Rubizmo

Project Rubizmo – The environmental, economic and social aspects

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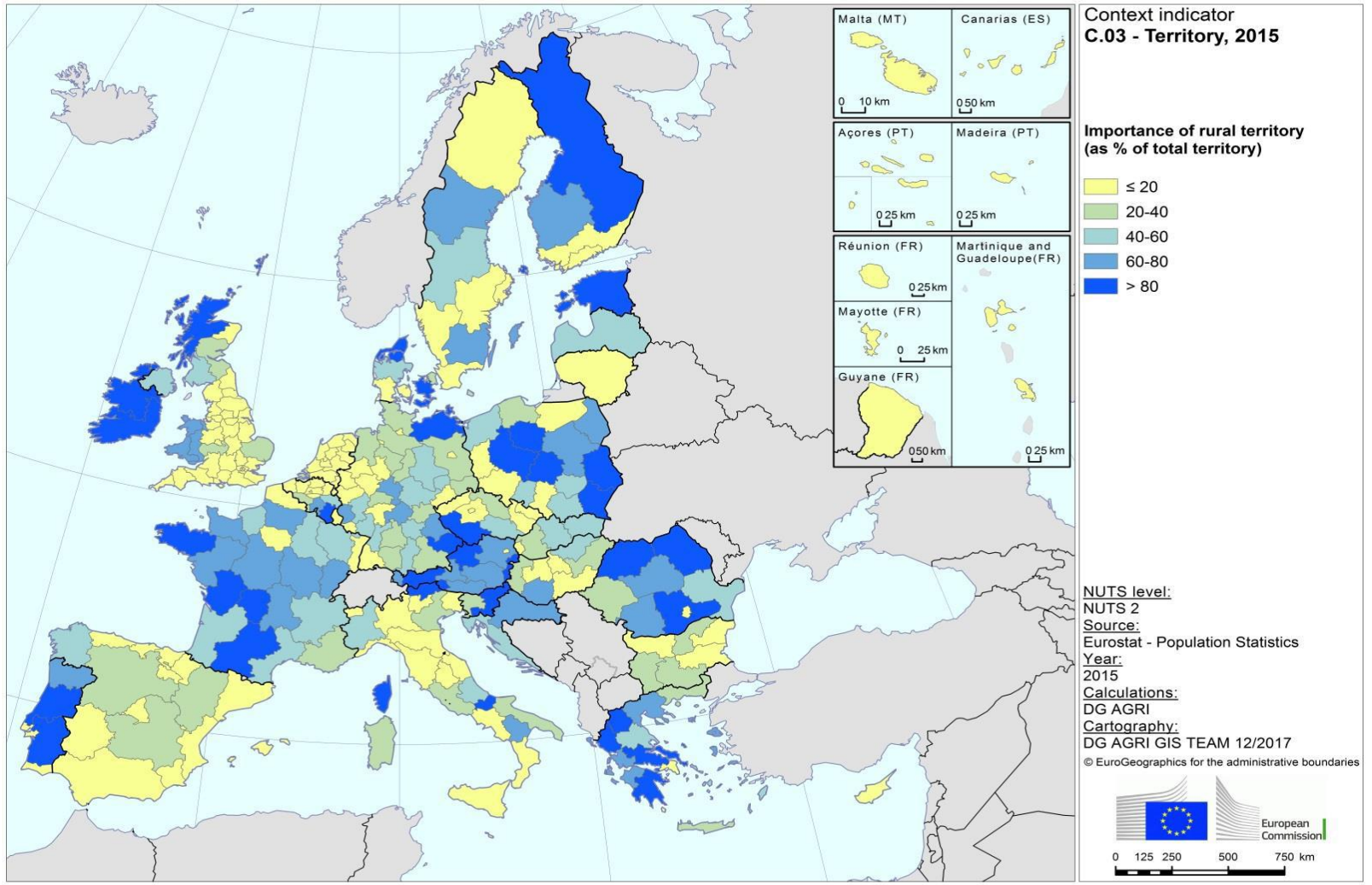
The importance of rural areas for Europe

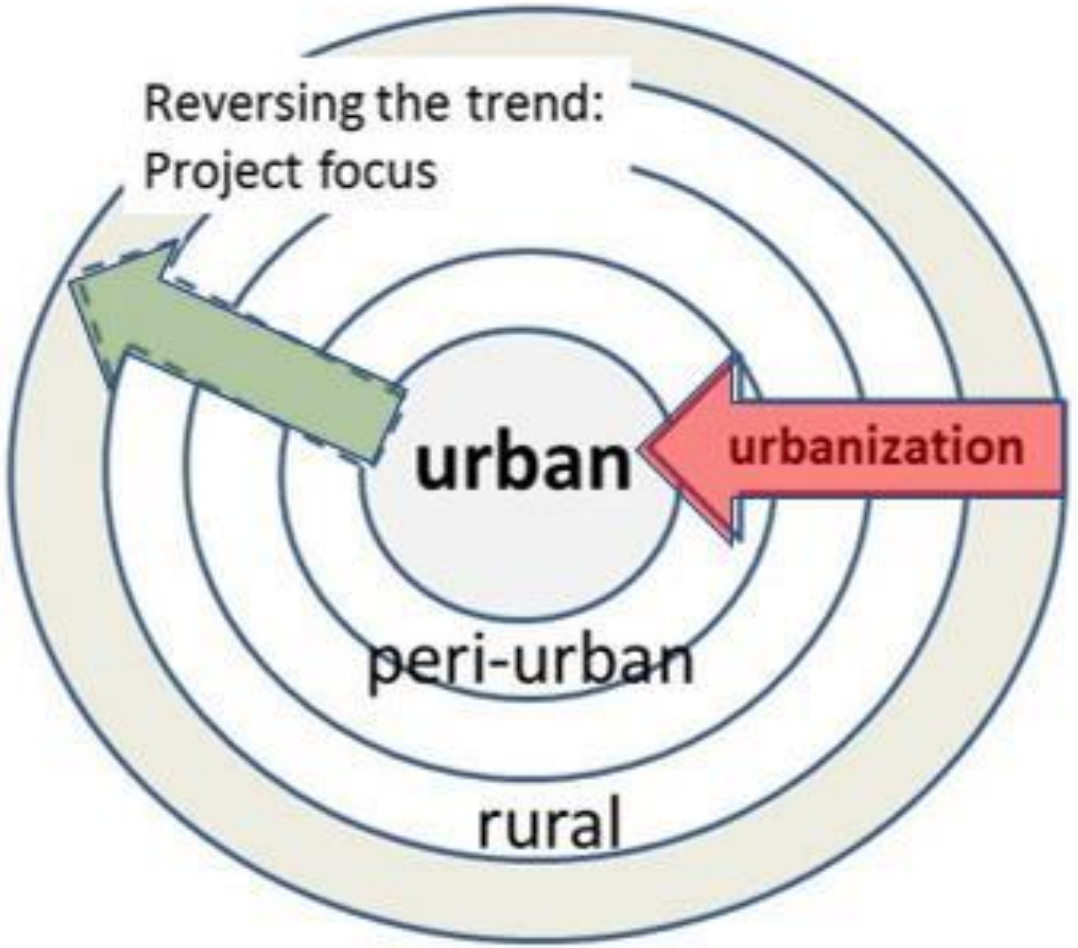
Urban and rural areas in Europe



The aim of Rubizmo project

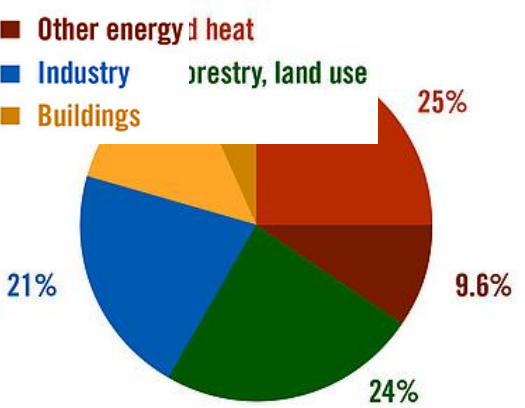
RUBIZMO will identify and promote opportunities for more diverse economic activities in rural areas that can bring about added value, job creation and a more sustainable use of resources. The project aims to stimulate investments into a range of rural economic sectors, with a particular focus on supporting the valorisation of local assets, and exploitation of unused resources. By making new linkages among sectors, businesses, producers, consumers, and markets, RUBIZMO will create shared values among local communities and help to increase rural resilience through diversification.

