



Evaluation of sustainability
performance of Transform projects
-Landmarkt-

Roline Broekema

June 2010

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1. Introduction

1.1 Sustainability mapping approach

This document evaluates the sustainability performance of the Transformum project “Landmarkt” according to the approach that is described by Blonk et. al (2010).

A full description of the approach that is used to evaluate the sustainability performance of Transformum projects can be found in the methodology report by Blonk et. al (2010). A short introduction to the applied methodology is described in chapter 2.

Paragraph 1.2 gives a short description of the Transformum project Landmarkt. Chapter 3 describes which baseline scenario is used to determine the sustainability performance of Landmarkt. Chapter 4 evaluates the total sustainability performance of Landmarkt and in paragraphs 4.1 to 4.5 describes in detail all considerations of each sustainability indicator. Chapter 5 closes with the discussion and conclusion.

1.2 The project: Landmarkt

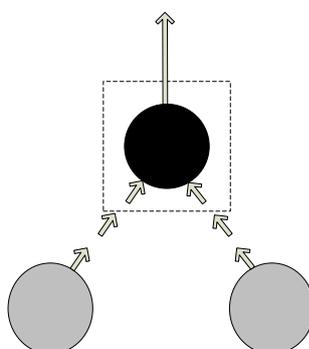
Landmarkt is a new formula of open marketplaces with restaurant facilities which wants to connect city and countryside by tasty, local and naturally produced food. It is a franchise organization that wants to develop into a chain of indoor marketplaces with establishments on the edge of the city to make a real connection between the city and countryside. The aim is to have 30 locations in the Netherlands within 10 years. Besides the broad assortment of vegetables, fruits, bread, dairy and cheese, groceries will also be sold by Landmarkt. Although the width of the grocery assortment is less than sold by the regular supermarket.

The first sustainability ambitions

Landmarkt strives for a better income for all connected farmers while connecting consumers to the producers of the food. An important starting point is locally produced and tasty products. To create a better income for the farmer Landmarkt will make an economical arrangement with the farmer.

1.3 System definition: New product concepts developed with (exchangeable) suppliers

The initiator, Landmarkt, performs the innovation himself by defining the innovative product concept, in this case a grocery store regarding a new formula. In order to do so, he will need multiple suppliers, the farmers, that will have to be able to meet his demands for the product(s) that he wants to make available.



System definition 2:
exchangeable suppliers

The initiator will make a selection of possible suppliers. The combination of the products is part of a bigger marketing concept. The link between initiator and supplier is not necessarily continuous, which means the suppliers are exchangeable, although the intention of Landmarkt is to form an ongoing relationship with their suppliers.

2. Methodology

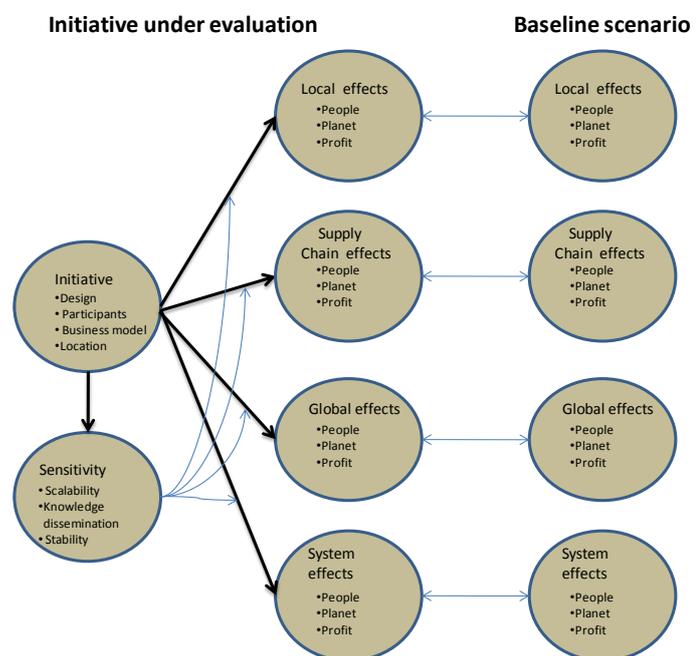
This chapter gives a brief overview of the methodology used to evaluate the sustainability performance of initiatives. More information about this methodology can be found in Blonk et al. (2010).

2.1 Evaluating initiatives on sustainable performance

Sustainability is a very broad concept dealing with ecological, social and economic consequences of our actions. Absolute sustainability doesn't exist or is at least very hard to define. A more workable concept is sustainable development which implies that we are able to define more sustainable directions and thus be able to measure a more sustainable performance. Sustainable development includes nature and environmental aspects (planet), social aspects (people) and economic aspects (profit). It refers to an ongoing process of finding balance between these aspects.

It is often not easy to evaluate the performance at a glance because the implications of an initiative do often not result in an improvement on all different sustainability aspects. Moreover there are many effects and actors involved on different locations and with different timeframes.

