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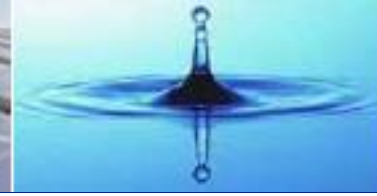
SAHYOG Twinning Workshop Objectives



**SAHYOG – Mini-Symposium and Twinning Workshop
Utrecht, 28-29 October 2013**

Dominik Rutz, Rainer Janssen
WIP – Renewable Energies, Munich

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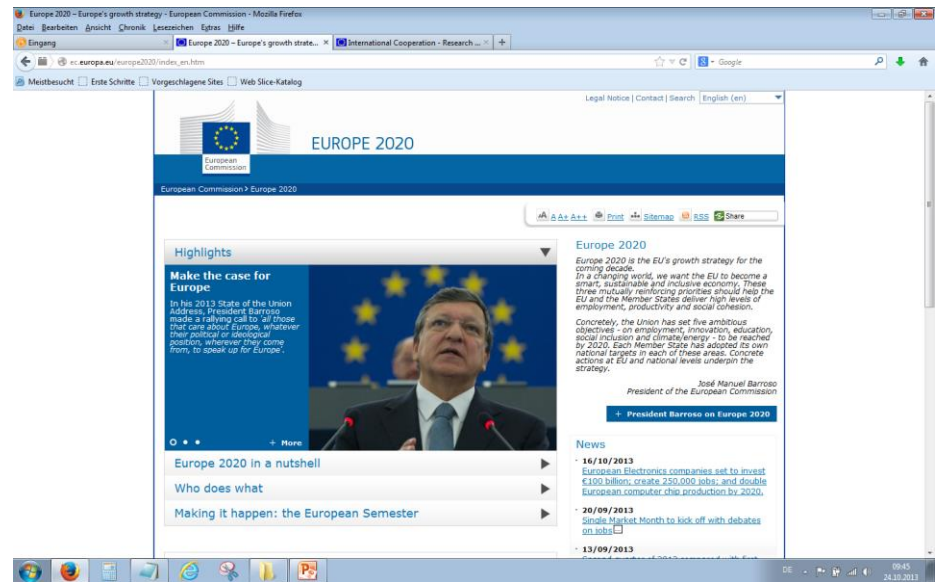


Content

- **Policy background for cooperation**
- The SAHYOG project
- Twinning concept and activities
- Workshop objectives

