

CORE Organic

CORE Organic Project Series Report

Proceedings

Novel Strategies for Climate Mitigation, Sustainability and Healthy Eating in Public Foodscapes.

Proceedings of the conference held at Aalborg University, Copenhagen Institute of Technology, Denmark, November 25th-26th, 2009



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This project is one of the eight research pilot projects selected in 2007 for transnational funding by the partners of the CORE Organic ERA-net project. The pilot projects, which are running in the period 2007 – 2010, are:

AGTEC-Org	AGronomical and TEChnological methods to improve ORGanic wheat quality: agtec.coreportal.org
ANIPLAN	Minimising medicine use in organic dairy herds through animal health and welfare planning: aniplan.coreportal.org
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Photos: Front page photos by Anne-Kristin Løes - Pupils run their own canteen at Værebroskolen school in Gladsaxe, Denmark

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Preface

The iPOPY conference on Novel Strategies for Climate Mitigation, Sustainability and Healthy Eating in Public Foodscapes was held the 25th – 26th of November, 2010 in the Copenhagen Institute of Technology arranged by the researchgroup Food, People & Design at Aalborg University. The conference attracted over 60 scientists and practitioners and focused on the difference that “outside home settings” can do in order to promote healthy eating, organic consumption and more climate friendly food choices. The conference also attracted considerable attention from news media. The present publication contains the contributions for the conference.

The successful conference is due to a number of persons to which we are thankful. Besides all the enthusiastic speakers and participants these include the scientific committee: Chen He, Lena Nymoen, Thorkild Nielsen & Minna Mikkola, as well as the organizing committee: Sofie Husby, Chen He & Mia Brandhøj. On behalf of the organizing and scientific committee

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Section A: Papers

Sustainable Development and Food Policies at the Urban Level - Experiences from the City of Malmö, Sweden

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Abstract

Different policies from the City of Malmö for sustainable development and food, especially organic food are described and the outcomes and experiences for each of them are discussed. The City of Malmö reached an organic percentage of 24 per cent in 2008. Malmö School Restaurants serving 38 000 meals a day are leading the development and had a share of 43 per cent organic food in 2008. The good results have been reached through clear aims, good examples, close cooperation with food suppliers and a strong commitment among the staff.

1 Introduction

In Sweden, hot school lunches for all children, age 7 to 16 years, are tax-financed, as stated by Swedish law. For the City of Malmö, Malmö School Restaurants (MSR) is the main supplier of food for Malmö public schools. They serve 38 000 servings of food every weekday. In 1996 MSR introduced the first organic product; the pickled cucumber, in their kitchens. At that time, the use of organic food was only vaguely included in different policy documents. Since then, the purchase of organic foodstuffs has increased steadily, and more and detailed policy documents have been formulated.

In the following text, percentage of organic food is expressed as the share of food budget used for purchase of organic foodstuffs.

2.0 Description of policy initiative

2.1 The Environmental Programme for the City of Malmö 1998 – 2002

This early policy document aimed to incorporate 10 per cent of arable land for organic farming production by 2002. To support this, public procurement should include the purchase of as much organic as possible; however, no percentage aim for consumption of organic food was formulated. (Malmö Stad, 1998)

2.2 Vision of 100 per cent Organic in Malmö School Restaurant by 2012

In 2002 the vision of 100 per cent organic by 2012 was formulated. It started as an initiative from the Service Department of Malmö, of which MSR is a part. This goal is now a politically sanctioned policy. Every year a new higher aim is set, for 2009 it is 50 per cent.

(www.malmo.se/skolautbildning/skolmat/skonareochgronaremiljo/ekologiskvision.4.33aee30d103b8f15916800062967.html 2009-10-20)

2.3 The Environmental Programme for the City of Malmö 2003-2008

For the entire City of Malmö the following were stated: at least 10 per cent of the farmland in Malmö will be dedicated to organic production by 2008. The equivalent of 20 per cent of the food purchased for the City of Malmö's activities will be produced organically by 2007. Notably, this aim is lower than the one set for MSR. This is due to the fact that within this Environmental Programme all activities within the municipality are included, such as pre-schools, day-care institutions and homes for elderly people. (Malmö Stad, 2003)

2.4 The New Environmental Programme 2009-2020 for the City of Malmö

This upcoming Environmental Program has not yet been agreed to at the political level in Malmö. In the proposed program it is stated that:

"The organically grown area should increase." "Of the food purchased by the City of Malmö, the percentage of locally and organically grown food should also increase".

(www.malmo.se/miljohalsa/arbeteforhallbarutveckling/malmostadsmiljoprogram.4.33aee30d103b8f15916800088894.html 2009-10-20)

The new Environmental Program is formulated in a new, less detailed manner and will be followed by more concrete measures to ensure effective implementation.

2.5 Policy for Sustainable Development and Food in Malmö

In June 2009 the Municipal Executive Board decided to develop a policy for "Sustainable Development and Food". The policy includes different aspects of food; including quality, health, availability, as well as sustainable purchases such as local, organic etc. The proposal suggests that all food served in Malmö will be organically produced by 2020. The process to formulate this policy started with a number of workshops to ensure as broad input as possible. The first draft of the policy will be formulated this autumn.

2.6 National policy for organic food in public catering

In March 2006 the Swedish Parliament decided upon new aims for organic production and consumption. It states that 25 per cent of the purchases of food within the public sector in Sweden should be organic by 2010. (Regeringen, 2005)

3 Expected/obtained outcome

3.1 The Environmental Programme for the City of Malmö 1998 – 2002

Agriculture land used for organic farming reached only 3 per cent by 2002. In 2002, 12 per cent of the purchased food by MSR was organic. (www.malmo.se/skolautbildning/skolmat/skonareochgronaremiljo/ekologiskvision.4.33aee30d103b8f15916800062967.html 2009-10-20). The figures for the entire City of Malmö were not measured, but were estimated to around 8 per cent by 2002.

3.2 Vision of 100 per cent organic in Malmö School Restaurant

3.2.1 Obtained outcome for Malmö School Restaurant

Every year since the vision was formulated, MSR have formulated yearly aims for the percentage of organic food. These aims have been followed and even exceeded. By the year 2008, 43 per cent of the expenditures on food were used to buy organic food products. (www.malmo.se/skolautbildning/skolmat/skonareochgronaremiljo/ekologiskvision.4.33aee30d103b8f15916800062967.html 2009-10-20)

3.2.2 The example of Djupadalsskolan

In 2004 a group was formed, which should find methods to realize the vision of 100 per cent organic by 2012 for schools within Malmö and suggest a plan of action. MSR decided to set up a reference school for this, and chose Djupadal, a school of 500 students, age 6-12 years. The main scope was to fulfill the goal 100 per cent organic food, within the same budget as standard food, the same nutrition and quality and to remain as close as possible to the existing favorite dishes of the students.

The implementation of a reference school included careful planning and renovation of the kitchen, additional education of the staff and a firm commitment from the school headmaster.

In 2007 this goal was reached. It has been proven that you can serve 100 per cent organic food in a school.

Furthermore, the students at Djupadal ate even more than comparable students on other schools in Malmö, demonstrating that it is possible to ensure satisfying provision of organic foodstuffs.

Since 2007 the percentage of organic food at Djupadal has decreased from 100 per cent to 85-90 per cent. This could be explained by the fact that the project has ended and the additional pressure and the attention have left. The persons in charge, both the project leader and the main chef, have shifted to new tasks. Another explanation is that to achieve the last 15 per cent of organic foodstuffs is hard without causing additional expenditures. (Löfven, H. Personal communication)

3.3 The Environmental Programme for the City of Malmö 2003-2008

The aim of 20 per cent organic food in Malmö by 2007 was reached; 21 per cent of the food purchases were organic. In 2008 24 per cent were organic. (Malmö stad, 2009)

3.4 New Environmental Programme 2009-2020 for the City of Malmö

The aim of the new Environmental Programme to increase the organic purchases year by year will most likely be fulfilled. Firstly the target to achieve 100 per cent organic within the Malmö School Restaurant will most likely be achieved. Secondly, Malmö has initiated an education project for cooks and teachers of area pre-schools concerning the linkages between food, climate and the environment. This project aims to increase the use of climate friendly menus and organic products in pre-school kitchens. There is still a

large potential for this increase of organic food in pre-school kitchens without increasing the expenditures.

3.5 Policy for Sustainable Development and Food in Malmö

The expectation of this policy is that it will guarantee the status as well as ensure the high quality of the food that is served in all parts of the City of Malmö. It will also improve the sustainability of the food purchases and will probably suggest a new aim for the whole City of Malmö to achieve 100 per cent organic food by 2020.

3.6 National aims for Sweden

In 2007 the average share of organic food in the Swedish public sector was around 8 per cent. (Fröman, 2008) Obviously there is still a long way to reach the goal of 25 per cent organic food in the country as a whole. Accordingly, Malmö aims to reflect its achievements, to demonstrate how in this third most populated city in Sweden, the goal of 25 per cent organic was already close to achieved two years before 2010. In particular, there are important lessons to share, especially when it is done within a similar cost bracket that is no higher than the cost for food in other Swedish cities and municipalities.

4 Discussion

4.1 Success factors

Several factors have helped Malmö to achieve its goals. Firstly, personal participation at all levels has been important. Leaders have been strongly committed to the goals, and have maintained a clear path in working towards them. Education has been a key factor in motivating staff to follow the same path, towards the same goals. The education has covered reasons to change, as well as tools and methods for implementing this change. The training was divided into two sections. The first covered climate, health, and production and consumption of food and the impact these factors have on the environment.

The second included practical information about menu-planning and inspirational cooking. The training has been designed to be appropriate for the participants, by taking into account their prior knowledge and experience. Reaching the goals is not an overwhelming aspiration. Setting yearly targets will ensure that we progress steadily towards the final objective.

Initially, providing organic food in the quantities needed for a city the size of Malmö was a big problem. However, through close collaboration with the organic food suppliers, the provision of the goods in demand, with appropriate packaging and quality, is no longer a problem. This intense product development has also made it possible for other cities and municipalities to have access to a wide range of organic products.

