

# Social Life Cycle Assessment of Roses

- a Comparison of Cut Roses from Ecuador and the Netherlands

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# Outline

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  - Stakeholder
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  - Social assessment
  - Environmental assessment
- Conclusions

# 1. Background

## Background

- Need to assess social impacts of products along full LC to address the social dimension in sustainability
- Consideration of social impacts is in its infancy: still various problems

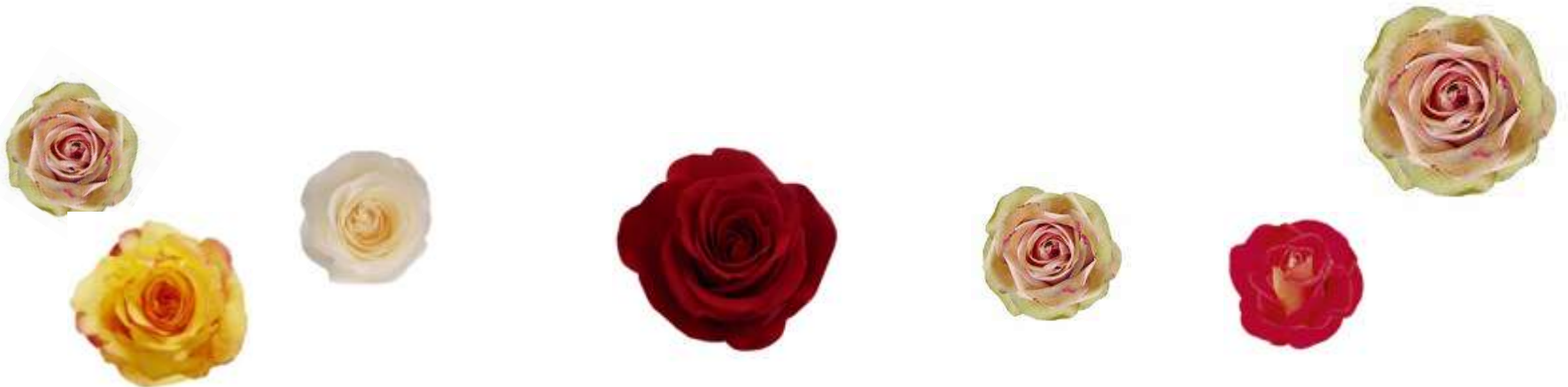
# UNEP/SETAC Guidelines for SLCA of products

- A UNEP/SETAC working group developed recently guidelines for social LCA
- The guidelines are based on the international standards for LCA (ISO 14040 and 14044)
- Freely available at:  
<http://lcinitiative.unep.fr/>



## Purpose

- Try to apply the UNEP/SETAC guidelines in a specific case study:
- Compare the social and environmental impacts of the production of cut roses in Ecuador and the Netherlands



## Ecuadorian rose plantations at a glance

- 400 rose farms with 60,000 employees
- Ecuador exports annually roses for ca. 300 million USD with an upstream tendency
- Advantages of Ecuador:
  - Climate
  - Low wage level

## Ecuadorian rose plantations at a glance

- predominant female workers
- child labour widespread
- Many working hours: 72-84h/week and bad payment: in average 84 USD per month, children and women earn less
- Poisoning by pesticides: Employees suffer from acute and chronic poisoning (asthma, cancer, genotype is changed,...)



Source: International Labour Rights Fund



Source: Flower Label Program

## Dutch rose plantations at a glance

- production of cut flowers in the Netherlands was an important economic sector, at present sector becomes less relevant
  - ➔ the Netherlands are rather a linchpin for cut flowers
- Strong competition from Africa, Asia, or Latin America
  - ➔ Dutch rose producers try to hold against with high-tech
- Fully automated greenhouses
  - optimized usage of water, fertilizer, and pesticides
  - high energy consumption



