international collaboration, SAHYOG Inventories database the SRA to be prepared within the framework of SAHYOG, in turn might be informative, interesting and relevant to the line of work envisaged for the research and innovation actions related to bio-based industries as part of the bio economy under Horizon 2020. It could be a part of this initiative, if this possibility is of PPP's interest. It can be a strong pillar if upgraded periodically within the framework of PPP biobased Industry.

GENERAL IMPACT OF THE PROJECT

The activity will help in the **right planning** for the economy based on sustainable development and identify solutions how the governments should **promote the GREEN ECONOMY** within their national borders and cooperate in their promotional efforts at a **coordinated international level**.

The knowledge gained during the activity will **lay the cornerstones for scaling up the EU-India collaboration** and provide the basis of novel applications in a sustainable bioeconomy of the future - the so called **Knowledge based bio-economy** (KBBE).

CONCLUSIONS

SAHYOG will provide:

- solutions to find ways in which the enormous quantity of solid biowaste in India currently disposes of on land could be reduced by recovering materials and energy in a cost effective and environmental friendly manner;

- assessment of the appropriate use of biomass resources by analysing raw material availability within and between bioenergy, forest industry and agricultural & other related sectors - **A one stop solution for biomass feedstocks and multiple end products;**

- support for policy makers and implementing authorities to foster sustainable Biomass production, utilisation and trade in Europe & India.

The activity will be of great importance to bridge systematically the ongoing respective activities from the two counterpart programmes for optimized efficacy and advancement of RTD with mutual benefit.

SAHYOG – Paving the way towards Roadmap for RDI Cooperation

- The concept that addresses a number of big challenges
- Highly encouraging progress with several highlights after about a year
- Potential for a move towards a new regime in which groups from around the world each contribute their expertise to meet the existing challenges
- An exciting opportunity of collaboration with India and a tangible sign of multilateral cooperations

Many interesting and controversial suggestions remain at the level of notes since it is impossible to fully work out…will hint towards possible future research!

Aim of the workshop:

- **to discuss many interesting examples of successful ongoing cooperation activities in research and innovation between India and the Europe in this field, that might help SAHYOG to scale them up where possible**

- **to bring all the various activities in other relevant projects/programs in a coherent package to provide added value and impact and to further create the synergies at multilateral level.**

- **To discuss the existing gaps and lacune of the existing research projects/programs as well as biomass availability databases.**

Thanks for your kind attention!

Italian National Agency for New Technologies, Energy and Sustainable Economic Development

SAHYOG

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Neeta Sharma

neeta@enea.it

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For more information visit our web-site

http://www.sahyog-europa-india.eu/