4.2 Main challenges for the future

There are still some challenges facing the City of Malmö for continued introduction of organic and climate friendly food. The switch from pilot project to mainstream supply is a big step. There are a lot of experiences from Djupadal to be learnt from. How could this knowledge be used in the implementation of organic food supply in the whole of Malmö? Is supply big enough to meet the demand? There is also demand for more local organic food, which could prove difficult to meet, both logistically and in terms of public procurement. Is it possible to keep the costs down for organic products, for not only the cheaper, but also for the expensive product lines?

One hindrance is that the financial crisis has made headmasters and school steering committees less inclined to pay the extra costs associated with organic food.

Serving organic and climate-friendly food at a low cost requires menus to be adjusted to incorporate less meat and more beans, lentils and coarse vegetables. It is a challenge to gain acceptance for these changes among students.

5 Conclusion

Policies with clearly formulated objectives, combined with dedicated leadership, can help move the development slowly but steadily forward and ensure that it possible to reach even ambitious aims. To fulfill these aims it is also necessary to have competent and committed personnel, which also have access to continuous education and training – both in terms of what is available and how? To reach the aim of 100 per cent organic foodstuffs, it is important to ‘think outside the box.’

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Strategies for Sustainable foods at the climate summit 2009 in Copenhagen - How can ambitions be met in real life foodservice?

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Abstract

The foods of the climate summit in Copenhagen in December 2009 was an environmentally sustainable success. Employees of The Ministry of Foreign Affairs of Denmark worked for almost two years to plan the food supply of the 15th climate summit. Their ambitions were to serve food that would match the agenda of the event. Many barriers had to be removed and many political and practical issues had to be taken into consideration during the writing of a food policy and of a tender for a caterer.

The food policy was very ambitious; it demanded 65% organic, climate friendly, tasty, healthy, and cheap food. The big questions were: Can ambitions be met in real life foodservice? Can caterer and wholesalers meet this environmentally sustainable challenge within the budget?

In the end the food supply of the climate summit turned out to be an organic and climate friendly success. This result came about in spite of the fact that the caterer was chosen only a few months before the event and in addition the company was inexperienced in sustainable and organic cooking. The success opens new possibilities for future climate summits and hopefully it will mark the beginning of responsible strategies for the food supply of large scale public events of sports, music and politics worldwide.

1 Background

The 15th climate summit COP15 (the 15th Conference of Parties) took place in the conference Hall Bella Center in Copenhagen Denmark. It lasted from the 7th to the 18th of December 2009. By order of The United Nations the Danish government was responsible for establishing free drinking water and the possibility to buy cheap and healthy food for all the participants of the meeting. The Danish government put this task in the hands of The Ministry of Foreign Affairs to make sure that the UN orders were carried out. A small group of 3-5 civil servants in charge of this task worked for almost two years to plan a well functioning food supply during the summit.

The challenge was to create an environmentally sustainable food policy that would meet a very large number of expectations not only from the UN, but also from the Danish government, other Danish ministries, food producers, NGO´s, etc. In 2008 the small group of civil servants of The Ministry of Foreign Affairs started to prepare the food policy of the COP15. They made a thorough research of principles and knowhow concerning large scale catering events. They met specialists on large scale organic catering and talked to the Danish organic movement about the amount and variety of organic food available etc.

Having finished their research the small catering preparing group of the ministry had to work their way through constantly growing legal, political, and practical barriers. Different and even contradictory wishes and opinions from other ministries and different organizations had to meet all the rules concerning legislation, hygiene, security, and EU-standards. Overcoming these barriers prolonged the process of writing the food policy and finding a caterer. The result was a delay of approximately 9 month compared to the date originally planned for publishing of a tender. The food policy and the tender for a caterer were finally published on March 27th 2009.

2 Case description

Important issues that The Ministry of Foreign Affairs took into consideration when planning the food policy are listed in the table below.

Food	Political issues
Low budget NGO´s shall be able to buy delicious and healthy food Vegetarians, Jews, Muslims and other groups shall be able to eat food, that matches their religion and taste The VIP´s shall be able to buy luxury food There has to be an enormous range of different styles of food to meet the different food cultures of the world There has to be food to buy 24 hours a day during the whole climate meeting Fresh water for free has to be available 24 hours a day during the whole climate meeting	Denmark is a rich country and must show social responsibility by including "Fair Trade" The Danes buy more organic food than anyone else in the world. This has to be shown The food must be climate friendly as the issue of the meeting is climate change The event is a window to the world, and an important opportunity to exhibit Denmark, Danish cooking and Danish food production COP-15 must promote Danish organic food production

Table 1. COP15 menu criterias - Examples of issues considered when planning the COP15 menus

Based on these issues the starting point of the food strategy of The Ministry of Foreign Affairs was not very ambitious: Aiming at 20% organic food served with bottled water; listening to the specialists and with a lot of determinations of their own the employees of the Ministry eventually set very high environmentally sustainable standards for the food supply during the event.

These are the official principles for the food and beverage of the COP15:

"Food and beverages must be healthy, tasty, environmentally sustainable, and cheap and must take cultural and ethnic eating habits into consideration. Environmentally sustainable means as much fair trade, organic, and climate friendly as possible".

"At least 65% of the food measured in percentage of weight must be organic, and foodstuff with visible packaging such as milk, coffee, tea, fruit juices, sugar and so on, must be 100% organic and if possible Fair Trade".

In addition, the drinking water was chosen to be served from newly established "fountains" from which to pour fresh, cooled tap water using "plastic" cups made from environmentally sustainable materials; a climate friendly solution and a tribute to the drinking quality of the Danish tap water.

The Ministry of Foreign Affairs expected 12-15.000 visitors from 192 countries including the official participants, NGO´s, people of the press and locals in service functions. The meals of all these people were largely eaten in the Bella Center, as it is situated in an area without restaurants or cafés nearby.

The caterer had to serve meals for a varying number of people starting with a small number of staff to prepare the meeting, peaking with 13.000 daily meals during the busiest week, and closing down the summit with a small number of staff.

The many meals were served from 11 types of eating and drinking facilities, namely 1 expensive VIP restaurant, 4 organic "public climate kitchens", 4 cafés, 1 night café, a number of coffee shops and lounges and finally a couple of creative facilities called "Meals on Wheels" serving coffee, sandwiches, and sausages.

3 Findings

Due to security reasons The Ministry of Foreign Affairs wanted only one cater company responsible for all food and beverages during the whole summit. A handful of companies offered their services. The 19th of August The Ministry of Foreign Affairs finally chose Bella Center Services A/S as official caterer ahead of a small handful of other companies prequalified. It was quite a practical choice, considering the extra trouble everybody had to go through, had one of the other caterers won the job. They would have had to rent the Bella Center kitchens or to build some temporary kitchen facilities outside the Bella Center.

Choosing the caterer The Ministry of Foreign Affairs based their decision on these parameters:

Prices: 50%

Quality: 25%

Organic food: 15%

Crew: 10%

According to the Ministry of Foreign Affairs the caterer "Bella Center" was chosen because they offered the lowest prices. According to Bella Center their prices would be app. half of what they would normally charge. Again according to the Bella Center, the prices were kept at a minimum because of the economy and the environmentally sustainable standards offered by The Ministry of Foreign Affairs. In addition Bella Center strengthened their position by introducing a well known chef as external collaborator for the VIP restaurant.

As the Bella Center at this event were asked to serve many vegetarian dishes and in addition were allowed to cut down the amount of meat in other meals, they were capable of saving money and thus meeting the goal of at least 65% organic food within the budget. Rough calculations during the meeting actually suggest that the amount of organic food were even 5-10% higher than 65%. As an example 10.000 pieces of organic and biodynamic fruits were wheeled into the Bella Centre halls every single day during the busiest week of the summit.

The so-called "Climate Kitchens" became very popular with the participants of the meeting. The standards of environmental sustainability set by The Ministry of Foreign Affairs were higher for these "Climate Kitchens" than for the rest of the different types of restaurants. At the same time these restaurants were supposed to be cheap and thereby meet the economic possibilities of the many NGO's of the summit. The menu consisted of one hot vegetarian dish, one hot dish with a smaller amount of meat, and a dessert. The Bella Center chose to make these restaurants 100 % organic. The vegetarian dish cost 23DKr. (3.10 €) and the dish with meat cost 29DKr. (3.90 €).

According to calculations from the first week of the Climate Summit more than half of the meals sold in the "Climate Kitchens" were vegetarian. A rough calculation shows, that these app. 7-8000 vegetarian dishes alone saved the atmosphere min. 2½ tons of CO₂. This figure is based only on the lack of meat, the figure would be higher if the CO₂ savings from the climate friendly choice of vegetables etc. were calculated too.

4 Discussion

Serving organic, climate friendly and healthy food at the same prices as conventional food is possible, of course you use much more local vegetables, bread and dried beans instead of a lot of meat and out of season vegetables grown in greenhouses or imported from overseas. As an extra way of making money you have to be very careful not to let any of your food change into garbage. This kind of food mentioned above, would meet the expectations of the majority of the participants in the climate summit, a lot of them being vegetarians and not familiar with the western style of food. But this kind of food was new to The Bella Centre kitchen staff. Succeeding in planning and preparing tasty, healthy, organic, and climate friendly menus within a limited budget takes a lot of experience, knowledge and practice. In addition the caterer of this kind of food has to collaborate with reliable and experienced, organic wholesalers.

In the summer of 2008 out of political interest in the climate summit The Town Hall of Copenhagen offered The Ministry of Foreign Affairs to pay for the education of the caterer chosen and to help find the best wholesalers suited for the food supply should the tender result in a contract with a caterer inexperienced in a low budget environmentally sustainable way of cooking. This offer was based upon the skills of a number of civil servants of the city trained as teachers in this special kind of cooking. (The City of Copenhagen is aiming at 90 % organic food in the app. 1000 public kitchens). Unfortunately the caterer of COP15 was chosen only three and a half month prior to the event. This did not leave enough time for proper education and training letting alone finding the right foodstuff suppliers.

The Bella Center has a lot of experiences in large scale conventional catering within the western European style of menus. But they have no experience in cheap, organic cooking, in healthy food, in climate friendly choice of food, or environmentally sustainable cooking methods etc. Accordingly there were some negative rumours during the climate summit concerning the taste, the looks and the variety of the menus served by the Bella Centre.

During the fall of 2009 The Ministry of Foreign Affairs encouraged the Bella Center to let their employees educate and to listen to advice on choice of food suppliers. Unfortunately the Bella Center administration said no to this offer referring to the very few weeks left till the actual meeting, and especially referring to the fact that all menus were already finished and agreed upon by the time The Ministry of Foreign Affairs chose Bella Center as their caterer.