For evaluating the TransForum initiatives a specific evaluation methodology was needed to be developed because existing methods do not cover the total spectrum of effects related to a new initiative. Each initiative generates people, planet and profit effects for different actors and different scales. These effects are divided



in this methodology in local effects at the initiative, local effects in the supply chain, global effects, and system effects. The ultimate impact of an initiative is also the result of the resilience of the designs, the potential for upscaling and the knowledge spreading mechanisms involved. Scoring the sustainability performance is only possible in relation to a baseline scenario (figure 2.1).

Our method for measuring sustainable development performance of initiatives is based on a combination of three existing approaches of :

- Lifecycle assessment (Guinee, 2002)(ISO14040, 2006)(ISO 14044, 2006) (ILCD 2010) (SLCA guide 2009)
- Environmental Impact Assessment (*a.o. EU directive 85/337/EEC amended in 1997*)
- Supply chain and company Reporting of Sustainability (Global Reporting Initiative)(ISO 14064, 2006) (Poverty footprint of Oxfam Novib draft 2010)

LCA methodology gives the framework for making a sound evaluation of environmental and (partly) societal impacts over a production chain of products and gives directions how to evaluate the consequences of changes or improvements in lifecycles. EIA methodology is primarily involved with local effects and provides different working methods for evaluating a combination of qualitative and

quantitative information. Furthermore a sound definition of the baseline and alternative scenario's is one of the most important aspects of EIA. A third approach can be qualified as reporting sustainable performance of companies and their supply chain. The Global Reporting Initiative and the poverty footprint methodology of Oxfam Novib set the framework. All these basic methodologies are under continuous development which means that our sustainability mapping methodology is also.

The evaluation is preferable carried out in an iterative and interactive way, using a sequence of five steps per round:

1. Define the initiative.
2. Define the baseline scenario.
3. Score local, supply chain, global and system effects.
4. Visualize the scores within the sustainability map (*for an example see figure 4.1*).
5. Evaluate the results of the evaluation with the main stakeholders.

These steps are explained in the next paragraphs.

2.2 Defining the initiative

Before an initiative can be evaluated on sustainability, a clear understanding of the initiative is needed. Which parties are involved? What are the boundaries of the initiative? What are the sustainability propositions (aims)? What's the location of the initiative? Some initiatives must be defined further to come to a business case that can be evaluated. This can be the case when an initiative is still in a preliminary stage of design.

2.3 Defining the baseline scenario

To evaluate the sustainability of an initiative it is necessary to define a baseline scenario. The baseline scenario differs for each initiative and is based on the business as usual for the initiative and the participants. Leading question is what would have been the situation, in a couple of years, if the initiative does not take place?

There are several types of developments relevant for defining the baseline scenario:

- What would the entrepreneurs do if the initiative does not take place?
- What would happen at the location if the initiative does not take place?
- What happens to other locations because of the initiative?
- How would the (environmental) performance of the product autonomous develop if the initiative does not take place?

Which developments are important to include and to what extent depends on the initiative. Sometimes the local aspects are very important and sometimes it is a minor issue.

2.4 Definition of effect categories

This paragraph briefly describes the different sustainability aspects (3P's) with the corresponding sustainability indicators of local, supply chain, global and system effects. A description of all sustainability indicators, and how these indicators are scored, can be found in Blonk et al. (2010).

2.4.1 Local effects of the initiative

Local effects are divided into scales: The first scale is the initiative. The second scale is a regional scale, referring to the surroundings of the initiative. Sometimes a third scale is involved, for instance a national scale when specific themes are interrelated with national governance. Regional and national scales are

relative terms and depends on the type and extension of each specific initiative. These scales have to be defined for each individual initiative.

Initiative

A part of the effects of the initiative are located within the physical borders of the initiative. On the initiative scale there are people, planet and profit effects defined:

- People effects for employees, entrepreneurs and animals (e.g. work conditions and animal welfare).
- Planet effects at the initiative site (e.g. landscape, physical environmental quality and biodiversity)
- Profit effects of the initiative (e.g. balance, investment costs and value creation).

Regional

An initiative also influences the direct surroundings and can have people, planet and profit effects on a regional scale. It can affect residents, companies or employees nearby the initiative. People effects are for example changes in opportunities for recreation and community involvement towards the initiative. Planet effects are related to physical or chemical emissions to the surroundings and changes in landscape and biodiversity. Profit effects on a regional scale are considered as a positive contribution to the community.

National (when appropriate)

For some of the local effects it is necessary to take the national perspective into account. On national scale planet effects are important because they have a strong national dimension based on regulations (e.g. regulations on eutrophication). People and profit effects are not evaluated on a national scale because of difficulties in making these effects operational unambiguously.

2.4.2 Local supply chain effects

Besides local effects at the site of the initiative an initiative can also have comparable local effects at the supplying companies. This can be initiated by selective sourcing, setting sustainability criteria for suppliers, developing sustainability improvements with suppliers, etc. The same thematic framework is used as a starting point for evaluating local effects in the supply chain.

In some cases local effects of downstream business (customers) need to be included in the evaluation, for instance in case of forwarded chain integrations.

2.4.3 Global effects of the product(s) of the initiative

A specific category of effects are those effects not depending on the location of operation and/or emissions. These effects include some specific planet effects and major environmental themes like global warming and land use.