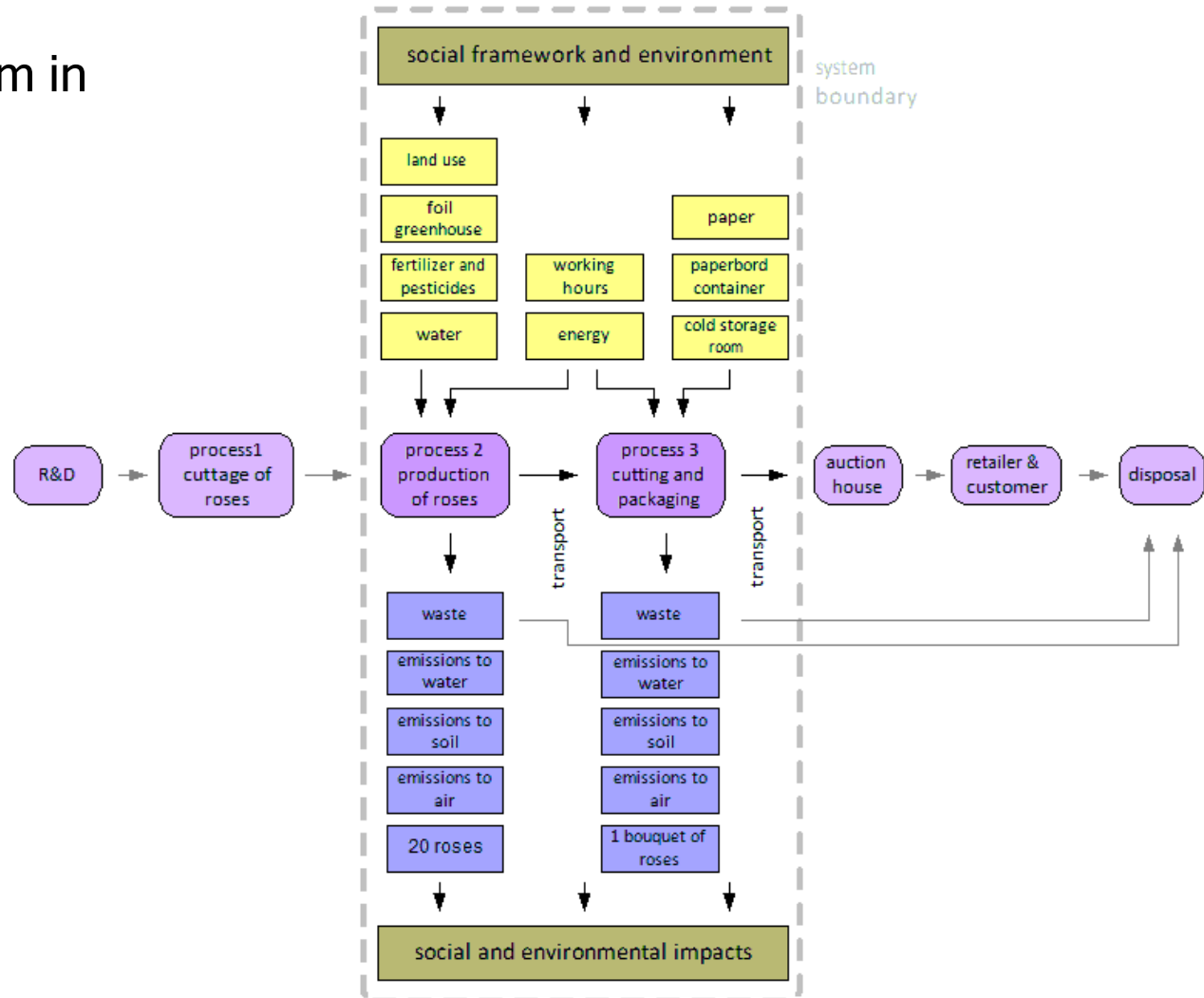
## 2. Goal and Scope

# Objectives

1. Apply the UNEP/SETAC guidelines for SLCA
2. Develop of an assessment method
3. Compare the social and environmental effects caused by the production of a rose bouquet