Talking to The Ministry of Foreign Affairs on one hand and to the Bella Center on the other hand one finds two different expectations on the issue of regulating menus. The Bella Center expected to have prepared and finished all menus in detail as they were laid before The Ministry in competition with the other caterers many months earlier. The Ministry of Foreign Affairs for a number of reasons wanted a dialogue and the opportunity to develop some of the menus suggested, once they had chosen the caterer.

A caterer makes his/her offer of menus and prices according to the written requirements of the tender and they are not really able to, or allowed to, or willing to alter anything once they have been chosen. The menus are finished, the prices of the suppliers are agreed upon, and the chefs and collaborators are almost hired. Therefore this system makes very little room for dialogue and necessary regulation and the factor of very short time also made this dialogue almost impossible.

Asking the Bella Center administration why the menus of a Climate summit were not strictly climate friendly regarding some choices of meat and out of season vegetables the answer was this: The Ministry of Foreign Affairs never emphasised this point in particular. Serving for instance lamb casserole and green house tomatoes were criticised by some participants as well as some journalists during the meeting. The food policy of The Ministry of Foreign Affairs demanded climate friendly food, and Bella Center might have thought that they met the demand, but the common knowledge of CO₂ emissions of different types of food is still very limited which might be the reason for the choice of CO₂ heavy foodstuffs and maybe it was also the reason why The Ministry of Foreign Affairs did not make more emphasis on this point.

An overall look at the different menus of the Bella Center reveals a "traditional international/ Western European" food style with a touch of exotic, overseas, vegetarian dishes. The Bella Center may have lost money on this style of food not being experienced in cheap organic cooking and menus. This will not be known until the final account has been made.

Historically politicians, economists, chefs and other kitchen staff in general blame it on the higher prices of organic foodstuff if they don't but it, if their economy is poor, or if they ask the customers to pay more. This is almost never true. Instead they should blame the poor economy on the lack of skills and education and the lack of understanding of a different way of cooking and putting together menus. Hundreds of public and private kitchens in Denmark have managed to make their menus organic within the budget.

Keeping prices down (and thereby helping the COP15 participants of poorer countries) is also influenced by the suppliers of foodstuff. The Bella Center chose to buy the majority of food for the COP15 from the wholesalers they normally use, namely big Danish suppliers with a full range of conventional foodstuff and very little or next to no experience in organic and climate friendly foodstuff.

Without doubt choosing organic wholesalers instead of the conventional ones would have increased the knowhow and support of this kind of foods, it would have increased the number of different types of food available and in the end it probably would have kept prices down.

5 Conclusion

The food policy of COP15 was very ambitious demanding cheap, healthy, climate friendly and 65% organic food. Along with the Fair Trade labels on the food this policy will set new standards for future COP meetings and other large scale public events of sports, music and politics. A very welcome alternative to the common food supplies of this type of events normally being dominated by a few of the largest food and beverage companies in the world famous for providing fast food and soft drinks. This very positive impact on future public food supply is of course only possible if the final account of the food supply at the COP15 shows that the huge amounts of organic and Fair Trade foodstuff was bought within the budget.

Two factors could have threatened the outcome of the ambitious food policy made by The Ministry of Foreign Affairs of Denmark. These factors are important to avoid in the preparation of future large scale events of this sort.

The first factor was the very late publishing of the tender leaving, only a few months for caterers to prepare and develop their suggestions of menus and style of food, to hire the staff and the suppliers, and (if necessary) to educate the chefs and kitchen staff. The short time actually might have caused a minimizing of the number of qualified caterers interested in offering their services.

The second factor that could have threatened the ambitious food supply was the choice of caterer being made dominantly on the price instead of quality and experience. Had this not been the case the food of the climate meeting might have been remembered not only because of the positive impact on the standards of catering for future large scale event but also because the taste and variety of the food were outstanding.

The final conclusion is happy: The food supply of the COP15 was an organic and climate friendly success and according to The Ministry of Foreign affairs several organisations were interested in copying the food policy even before the event took place. This is very good news and hopefully the COP15 has started a future standard of large scale public events being organic, climate friendly and healthy. The main question of this paper was this: "Can ambitions be met in real life foodservice? Can caterer and wholesalers meet this environmentally sustainable challenge within the budget? It can be concluded, that the answer to the question is YES.

6 Relevant literature

The website of The Ministry of Foreign Affairs on the subject of food supply during COP15:

<http://da.cop15.dk/about+cop15/udbud/catering>

The Ministry of Foreign Affairs, Rikke Zeuner, Head of Section/COP15 logistic Unit
Bella Center, Anders Emborg, Food and Beverage Manager, Bella Center Services A/S
Økologisk Landsforening, Klaus Bentzen, Chief Manager of Exports
Interviews with app. 20 random COP15 participant met in public in Copenhagen.

An illustration of web survey methodology - PhD project: Organic and healthy food strategies in Danish public primary schools

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1 Introduction

By December 2006 there were 20-25% of Danish primary schools which have a school food service based on the notion of a real meal (Hansen *et al.*, 2008). Approx 50% have some sort of other simple food arrangement where as 25 % has no food on offer (Hansen *et al.*, 2008). However only a limited number of students buy food at school. Lunch boxes from home remain the most common and traditional way for children to have lunch at school (He *et al.*, 2009). Some of the municipalities have decided to adopt a sustainable procurement policy, so there is certain amount of organic ingredients involved in the school meals, besides, some of schools have already achieved 92% of the school food is organic (He *et al.*, 2009). However, there is neither definite national guideline for the percentage of organic food in school meals nor national regulations or funding for implementing school meals provision in the country (He *et al.*, 2009).

In a previous study it was found that processes and attitudes related to organic food implementation seems to associate with changes in the health profile of the foods on offer in different types of public catering (Mikkelsen *et al.*, 2006). The former researches have shown that "green" worksite canteen catering managers offered more healthy options than their non green counterparts (Mikkelsen *et al.*, 2006), and as the former study in Danish public primary schools indicates that organic school food operators on a number of indicators for healthy eating scored higher than their non organic counterparts (He, 2008). Furthermore, the study showed there is an association between organic school food policies and indicators for healthy eating among children when statements from school food coordinators on indicators for healthy eating are used as variables (He, 2008).

The current project among the Danish public primary schools continue to search for the above signs of associations but involving also a "bottom" level (pupils) perspective in addition to the "top" level (school food coordinators) in the previous study. School food coordinators are school staff in charge of the school food service. In practice this person could be anyone from the school headmaster to a school food caterer.

The present study will test the following hypothesis: organic food service policy/praxis is associated with policy/praxis for healthier eating in Danish school food service. Namely whether Public Organic Procurement (POP) policy and the resulting praxis in schools can help build healthier eating habits among pupils compared to schools without organic policies/praxis. The last perspective for test the hypothesis is going to be studied in a comparative study design where the Danish case (existing data from Web Based Questionnaire - WBQ) will be compared with new data from school food service in Germany, Italy and Finland. These data are going to be collected through a quantitative web survey.

Unlike in Denmark, Italy and Finland has established a relative complete school food service. Especially in Italy organic foods is pretty much involved in schools meals. In Germany, school food choices are more or less like in Denmark. The project is a part of the iPOPY research project funded through the European Research Area project Core Organic.

2 Design of study

The whole study will divide into three stages and the intention is to test the hypothesis from two levels of research objects (See table 1). One is named as “top” level, refers to the group of people in schools which implement, arrange or operate school food systems, such as school food coordinator. The other is “bottom” level, refers to the pupils that having lunches provided by schools during schools days.

	Stage A (Denmark)	Stage B (Germany, Italy and Finland)	Stage C (Denmark)
“Top” level (school food coordinators)	X (done)	X	
“Bottom” level (pupils)			X

Table 1. The research objects in each stage – An overview of the different sites

Stage A will use existing research results to test the hypothesis from “top” level. The former study was performed among school food coordinators in Danish public primary schools. A total number of 93 schools with an organic procurement policy and 86 schools without were selected and asked to complete the WBQ. Of these, 79 schools (20 organic and 59 conventional) completed the WBQ. The data shows that there are more positive associations between organic food procurement policy/praxis and healthier eating practices among children than the schools only provide conventional foods. The results indicate also that organic food intervention can be supportive for strategies that increase the healthiness of school eating.

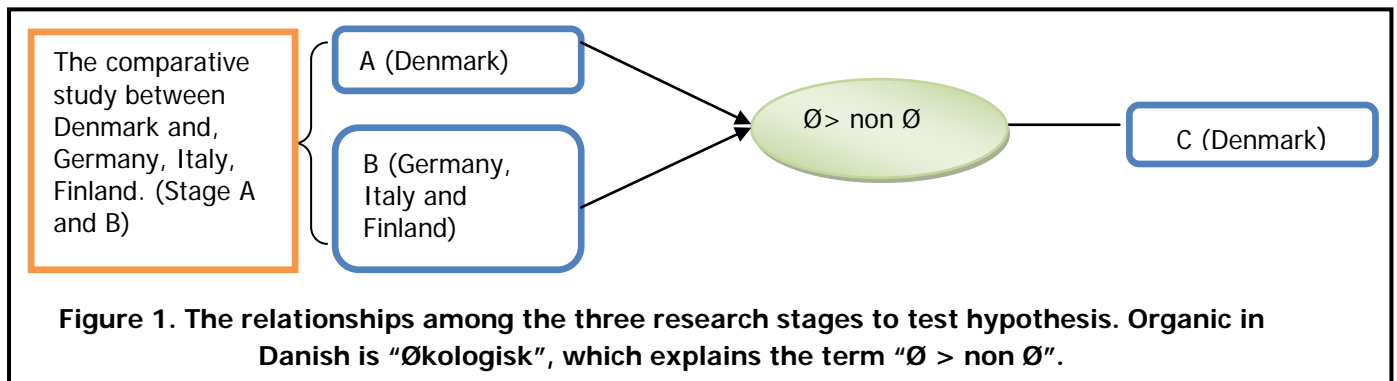


Figure 1. The relationships among the three research stages to test hypothesis. Organic in Danish is “Økologisk”, which explains the term “Ø > non Ø”.

