

Tools for sustainability assessment within Re:Source (version March 2017)

This tool is based on the working methods that have been developed within, among other, Swereas internal evaluation of research projects, LIGHTER-programme, SIP Metallic materials, Viktoria-institutes' method for efficient evaluation of projects and sustainability assessment of projects at RISE.

The working procedure is as following:

Tab A. **A comparison object** is to be identified first. Sustainability impacts of a product and a process, developed according to the projects' method or technology, shall be compared with sustainability impact of a functionally comparable product or process that uses current methods or technology. The aim is to evaluate the change occurred once the project is successfully accomplished and its results are implemented into reality. Assume that the project is finalized and reached its project objectives. What would continued activities imply for the industry, the society and research?

Tab B. The next step is **to identify significant sustainability aspects** in the project in relation to the comparison object and from a life cycle perspective, i.e. Raw materials production, Product manufacturing, Use, and Recycling and end-of-life. This analysis is performed with help of the checklist.

Tab C. **How the aspects will be managed** in the project is described here, both positive and negative aspects and risks.

A. Comparison object

Project name
Project goal and effects
Comparison object
<i>Write in yellow cells! The data</i>
Interview date
Project leader
Sustainability expert

A. Comparison object

Up-scaling textile-paper materials on a paper machine

Goal – To improve strength properties of the textile paper and examine the possibility of scaling up production processes for future industrial implementation.

Results Benefit / Impact - The project will create an understanding of how a full-scale production of the material can be implemented in the industry. Furthermore, the textile industry will enable added value of a waste product.

Traditional paper

will then be transferred to the next tabs automatically.

2018-08-21

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B. Identification of aspects

Project name	Up-scaling textile-paper materials on a paper machine
Project goal and effects	<p>Goal – To improve strength properties of the textile paper and examine the possibility of scaling processes for future industrial implementation.</p> <p>Results Benefit / Impact - The project will create an understanding of how a full-scale production can be implemented in the industry. Furthermore, the textile industry will enable added value of</p>
Comparison object	Traditional paper

*The aspects below shall be commented in relation to the comparison object. Will projects' technology bring a significant change for any of aspects?
The aspects are divided into 5 main areas: Environmental sustainability, Working environment and health, Human rights, Equity and diversity, and Competitiveness, job creation and innovation.*

*Analysis of the aspects shall be done for all stages of the life cycle: Raw material production, Product manufacturing, Use phase, and Recycling and waste management.
It is relevant to analyse one life cycle stage at once, i.e. think first which aspects are relevant within Raw material life cycle stage, then which aspects are relevant within Product manufacturing and Use phase, and finally within Recycling and waste management.*

Describe significant aspects, both negative and positive ones, in the yellow cells below. NB! Observe that you don't need to fill in all yellow cell unless this is relevant. If the aspect is insignificant, write 'no significant differences' in the summary cells. The summaries are automatic.

Aspect	Life cycle impacts		
	Raw materials	Manufacturing	Use
Emissions to air, greenhouse gas (GHG) emissions incl. from transportation	Avoided emissions to air from incineration of textile waste		
Emissions of hazardous substances to air, water and land	Treatment of textile waste fibre in closed water loops at paper mill can allow decontamination of textile waste fibres from textile production chemicals		
Generation of hazardous waste			
Material consumption	Increased resource efficiency through utilization textile waste fibres as secondary raw material; decreased consumption of virgin wood fibres in paper-making		
Energy consumption		Additional refining of textile waste fibres (pre-treatment process prior paper-making)	
Water consumption	Increased use of recycled cotton fibres avoids water consumption in virgin cotton and tree harvesting; Treatment of textile waste fibres in water instead of incinerating		

B. Identification of aspects

Optimized life span			Prolonged life span of textile fibres through recycling into different paper-applications
Changed or restored ecosystems			
Noise, vibrations, spreadrisk, radiation etc.			
Summary of Environmental sustainability	<i>Increased resource efficiency and water treatment possibilities</i>	<i>Refining of textile waste fibres</i>	<i>Prolonged life span of textile fibres through recycling into different paper-applications</i>
Working environment and health	Raw materials	Manufacturing	Use
Chemical health risks		According to existing paper mill routines	
Accidents			
Ergonomics, noise, vibrations			
Physical and social factors			
Summary of Working environment and health		<i>According to existing paper mill routines</i>	
Human rights	Raw materials	Manufacturing	Use
Corruption, illegal land occupation, violence or war in the value chain Korruption, markstöld, våld eller krig i värdekedjan			
Ban on unions in the value chain			
Child labour or forced work in the value chain			
Summary of Human rights			
Equity and diversity	Raw materials	Manufacturing	Use
Inequality between man and woman			
Other types of discrimination			
Summary of Equity and diversity			
Competitiveness, job creation and innovation	Raw materials	Manufacturing	Use
Influence on competitiveness of business companies		New paper concept production by using current paper-making infrastructure	
Influence on job creation	More potential jobs due to increasing collection and recycling of textile waste		
Influence on innovation system	Promotion of producer responsibility for textile waste		
Summary of Competitiveness, job creation and innovation	<i>Promotion of producer responsibility for textile waste</i>	<i>New paper concept production using current infrastructure</i>	