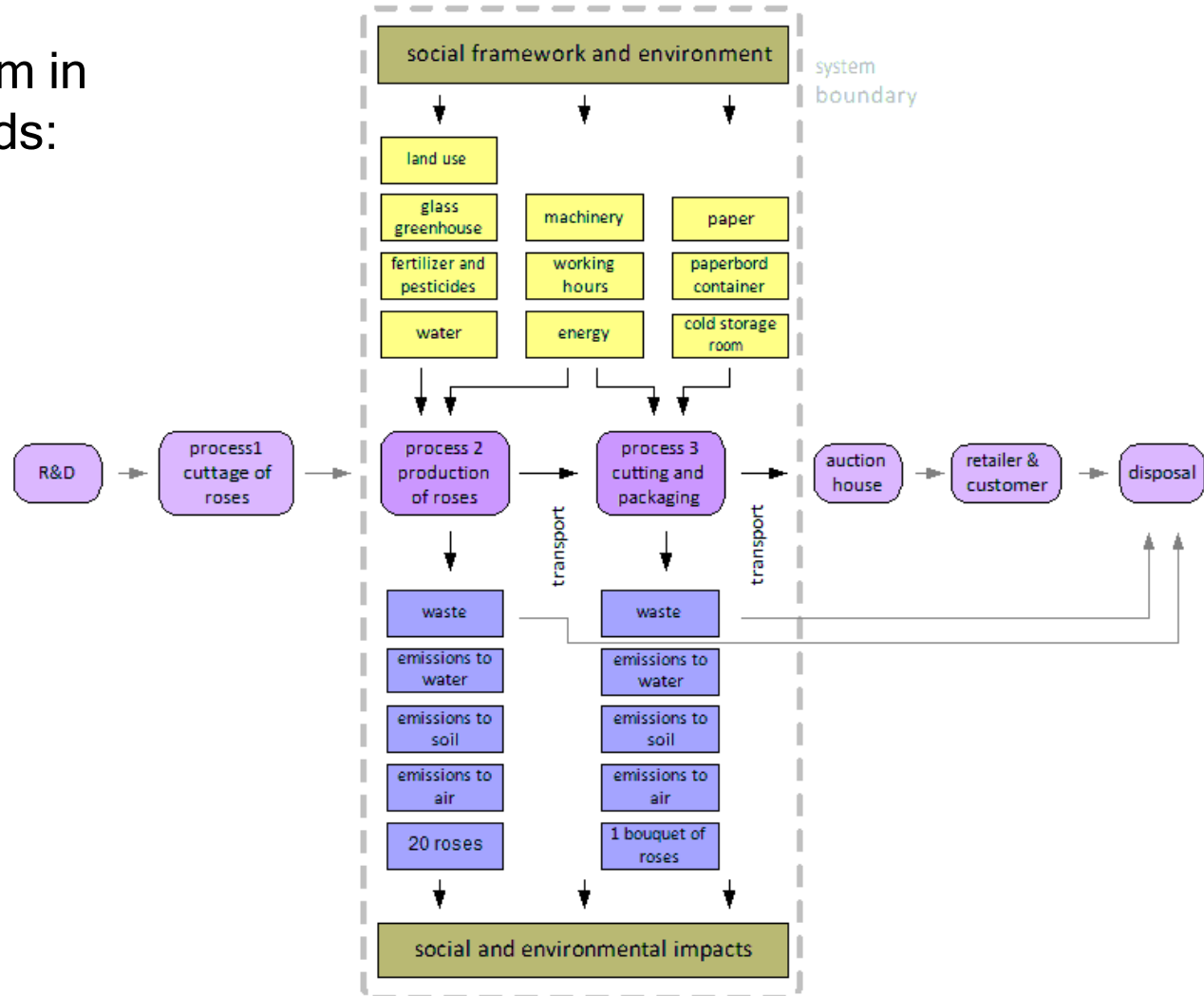
# Scope

Product system in Ecuador:



# Scope

Product system in the Netherlands:



# Functional unit

- Functional unit is a packaged rose bouquet with 20 caulis
- The roses are produced in two fictitious companies in Ecuador and the Netherlands
- Both bouquets are transported to the flower auction in Aalsmeer, Netherlands

## 3. Method

# Approach

- Conduction of a sLCA and an environmental LCA in parallel
- Use of a developed impact assessment method with a simple colour system, which evaluates the social impacts of each indicator
- The assessment bases on international codes of conduct (e.g. ILO conventions)