Stage B will perform three web based surveys among the “top” levels in three European countries, Germany, Italy and Finland. The study is similar to stage A, but the WBQ will be adapted to local school food culture according to different cultures in the countries. The surveys in three countries are work out in cooperation with iPOPY partners, translation of questionnaire, distribution and reminds letters, and also get contact information of schools. The result of research will not only for test the hypothesis, but also produce a comparative study regarding school food practices between Denmark and the other three countries. Through the comparisons, it might see whether the schools with organic foods provision in these three countries are also eating healthier than the schools with conventional foods.

Stage C is to compare different type of schools which adopted the sustainable policies or not, measure frequency of intake of food items among the pupils. In this stage the research will only perform in Danish public primary schools and the research object is “bottom” level. The goal is to seek for whether the sustainable procurement policy/organic food ingredient involved in school meals results in a healthier eating habit for children. Thereby, the hypothesis might be strengthened from the “bottom” level.

3 Methods

3.1 Stage A

The study was to perform a quantitative survey through the Web Based questionnaire (WBO) in 179 public Danish primary schools among school food coordinators. Both the schools with organic food provision and the schools with only conventional food were selected. The purpose of this study was to examine whether organic food intervention strategies in school meal systems could support the development of healthier eating patterns among pupils. Results indicate that organic food intervention strategies can be supportive for strategies to increase the healthiness of school eating patterns. The study was completed as a master thesis and going to produce a peer reviewed paper in journal of food service. In this project, the paper will be used as evidence to strengthen the hypothesis of this project.

3.2 Stage B

Design: A quantitative survey using a WBO will be carried out in which the schools having organic food provision and the schools having no organic food provision. The surveys will be performed in the public primary or/and secondary schools in Germany, Italy and Finland among school food coordinators.

Research object: The school food coordinators in the public primary or/and secondary schools in Germany, Italy and Finland.

Amount of individuals: Min. 100 school food coordinators from the schools where has organic food provision. And min. 100 school food coordinators from the schools where has no organic food provision.

Outcome measures to be tested:

- Attitudes toward organic foods
- Attitudes towards healthy eating
- School healthy policies
 - ✓ Organic food procurement policy
 - ✓ Food and nutrition policy
 - ✓ Physical activity policy
- School food serving practice
 - ✓ School fruit/milk scheme
 - ✓ School kiosk
 - ✓ School lunch room
 - ✓ School canteen

Research period: 1 year

Study design: The initial questionnaire will be designed in a Word format and the language is in English. After the first revision, the questionnaire will be translated into German, Italian and Finnish respectively in order to perform the questionnaire in three countries. The pilot test of the questionnaire is needed in all three countries and two types of schools in each country, one organic school - the school which base the provision on a certain amount of organic food provision, and the other a non organic school - the school which base the provision on conventional food supply, will be selected and to test the questionnaire. The Word format questionnaire will be sent by e-mails to the school food coordinator with an introduction of the project. After gathered all the comments from the test, the questionnaire will be modified for the second and last time. The completed questionnaire is then converted into a web based by using the software SurveyXact (<http://www.surveymxact.com>). The final WBO will be opened in a web browser through a link.

In order to increase respondent rate, a pre communication with schools is necessary. In this study, the iPOPY project partners in Germany, Italy and Finland will help holding the meetings/phone calls/e-mails communications with school food coordinators regarding the coming questionnaire. The intention of the meetings is to help schools understand the project and questionnaire.

In these three countries, the contact information of schools will collect through the help of iPOPY partners. They will offer the list of school e-mails. The number of schools will be selected and asked to complete the questionnaire. The web link to the WBO and the invitation letter to the participants will send to the developed e-mail list. The software of SurveyXact has the function to send out the WBO to the participants individually.

The WBQ will open for four weeks and three ways will be used to increase the WBQ response. 1) Address the e-mail to a specific person at the school if get to know his/her name. 2) Prepare two reminder letters for the schools which don't answer the WBQ. Send the letters one and two weeks after sending WBQ. The link to the WBQ will be addressed in the e-mail. 3) Contain a small lotto inducement, i.e. an airfare round trip to visit an organic school in Denmark or Italy.

The content sequence of the WBQ will be attitude of respondents, existing school healthy policies and school food serving practices. The attitude of respondents will ask about the standpoint of these school food coordinators regarding promoting the organic foods and healthy eating habits through school meals service and curricular activities. Questions about existing policies aim to examine whether the schools adopted a healthy policy with regard to school food. The last section, serving practices, is more pay attention on provision ways of meals at schools. The analysis of the WBQ results will be conducted using Microsoft Excel 2007 and SPSS.

3.3 Stage C

Design: a comparative analysis will be carried out in which school having an organic policy will be compare with school having no organic policy. Inclusion criteria will in both cases be the existence of a food & nutrition policy. A stratified sampling will be applied and 5 clusters will be sampled.

Research object: The pupils are at 5th - 6th grade in the public primary schools in Denmark.

Amount of individuals: 100 pupils from 5 schools where has adopted an organic policy.
100 pupils from 5 schools where don't have an organic policy.

Outcome measures to be tested:

- Dietary intake: FFQ, recorded by mobile technology.
- Attitudes toward organic foods
- Attitudes towards healthy eating
- Knowledge about healthy eating
- Knowledge about organic foods
- Knowledge about physical activities
- Intake of food items in each school day

Research period: 1.5 years

In the project, an observational cohort study design will be chosen and used to test whether the organic conversion in school food service directly or indirectly correlates with healthier eating habits and behaviour among children, comparing to schools without organic policies. A sample of 100 pupils are at 5th - 6th grade that are all potential users of school meals in 5 schools having an organic policy, and 100 pupils in 5 schools without an organic policy will be chosen. Inclusion criteria for the study will be presence of a prepared food provision with various food items.

Observational studies have no desire to control the research object, which make research easier to observe and record. Cohort studies is the longitudinal observation of the individual through time, and the collection of data at regular intervals, so recall error is reduced.

A *longitudinal study* of food intake of children at schools can be made through by a self administered *dietary assessment tool*, FFQ. This FFQ will ask pupils about usual food and beverage consumption during the school days in the recent past, e.g. one year.

24-hour DR: In this project, the investigator will ask the pupils what they ate in the previous 24- hour in direct chronological order from the first foods in the morning to the last foods before breakfast on the day of the interview.

Study design: The relevant methodology courses will be taken at the beginning, and a literature study will be conducted at the same time, in order to build an initial questionnaire. The FFQ will be evaluated by experts in the field of nutritional assessment methods either in the internal research group or external

resource. 24-hour DR can be used as a trial tool for the FFQ to see if there are really differences between organic/non organic schools. Before carrying out the FFQ, interviews with selected pupils should be done. Through the interviews, the questionnaire will be examined to see if it is clear and readable by children. At last, a pilot study will be conducted the same way as the final study. But the schools which are used for the pilot study should not participate in the final study.

After above work, the FFQ should be kept simple and plain due to the age of respondents, and the content should be as brief as possible but also provide enough information in order to test the hypothesis. The self administrated FFQ will convert into automated based FFQ. So the pupils can easily open and fill in the questionnaire by use of their mobile phones. The introductory letter that explains how to operate and complete the questionnaire correctly will be sending out before or together. After collecting data from the FFQ, Microsoft Office and statistic software SPSS will be used for analysis of the result.

The (new) mobile technology will involve in the research. The pupils can simply input their everyday's intake by mobiles. It is possible to show the choices through picture/animation illustration, which makes more interesting for children to participate in the research. This automated self administrated dietary recall need to explore more later on.

4 References

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Three for One? Promoting Active Commuting, Obesity Prevention and Climate Change Mitigation with the Help of the EU Guidelines on Physical Activity?

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1. Background

As a contribution to the fight against obesity, the EU Physical Activity Guidelines (European Commission, 2008a) [hereinafter: PAG's] are a non-binding set of commonly agreed, EU-wide standards which were developed define the kind of policies which are needed to allow people in European a maximum of physical activity in their daily lives. But it may also be assumed the PAG's could support climate change mitigation [hereinafter: CCM] objectives, as they include a section of particular relevance to the conference theme².

Section 3.4 ("Transport, environment, urban planning and public safety") includes key recommendations in the area of active commuting, i.e., local transportation based partly on entirely on walking and/or cycling, and will be discussed here under the aspect of potential triple use of the same policy document. As such, Shakespeare's "Five for One" (*The Tempest*, III, 3) (in his day a reference to a common type of maritime insurance policies) has been adapted into "Three for One" (active commuting, obesity prevention, CCM).

2. Understanding the PAG's: rationale and structure

The PAG's are concerned with policy mainstreaming, integration and cross-sectoral coordination:

"To ensure the integration of policies which translate into increased physical activity in everyday life, there should be close and consistent cooperation among the relevant public and private actors when policies for sports, health, education, transport, urban planning, working environment, leisure etc. are developed. If policies that promote physical activity are successfully integrated, the easiest available option for citizens should be to choose a healthy lifestyle." (PAG's, p. 5)

The PAG's are not limited to the policy field of "Sport", but also include sections with recommendations and good practice examples under the headings "Health", "Education", "Transport, environment, urban planning and public safety", "Working environment" and "Services for senior citizens". The focus is on policy rather than individual behaviour and the document is addressed to decision makers (PAG's, p. 5), in opposition to some recent US guidance documents which continue being addressed to individuals (ACSM & AHA, 2007; HHS, 2008). Their added value lies not solely in being policy-driven and policy-driving, but also in being truly cross-cutting, attempting to cover a maximum of policy fields which have the potential to contribute to obesity prevention. As such, it may be asked to what extent dual or triple effects of the same pieces of guidance and advice, covering other priorities than obesity prevention, may be expected to be generated by the PAG's.

The PAG's emerged within the old, pre-Lisbon framework of the Treaty on the European Community) (TEC) where the EU did not yet have a Treaty-based mandate for sport. Formal competences existed for public health (Article 152 TEC, now 168 TFEU) and consumer protection (Article 153 TEC, now 169 TFEU) (Kornbeck, 2009). Yet this is changing under the new, post-Lisbon framework of Treaty on the Functioning of the European Union (TFEU), as Article 165 TFEU includes a mandate for the EU to take some limited actions in the field of sport and physical activity, although harmonisation of national legislation if specifically ruled out by the Treaty provision. With the possibility of having political cooperation between Member States, as well as an EU sport programme, the scene is set for developments where the EU is bound to need standards.