The global effects which are scored are:

- Land use. This indicator is related to land conversion, loss of biodiversity, increasing greenhouse gas emissions, increasing competition between agro functions such as food, bio-based materials and biofuels.
- Climate change.
- Depletion of fossil resources, such as use of fossil fuels and phosphate rock.

These global effects are determined on product level so upstream and downstream processes are also included in the calculations. It must be noted that changes in quality or quantity of land do also have an impact on social or economic viability. The effects on local changes in land quality are evaluated under local people effects of the initiative or the supply chain.

2.4.4 System effects

An initiative ultimately generates products or services that may have an impact on other systems related to the usage of the product. For instance the usage of LED lamps reduces costs of energy of the consumer while at the same time it will reduce the environmental impact per unit light and per unit money.

A change in environmental impact (planet effect) per expended unit money (eco-efficiency) is relevant from a sustainable consumption perspective. A consumer can only use its money once and it is assumed that a lower impact per euro is better. A change in the amount of money expended per function is relevant for determining rebound effects related to the change in costs and behavioural adaptations. System effects of products related to health and improving knowledge of agricultural and/or sustainable production are also scored.

2.4.5 Potential of the initiative

The potential of an initiative refers to the scalability, stability and spreading of knowledge of an initiative. A first question to be answered is whether it is possible for an initiative to be copied at other locations and by other entrepreneurs or is it a one time operation or a specific niche market? The main question to be answered for evaluating “*Spreading of knowledge*” is whether the initiative aims to spread knowledge and/or includes mechanisms to do so?

2.4.6 Critical success factors

Finally, the evaluation gives information on specific parameters in the design or the surroundings of the initiative which are determinant for the realization and up scaling potential. These critical success factors give the actor(s) involved with the initiative essential information on risks and opportunities and can be used for strengthening the design or defining the conditions for (further) investments and making the initiative operational.

2.5 Visualizing the effect scores: “mapping of sustainability performance”

To make interpretation of the results easier we developed two visualizations.

1. A dashboard where the effects are categorized along the following qualification:
 - positive in relation to the baseline scenario
 - neutral in relation to the baseline scenario
 - negative in relation to the baseline scenario
 - not relevant for this initiative
 - relevant, but lack of data
2. A circle diagram which shows the relative amount of scoring positive, neutral, negative or relevant but lack of data.

3. Description of the baseline scenario

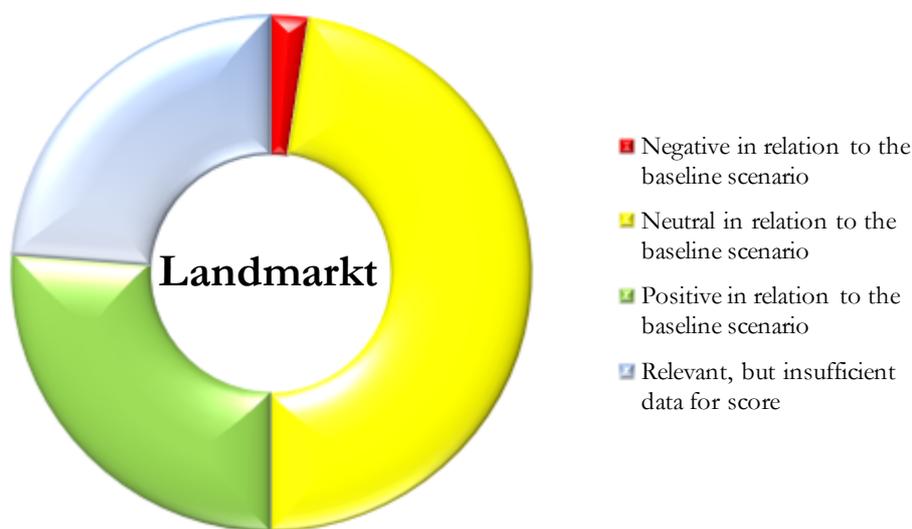
The baseline scenario used to evaluate the sustainability performance for Landmarkt is based on the average sustainability performance of two conventionally produced products sold by regular retail. The products have been selected based on the products that typically meet the vision of Landmarkt. The first product is cauliflower, which is produced in the region of Amsterdam and does not exceed climate category C of the 'Groente en Fruitkalender' of Milieucentraal. The second product is farmers' cheese, which is produced in the region of Amsterdam.

4. Sustainability of Landmarkt

In this chapter the sustainability of Landmarkt is evaluated through a top-down design. In paragraph 4.1 an overall figure, the sustainability map, is shown which is assembled out of a more comprehensive table, the sustainability table, from paragraph 4.2. This sustainability table contains 50 scored sustainability indicators and the critical success factors. The arguing of the scored sustainability indicators is described in paragraphs 4.3 till 4.7. The critical success factors are described in paragraph 4.8.

4.1 Sustainability map

Figure 4.1 shows the sustainability map and figure 4.2 shows the sustainability profile of Landmarkt compared to the baseline scenario as described in chapter 3. A comprehensive description of all scored sustainability indicators can be found in the following paragraph of this chapter.