# Stakeholder

Stakeholder	Subcategories/Indicators
<b>Workers:</b> employees of the rose plantations in Ecuador and in the Netherlands	Freedom of association, discrimination, child labour, fair salary, working hours, forced labour, health and safety, social benefits
<b>Supply chain actors:</b> fictitious companies in Ecuador and the Netherlands	Fair competition, promoting CSR
<b>Local communities</b> region Pichincha, region Noordholland	Respect of indigenous rights, net migration rate, safe and healthy living conditions, local employment
<b>Society:</b> Ecuadorian and Dutch society	Contribution to economic development, corruption, technology development, prevention of armed conflicts
<b>Consumer:</b> rose buyer in flower shops	Health and safety, transparency

# Impact categories

- Health and safety
- Socio-economic repercussions
- Human rights
- Indigenous rights (incl. cultural heritage)
- Development of the country

# Rating scale



positive effect



indifferent effect



more or less negative effect



negative effect

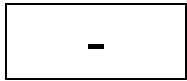


very negative effect

# Relation to impact categories



indicator influences impact  
category



indicator does not influence impact  
category



indicator is not present

## 4. Impact Assessment

# Social assessment

Rose production process in Ecuador:

Stakeholder	Indicator	At present?	Health and safety	Soc.- econ. Repercussions	Human rights	Indigenous rights	Development of the country	Assessment
Workers	Child labour	yes	✓	✓	✓	✓	✓	Very negative effect
Workers	Forced labour	no						Indifferent effect
Society	Contribution to econ. development	Yes, but contrasting	✓	✓	✓	✓	✓	Indifferent effect

# Social assessment

Rose production process in Ecuador:

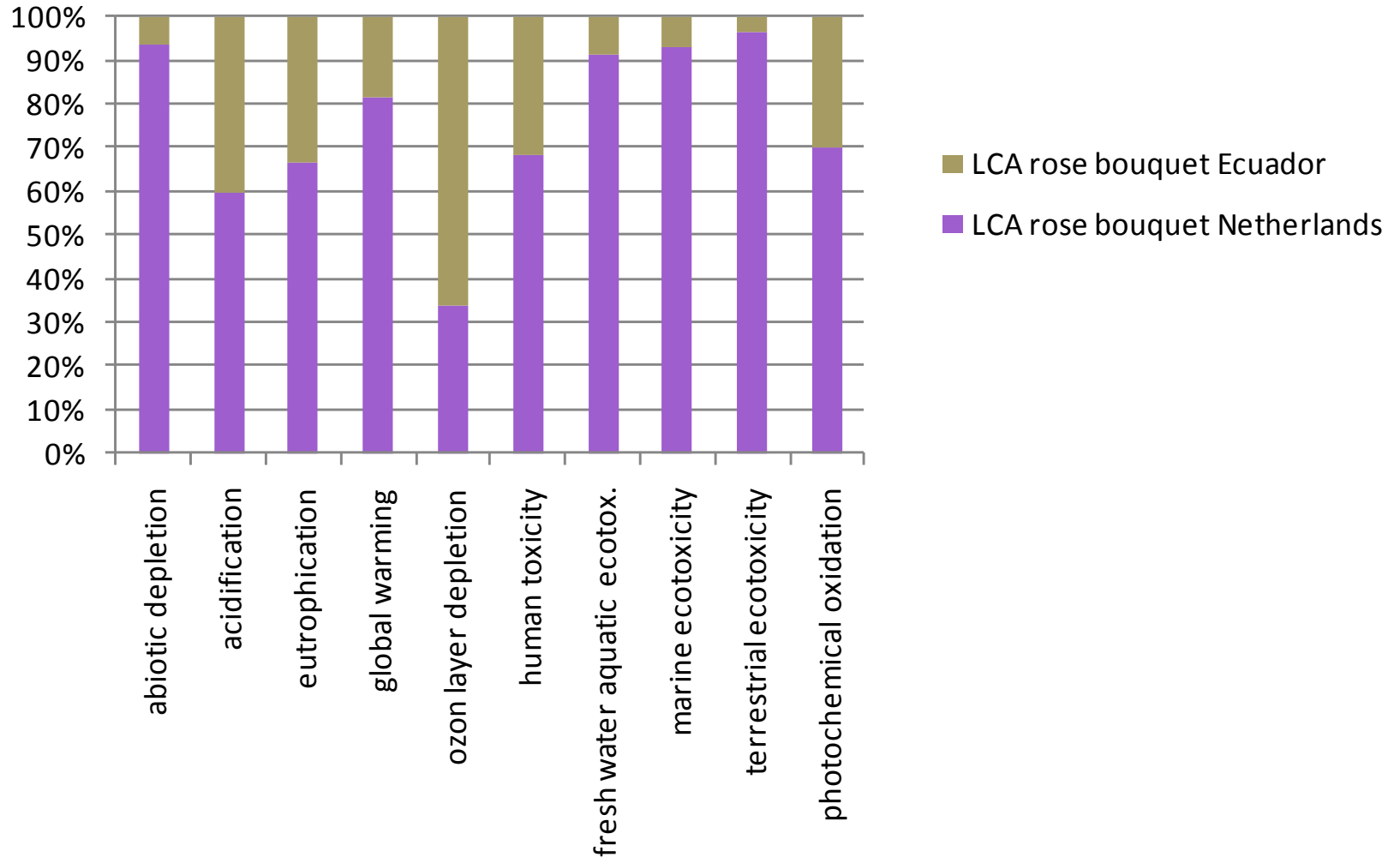
social conditions		status	health and safety	socio-economic repercussions	human rights	indigenous rights	development of the country	assessment
workers	freedom of association	no	✓	✓	✓	✓	✓	red
	discrimination	yes	✓	✓	✓	-	-	red
	child labour	yes	✓	✓	✓	✓	✓	red
	fair salary	no	✓	✓	✓	✓	✓	red
	working hours	72-84h/week	✓	✓	✓	✓	✓	red
	forced labour	no						green
	health and safety	is at risks	✓	✓	✓	-	✓	red
	social benefits	no	✓	✓	✓	-	✓	red
supply chain actors	fair competition	yes	-	-	-	-	✓	green
	promoting social responsibility	no	✓	✓	-	-	✓	red
local community	indigenous rights	are harmed	-	✓	-	✓	✓	yellow
	net migration rate	is negative	-	✓	-	✓	✓	yellow
	safe and healthy living conditions	are degraded	✓	✓	✓	✓	✓	red
	local employment	is promoted	✓	✓	✓	✓	✓	green
society	contribution to economic development	is given, but unfair allocation: contrasting impacts	✓	✓	✓	✓	✓	green
	corruption	is promoted by unfair conditions	✓	✓	✓	-	✓	red
	technology development	is not promoted	-	-	-	-	-	red
	prevention of armed conflicts	is not promoted	-	-	-	-	-	red