The PAG's are one of the expressions of the EU's commitment to the fight against obesity, which has been spreading rapidly and may be turning into a pandemic (BMJ Editorial, 2006). This has led public authorities in the EU (European Commission, 2007a, 2007b, 2008a) and the USA (HHS, 2008), as well as by UN organisations (WHO European Ministerial Conference, 2006), to adopt a number of policy

¹ The author is a civil servant in the European Commission but opinions expressed are those of the author, not official positions of the Commission.

² The text was updated after the conference, in particular to take the entry into force of the Lisbon Treaty and its implications into account.

documents in recent years all of which stress the need for more inter-agency, inter-sector and inter-professional cooperation. Being concerned with physical activity, the PAG's also reflect the EU's realisation that obesity is *not merely* the result of ill-advised eating habits but the complex output from an imbalance between energy intake and energy expenditure: overeating, insufficient physical activity or any combination of these.

Although the rise in overweight is a fact (Brettschneider & Naul, 2005), the roots causes are not solely related to nutrition. In clear defiance of conventional (and widely reported) wisdom, not only is there:

"little evidence that obese children consume more calories than non-obese children"
(Brettschneider & Naul, 2005, p. 112).

Indeed, some evidence actually suggests that many Europeans consumed more sugar and fat in the 1950s than today (Parisi, 2007, p. 104), yet opportunities for energy expenditure via physical work, active commuting, sport and physical activity, including outdoor games, have declined steadily. This ambiguous knowledge has informed the relevant sections of the White Papers on Nutrition and Sport (European Commission, 2007a, 2007b).

3. Reading the PAG's: why active commuting?

In 2004, a structured review commissioned by the European Commission was conducted by a consortium of universities with the aim:

"to analyse young people's lifestyles and sedentariness and the role of physical activity and sport in the context of education and as a means of restoring the balance."

(Brettschneider & Naul, 2005, p. 1)

Apart from providing an understanding of the causalities involved, the report warned against simplistic explanations and confirmed that Europeans are far from all obese due to over-eating (Brettschneider & Naul, 2005, p. 10, 59). The final report included a range of policy recommendations (Brettschneider & Naul, 2005, pp. 161-173) which were discussed by Member States' Sport Ministers (Luxembourg, April 2005). This in turn led to the creation, by Sport Ministers (Liverpool, September 2005), of a Working Group Sport and Health, under whose responsibility the PAG's were later to be developed, having been requested by Sport Ministers (Brussels, November 2006) (Finland's EU Presidency, 2006). The preparation was entrusted to an expert group of 22 leading European academics.

Active commuting is in itself interesting in relation to pollution control: the bimodal use of walking and cycling ("walcynng") has been recognised as a priority for European cities (European Commission, 1998) with special potential being vested in cycling (Dekoster, & Schollaert, 1999) for being more performing than walking, while both forms of locomotion are almost emissions-free. Not only freight transports in cities are a major source of local pollution and global climate change, as the example of emissions caused by lorry-based urban freight transports shows (Dablanc, 2008). Active commuting is also an illustration of the cultural and individual aspects of nutrition and physical activity and poses a challenge to the economic view that "behaviour is affected by economic incentives" (Brunello, et al., 2009, p. 555), by reducing the costs of food purchase and preparation, cooking and eating times, etc. Portion sizes have been cited as a key factor in people accumulating surplus body fat (or rather not) (Mudry, 2010); and many choices made by humans are subjective, not seldom aesthetic, including the choice of transportation.

The aspect of high-income earners using bicycles and cooking elaborate meals cannot be made to fit with such models. Yet such choices are also shaped by policy decisions and institutional frameworks, as the example of cycling in Copenhagen, Denmark, shows: that cycling is extremely widespread there, today, is also a reflection of the fact that some very ambitious plans for an extended system of urban motorways (DVB, undated) were scrapped as a result of the first oil shock and the economic and budgetary crisis of the 1970s.

Section 3.4 of the PAG's recognises that the built environment may often pose important barriers to people who wish to engage on physical activity on a daily basis.

"An urban environment that encourages the use of motor vehicles and, therefore, discourages physical activity, is a driving force behind population-wide trends toward overweight and obesity. Environmental factors can have an important role in determining and shaping physical activity patterns."
(PAG's, p. 27)

In the urban environment, the key question about physical activity will almost invariably be one about motorised versus non- motorised transportation and:

“transport provides good opportunities to be physically active, but only if the appropriate infrastructures and services are in place to allow for active commuting.”

(PAG's, p. 26)

Reference is made to evidence gathered over the last decade regarding “the association between walking, cycling and health” and to the environmental benefits of active commuting. Yet this does not only pose a challenge to planners and builders, but even to police departments as well as public authority departments responsible for maintaining outdoor areas and keeping them well lit:

“To promote the attractiveness of cycling and walking as modes of transport, the emphasis on road safety is crucial. If an environment is not perceived as secure for personal or traffic reasons, the majority of the population may adopt motorised modes of transport, particularly at night-time. Similarly, attractive green spaces or safe shared street spaces are important components of an active neighbourhood.”

(PAG's, p. 27)

The PAG's include good practice examples, including from Denmark (Copenhagen, Aarhus). These examples put flesh on the bones of the analysis and lead naturally to the actual recommendations, which are presented in the shape of numbered Guidelines. Appropriate planning mechanisms and different levels of government may need to work more together (Guideline 25), and a mixture of transport options is essential: active commuting does not exclude the use of motorised – individual or collective – transport (Guideline 26). But construction of infrastructure may not always be enough: people should also know about the offers available (Guideline 27). There is a need to integrate this type of planning into bureaucratic procedures and routines (Guidelines 28-29, 31-32), and citizens need to feel safe. Otherwise they may not wish to walk or cycle (Guideline 30) in urban landscapes where most of us, irrespective of age or gender, would very much prefer to be inside a car or a bus.

“Guideline 25 – In all parts of their territory which are suitable for commuter cycling, Member State authorities at national, regional and local levels should plan and create appropriate infrastructure to allow citizens to cycle to school and to work.

Guideline 26 – Other types of active commuting should be systematically considered in national, regional and local planning documents, the aim of which should be to ensure conditions for safety, comfort and viability.

Guideline 27 – Investments in infrastructure for commuter cycling and walking should be accompanied by targeted information campaigns to explain the health benefits of active commuting.

Guideline 28 – When planning authorities give permits to build new developments, or when public authorities build new neighbourhoods themselves, they should integrate in their authorisation or in their planning the need to create a safe environment for the practice of physical activity by the local population. In addition, they should also consider distances and ensure opportunities for walking or cycling from home to train stations, bus stops, shops and other services and to recreational places.

Guideline 29 – Local governments should consider cycling as an integral part of town planning and engineering. Cycle tracks and parking spaces should be designed, developed and maintained in respect of basic safety requirements. Local governments are encouraged to exchange best practice throughout the EU to find the most suitable economic and practical solutions.

Guideline 30 – Public authorities responsible for traffic police services should ensure that appropriate levels of safety are provided for pedestrians and cyclists.

Guideline 31 – Public authorities should pursue not only the protection of the natural environment per se but also its potential to provide attractive outdoor spaces for physical activity. Effective conflict management should be put in place to balance the needs of different users, particularly motorised versus non-motorised visitors.

Guideline 32 – Public authorities should seek to ensure that children's play needs are not marginalised in community planning and design.”

(PAG's, p. 29)

4. Using the PAG's: Three for One?

Such is the guidance provided in the PAG's with regard to active commuting, but is "Three for One" hypothesis just a catchy phrase, or actually a justified expectation? At face value, the implementation of Guidelines 25-32 would appear to be good, both for individual and public health, and for the environment, be it at local or global level. The assumption needs revisiting because, surprisingly, some of its constituent arguments have been put into doubt by certain scholars. Rising obesity rates in Europe have been explained with reference to "the decrease in the time-cost of food preparation and consumption" (Brunello, et al., 2009, p. 555) (a problematic claim in the light of the individual and cultural factors alluded to above), as well as "the decrease in the amount of work-related physical activity" (ibid., p. 555). This assumption is built on evidence that vigorous physical activity during leisure remained the same in the US and Europe (Michaud, et al., 2007), while hard physical labour decreased (Philipson & Posner, 2008). However, this evidence must be seen in the light of other evidence suggesting that children and young people's high membership rates in sports structures do not necessarily equate with high levels of energy expenditure, while leisure patterns, commuting practices, etc., have deterred in relation to physical activity (Brettschneider & Naul, 2005), so that explanations should be structural rather than individual.

In relation to active commuting, these explanations would seem bound to concentrate on urban sprawl, which has been much more outspoken in North America than in Western Europe. Some scholars have preferred explaining dissimilar rates of suburbanisation with reference to "slower pace of urbanisation in Europe" (ECMT, 2007, p. 11), thereby seemingly neglecting the cultural aspects (suburban life may be attractive to Americans but need not be so *per se*). One would nevertheless expect that the causation of obesity by urban sprawl due to more extended use of motorised transportation would be universally supported, yet, this is not the case.

"For example, recently there has been national news coverage of the theory that sprawl contributes to obesity. The logic behind this claim is that people who drive their cars walk less and gain weight. [...] [Eid, et al., 2005] [...] documents that when centre-city residents move to the sprawled suburbs, they do not gain weight."

(Kahn, 2007, p. 101)

An examination of the paper referred to reveals that it is based on a sophisticated statistical analysis of intra-US migration data, apparently suggesting that:

"sorting rather than causation is the mechanism which drives observed differences in individual characteristics across places"

(Eid, et al., 2005, p. 11)

"Our results strongly suggest that urban sprawl does not cause weight gain. Rather, people who are more likely to be obese (e.g., because they have an idiosyncratic distaste for walking) are also more likely to move to sprawling neighborhoods (e.g., because they can more easily move around by car). Of course the built environment may still place constraints on the type of exercise that people are able to take or the nature of the diet that they consume. [...] Overall, we find no evidence that neighbourhood characteristics have any causal effect on weight."

(Eid, et al., 2005, p. 11)

The analysis has its flaws, and at the very least, one would expect to see some recognition of the evidence in favour of cycling:

"A 30-35% lower mortality rate has been found in commuter cyclists even after adjustment for other types of physical activity and other CVD risk factors such as obesity, cholesterol and smoking. Studies also support a benefit of walking or cycling to work in relation to lower risk of hypertension, stroke, overweight and obesity. [...] In Denmark, where this mode of transportation is used by almost two thirds of adolescents, an 8% higher fitness level was found in cyclists."