Critical succes factors

- Availability of local products
- Product prices in store
- Growing pains: Stability of the supply chain

Figure 4.1. Sustainability map of Landmarkt

Figure 4.1 is assembled out of the relevant sustainability indicators from table 4.1. A weighting of importance of each indicator has not been applied.

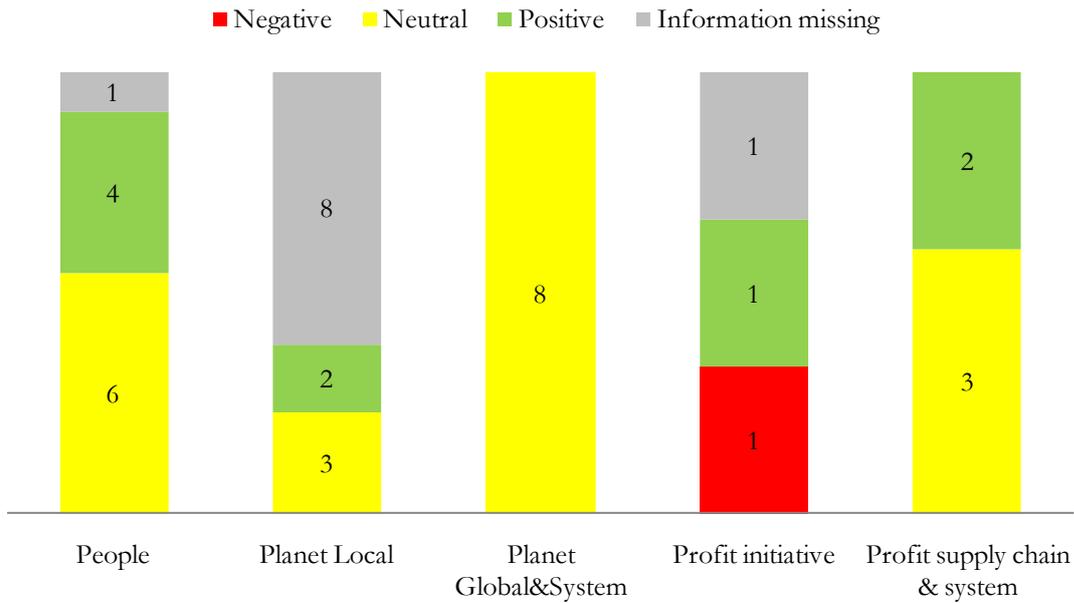


Figure 4.2. Sustainability profile of Landmarkt (number in bar represents amount of indicators)

Figure 4.2 is assembled out of the relevant sustainability indicators from table 4.1. A weighting of importance of each indicator has not been applied.

A red score can refer to many different situations of which three are of special importance:

- Red (negative) for economic indicators of the initiative (column 4)
- Red for global planet indicators (column 3)
- Red for system effects (column 3)

If the green scored area in the donut is relatively low, one may wonder if the initiative must be qualified as a sustainability initiative. It depends, however, greatly on what the relative weight of the green area is. A well thought initiative is aware of these hot spots of sensitive sustainability issues. The relative contribution of the “grey area” (relevant, but not enough information) gives information about the extent of issues that could not be evaluated. In this area there may be possible threats as well as opportunities. (For further explanation see Blonk et al., 2010).

4.2 Sustainability table

Table 4.1 shows the sustainability map of Landmarkt compared to the baseline scenario as described in chapter 3. A detailed explanation about this format and why these sustainability indicators were chosen can be found in the methodology report (Blonk et al., 2010). The arguing of the scored sustainability indicators is described in paragraphs 4.3 till 4.7. The critical success factors are described in paragraph 4.8.

Table 4.1. Sustainability table of Landmarkt

| 1. Local impacts of the production system | | | | |
|---|--------------------|--|-------------------|--|
| | Indicator | Initiative | Supply chain | |
| People | In Company | 1.01 Human rights | | |
| | Community negative | 1.02 Labour conditions | | |
| | | 1.03 Animal welfare & health | | |
| | | 1.04 Human health (other than emissions) | | |
| | | 1.05 Animal disease risks | | |
| | | 1.06 Development | | |
| | | 1.07 Involvement | | |
| | | 1.08 Environmental quality | | |
| | | In Company | 1.09 Biodiversity | |
| | | 1.10 Landscape | | |
| Planet | Surroundings | 1.11 Emissions affecting ecosystems and human health | | |
| | | 1.12 Environmental quality | | |
| | | 1.13 Biodiversity | | |
| | | 1.14 Landscape | | |
| | | 1.15 Balance sheet | | |
| | | 1.16 Investment | | |
| | | 1.17 Value creation | | |
| Profit | In Company | | | |

| 2. Global (non local) impacts of the product per functional unit | | |
|--|-----------------------------------|--|
| Planet | 2.01 Land use | |
| | 2.02 Greenhouse gas effect | |
| | 2.03 Depletion: fossil energy use | |
| | 2.04 Depletion: phosphate rock | |