The problem to solve



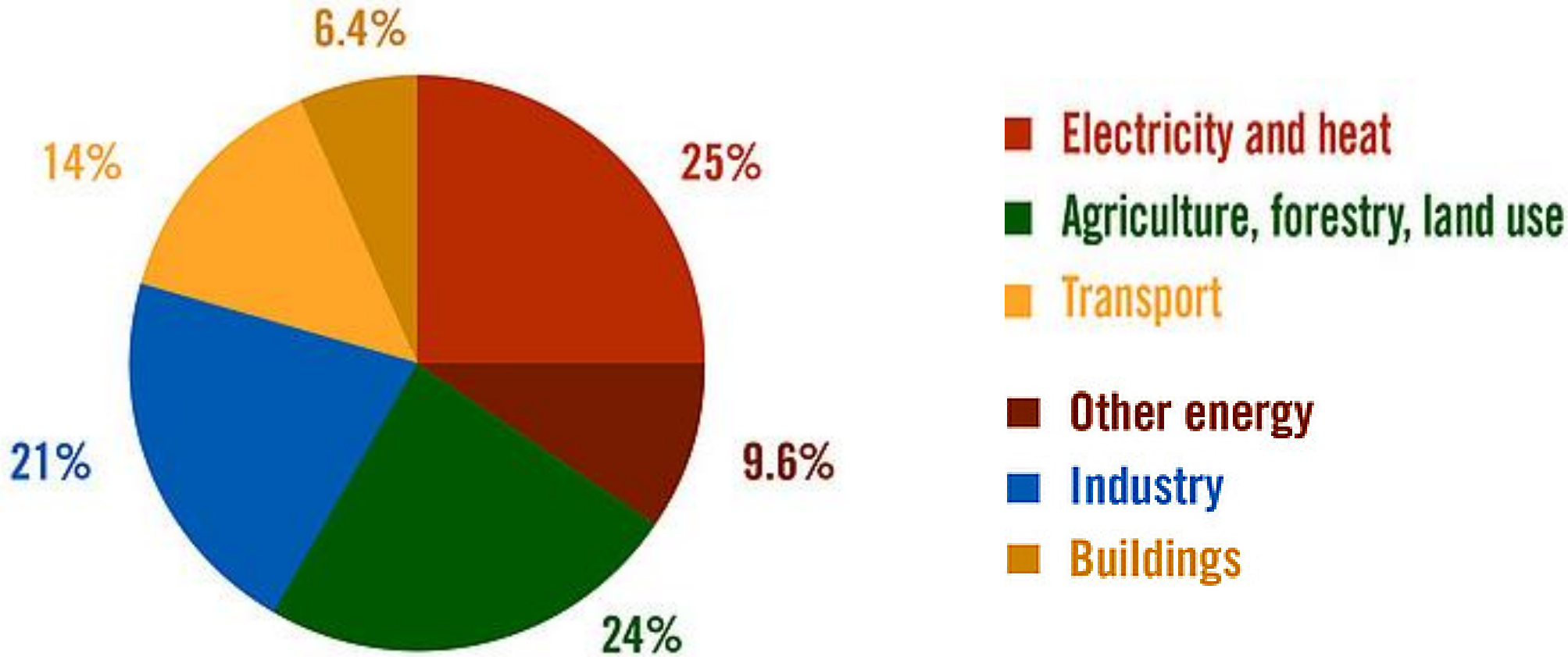
Factors for analysing business cases

ENVIRONMENTAL IMPACT	SOCIO-ECONOMIC IMPACT	REPLICATION / UPSCALING POTENTIAL
Contribution to circular economy	Effective and potential impact on job creation	Funding requirements and dependence on public funding
Contribution to renewable energies	Impact on local economy	Dependence on local conditions
Resilience to climate change	Creation of shared value	Intellectual property barriers
Efficient use of resources	Enhanced stakeholders collaboration	Market potential in other areas
Impact on ecosystems and biodiversity	Positive impact on gender and norm issues	Technology Readiness Level or Generic Maturity Level
Contribution to CO2 reduction	Integration of Corporate Social Responsibility standards	Impact of digitisation

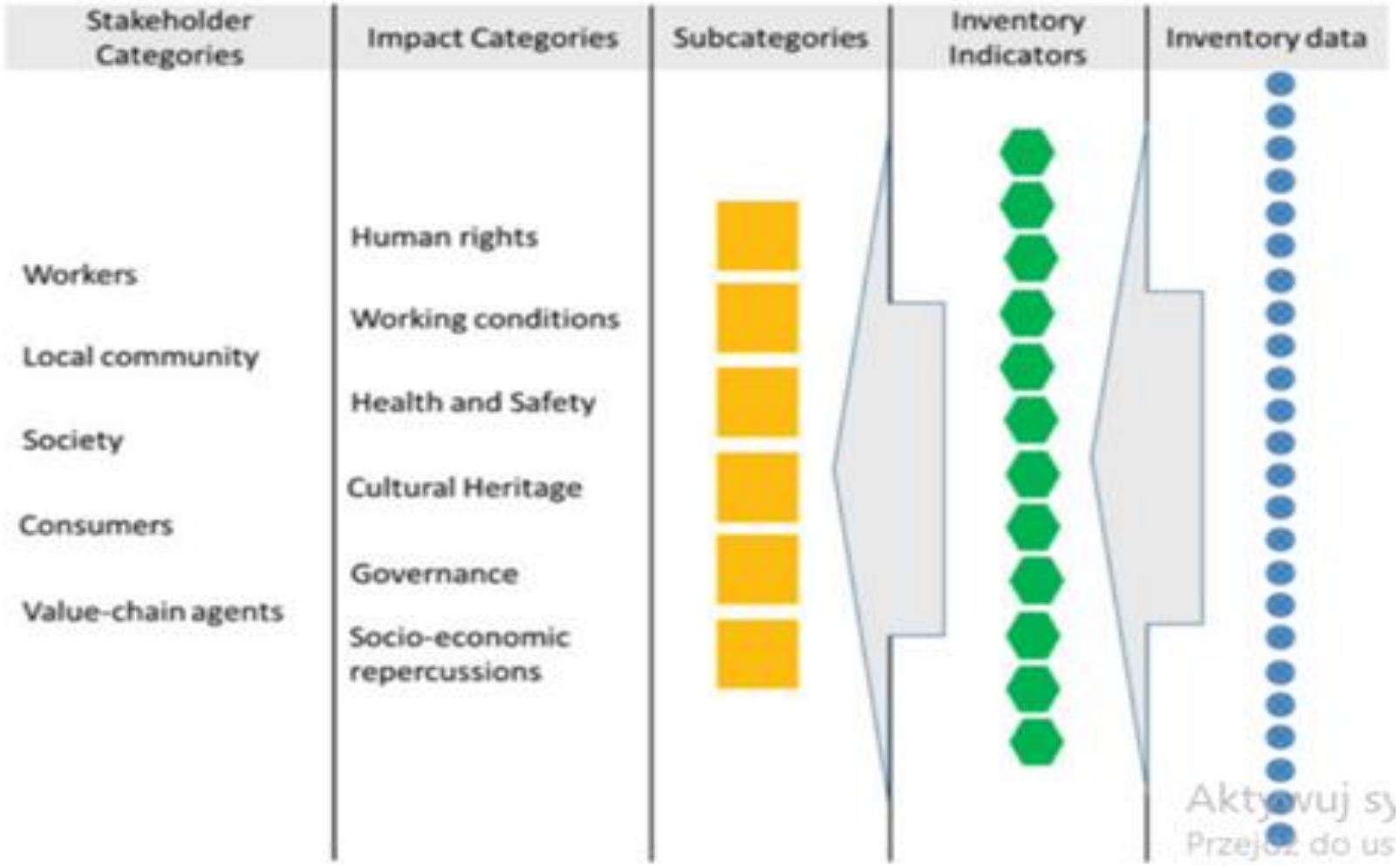


agricultural sector on GHG emissions

hropogenic greenhouse gas emissions by sector (IPCC, 2014)



Classification of social impact categories related to the social impact pathway



Main methodology for the RUBIZMO project

The project addresses a series of current shortcomings connected to innovative business development in rural areas. It will consist of research, tool development, demonstration, capacity building, dissemination, exploitation, and communication activities with a strong focus on business end-users. The knowledge generating tasks will be designed to have a significant impact by directly feeding into the entrepreneurial support.

Sector: FOOD

The food sector, whilst a traditional industry, has many opportunities for further development, optimisation and exploitation. Food lies at the centre of many of our most complex challenges, in particular the sustainable provision of nutrition to a growing global population. New business opportunities arise from the application of advanced agricultural science, new technological developments, and methods for sustainability management that take account of trade-offs within the water-energy-food nexus. Crop diversification systems, the use of marginal land, and advanced logistics tools can also play a role in developing new food value chains.

Sector: Bio-Based Value Chain

New businesses are developing in rural areas which cultivate new types of crops, such as energy and medicinal crops, as well as crops which can be used for the creation of new bio-based products. These often make use of agri-food side streams and other non-food resources, to avoid competition with the food sector. Whilst considerable research has been performed to understand new bio-based value chains, materials or products have been developed or demonstrated at research and pilot scale, their usage is not widespread. The use of such technologies (which are often large scale), will rely on new forms of ownership, co-operation and cross-disciplinary knowledge sharing, to contribute to economic growth.

Sector: SERVICES

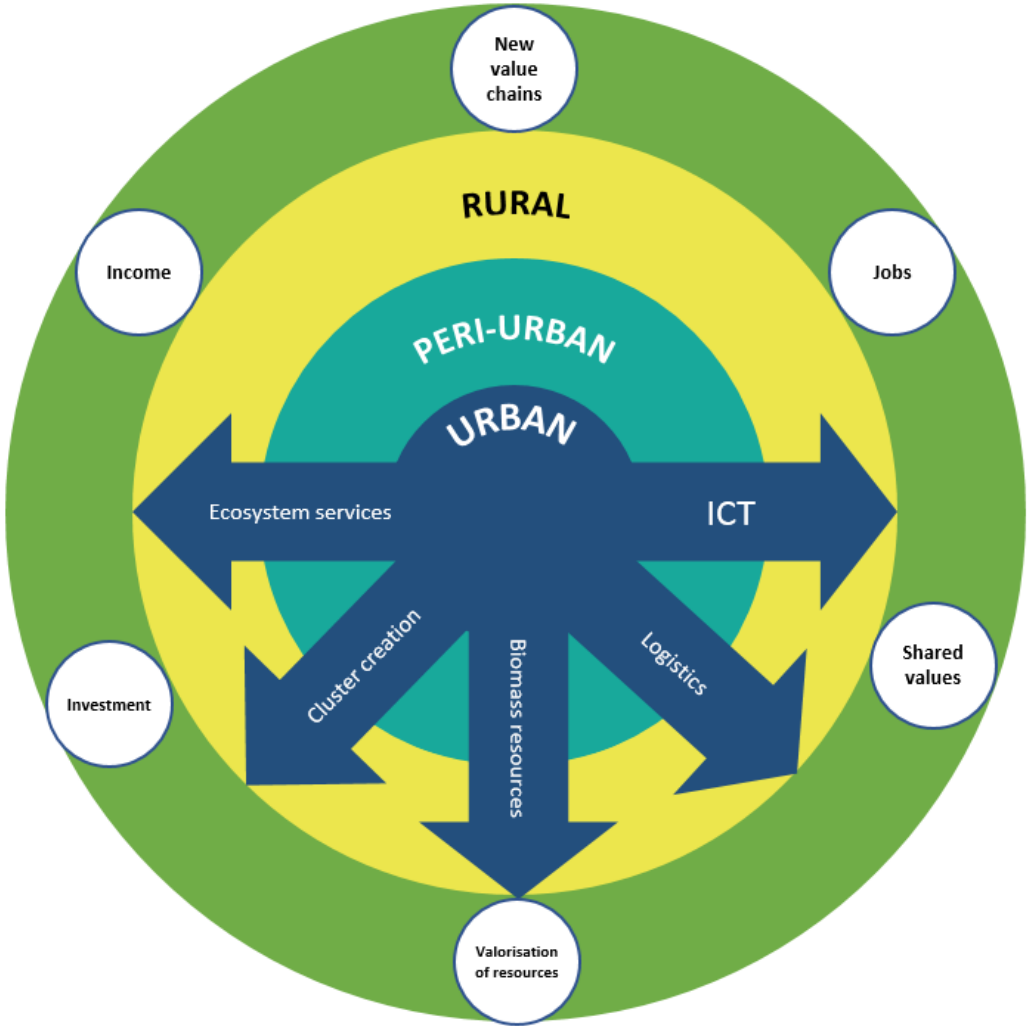
Services of all kind represent a large opportunity for creating diverse economic activities in rural areas. By offering leisure activities (tourism or sports), provision of goods (e.g. food, biofuel and water), maintenance services for conservation of the environment, wildlife and biodiversity are all examples of how economic activities can be created through the valorisation of ecosystem services. In addition, rural businesses may also offer other types of services within, for example, transportation, education, communication or related to health and culture. This indicates that the variety of service businesses that could be instigated in rural areas is very wide and the business opportunities are growing and diversifying.