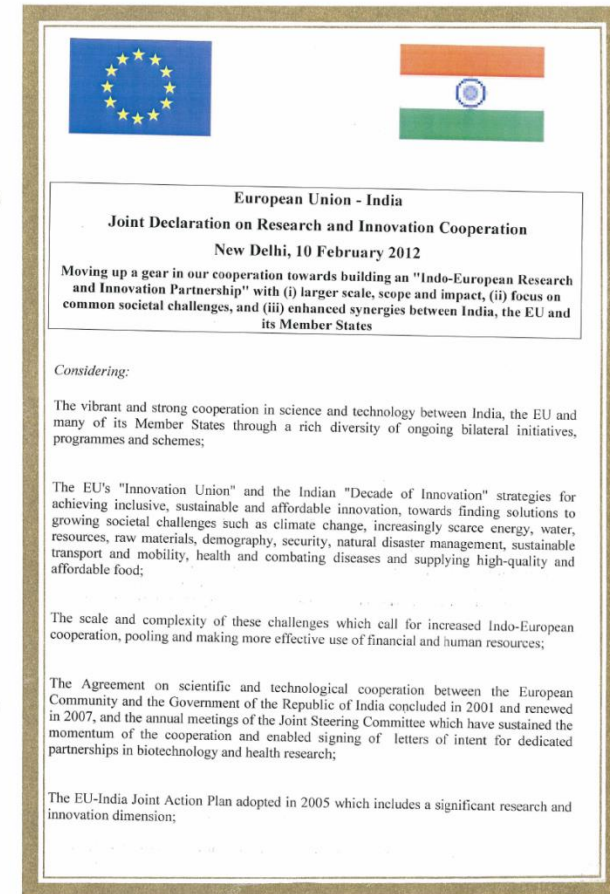
Europe's 2020 Strategy

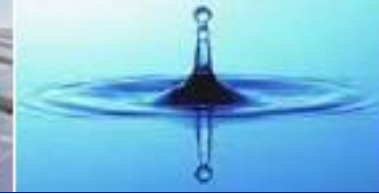
- Promotes growth that is smarter, more sustainable and more inclusive
- Climate and energy package (20-20-20 Targets)
- http://ec.europa.eu/europe2020/index_en.htm
- <http://ec.europa.eu/clima/policies/package/>



Europe's Research and Innovation

- General Framework: European Partnership for International Cooperation
- Strategic Forum for International Science and Technology Cooperation (SFIC)
- „India Pilot Initiative“
- “Joint declaration on research and innovation”
- <http://ec.europa.eu/research/iscp/index.cfm?pg=sfic-india>





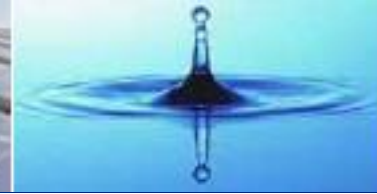
National Action Plan on Climate Change - India

- National Mission for a "Green India"
- National Mission for Sustainable Agriculture
- National Mission on Strategic Knowledge for Climate Change

- http://pmindia.nic.in/climate_change.php

The screenshot shows the official website of the Prime Minister of India, Dr. Manmohan Singh. The header includes the Government of India logo, the Prime Minister's name, and a navigation menu with links for Speeches, Press Releases, Media Gallery, Interviews, Committees/Councils, and Reports. The main content area is titled "National Action Plan on Climate Change" and provides links to the English and Hindi versions of the plan, as well as an English Word Document. A search bar and a sidebar with various links are also visible.

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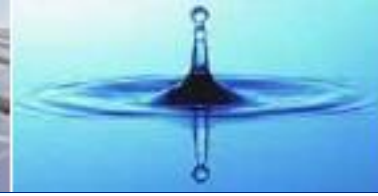
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SAHYOG Project

- Partnering initiative between EU and India
- Coordinate research in EU and India
- Biomass, biowaste, conversion, biotechnologies

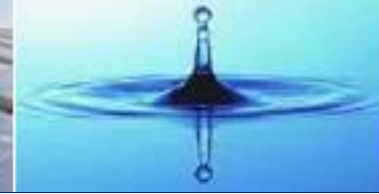
→ One tool are „**Twinning Activities**“





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SAHYOG Twinning - Objectives

- facilitate and coordinate project cooperation
- bring together participants of past and on-going projects, initiatives, and international networks
- consolidate R&D results
- exploit synergies
- build up a critical mass for future EU-India collaboration



Twinning activities

- Research cooperation, exchange of researchers
- Organisation of joint workshops/meetings
- Development of common trainings
- Common literature reviews
- Exchange of tools, analytical methods and databases
- Exchange of data, information, knowledge and material

Research themes for Twinning

- **Bioethanol** production from lignocellulosic biomass
- **Thermochemical** conversion technologies (pyrolysis, gasification)
- **Anaerobic digestion** technologies (biogas, biomethane, hydrogen)
- **Algae** production and conversion systems
- Biomass to **chemicals** – the biorefinery approach
- **Feedstock** production and genetic improvement of plants
- **Sustainability** and life cycle assessment

Anaerobic Digestion Technologies

SAHYOG Twinning
Through facilitating and coordinating project twinning SAHYOG brings together project coordinators and other lead partners from past and on-going projects as well as international networks in order to consolidate R&D results, exploit synergies and thus build up a critical mass for future EU-India research collaboration in the area of biomass and bio-waste.