| 3. Functional (system) effects related to product consumption and use | | |
|---|---|--|
| People | 3.01 Health | |
| | 3.02 Other welfare aspects (individual) | |
| | 3.03 Welfare of the community | |
| | 3.04 Land use | |
| Planet | 3.05 Greenhouse gas effect | |
| | 3.06 Depletion: fossil energy use | |
| | 3.07 Depletion: phosphate rock | |
| | 3.08 Money budget | |
| Profit | 3.09 Time budget | |
| | 3.10 Prosperity community | |

| 4. Potential of initiative | |
|----------------------------|--|
| Upscaling potential | |
| Knowledge dissemination | |

| 5. Critical succes factors | |
|--|--|
| 1. Local production available | |
| 2. Product prices in store | |
| 3. Growing pains: Will the relations with the suppliers be maintained? | |

| Legend | |
|---|--|
| Positive in relation to the baseline scenario | |
| Neutral in relation to the baseline scenario | |
| Negative in relation to the baseline scenario | |
| Not relevant to the initiative | |
| Relevant, but insufficient data to score | |

4.3 Local impacts of production chain - Initiative

This paragraph describes the local sustainability indicators 1.01 till 1.17 of the initiative which are scored in table 4.1. Sustainability indicators which are not relevant (blanc in table 4.1) are not addressed.

1.02 Labour conditions

Labour conditions meet the standards of rules and regulations. Although the physical work conditions in the supermarket can be experienced as tough, since the work involves a lot of standing, Landmarkt does value a couple of aspects that can contribute to human (psychological) health. Landmarkt rewards well educated employees with according wages, which are higher than the average wages of employees of regular supermarkets. Employees are stimulated in operating in a field that is passionate to them and they will have their own responsibilities. Since labour conditions meet standardized rules and regulations, average wages are higher and the work has psychological advantages compared to regular supermarkets. Landmarkt is scored positively compared to the baseline.

1.06 Development

Landmarkt will create an innovative supermarket that will function as a marketplace where the community can meet or feel connected to local farmers that produce their food. They also want to invest in gardens and trees around the supermarket.

1.07 Involvement

Landmarkt strives for involvement of the community by making consumers part of their region. Research on environmental psychology shows that knowledge of agricultural production does not simply lead to adjusted (more sustainable) consumption patterns (Hoogland, 2006). This means that making knowledge available to consumers does not contribute to consumers making better choices. Landmarkt intends to enrol educational programs in collaboration with schools, where students/ pupils visit farmers first and prepare the products later. There is also the intention of letting consumers decide on giving and participating in workshops in the store. Active involvement by giving consumers a responsibility in sustainable production is more effective than making knowledge available. Landmarkt is scored equally to the baseline.

1.09 Biodiversity

Landmarkt does not have an establishment yet, but has the intention to invest in a green environment of the supermarket. They will establish a production garden around the supermarket and they will invest in gardens in the neighbourhood. This seems more than a regular supermarket will do, but the question rises how big the effect will be on biodiversity in company. There is not enough information to comment on this subject.

1.10 Landscape

Landmarkt does not have an establishment yet, but has the intention to invest in a green environment of the supermarket. They will establish a production garden around the supermarket and they will invest in gardens in the neighbourhood. This seems more than a regular supermarket will do, but the question rises how big the effect will be on landscape and how this will be valued by consumers and inhabitants of the neighbourhood. There is not enough information to comment on this subject.

1.11 Emissions affecting ecosystems and human health and 1.12 Environmental quality

There is not enough information to comment on these subjects.

1.13 Biodiversity

Landmarkt does not have an establishment yet, but has the intention to invest in a green environment of the supermarket. They will establish a production garden around the supermarket and they will invest in gardens in the neighbourhood. This seems more than a regular supermarket will do, but the question rises how big the effect will be on biodiversity in company. There is not enough information to comment on this subject.

1.14 Landscape

Landmarkt does not have an establishment yet, but has the intention to invest in a green environment of the supermarket. They will establish a production garden around the supermarket and they will invest in gardens in the neighbourhood. This seems more than a regular supermarket will do, but the question rises how big the effect will be on landscape and how this will be valued by consumers and inhabitants of the neighbourhood. There is not enough information to comment on this subject.

1.15 Balance sheet

Balance will probably be positive, otherwise Landmarkt will not be able to stay in business. Because Landmarkt has not opened a store yet and because the business model of Landmarkt is different from other retailers (60%-40% share of profit with suppliers) there is not enough information to comment on this subject.

1.16 Investment

The investment costs for Landmarkt are scored negatively according to the baseline. There is a higher investment needed to set up retail as required by Landmarkt than it is to set up conventional retail. Knowledge is not readily available and research is needed before the first supermarket can be opened.

1.17 Value creation

Landmarkt is special compared to the baseline because the products are originated from the region. Besides this local aspect, which has the potential to add value, a main point in selection criteria is taste. The breeds of produce are selected for the taste of the crop, which enhances value. There is also an element of education involved in the formula. The strive is to educate consumers on production methods, taste and healthy choices. This is why Landmarkt is scored positively compared to the baseline, in which there is no focus on local produce, taste or on farmers adding value to their produce.

4.4 Local impacts of production chain - Supply Chain

This paragraph describes the local sustainability indicators 1.01 till 1.17 of the supply chain which are scored in table 4.1. Sustainability indicators which are not relevant (blanc in table 4.1) are not addressed.