# Social assessment

## Rose production process the Netherlands:

social conditions		status	health and safety	socio-economic repercussions	human rights	indigenous rights	development of the country	assessment
workers	freedom of association	yes	✓	✓	✓	-	✓	Green
	discrimination	no						Light Green
	child labour	no	✓	✓	✓	-	✓	Light Green
	fair salary	yes	✓	✓	✓	-	✓	Green
	working hours	38h/week	✓	✓	✓	-	✓	Light Green
	forced labour	no						Light Green
	health and safety	is at low risk	✓	✓	✓	-	✓	Yellow
	social benefits	yes	✓	✓	✓	-	✓	Green
supply chain actors	fair competition	yes	-	-	-	-	✓	Light Green
	promoting social responsibility	yes	✓	✓	-	-	✓	Green
local community	indigenous rights	not applicable	-	-	-	-	-	White
	net migration rate	is positive	-	✓	-	-	✓	Light Green
	safe and healthy living conditions	are harmed by pollution	✓	✓	✓	-	✓	Yellow
	local employment	is not promoted	-	✓	✓	-	✓	Red
society	contribution to economic development	is given, but decreases	✓	✓	✓	-	✓	Green
	corruption	is not promoted	✓	✓	✓	-	✓	Light Green
	technology development	is promoted	✓	✓	-	-	✓	Green
	prevention of armed conflicts	yes	✓	✓	✓	-	✓	Light Green

# Environmental assessment



## 5. Conclusions

# Conclusions

- The rose production in Ecuador is associated with a multitude of social problems
- The Dutch rose production induces mainly positive social impacts, but there are many negative environmental impacts
- The UNEP/SETAC guidelines are well applicable

# Conclusions

- More experiences, research and case studies needed
- More data, databases and software support needed
- Delphi methods possible for further hedging the assessment step

# Thank you!

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