Background
Anaerobic digestion (AD) is a biochemical process in which various types of anaerobic microorganisms (bacteria) decompose complex organic matter (biomass) into smaller compounds, in the absence of oxygen. In biogas plants organic feedstock (e.g. agricultural waste (animal and plant waste), dedicated crops, urban waste, sewage sludge) is anaerobically digested in order to decompose it into biogas and digestate. The latter is a valuable fertiliser whereas biogas is often used in stationary CHP plants or may be upgraded to bio-methane for injection into the natural gas grid or application as transport fuel.

Research Themes
The following research themes in the field of anaerobic digestion will be addressed under SAHYOG twinning:

- Optimisation of feedstock collection and logistics
- Development of cost and environmentally efficient pre-treatment processes
- Improvement of microbiological processes for a variety of feedstock types
- Process integration (e.g. optimisation of sizes and layouts of digesters)
- Development of suitable purification and upgrading technologies for biomethane
- Bio-hydrogen production by acidogenic fermentation and microbial electrolysis

SAHYOG Twinning – How to get involved?
With respect to EU-India twinning, the following activities and procedures are foreseen within SAHYOG:

- Get in contact with SAHYOG partners responsible for twinning (Robert Bakker, Rainer Jansen, Dominik Rutz)
- Sign Letter of Interest on India-EU SAHYOG twinning
- Define your areas of interest for research cooperation
- Cooperation contacts from India/Europe are identified by SAHYOG
- Assistance for twinning activities is provided by SAHYOG
- Participation in SAHYOG twinning workshop is facilitated

India-EU SAHYOG Twinning Activities



Strengthening Networking on Biomass Research and Bio-waste Conversion - Biotechnology for Europe-India Integration

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Website: www.sahyog-europe-india.eu



SAHYOG is supported by the European Commission within the 7th Framework Programme (FP7 2007-2013) and by the Department of Biotechnology (DBT) of the Indian Ministry of Science and Technology.

Project Database

- The database facilitates the identification of suitable twinning projects
- <http://www.sahyog-projects-database.eu/>

The screenshot shows a Firefox browser window displaying the SAHYOG Project Inventories website. The browser's address bar shows the URL www.sahyog-projects-database.eu/. The website features a navigation menu with 'Home', 'Contact', and 'Information' links. A large banner image of green grass is visible. The main content area includes a search bar with a 'submit' button and a 'Browse topics' section with several dropdown menus for filtering projects. The text on the page describes the project's objective: 'The objective of the project SAHYOG (Strengthening Networking on Biomass Research and Biowaste Conversion – Biotechnology for Europe India Integration) is to actively and effectively link research activities implemented within EU research programmes and related programmes by Indian national institutions. This SAHYOG Inventory on Research Programs and Projects presents an overview of existing programs and research projects in Europe and India, searchable with respect to the categories Upstream/Downstream, Type of Biomass, Production and pre-treatment, Biomass conversion technology, Product, Type of research, Organisation type, Drivers, and Sector. SEE INSTRUCTIONS'. A note at the bottom states: 'This is a preliminary version with projects up till March'.

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Contact for Twinning

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WIP – Renewable Energies, Germany

Dr. Rainer Janssen

Dominik Rutz

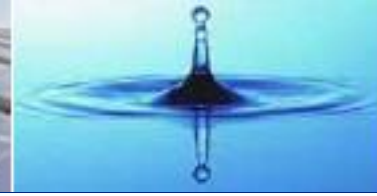
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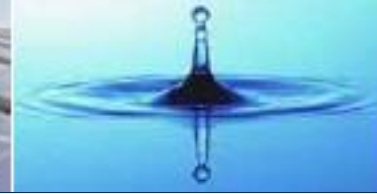
<http://www.sahyog-europa-india.eu/project-twinning>

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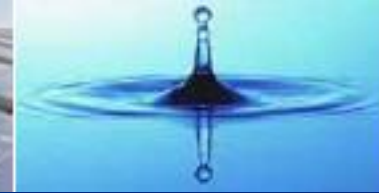
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Workshop Objectives

- Identify and discuss major cooperation areas
- Suggest concrete twinning actions
(common training, data exchange, material exchange, etc.)
- Networking

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THANK YOU VERY MUCH FOR YOUR ATTENTION!!



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