(PAG's, p. 26)

Yet the policy implications are even more problematic: "The public health battle against obesity is better fought on other fronts." (Eid, et al., 2005, p. 11). One wonder with exactly what this battle should be fought, if Eid and colleagues are opposed to urban re-design: should there not be opportunities to be physically active? But even Kahn, et al., admit that:

"People are less likely to use public transit when they live in sprawled cities. This has environmental implications because public transit is a "greener" transport technology than private vehicles."

(Kahn, 2007, p. 97)

Against this backdrop, making the case for *not* providing opportunities to be physically active; for *not* designing or redesigning neighbourhoods to allow for active commuting; and *for* not implementing Guidelines 25-32 – all of these negative choices require extraordinary good arguments. The “precautionary principle”, well-known in environmental law, requires that:

“where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”
(UNDP, 1992)

Well known in EU environmental, agricultural and fisheries law, and even in sport science (Groll, et al., 2008), the precautionary principle may in fact warrant a cautionary use (the pun is entirely unintentional) since it has:

“no minimal threshold of plausibility is specified as a ‘triggering’ condition”
(van den Belt, 2003, p. 1123)

Yet in this case, there is no compelling reason for not *not* implementing the PAG’s. Instead:

“The EU vision is based on maintaining the quality of urban life, urban planning and sustainable development, where mixed uses, high densities and good environmental conditions are seen as being central to both improving economic performance and the vitality of cities”
(Banister, 2007, p. 135)

In addition to these benefits, such cities and neighbourhoods are likely to record lower obesity rates and less pollution – Three for One?

5. Conclusion

The discussion of section 3.4 of the PAG’s, including in particular Guidelines 25-32, has made the claim plausible that section 3.4 may not only achieve a single effect (promoting active commuting); but almost certainly a dual effect (promoting active commuting *and* obesity prevention); and probably even a triple effect (promoting active commuting, obesity prevention *and* CCM). Widespread use of walking and cycling, even (or especially?) when coupled with other modes of transport, promise to reduce emissions, yet to make this come true, guidance like that provided by the PAG’s is needed.

The PAG’s are not binding, yet they constitute a condensed form of commonly agreed standards at EU levels. All relevant actors should take inspiration from them, including as regards CCM.

EU leadership on CCM might be supported, in one limited yet very meaningful sector, by drawing on the PAG’s. The EU has been quite active on CCM (Harrison, 2007; Harrison & McIntosh Sundstrom, 2007; Schreurs & Tiberghien, 2007) and appears to have committed itself more than some other industrialised countries and regions of the world, such as the USA and Canada (Harrison, 2007), Russia (Henry & Sundstrom, 2007), Japan (Tiberghien & Schreurs, 2007) or even Australia (Crowley, 2007). The comparative study of CCM policies naturally leads to examining different political systems with regards to efficiency of outcomes and the underlying causation: it should not only compare democratic with non-democratic systems (Bättig & Bernauer, 2009), but also democracies with other democracies. Given that documents similar to the PAG’s now exist in the USA (ACSM & AHA, 2007; HHS, 2008), while European and American guidance remains different in various respects, it appears natural (even promising) to focus on one aspect of the PAG’s which has no direct counterpart in the US documents: policy guidance on active commuting.

Further studies of the PAG’s and their implementation by Member States could take the position of liberal intergovernmentalism, with its emphasis on Member States as the main actors (Moravcsik, 1999), or they might draw inspiration from historical institutionalism and underline the role played by EU institutions (Pierson, 1996), possibly in the tradition of neofunctionalism (Haas, 1958). Yet the study of Europeanisation does not merely reproduce existing theories and apply them to phenomena linked to European integration: it needs to develop its own models to understand Europeanisation (Groll, et al., 2008) – a claim rendered even more plausible by the PAG’s, which are truly *sui generis*. Such an analysis could also make a contribution to the discussion of the EU’s “direct” versus “indirect sport policy” (Tokarski, et al., 2009).

The article has operated its analysis solely with regards to section 3.4 of the PAG’s and did not look at possible CCM effects of other sections of the PAG’s. Questions recently asked by Members of the

European Parliament (MEP's) to the Commission certainly show a high awareness, not only of climate change and obesity issues; but also of the need to increase daily physical activity levels; as well as the need to educate children about food and to increase their fruit and vegetable consumption (Kornbeck, 2009, p. 174). The EU School Fruit Scheme (SFS) has now become a reality (European Commission, 2008b) and is based on a holistic approach going beyond the attainment of one single objective (Vanmackelberg & Garcia Azcárate, 2009): analysing the CCM effects of the SFS would be a very worthwhile exercise, yet one which cannot be pursued as part of this article.

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Organic food at Norwegian festivals – Norwegian rock artists going organic

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1 Background

Oikos is the national movement of organic producers and consumers in Norway. Oikos runs a handful of projects in addition to political lobbying and meetings with stakeholders in the food-sector and the agricultural sector. One of the projects is *“Organic food at festivals in Norway”*. The main activity is to coordinate and help festivals to offer organic food at their arrangements. The Festival Project is sponsored by The Norwegian Agricultural Authority, an agency of the Norwegian Ministry of Agriculture and Food.

Since 2003 Oikos has cooperated with music and sport-events, like The Øya Festival – the largest music festival in Norway and the snowboard event The Oakley Arctic Challenge.

The Øya Festival has a strong reputation as one of the most environmental friendly music festivals in Norway. The vision is that all food prepared on the festival is made from organic products -a goal they are close to be achieved. Part of the goal is to buy organic and short-travelled food; vegetables from Vestfold county, meat from Oslo- area, chicken and eggs from Telemark County, all close to their region. The Øya Festival has since 2003 been certified by Debio, the Norwegian organic body. In 2004, the festival released the first edition of the Environmental Handbook for festivals and outdoor events. Øya is one of the Norwegian cases in the iPOPY project.

The Oakley Arctic Challenge is one of the greatest snowboard events in the world. Since 2004 the snowboard event has served organic food, and if possible, also all drinks served. Since then many other festivals became interested in the environmental work at The Øya Festival and The Oakley Arctic Challenge, and contacted Oikos for help. As a result, Oikos in 2007 started the project *“Organic food at festivals in Norway”* to help festivals introducing organic food at their arrangements.

2 Case description

“Traditionally, festivals and other large events have not been viewed as great ‘polluters’, but now the focus has shifted from simply preventing industrial spills to turning the pattern of consumption in a more sustainable direction. It is therefore only natural that everyone becomes aware of their environmental responsibility as individuals”
(Bjørseth et. al., 2008)

Arranging culture events and serving organic food at these locations is common in Norway. A lot of people seem to expect that the festival has a focus on environmental issues so they`ll serve tasteful, local and organic food at the arrangement.

The Festival project in Oikos consists of three parts: counseling, awareness work and product/supplier development. Oikos provides the organizers with advice and practical help in purchasing, selections of goods, customizing menus and more. The work to create awareness is among other things to make sure that the personnel working at festivals and organizing other social gatherings, have the sufficient knowledge, both theoretical (reasons for choosing organic food and fiber products) and practical, such as how to do, who to contact.

Oikos try to be present at as many happenings as possible where organic food is served. We provide information about organic agriculture food and fiber, organizes an eco-quiz, food tasting (comparison) and more. In some cases local organic farmers have participated, and the focus has been on local organic food. As part of the awareness work, courses are given to people involved in festivals, both volunteers and those who provide/serve the food. The last part of the festival project focuses on supplier development (farmers, processors and merchants). Here we map the produces, and co-operate with suppliers in marketing and product development.

Main goal of the project is:

- To increase the availability and promotion of organic food at events

Part goals:

- Establish supply chain for organic food for large events.
- Coordinate the organic food at festivals so that the chosen solutions are better adapted to catering.
- To coordinate the suppliers with regard to seasonality and production of organic food.
- To coordinate the production so that the demand for the events will be satisfied, particularly with regard to production of fruits, vegetables, meat, cheese and ice. We urge the organizers to choose Norwegian products, and to use local suppliers where it is available.
- To make visible to the larger suppliers to utilize the potential of festivals and events as a venue for product development and product testing.
- To guide the festivals so that they can profile and sell organic food.

3 Success criteria

In the Environmental Handbook by Hanne Bjørseth et.al. 2008, produced in cooperation with Oikos, the success criterias for reaching an organic goal at a festival are:

- *A dedicated management*

An involved management with a strong dedication to environmental concerns is a prerequisite for success, and also a crucial motivating force to allow the work to be carried out to completion.

- *Time and money*

It's important to set aside enough time and resources; resources can include people who have set aside time for the work, and perhaps also money for some of the tasks.

- *Environmental manager*

One person should be in charge of the environmental efforts and lead the practical work.

- *Work group*

Large events should establish a separate work group for environmental concerns which advises on and discusses special measures. It is highly important that this group is involved during the initial planning phase.

- *Environmental mapping*

By mapping and measuring the environmental strain of the event at the present time, you will have a documented point of departure for the further environmental work.

- *Environmental vision and policy*

The environmental vision should function both as a basis and a guiding star, and it should explain what the superior goal of the environmental work is. It should be concise and catchy, maybe in the form of a slogan. That way, employees/volunteers, suppliers, sponsors and the audience will understand what you are aiming for the environmental policies outline concrete and overarching details about why you wish to work with the environment, why you think it's important, and what you want to achieve with the work.' (Bjørseth et.al., 2008).

4 Why organic food at festivals?

The project 'Organic food at festivals in Norway', started because of the huge interest for information about organic food and farming in general, and the great demand for organic food among festival organizers.

There is no study to explain why the Norwegian festivals to a large degree are interested in environmental issues, and organic food, but Oikos` experience is that when the biggest festival in Norway starts with an environmental profile, and can show the others that they get both economically and a good name by doing so, it might have influenced the others festivals to do the same.

The focus has shifted from simply preventing industrial waste to change the pattern of consumption in a more sustainable direction. By making The Environmental Handbook, it has become easier for the festivals to get access to ideas on how environmental work can be organized and carried through, as well as ideas on a range of initiatives. The Festival Project has made it easier to serve organic food at festivals, and in 2009 there are about 50 festivals serving organic food in Norway. In 2010 the project is planned to involve some more sports event, such as the Norwegian national championship in cross country skiing and Norway Cup, one of the biggest football tournament in the world.