1.03 Animal welfare and health

Animals that produce products for Landmarkt must be kept at a minimum level of 1 star according to the 'Beter Leven Kenmerk¹', which means that husbandry must meet higher welfare standards than in conventional animal production systems. This is why Landmarkt is scored positively compared to the baseline, where supermarkets do sell meat from factory farming.

¹ Transparency of criteria used for the Beter Leven Kenmerk can be questioned

1.04 Human health (other than emissions), 1.05 Animal disease risk, 1.06 Development, 1.07 Involvement and 1.08 Environmental quality

No differences compared to the baseline.

1.09 Biodiversity

Landmarkt intends to ask suppliers to apply crop rotation every eight yields in order to stimulate biodiversity. Furthermore they are looking at asking suppliers to apply meadow bird conservation and ditch management. Because Landmarkt is actively seeking for some management tools to give to suppliers that will benefit biodiversity Landmarkt is scored positively compared to the baseline.

1.10 Landscape

The aim of Landmarkt is to financially support producers in the agricultural landscape. They have the opinion that producers have a responsibility as guardian of our cultural landscape. Landmarkt does not have a policy or terms for suppliers for contributing to landscape. Landmarkt will not ask mega stables (megastallen) to be their supplier and they will not support the industrialization of the landscape. Because Landmarkt does not have a policy for producers when it comes to landscape conservation and development Landmarkt is scored equally to the baseline.

Landscape development is a subjective concept so it is complex to determine what Landmarkt will be able to include in policy in order to stimulate landscape development. Research might need to be done to determine what inhabitants, scientists and landscapers value in agricultural landscape.

1.11 Emissions affecting ecosystems and human health and 1.12 Environmental quality

There is not enough information to comment on these subjects.

1.13 Biodiversity

Landmarkt intends to ask suppliers to apply crop rotation every eight yields in order to stimulate biodiversity. Furthermore they are looking at asking suppliers to apply meadow bird conservation and ditch management. In company biodiversity will transfer to the surroundings. Because Landmarkt is actively seeking for some management tools to give to suppliers that will benefit biodiversity Landmarkt is scored positively compared to the baseline.

1.14 Landscape

The aim of Landmarkt is to financially support producers in the agricultural landscape. They have the opinion that producers have a responsibility as guardian of our cultural landscape. Landmarkt does not have a policy or terms for suppliers for contributing to landscape. Landmarkt will not ask mega stables (megastallen) to be their supplier and they will not support the industrialization of the landscape. Because Landmarkt does not have a policy for producers when it comes to landscape conservation and development Landmarkt is scored equally to the baseline.

Landscape development is a subjective concept so it is complex to determine what Landmarkt will be able to include in policy in order to stimulate landscape development. Research might need to be done to determine what inhabitants, scientists and landscapers value in agricultural landscape.

1.15 Balance sheet

Landmarkt strives to give suppliers/ farmers a fair price and also a 40% share of profits (and losses), so the balance of the supplier will turn out positively.

1.16 Investment

Investment costs for suppliers of Landmarkt will not be any different from investment costs of suppliers of regular supermarkets.

1.17 Value creation

Products sold by Landmarkt have an enhanced value because they are produced in the region, have a better taste and are fresh due to short transport distances, which is why suppliers of Landmarkt are scored positively compared to the baseline.

4.5 Global Effects

This paragraph describes the global sustainability indicators 2.01 till 2.04 which are scored in table 4.1. These global environmental themes (greenhouse gasses, land use and fossil energy) are calculated from feed production until retail. The used method is described in detail in Blonk et al. (2008).

2.01 Land use

Landmarkt is scored equally to the baseline.

Cauliflower

The yield of cauliflower sold by Landmarkt is the same as the yield of cauliflower sold by regular retail. If Landmarkt would select organic cauliflower, land use can score negative due to a possible lower yield per hectare for organic cauliflower.

Farmers' cheese

Land use of farmers' cheese will probably not have a higher land use than regular cheese. The farmer selected by Landmarkt for cheese supplies does not engage in organic farming and there is no reason to assume that milk yields will be higher or lower than regular milk production. However the amount of litres of milk needed for production of 1 kg of cheese might be a little higher for farmers' cheese, but data were not definite enough to give a definite conclusion.

2.02 Greenhouse gas effect

Landmarkt is scored equally to the baseline.

Cauliflower

Cauliflower sold by Landmarkt has a slightly lower (4%) greenhouse gas emission per kg than regular cauliflower. This is mainly the result of a shorter transport distance. The assumption has been made that transport is being done by truck and with the same load factor and loading capacity. If the cauliflower sold by Landmarkt is being transported by van, the result will depend on the load factor, as shown in figure 4.3.

Luske (2009) found that transport with delivery vans from the farmer to a packing station and subsequently to retail/ consumer was not necessarily more efficient than transport with trucks, even though transport for ordinary retail did cover more kilometres. A big factor in this was the load factor of the delivery vans.