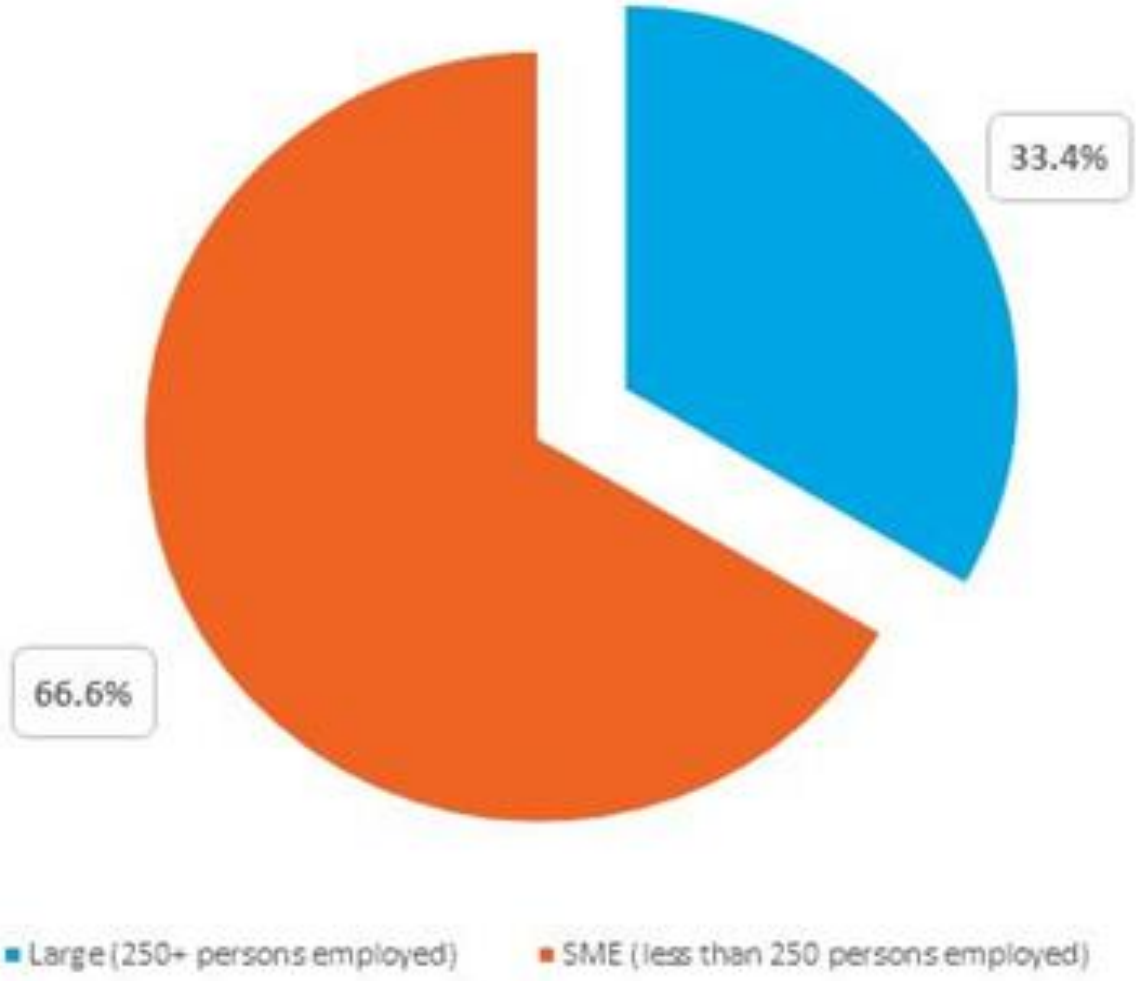
Replicating and upscaling

One single business case can include a multitude of possible business models or value chains, while one type of business model can be translated into different business cases in many ways. The RUBIZMO project will look at three potential upscaling systems:

- Upscaling of existing business cases at local level: The project will investigate the potential for further developing or simple replication of the innovative business cases highlighted during the screening.
- Replication of existing business cases or models in other geographical areas: Selecting areas with features matching the success factors from the innovative business case.
- Replication and development of existing business cases or models to other sectors: Analysing the possibilities to apply innovative business models to new sectors, or new end-users

The strategy of Rubizmo project



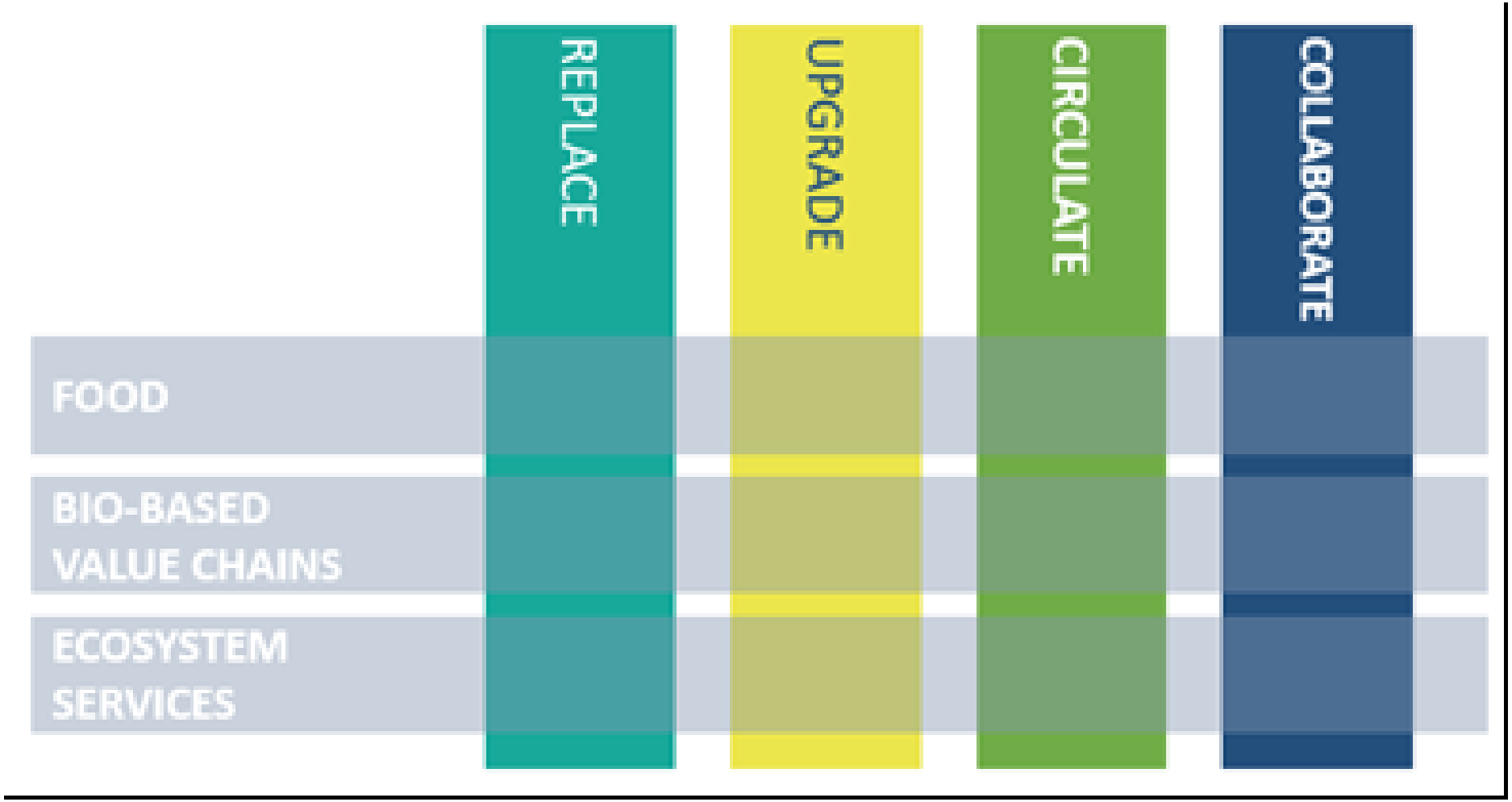


The RUBIZMO approach

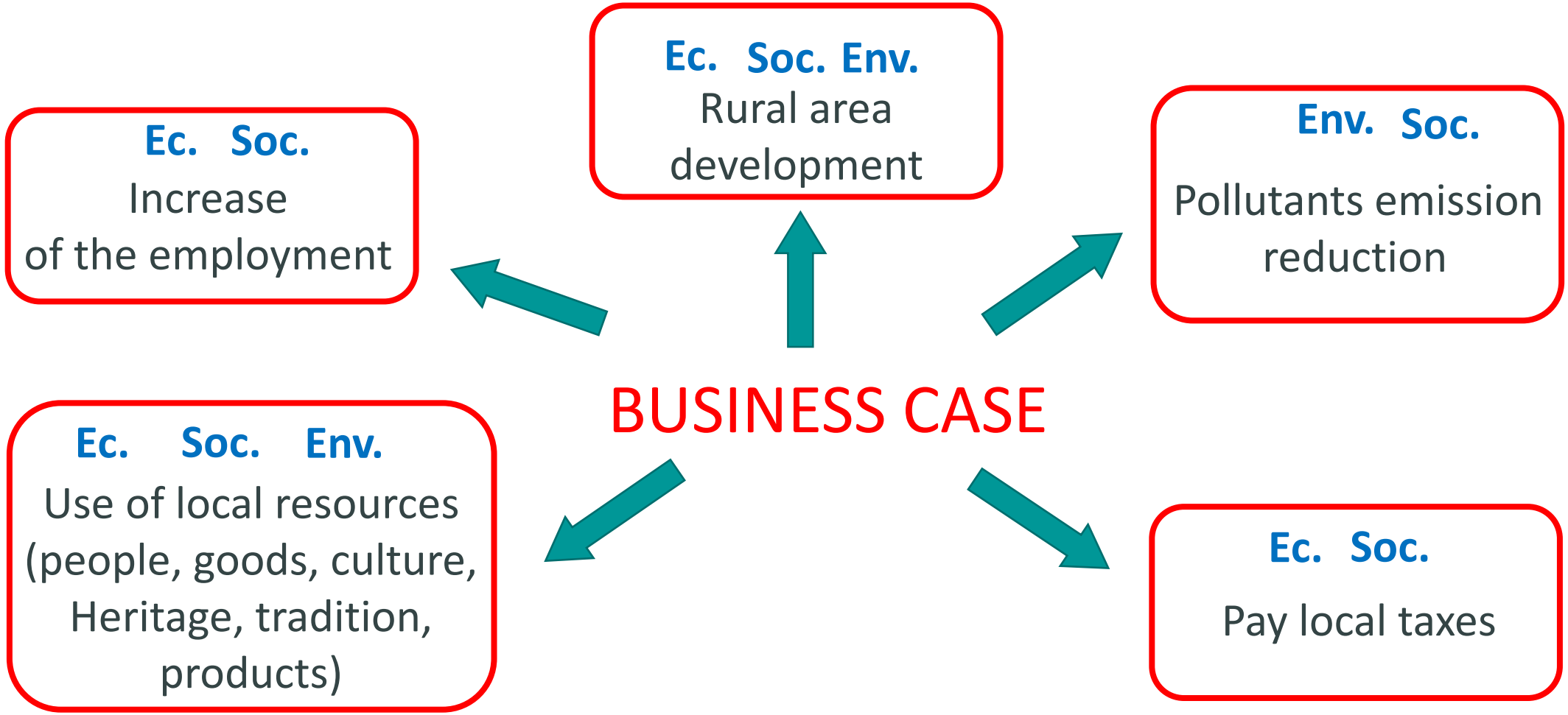
	Old Paradigm	New Paradigm
Objectives	Equalization or entitlement approach, focused on farm income, farm competitiveness	Competitiveness of rural areas, valorisation of local assets, exploitation of unused resources
Key target sector	Sector based	Various sectors of rural economies (e.g. rural tourism, manufacturing, ICT industry, etc.)
Main tools	Subsidies	Investments
Key actors	National governments, farmers	All levels of government (supranational, national, regional and local), various local stakeholders (public, private, NGOs)