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The iPOPY project – a research commitment to more sustainable public food

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Abstract

The schooldays of European children and youth tend to get longer, and their eating patterns, especially during school hours, are often unsatisfactory. Healthy school food is a logic response to this situation. Organic food contributes to sustainable nutrition, and hence is an interesting starting point for healthier menus and food education. The research project “innovative Public Organic food Procurement for Youth” (iPOPY) studies efficient ways to implement organic food in public serving outlets for young people. Out of the four iPOPY funding countries, Finland and Italy serve a warm school meal daily for all pupils, whereas Denmark and Norway rely on packed lunch from home. Italy and Denmark have ambitious goals for organic food in schools, whereas Finland and Norway have not (yet). In Germany, different states have very different school meal systems, but the interest for organic food is generally high. We argue that school food served in “captive catering” such as found in Finland, financed by the public and made by organic or otherwise sustainable products, has the largest potential to support a sustainable nutrition and -development.

1 Introduction

Schools are the most important public arena for young people. In these institutions they spend most of their active time, get friends and are educated both socially and skillfully. Considerable shares of public resources are used for education (Fig. 1), and in line with the increased focus on competition in society, countries compare their costs and benefits in the educational sector and struggle to produce the most efficient and competitive workforce. With increasing focus on school efficiency in terms of learning output, e.g. by PISA tests (OECD Programme for International Student Assessment), school days tend to become longer. For instance, the average number of educational lessons per pupil per year in the primary and secondary lower schools (grades 1-10) in Norway increased from 720 in 2001-2002 to 774 in 2008-09 (Utdanningsdirektoratet 2009). Longer school days are an important argument to ensure that the pupils are properly nourished while they stay in school.

A range of other arguments can be identified in favor of more and/or better school food and more public engagement in school food systems, such as to reduce obesity and malnutrition, establish healthy eating habits during childhood, and create a better social and learning environment. Within Europe, strikingly different school food systems are found, and represented in the iPOPY project. Initiatives for reforming publicly organized school meal services and improving their quality are flourishing, with successful programs e.g. in Rome (Morgan & Sonnino 2008). The EU has recently decided to implement a daily free fruit school program (EC 2008), aimed at improving the health of young people. Public food serving is utilized to achieve healthier eating and more sustainable consumption patterns.

The aim of this paper is to present the systems of school food found in the Denmark, Finland, Italy, Norway and partly Germany, and to discuss where these systems have their strengths and weaknesses to support a sustainable development and nutrition.

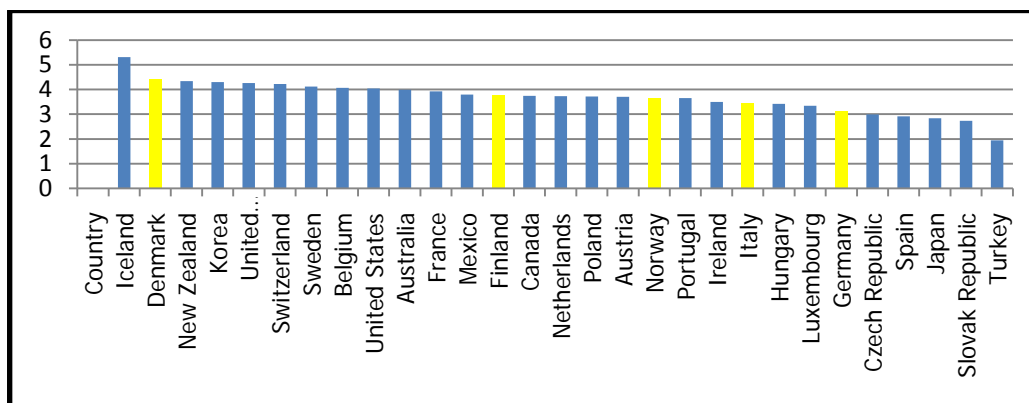


Fig. 1. Expenditure on educational institutions - (primary and secondary) as a percentage of GDP (gross domestic product) in the OECD countries in 2006 (OECD 2009). Countries of special interest in iPOPY are highlighted.

2 Background

2.1 The iPOPY project

The research project “innovative Public Organic food Procurement for Youth”, iPOPY (2007-2010) belongs to the European Research Area network CORE Organic I, which initiated eight pilot projects in 2007. iPOPY is one of two projects working with market research, to increase the consumption of organic food in Europe. The projects are funded by the CORE Organic I funding body network. Funding for iPOPY is raised by Denmark, Finland, Italy and Norway. The Research Council of Norway also funds the participation of German researchers, who mostly focus on the conditions in the funding countries but partly also in Germany.

The main goal of iPOPY is to study how increased consumption of organic food may be achieved by the implementation of strategies and instruments used for public procurement of organic food in serving outlets for young people. Four explorative work packages study policies, supply chains and certification, the young consumers' perception and learning about sustainability and organic food, and health effects of organic menus. Public organic food procurement for youth (POPY) is defined in iPOPY as follows:

“Public organic food procurement for youth comprises all activities with regard to procurement in public food services for children and young people up to 25 years in schools and other public institutions for youth, such as day-care centers, universities, hospitals, and military facilities. The meal system is organized and its costs are carried, at least partially, by the public institution in question. Youth, or their parents, may need to pay for the food, at least in part. The food contains organic products conforming to EU-Regulations on organic production.”

(Nölting *et al.* 2009a)

2.2 Sustainability and organic food production

In the report “Our common future”, the United Nations-appointed Brundtland commission in 1987 brought forward the term of sustainable development, and defined it as a development which “meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland, 1987). Since then, the terms of sustainability and sustainable development have become so mainstreamed that people now tend to use the word sustainable without mentioning the development, and it is likely impossible to find a politician not agreeing that any development should be sustainable. Hence, some argue that the term is completely worn out. However, the original ideas of the term remain important, and e.g. within agriculture, there is a battle about which production systems that deserve the ownership of sustainability. Organic farming methods are defined by law, which sustainable farming methods are not. Hence, both organic and conventional production systems may argue that they work towards sustainability, and they debate intensively about a practical definition of this term within agriculture.

The term *sustainable nutrition* demonstrates the way the term sustainable is used in modern science. Consumers need simple solutions for sustainable nutrition that easily fit in their everyday life (Eberle *et al.* 2006). Organic food is only one element of combined, easily accessible offers of sustainable nutrition; other elements are fair trade, regional food, less meat, competences in cooking and healthy eating, adequate options of out-of-home-eating etc. However, as shown for sustainable agriculture, when the term sustainable nutrition is used alone, without its holistic definition, it implies a dichotomy where nutrition that is not sustainable must be considered as non-sustainable. To avoid the dichotomy-thinking, we should not forget that “sustainable” is usually meant as an efficient way of saying “sustainable development”, and keep in mind that processes and efforts to achieve more sustainability is the crucial point; sustainability can never be a status quo.

Organic production is based on four central principles of health, ecology, fairness and care (IFOAM 2009), and is recognized by many European governments to support a sustainable development. For instance, the homepage of the European commission (EC) hosts a web site with the slogan: “Organic Farming: Good for nature, good for you” (EC 2009). Organic production has less negative impacts on the environment (e.g. Wivstad *et al.* 2009), and organic food may have a higher quality (e.g. Brandt & Mølgaard 2001). The introduction of organic food in catering often implies that more focus is set on healthy eating (Mikkelsen *et al.* 2006). Due to relatively high premium prices on organic meat, organic food strategies often include “less meat, more vegetables” adaptations, which are usually nutritionally sound. Danish consumers using more than 10% of their food budget for organic products spend

relatively more on fruit and vegetables, and less on meat, coffee and butter (Krarup *et al.* 2008), which demonstrates a close relation between organic eating and healthy eating. This illustrates that organic food may contribute to a sustainable development as well as a more sustainable nutrition. In chapter 4 we will discuss how different school food systems, and the implementation of organic food in these systems, contribute to this.

3 Methods

iPOPY is a complex phenomenon, demanding an interdisciplinary and multi-perspective research approach. In iPOPY, four explorative work packages (WPs) analyze policies, organic supply chains and certification, the young consumers' perception and participation, and health effects of organic menus. A separate WP manages the project and draws the final conclusions, based on input from all WPs. Both qualitative and quantitative research methods are used, in accordance with the various research questions. Data are collected in the four iPOPY countries Denmark, Finland, Italy and Norway, and partly also in Germany, by structured and open questionnaires, interviews, focus groups and observation. Useful information is also found in public statistics, websites and reports. Four national reports, describing school meal systems and to which extent the food is organic, were an important initial outcome (Bocchi *et al.* 2008, Hansen *et al.* 2008, Løes *et al.* 2008, Mikkola 2008). Thanks to German co-funding, even for Germany a national report has been produced (Nölting *et al.* 2009b).

Relevant cases of interest are studied in the iPOPY countries, mostly municipal school meal systems, but also a congregation, a group of military camps and a music festival. The multiple methodological approaches allow for a comparison between countries and an interdisciplinary integration of results, and contribute to generate a holistic understanding of POPY.

4 Results and discussion

4.1 Different countries – different school food systems

Strategies, structures and practices in the school food systems studied in the five studied countries vary considerably. This chapter is mainly based on the four national reports. A full meal service is offered to Italian and Finnish pupils, and is a well rooted and popular practice in these countries. In Denmark and Norway, an additional food service is complementing the dominating packed lunch brought from home. In Germany, no common system exists. Eastern former GDR-states (German Democratic Republic) tend to practice the old systems of serving meals at school, whereas western states usually have shorter schooldays and children bring a packed lunch, buy lunch at school or eat at home. Due to food culture traditions and a high awareness about environmental problems, Italy has become a pioneer in Europe to use organic and local products in school meals, whereas in Finland, both economy and lack of attention restrict the use of organic products. In most Danish and Norwegian municipalities, the only organic school food offered is subscription to milk with a premium price, and in Norway, even this is only offered in a few regions.

However, some large Danish municipalities have established ambitious school meal systems emphasizing organic food, and Norway was the first European country to implement a free fruit serving in public schools, in 2007. As in Denmark, the interest for organic products is relatively high in Germany and e.g. in Berlin, ambitious aims about organic shares in the public school meals have been set. An important structural difference among the countries is that school lunch is fully paid by tax money in Finland, whereas the meals or food items are only subsidized in the other countries.