B. Identification of aspects

g up production
n of the material a waste product.

novation.
cturing life cycle stage etc.
gnificant, please leave the cell empty!
omatically transferred to the next tab

Recycling and waste management
Recycling or incineration of recycled textile paper
More knowledge on textile waste fibres in water treatment processes is needed

B. Identification of aspects

<i>Textile waste fibre influence on water treatment processes</i>
Recycling and waste management
Recycling and waste management
Recycling and waste management
Recycling and waste management
Improved economy of textile recycling facility due to upcycling of textile waste stream
<i>Improved economy of textile recycling facility</i>

C. Aspects management inproject

Project name	Up-scaling textile-paper materials on a paper machine
Project goal and effects	Goal – To improve strength properties of the textile paper and examine the possibility of scaling up production processes for future industrial implementation. Results Benefit / Impact - The project will create an understanding of how a full-scale production of the material can be implemented in the industry. Furthermore, the textile industry will enable added value of a waste product.
Comparison object	Traditional paper

Below is the summary of the projects' most significant sustainability aspects in relation to the comparison object and from a life cycle perspective. Both positive and negative sustainability aspects are described. Empty cell means that no significant aspect was identified. Sammanfattningen fylls i delvis automatiskt och ger en snabb överblick.

	Raw materials	Manufacturing	Use	Recycling and waste management
Environmental sustainability	Increased resource efficiency and water treatment possibilities	Refining of textile waste fibres	Prolonged life span of textile fibres through recycling into different paper-applications	Textile waste fibre influence on water treatment processes
Working environment and health	0	According to existing paper mill routines	0	0
Human rights	0	0	0	0
Equity and diversity	0	0	0	0
Competitiveness, job creation and innovation	Promotion of producer responsibility for textile waste	New paper concept production using current infrastructure	0	Improved economy of textile recycling facility

Sort the aspects above into positive sustainability aspects and negative sustainability aspects/risks below, and describe how these respective aspects will be managed in the project.

	Sustainability aspect	Describe how the project will manage sustainability aspects
	Increased resource efficiency and water treatment possibilities	Included in the project in terms of industrial symbiosis approach
	Promotion of producer responsibility for textile waste	Included in the project in terms of demonstrating possibilities of production process upscaling that will in turn may create incitement for increased textile waste management internationally
	New paper concept production using current infrastructure	Included in the project goal of up-scaling the textile paper production process

C. Aspects management inproject

Positive sustainability aspects	Prolonged life span of textile fibres through recycling into different paper-applications	Included in the project in terms of utilizing textile waste fibres as secondary raw material in paper production
	Improved economy of textile recycling facility	Upcycling of textile waste fibre stream may contribute to improved economy of recycling business
Risks/negative sustainability aspects	Refining of textile waste fibres	The total energy demand in the production process needs to be understood
	Textile waste fibre influence on water treatment processes	Simple bleaching study of textile waste fibres is included in the project

C. Aspects management in project

References

Resurs

IPCC -klimatgaser

IPPCs lista över potentiell klimatpåverkan av olika gaser.

Substances of Very High Concern (SVHC)

Den Europeiska kemikaliemyndigheten ECHA publicerar nya klassificeringar av SVHC-ämnen halvårsvis.

Indikatorer för bedömning av miljöpåverkan. Särtryck av Mall för miljöutredning som innehåller klimat-, ReCiPe-, och energiindikatorer för vanliga material, transporter, energislag, utsläpp och avfall.

Globala målen för hållbar utveckling

Referenser

Miljömålen. Årlig uppföljning av Sveriges miljö kvalitetsmål och etappmål 2015. RAPPORT 6661 • MARS 2015

G4 Sustainability Reporting Guidelines. Reporting Principles and Standard Disclosures. Global reporting Initiative.

ISO 26000 Guidance on social responsibility. ISO Geneva Switzerland 2010

United Nations Sustainable Development Goals. Developed at United Nations Sustainable Development Summit 25 - 27 September 2015, New York

Länk

https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html

<http://echa.europa.eu/web/guest/candidate-list-table>

<http://14494.shop.textalk.se/shop/14494/art87/24347287-378956-14004> Indikatorer for bedomning av miljopaverkan.pdf

<http://www.globalamalen.se/om-globala-malen/>