Businesses functions Rubizmo is looking for:

- ✓ Replacing
- ✓ Upgrading
- ✓ Circulating
- ✓ Collaborating



Which business case is worth to be replicated?



Economic indexes

Gross profit

The gross profit is determined from the following equation:

$$GP = TR - TC \tag{2}$$

where:
GP – Gross profit, EUR,
TR – Total revenues, EUR,
TC – Total costs, EUR,

Total cost level indicator

The total cost level indicator is determined from the following equation:

$$TCL = \frac{TC}{TR} \times 100\% \tag{3}$$

where:
TCL – Total cost level indicator, %,
TC – Total costs, EUR,
TR – Total revenues, EUR.

Economic indexes

Gross profit margin

The gross profit margin is determined from the following equation:

$$GPM = \frac{TR-TC}{TR} \times 100\% \quad (4)$$

where:
GPM – Gross profit margin, %,
TC – Total costs, EUR,
TR – Total revenues, EUR.

Gross return on assets

The return of assets is determined from the following equation:

$$GROA = \frac{GP}{AV} \times 100\% \quad (5)$$

where:
GROA – Gross return on assets, %,
GP – Gross profit, EUR,
AV – Assets value, EUR.

Economic indexes

Share of sales to the local market in the value of revenues

The share of sales to the local market in the value of revenues is determined from the following equation:

$$SSLM = \frac{TR \times LMS}{TR} \times 100\% \quad (6)$$

where:
SSLM – Share of sales to the local market in the value of revenues, %,
TR – Total revenues, EUR,
LMS – Share of sales to the local market, -.

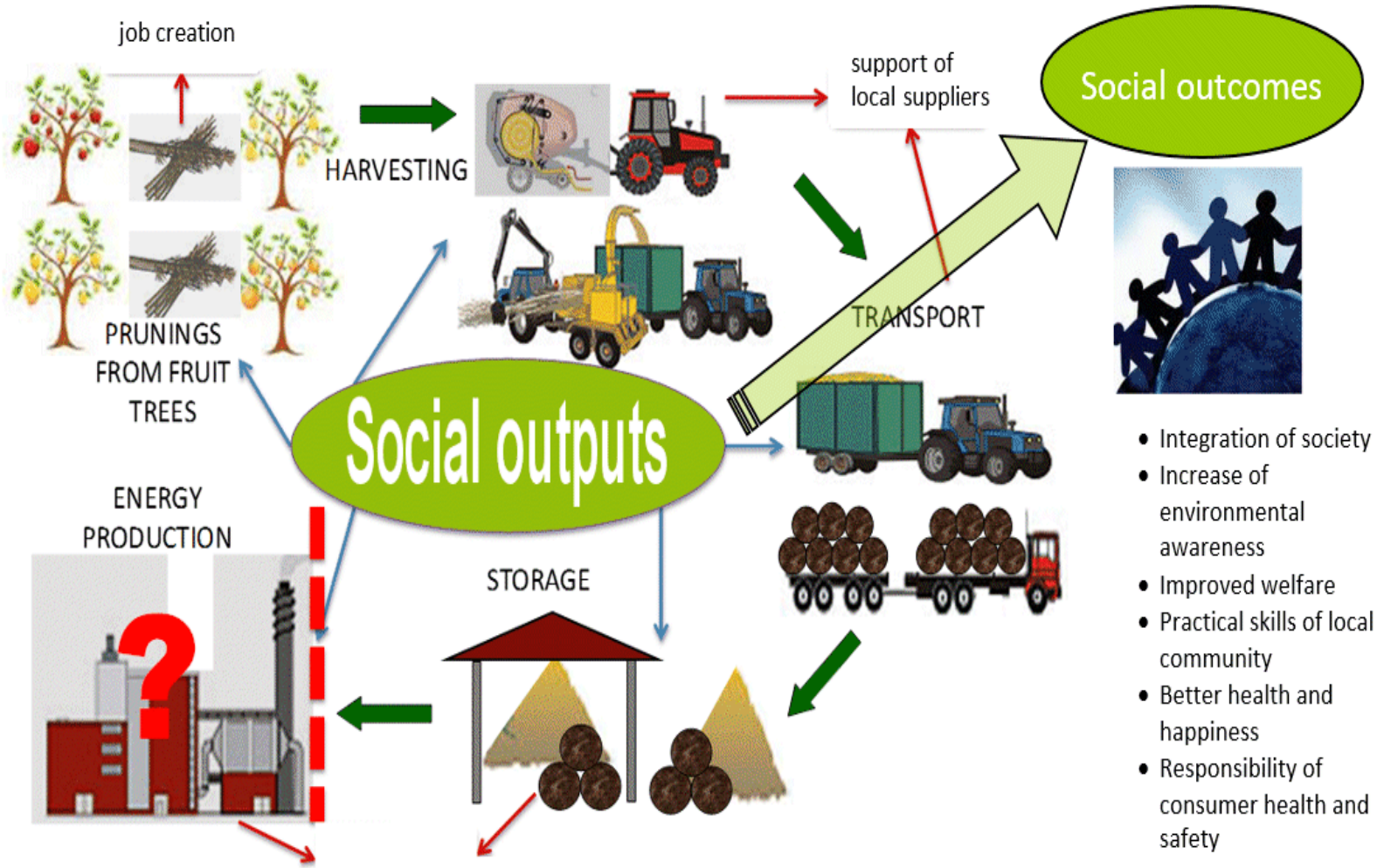
Work productivity

The work productivity is determined from the following equation:

$$WP = \frac{TR}{TNoE} \quad (7)$$

where:
WP – Work productivity, EUR/prs,
TR – Total revenues, EUR,
TNoE – Total number of employees (related to FTE), prs.

The social scope within the EuroPruning project



Social indexes

Share of external employees

The share of external employees (no family members) in the employment structure is determined from the following equation:

$$SEE = \frac{NEE}{TNoE} \times 100\% \quad (9)$$

where:
SEE – Share of external employees, %,
NEE – Number of external employees (FTE), prs,
TNoE – Total number of employees (FTE), prs.

Share of family members

The share of family members in the employment structure is determined from the following equation:

$$SFM = \frac{NoFM}{TNoE} \times 100\% \quad (10)$$

where:
SFM – Share of external employees, %,
NoFM – Number of family members (FTE), prs,
TNoE – Total number of employees (FTE), prs.

Social indexes

Share of employees from rural area

The share of employees from rural area in the employment structure is determined from the following equation:

$$SERA = \frac{NERA}{TNoE} \times 100\% \quad (11)$$

where:
SERA – Share of employees from rural area, %,
NERA – Number of employees from rural area, prs,
TNoE – Total number of employees (related to FTE), prs.

Share of employees from local area

The share of employees from local area in the employment structure is determined from the following equation:

$$SELA = \frac{NELA}{TNoE} \times 100\% \quad (12)$$

where:
SELA – Share of employees from local area, %,
NELA – Number of employees from rural area, prs,
TNoE – Total number of employees (related to FTE), prs.

Social indexes

SROI (Social Return of Investment)

$$SROI = \frac{SB}{I_A}$$

Where:

SB – **S**um of social **B**enefits, EUR,

I_A – **A**nnual (yearly) **I**nvestment, EUR,

SB includes: salary of the new employee, profits for company, product responsibility, taxes paid,

The SROI calculation result is shown in EUR, and (for instance) the value 3 means, that 1 EUR invested in the analysed business model can bring 3 EUR of social benefits.

It should be underlined, that in fact there is no additional income as in economic calculation. The additional 2 EUR are only the illustration of the increase of society wellness, health, satisfaction etc.

Social indexes

Social impact of non-discrimination index in the company

The indicator refers to the balance in gender employment (women, men) and a 50/50 share is preferred. Deviation from the optimal value causes the indicator to decrease:

$$SROI_{ND} = W_{ND} \times \frac{TS}{INV} = \frac{100\% - 2 \times M_{ND}}{100\%} \times \frac{TS}{INV} \quad (13)$$

where:

$SROI_{ND}$ – Social return on investment in terms of non-discrimination in employment, -,

W_{ND} - Balance in gender employment, -,

TS – Total salaries in the company, EUR,

M_{ND} – difference between median and real value of the discrimination in employment, %,

INV – Yearly investments, EUR.

Social indexes

Social impact of job creation index in the company

The social return on investment in terms of **job creation by the company** is determined from the following equation:

$$SROI_{JC} = \frac{TS}{INV} = \frac{TNE \times A_S}{INV} \quad (14)$$

where:
$SROI_{JC}$ – Social return on investment in terms of job creation, -,
TS – Total salaries in the company, EUR,
TNE – Total number of employees (FTE), prs.
A_S – average yearly salary in the company, EUR/prs.,
INV – Yearly investments, EUR.