There is also a possibility that cauliflower sold by Landmarkt might score better than the baseline. In regular retail the switch from Dutch to imported cauliflower is made from a certain date (eg. 1st November – 31st May), even though Dutch cauliflower might still be available. If Landmarkt does sell Dutch cauliflower until it isn't available anymore and sells it again as soon as it is available instead of importing it from a certain date, a slight advantage can be made because of shorter transport distances.

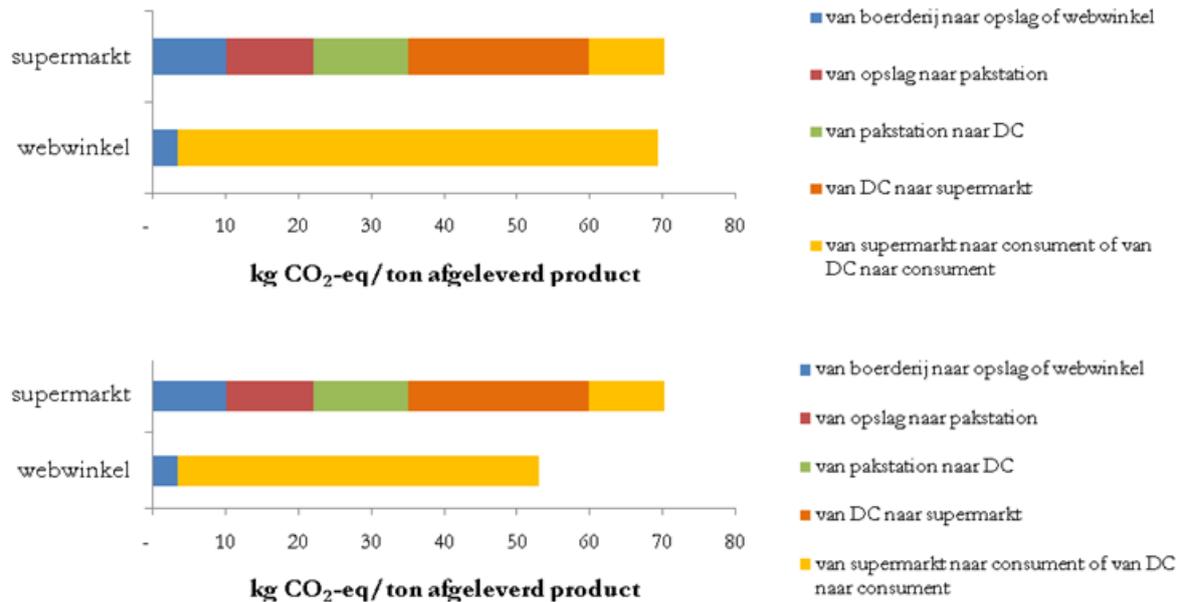


Figure 4.3. Emission of greenhouse gasses per ton of delivered product for the supermarket chain and the web store chain with an average load factor of 0,9 ton / trip (above) en 1,2 ton/ trip (below).

Farmers' cheese

It wasn't possible to calculate greenhouse gas emission per ton cheese for farmers' cheese. Because the farmer adds value to his cheese by producing it himself the farmer sells his cheese for more euro's than the factory sells its cheese. When using economic allocation, as usual when performing a LCA, a large amount of emissions would be allocated to the farmers' cheese while production might be more efficient. This is why the calculation of greenhouse gas emission has been done for the production of one year on the farm, compared to the same amount of production in the cheese factory. Farmers' cheese has a 3,7% lower greenhouse gas emission than factory cheese. The difference is not enough to score positive for Landmarkt. A remark has to be made that farmers' cheese has been produced with renewable energy (groene stroom en groen gas). The assumption has been made that renewable electricity has no emissions and that biogas has less emissions than regular natural gas. If this assumption hadn't been made greenhouse gas emissions would differ even less.

2.03 Depletion: fossil energy use

Landmarkt is scored equally to the baseline.

Cauliflower

The difference between cauliflower sold by Landmarkt and regular retail cauliflower is minimal. The same considerations as noted under 2.02 can be made.

Farmers' cheese

Cheese production by the farmer seems to use more fossil energy than cheese production in the factory, but detailed information on energy use wasn't available because there was no separate energy meter for the production process of farmers' cheese. For depletion of fossil energy as well as for greenhouse gas emission, the use of renewable energy and the assumptions noted in 2.02 make a big difference for the result.

2.04 Depletion: phosphate rock

Landmarkt is scored equally to the baseline, since there is no difference in production for cauliflower and cheese sold by Landmarkt compared to regular retail.

4.6 System effects

This paragraph describes the sustainability indicators (the system effects) 3.04 till 3.07 which are scored in table 4.1. Sustainability indicators which are not relevant (blanc in table 4.1) are not addressed.

3.01 Health

Landmarkt is planning a focus on health effects of food choices. The plan is to inform consumers on what is a healthy choice diet wise. Landmarkt also wants to provide recipes to encourage healthy choices. Furthermore Landmarkt will select products on health, for instance bread with 40% less salt or foods with reduced food additives.

Although Landmarkt does make an effort to address health issues, there is not enough information on health effects of reduced salt content and reduction of food additives.

3.02 Other welfare aspects (individual)

When asked, the consumer does not appreciate products especially because they come from their region, but because they are seen as fresher than products that come from large distances. Consumers appreciate tasty food and relate freshness to a better taste.