Social indexes

Social impact of income for owner/entrepreneur

The social return on investment in terms of income for owner (company) is determined from the following equation:

$$SROI_{IO} = \frac{GP}{INV} \tag{15}$$

where:
$SROI_{IO}$ – Social return on investment in terms of income for owner (company), -,
GP – Gross profit, EUR,
INV – Yearly investments, EUR.

Social indexes

Social impact of manpower from rural area

The employment of manpower from rural area is crucial to stop the migration of people to the urban area. Therefore, the optimal value of the index is 100%:

$$SROI_{MLA} = \frac{W_{MLA}}{100\%} \times \frac{TS}{INV} \quad (16)$$

where:
$SROI_{MLA}$ – Social return on investment in terms of manpower from rural area, -,
W_{MLA} – Index of manpower from rural area, %,
TS – Total salaries in the company, EUR,
INV – Yearly investments, EUR.

Social indexes

Social impact of manpower from local area

The employment of manpower from local area is very important in terms of the unemployment and the increase of the live standard of the local society. Therefore, the optimal value of the index is 100%:

$$SROI_{LA} = \frac{W_{LA}}{100\%} \times \frac{TS}{INV} \quad (17)$$

where:
$SROI_{LA}$ – Social return on investment in terms of manpower from local area, -,
W_{LA} – Index of manpower from local area, %,
TS – Total salaries in the company, EUR,
INV – Yearly investments, EUR.

Social indexes

Social impact of CO_2 reduction

The reduction of CO_2 emission thanks to the investment in production of heat and/or electricity from renewable energy sources (RES) influences the social benefits as it improves the environment and the company's image (environment protection). The social return on investment in terms of CO_2 reduction is determined from the following equation:

$$SROI_{CO2} = \frac{AE_{CO2} \times C_{CO2}}{INV} \quad (18)$$

where:
$SROI_{CO2}$ – Social return on investment in terms of manpower from local area, -,
AE_{CO2} – Avoided emission of CO_2 equivalent per year, tCO_2eq,
C_{CO2} – Cost of CO_2, EUR/tCO_2eq,
INV – Yearly investments, EUR.

Social indexes

Total social return on investment

The total social return on investment in terms of considered parameters is determined from the following equation:

$$SROI = SROI_{ND} + SROI_{JC} + SROI_{IO} + SROI_{MLA} + SROI_{LA} + SROI_{CO2} \quad (19)$$

where:

SROI – Total social return on investment, -,

$SROI_{ND}$ – Social return on investment in terms of non-discrimination in employment, -,

$SROI_{JC}$ – Social return on investment in terms of job creation, -,

$SROI_{IO}$ – Social return on investment in terms of income for owner (company), -,

$SROI_{MLA}$ – Social return on investment in terms of manpower from rural area, -,

$SROI_{LA}$ – Social return on investment in terms of manpower from local area, -,

$SROI_{CO2}$ – Social return on investment in terms of manpower from local area, -,

Environmental Impact

1. Use of medium (electricity, water, external heat etc., natural resources)
2. Use of energy carriers (coal, gas, oil etc.)
3. Use of fossil fuels for transportation (diesel, petrol, LPG),
4. Resource conservation (reduction of energy consumed and use of RES)

kWh/year, GJ/year, m3/year, Mg_{fuel}/year, etc.

Conversion kWh to CO2

In relations to

CO_2eq./(GJ·year)

CO_2/(1000 EUR·year)

It can be comparable

Environmental indexes

Energy use in revenues production

The energy use in revenues production is determined from the following equation:

$$EURP = \frac{TEU}{\frac{TR}{1000}} \tag{20}$$

where:
EURP – Energy use in revenues production, GJ/1000 EUR,
TEU – Total energy use in the company, GJ/year,
TR – Total revenues, EUR/year.

Share of renewable energy use

The share of renewable energy use in total energy utilization by the company is determined from the following equation:

$$SRE = \frac{RE}{TEU} \times 100\% \tag{21}$$

where:
SRE – Share of renewable energy use in the company, %,
RE – Renewable energy use, GJ/year.
TEU – Total energy use in the company, GJ/year,

Environmental indexes

Global warming potential input in revenues production

The global warming potential input in revenues production by the company is determined from the following equation:

$$GWPIRP = \frac{GWPI}{\frac{TR}{1000}} \tag{22}$$

where:
GWPIRP – Global warming potential input in revenues production, kg CO_2 eq./1000 EUR,
GWPI – Global warming potential input by the company, kg CO_2 eq./year,
TR – Total revenues, EUR/year.

Water usage in revenues production

The water usage in revenues production by the company is determined from the following equation:

$$WURP = \frac{WU}{\frac{TR}{1000}} \tag{23}$$

where:
WURP – Water usage in revenues production, m^3/1000 EUR,
WU – Water usage, m^3/year,
TR – Total revenues, EUR/year.

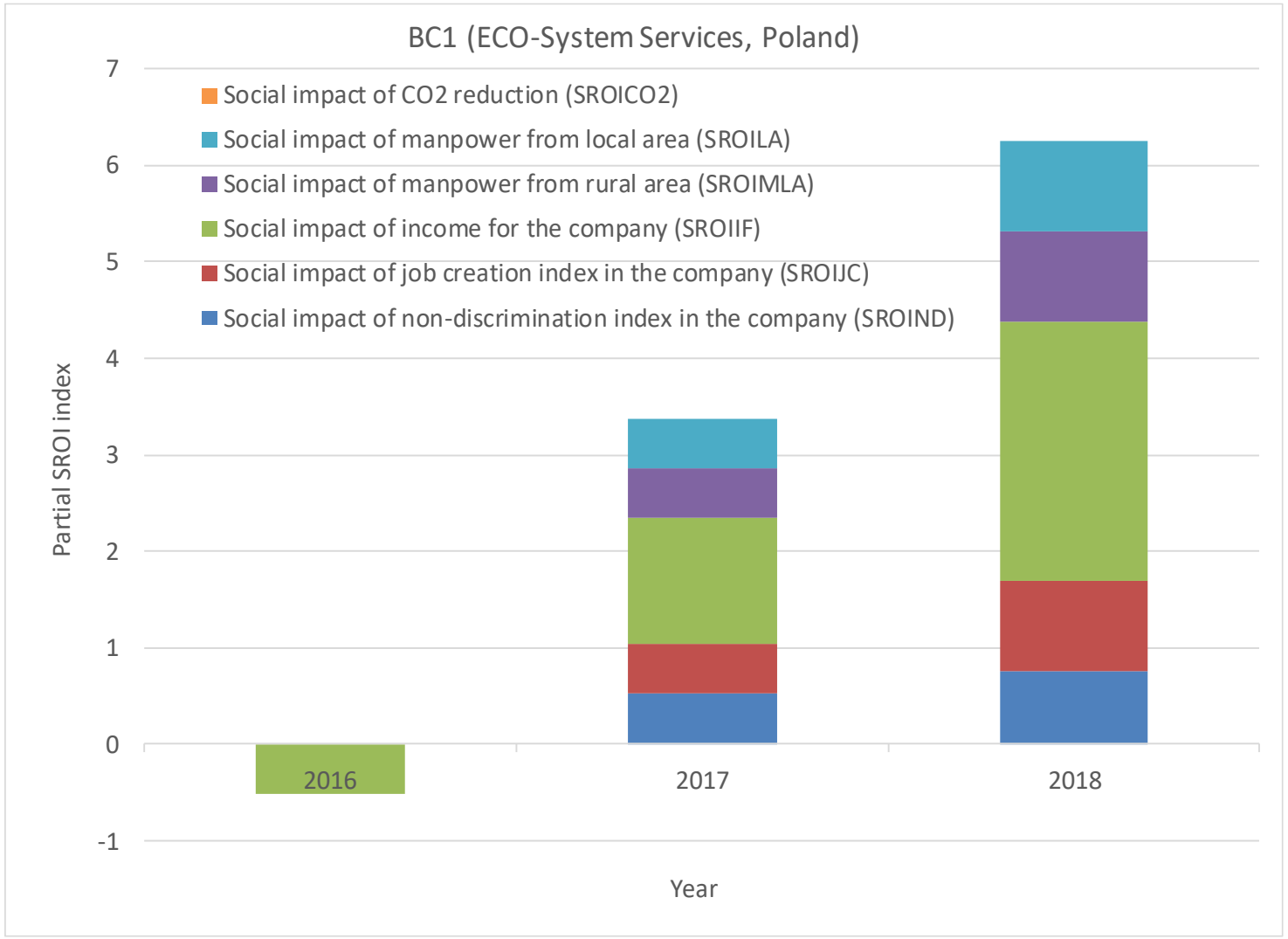
Social aspects – Results – Interpretation – BC1

Social indicators for BC1 (ECO-System Services group, Poland)

SOCIAL INDICATORS		2016	2017	2018
Share of external employees (SEE)	%	0.00	50	60.00
Share of family members (SFM)	%	100	50	40
Share of employees from rural area (SERA)	%	100	100	100
Share of employees from local area (SELA)	%	100	100	100
Social impact of non-discrimination index in the company ($SROI_{ND}$)	-	0	0.52	0.75
Social impact of job creation index in the company ($SROI_{JC}$)	-	0	0.52	0.94
Social impact of income for the company ($SROI_{IF}$)	-	-0.52	1.30	2.70
Social impact of manpower from rural area ($SROI_{MLA}$)	-	0	0.52	0.94
Social impact of manpower from local area ($SROI_{LA}$)	-	0	0.52	0.94
Social impact of CO2 reduction ($SROI_{CO2}$)	-	6.37229E-08	4.411E-07	4.411E-07
Total Social return on investment (SROI)	-	-0.52	3.38	6.26

Social aspects – Results – Interpretation – BC1

Social indicators for BC1 (ECO-System Services group, Poland)