Landmarkt is scored positively compared to the baseline because it fulfils the need for consumers to have tastier and fresher food (from the consumers point of view) (Grijseels F., 2010).

3.03 Welfare community

No difference compared to the baseline.

3.04 Land use, 3.05 Greenhouse gas effect, 3.06 Depletion: fossil energy use and 3.07 Depletion: phosphate rock

Landmarkt is scored equally to the baseline because the aim of Landmarkt is that consumers pay the same amount for their total grocery basket as they would have spent in the baseline supermarket. If farmers' cheese would be more expensive at Landmarkt than it is in the baseline supermarket, Landmarkt would score positive here for farmers' cheese compared to the baseline. The same goes for cauliflower, but if cauliflower is sold for less than in the baseline supermarket, Landmarkt would score negative compared to the baseline. Since prices at Landmarkt depend on suppliers cost prices and Landmarkt has not opened a supermarket yet, it is impossible to score positive or negative at the moment.

3.08 Money budget

In certain food categories like meat Landmarkt may be more expensive, but in other food categories like fruit and vegetables Landmarkt will be less expensive than the baseline. The aim is that the consumer will not spend more money on the total grocery basket than in the regular supermarket, which is why Landmarkt is scored equally to the baseline.

3.09 Time budget

Landmarkt will be located on the brim of the city and the agricultural land, on the way from work to home. Time wise, consumers are not expected to spend more time doing their groceries at Landmarkt than they will be at the baseline supermarket.

4.7 Potential

Upscaling potential

It will be possible to upscale the concept of Landmarkt to other regions, although different fruits, vegetables and other produce will be available in different regions. Marketing local produce will differ per region depending on the availability of produce and the selection criteria used. It is the intention of Landmarkt to open 30 stores within the next 10 years, which is why Landmarkt is scored positively for upscaling.

Knowledge dissemination

There is an active policy in the dissemination of knowledge or in making the gained experiences available for other entrepreneurs. This involves research being done by the WUR and LEI.

4.8 Critical success factors

Local production available

Primary stability will depend on the scale of Landmarkt and the local produce available. In order to achieve a healthy turnover with a broad enough assortment, the step outside of the region will have to be taken. The question is to which extent this will be acceptable and what other selection criteria will be taken into account.

Product prices in store

Stability will also depend on the product prices in store that will be needed to achieve a healthy turnover and a fair price for suppliers. The price in store will have to be managed. While giving suppliers a fair price, the consumer price can get so high that consumers will hesitate to buy the products.

Growing pains. Will the relations with the suppliers be maintained?

Landmarkt might experience the growing pains of setting up a company which is dependant on small scale suppliers. It might take some time before stable relationships with suppliers have been established, which might effect stability of delivery to customers.

5. Discussion and conclusions

To interpret the conclusions on the sustainability performance of Landmarkt in this study the following has to be taken into account. This study evaluates the sustainability performance of the initiative Landmarkt divided in four effects (local, global, supply chain, system), based on the methodology that is described in Blonk et al. (2010). Within this differentiation different sustainability indicators, which are ordered in the three categories people planet and profit, are evaluated. The total evaluation of the sustainability performance depends on each sustainability indicator and the importance (relative weight) of each indicator. A weighting of importance of each indicator has not been applied in this study.

The results of this study are based on the intentions and plans of Landmarkt. If the implementation deviates from those intentions, this could have consequences for the sustainability performance evaluation. This can have either positive or negative effects on the final evaluation. If such deviations from the original plan and intentions occur, this needs to be evaluated before conclusions can be drawn about sustainability.

Strengths

From the sustainability evaluation the conclusions can be drawn that the sustainability indicators in which Landmarkt can distinguish itself in a positive way, in comparison to the baseline, are:

- A positive effect on the balance of the supplying farmers.
- Value creation of agricultural products by incorporating them from the region.
- Psychological advantages for employees because they work in a field that is passionate to them en paying wages that are higher than in regular supermarkets.
- Involvement of the community by enrolling educational programs.
- Stimulating suppliers to engage in meadow bird conservation, more frequent crop rotation and other nature conservation aspects.
- Presenting the healthier option of products like bread with lower salt content.
- Selecting animal products with 1 star (Beter Leven Kenmerk, although criteria are not transparent).

The potential of Landmarkt is seen as positive because of the scalability of the project and the fact that knowledge and experiences are spread.

Weaknesses

It can be concluded from the sustainability evaluation that the weak sustainability indicators of Landmarkt are:

- The investment that will have to be made in order to set up retail as defined by Landmarkt, compared to regular retail.

Opportunities

Some opportunities for Landmarkt to develop more sustainability are:

- Investing in research about actions which can be taken that have a positive influence on landscape.
- Enrol programs in which consumers can take on responsibilities in sustainable production for instance by organising weeding days once a month or harvesting their own products.

Threats

There are three main threats for Landmarkt:

- The availability of agricultural products in the region.
- The balance between giving a fair price to suppliers and charging consumers a higher price.
- Growing pains of setting up a company which is dependant on small scale suppliers.

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