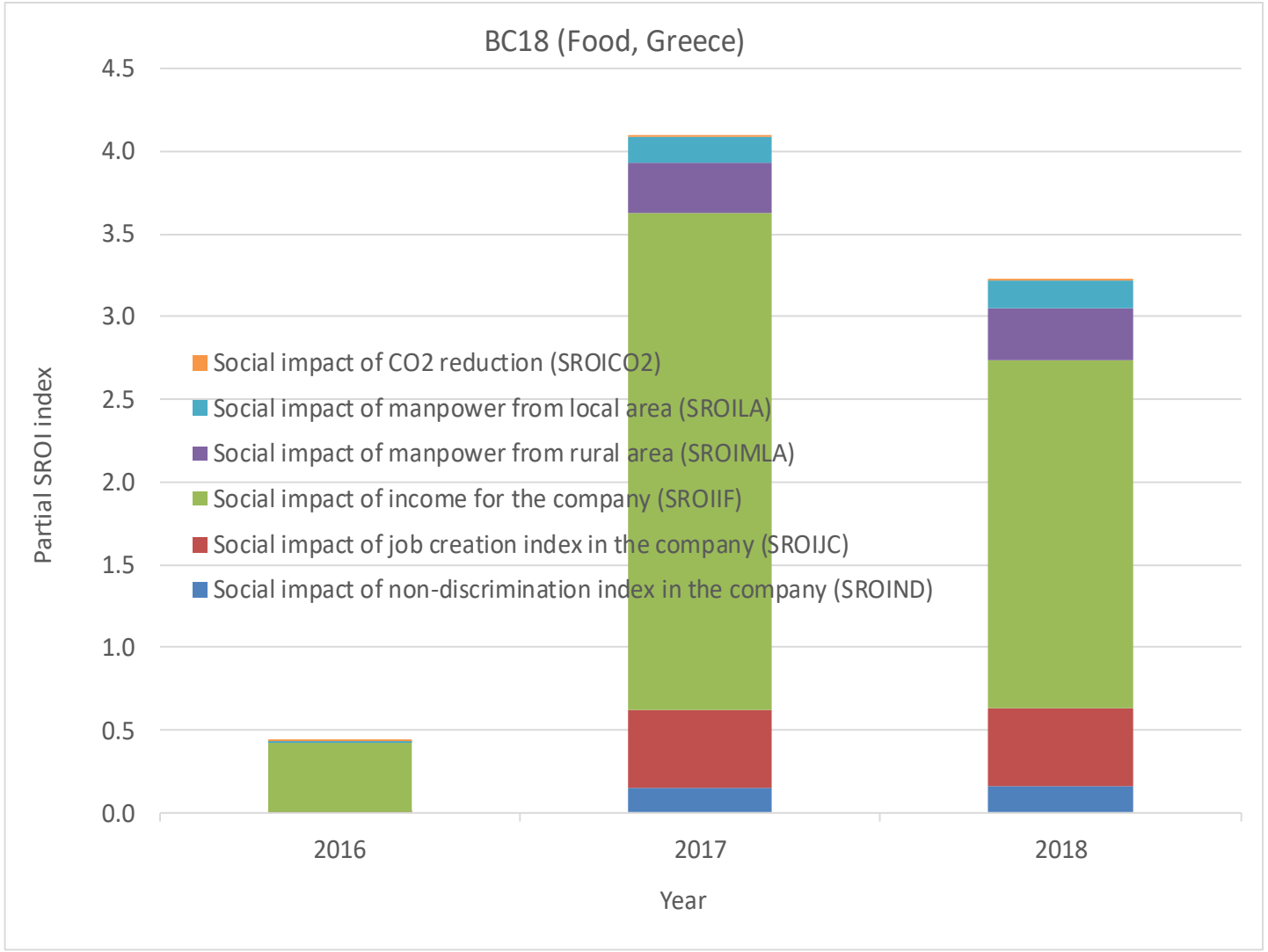
Social aspects – Results – Interpretation – BC18

Social indicators for BC18 (FOOD Group, Greece)

SOCIAL INDICATORS		2016	2017	2018
Share of external employees (SEE)	%	25.00	66.67	66.67
Share of family members (SFM)	%	75.00	33.33	33.33
Share of employees from rural area (SERA)	%	25.00	66.67	66.67
Share of employees from local area (SELA)	%	75.00	33.33	33.33
Social impact of non-discrimination index in the company ($SROI_{ND}$)	-	0.003	0.15	0.16
Social impact of job creation index in the company ($SROI_{JC}$)	-	0.006	0.46	0.48
Social impact of income for the company ($SROI_{IF}$)	-	0.416	3.00	2.10
Social impact of manpower from rural area ($SROI_{MLA}$)	-	0.002	0.31	0.32
Social impact of manpower from local area ($SROI_{LA}$)	-	0.005	0.15	0.16
Social impact of CO2 reduction ($SROI_{CO2}$)	-	1.6563E-06	4.1423E-06	8.285E-06
Total Social return on investment (SROI)	-	0.43	4.09	3.21

Social aspects – Results – Interpretation – BC18

Social indicators for BC18 (FOOD Group, Greece)



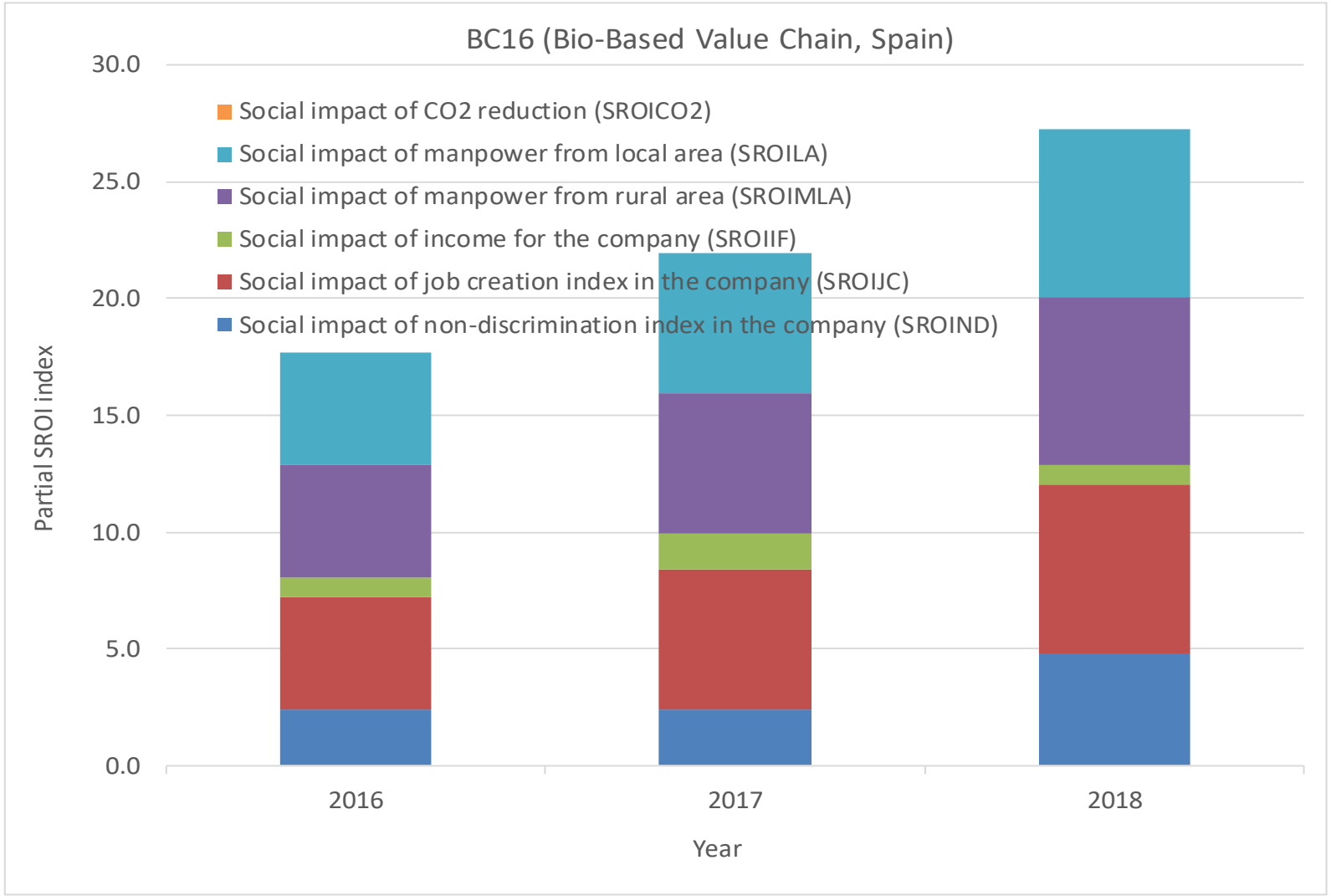
Social aspects – Results – Interpretation – BC16

Social indicators for BC16 (Bio-Based Value Chain group, Spain)

SOCIAL INDICATORS		2016	2017	2018
Share of external employees (SEE)	%	100.00	100.00	100.00
Share of family members (SFM)	%	0	0	0
Share of employees from rural area (SERA)	%	100	100	100
Share of employees from local area (SELA)	%	100	100	100
Social impact of non-discrimination index in the company ($SROI_{ND}$)	-	2.40	2.40	4.80
Social impact of job creation index in the company ($SROI_{JC}$)	-	4.80	6.00	7.20
Social impact of income for the company ($SROI_{IF}$)	-	0.86	1.52	0.87
Social impact of manpower from rural area ($SROI_{MLA}$)	-	4.80	6.00	7.20
Social impact of manpower from local area ($SROI_{LA}$)	-	4.80	6.00	7.20
Social impact of CO2 reduction ($SROI_{CO2}$)	-	9.072E-09	1.452E-08	1.814E-08
Total Social return on investment (SROI)	-	17.66	21.92	27.27

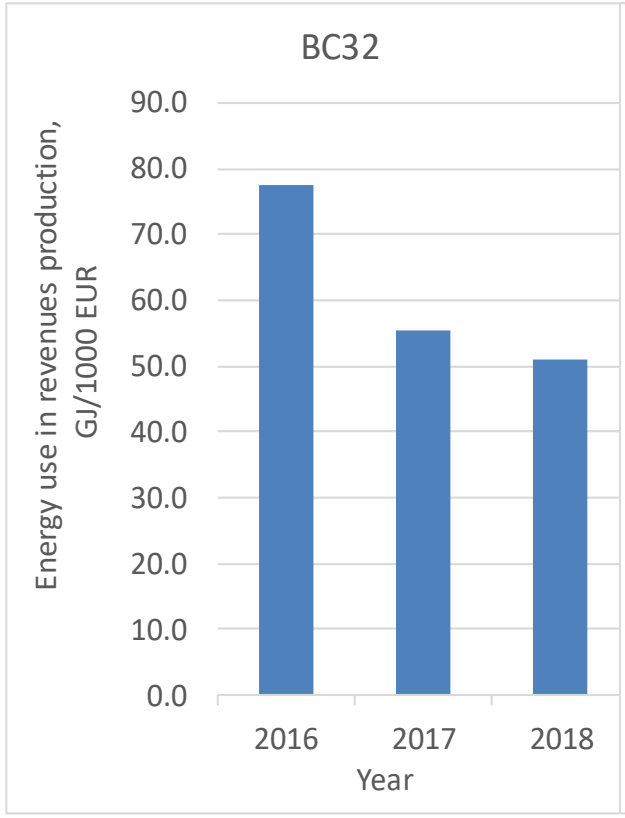
Social aspects – Results – Interpretation – BC18

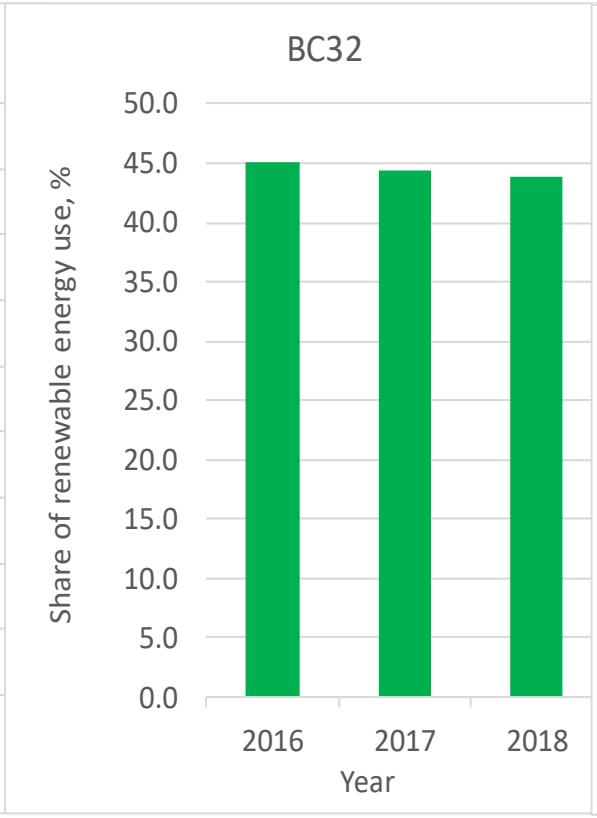
Social indicators for BC16 (Bio-Based Value Chain group, Spain)

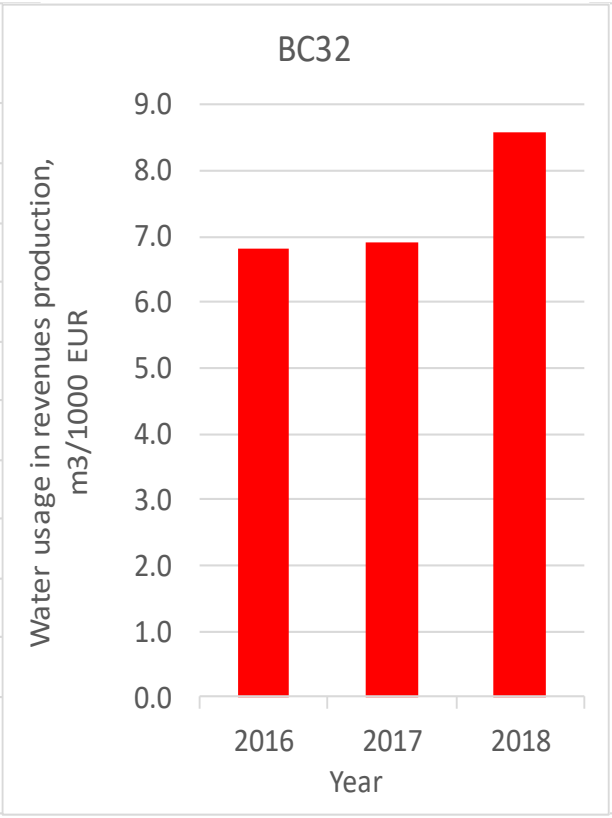


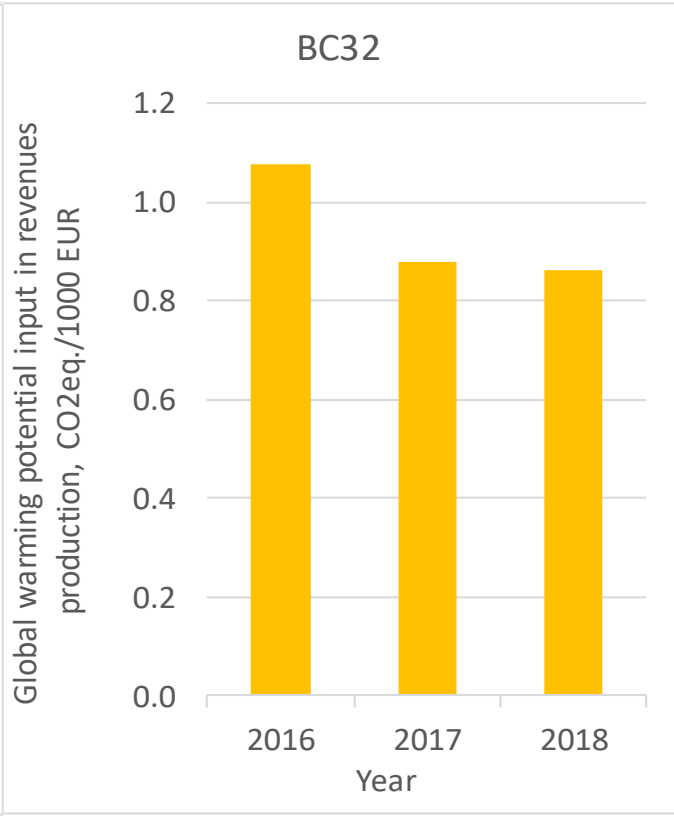
Environmental aspects – Results – Interpretation – BC32

Environmental indicators for a company assigned to FOOD group (Business Case BC32, Germany)



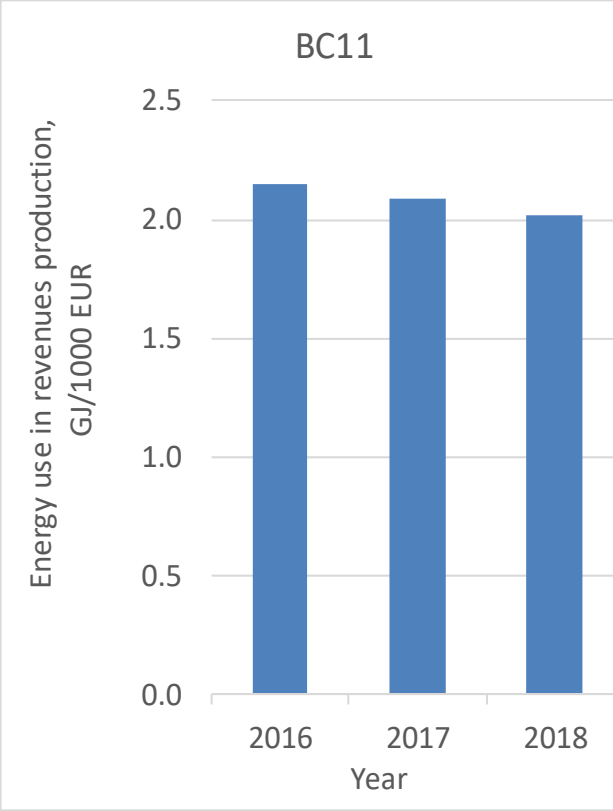


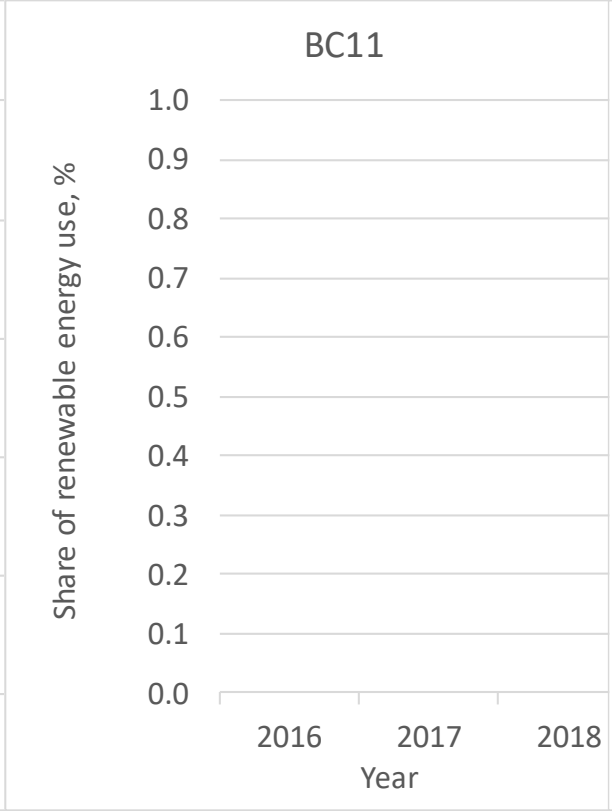


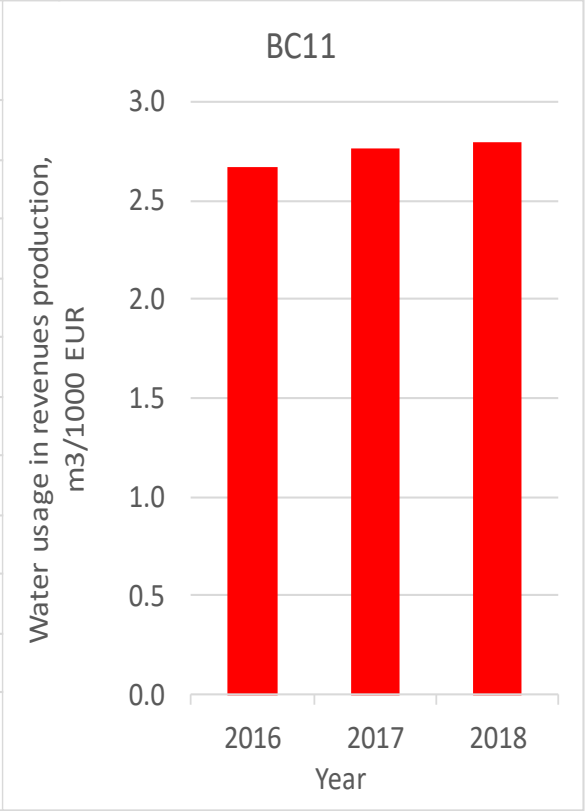


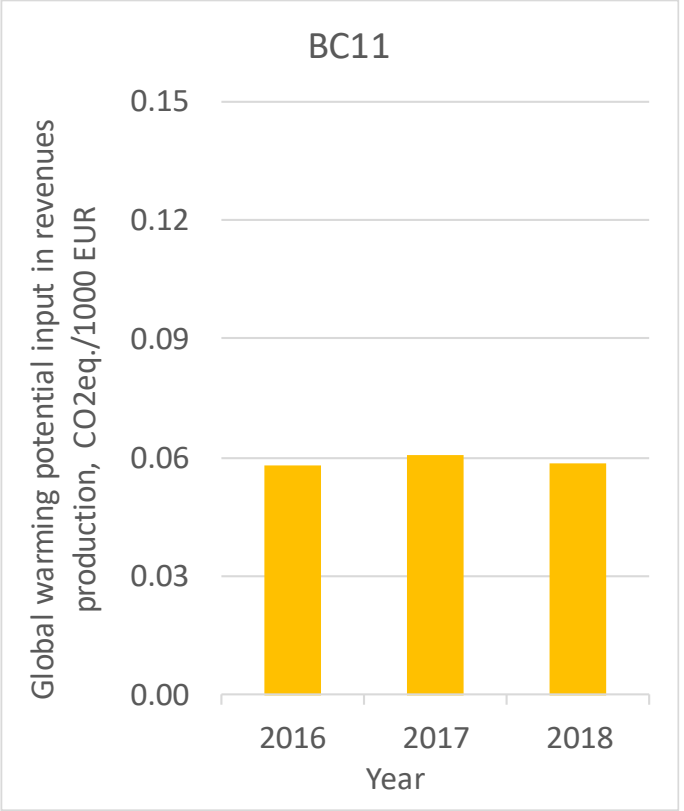
Environmental aspects – Results – Interpretation – BC11

Environmental indicators for a company assigned to ECO-System Services group (Business Case BC11, Romania)



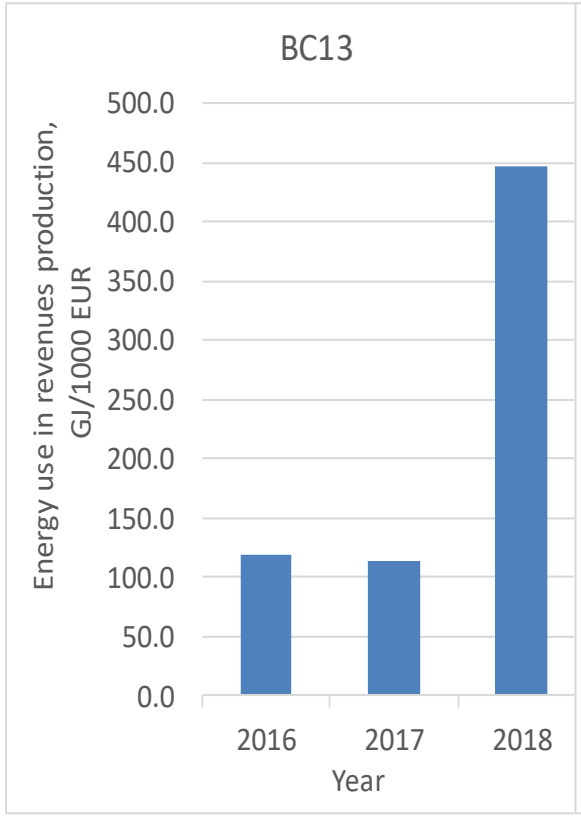


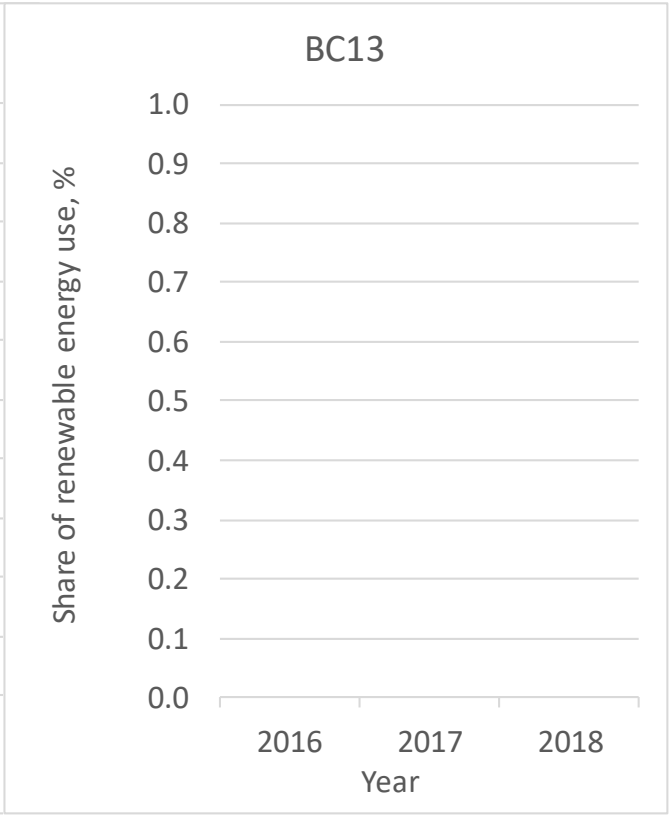


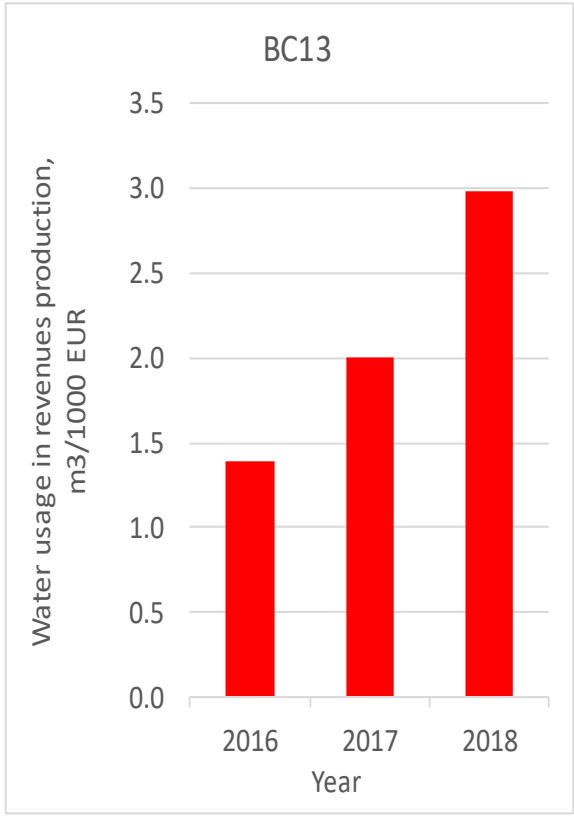


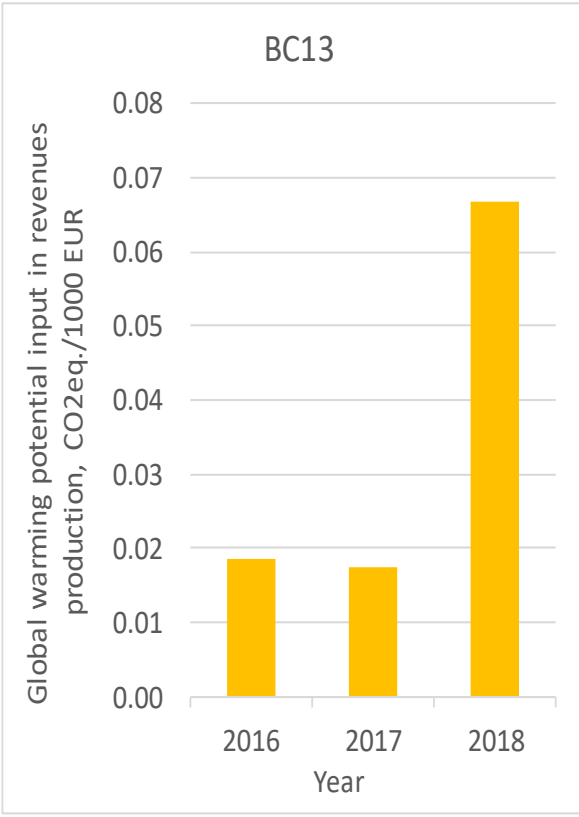
Environmental aspects – Results – Interpretation – BC13

Environmental indicators for a company assigned to Bio-Based Value Chain group (Business Case BC13, Spain)









Economic indexes - example

Economic indicators for BC1 (ECO-System Services group, Poland)

ECONOMIC INDICATORS				
Gross profit (GP)	EUR	-10 000	25 000	52 000
Total cost level indicator (TCL)	%	150.0	66.7	58.4
Gross profit margin (GPM)	%	-50.0	33.3	41.6
Return on gross assets (ROGA)	%	-1.9	4.5	8.7
Share of sales to the local market in the value of revenues (SSLM)	%	100	100	95
Work productivity (WP)	EUR/prs,	10000	18750	25000
Productivity of labor costs (PLC)	-	#DZIEL/0!	7.5	6.9

Economic indexes – example

Economic indicators for BC10 (FOOD, Romania)

ECONOMIC INDICATORS				
Gross profit (GP)	EUR	82 000	77 000	324 000
Total cost level indicator (TCL)	%	84.0	88.5	54.6
Gross profit margin (GPM)	%	16.0	11.5	45.4
Return on gross assets (ROGA)	%	5.13	5.13	17.05
Share of sales to the local market in the value of revenues (SSLM)	%	30	30	30
Work productivity (WP)	EUR/prs,	9463	14277	16227
Productivity of labor costs (PLC)	-	5.0	6.6	7.6

Economic indexes – example

Economic indicators for BC22 (FOOD, Sweden)

ECONOMIC INDICATORS				
Gross profit (GP)	EUR	-38 804	174 357	241 763
Total cost level indicator (TCL)	%	110.5	55.1	42.4
Gross profit margin (GPM)	%	-10.5	44.9	57.6
Return on gross assets (ROGA)	%	-8.46	36.66	53.28
Share of sales to the local market in the value of revenues (SSLM)	%	100	100	100
Work productivity (WP)	EUR/prs,	102364	107839	116505
Productivity of labor costs (PLC)	-	4.1	17.8	16.4

Conclusions

- ✓ Economic activity in rural areas (or other areas) should not only bring financial benefits to the owner, but also contribute to positive local social changes with the lowest possible negative impact on the natural environment.
- ✓ Social aspects are important to characterize the local business in terms of its influence on local society, and good environment for living,
- ✓ Environmental analysis provide information about the influences/trends of the company's activities on the environment. The owner being conscious of the need to take care about the nature and positive image of the company can start some actions to eliminate or reduce the negative impact. From the other site, doing some changes in the company, the owner can observe the changes of the indicators to control the progresses from the made investments.
- ✓ The economic, environmental and social indicators set for the analysed business cases allow the entrepreneur himself to learn about the impact of his business on the wide understood external environment and be helpful in further decisions-making in this area.
- ✓ On the other hand, external entities or people wanting to use certain patterns can analyse cause-effect relationships and apply results when developing their own activities in rural areas.