For the purpose of iPOPY, three central scales can be identified (Fig. 2), along which each country may be placed according to how large the share of organic food is in the school food that is offered, to which extent school food is paid by the public, and to which extent food serving is arranged by the school. The variation between the school food systems in the five countries discussed here represents the total variation found within this sector, at least for European conditions.

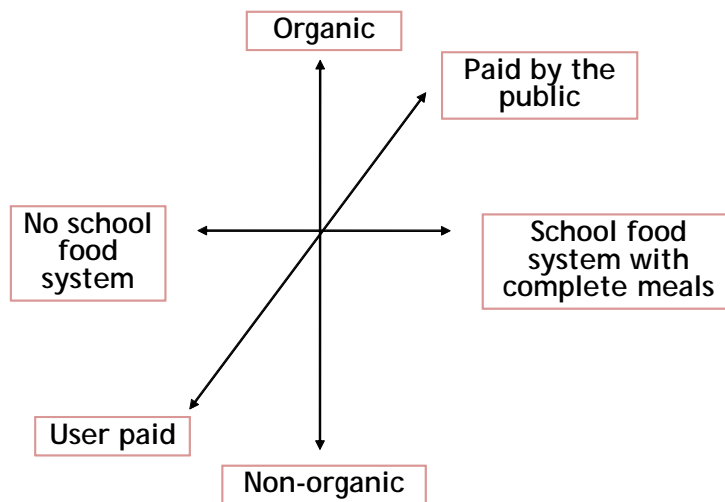


Fig. 2. Scales to differentiate between countries - With respect to (organic) school food systems.

Based on the information achieved by national studies, an approximate value (1-10) has been assigned to each scale for each country, producing the picture shown in Fig. 3. With each scale, the value was decided relatively to the country that had the lowest score; e.g. for Organic, the Norwegian value was 1 and the Italian 7. This should not be interpreted as if Italian school food has a 70 per cent organic share. If the ideal situation would be a fully organic school meal, all paid, prepared and served by the public, Finland seems to be in a good position because increasing the organic share is likely easier to achieve than to increase the public funding, e.g. in Italy.

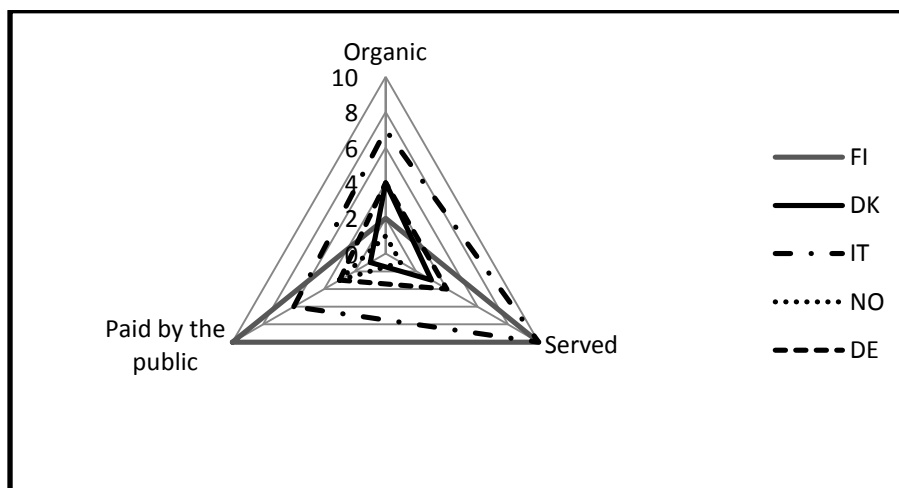


Fig. 3. Important differences between school meal systems
 - In Denmark, Finland, Germany, Italy and Norway, illustrated by assigning approximate values (1-10) on scales as shown in Fig. 2.

Central elements for the use of organic school food have been identified as active local stakeholders, food quality requirements, management of organic supply chains, and complementing educational programs (Løes & Nölting 2009). A political decision about organic food consumption is not enough to ensure a successful consumption of organic food. Committed actors are required, as well as increased cooperation

and creativity among actors along the whole supply chain from field to dining room. There are a lot of practical problems to tackle, which demand enthusiasm and go-ahead spirit.

However, introduction of organic food in public settings for young people implies a good opportunity to inform and educate them about food production, quality and culture. Also the adult actors in the school system will be influenced. Integrating the organic food in a larger effort to increase the sustainability of the school, municipality or other relevant unit may take time, but in the long run it will likely be more effective than only offering the food without any education, information or other efforts to root the organic initiative among the daily users.

4.2 Strengths and weaknesses of each system to contribute to sustainability

For simplification, we will now discuss the strengths and weaknesses of system extremes. Based on the extreme points of the three dimensions shown in Fig. 2, eight systems may be identified (Table 1), ranging from the paid by the public, organic and served, to privately paid, conventional and home-made.

	Organic		Conventional	
Paid or subsidized by the public	Served ^{IT}	Home-made	Served ^{FI, DE-East}	Home-made
Privately paid	Served ^{DE, DK, projects}	Home-made	Served	Home-made ^{NO, DK, DE-West}

Table 1. School Food Systems - Eight theoretically possible school food systems with indication of the iPOPY countries and Germany as examples in superscript.

As explained in chapter 2, all systems with organic food should contribute to a sustainable nutrition and development. However, this view is challenged e.g. by Finnish caterers who claim that local is more sustainable than imported organic, and that conventional may in some cases be more healthy than organic e.g. due to additives of vitamin D in conventional milk (Mikkola, 2009). In line with this, Italian policy equalizes organic products and products of local origin such as PDO (protected destination of origin) and PGI (protected geographical indication) (Bocchi *et al.* 2009). This supports the concept of Eberle *et al.* (2006) that sustainable nutrition comprises more than organic food. Organic food production should aim at implementing new fields of demand to defend their status as the right and best choice for consumers wanting to support a sustainable development. Still, we will argue that organic school food will contribute significantly to a sustainable nutrition and development, especially if awareness of this is integrated in the school culture and teaching.

A “captive catering” school food system, where the choice among food items is limited, all pupils participate and eat together, and qualified persons manage the menus to ensure healthy and attractive food, implies several interesting opportunities to educate pupils about food culture, healthy eating and sustainable nutrition. The Italian approach is to focus on food culture, and pupils are treated as restaurant guests. In Finland and some German states, the pupils line up in a queue to help themselves, watched over by adults. The Italian system may be more efficient to learn manners and social behavior; however, the amount of waste produced by left-over food and the large work force required to serve makes this system less sustainable both ecologically (waste) and economically.

Even if school meals bear the risk of becoming associated with boring, cheap, unhealthy and maybe even unpalatable food, we will argue that a serving that is free and aims to comprise all pupils has a much larger potential to support sustainable development than the opposite system, where people have to arrange their own school meals. However, the system should aim at reducing wastes, e.g. by letting the pupils decide themselves what food items to eat and how much. This point of view is supported by Morgan and Sonnino (2008), who also state that it is crucial to reduce unsustainable offers in the school meal situation.

Danish experiences with projects designing and distributing simple, often organic, dishes for heating in a microwave oven and selling in a school booth are mixed. Schools have been reluctant to participate in these activities because teachers consider themselves as overloaded with work already. Pupils complain about too short lunch breaks and lack of appropriate, cozy rooms to eat their food. So far, the large efforts put into the establishment of kitchens etc. have not caused much successful output on school level; only few pupils buy the food (He and Mikkelsen 2009). The best experiences seems to be achieved where kitchens, dining personnel and dining rooms are developed locally; that is, where the systems become more comparable to the Finnish and Italian “captive catering” (He and Mikkelsen 2009).

People have various incomes and family size varies, whereas daily food demands per person are about equal. To contribute to a larger social equality, school meals should be paid by the public via taxes, as in Finland. The introduction in 2007 of a free fruit daily in Norwegian schools with 8-10 grades levels has been quite successful, even if some municipalities have chosen to use the governmental funding meant for fruit to other tasks related to the schools. However, even such a simple food serving as a daily fruit demands a well planned system of delivery, storage, preferably some peeling and cutting to increase the desirability, distribution among the pupils and management of the wastes. Many people feared that free fruit would cause heaps of half-way eaten apples in corridors and school yards. However, it seems that most schools have been positive and co-operative, and managed to avoid that. Even systems such as the Danish, where food is sold in schools at a modest prize, are heavily subsidized by public funding for development, infrastructure and administration. It is likely impossible to create a system serving or offering to buy some kind of food items in schools that is 100 per cent funded by private payments.

5 Conclusion

A "captive catering" school meal system, aiming at including all pupils and school staff, paid by the public and produced from organic, local, seasonally available and otherwise sustainable products, will be the most efficient to support sustainable nutrition and –development. Coordinated and well informed efforts are required to overcome the hindrances posed by lack of funding, personnel resources, appropriate supply chains, infrastructures like school kitchens and dining rooms and not least, root the changed food system among all the involved actors. School food systems are complex and involve very many actors and stakeholders. Hence, communication, cooperation and professionalism along the whole supply and food chain are important keywords for well functioning school food systems.

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Organic foods in Danish municipal school food systems – A multi stakeholder analysis of available evidence on constraints and perspectives

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Abstract

Previous studies have shown that organic food supply and healthy eating initiatives in school food services share common features. Both types involve changes in the structure of the supply chain, the collaboration of a number of different stakeholders, and both include a physical food part as well as a non-physical symbolic aspect. Studies have shown that introducing organic food in public food systems seems to affect the nutritional profile of the food service, and anecdotal evidence further suggest that organic supply forces food services to rethink menus leading to healthier menus and that introduction of organic foods often leads to adoption of a food & nutrition policy. The explanation might be that simply developing a “food strategy” leads to a raise of awareness in school food services in such a way that both organic food and healthy eating tends to be favored, and that the notion of organic food and health eating in the minds of the decision makers is perceived as two sides of the same coin. Thus organic food supply and healthier food service seems to thrive in a symbiotic association and it appears that organic food seems to possess a “health improvement” potential that fits well with the prevailing ambitions that exists in many countries of making school settings for healthier eating initiatives.

This paper studies the case of Danish public school food services. Food services in Denmark follow the same trajectory as in many other countries where school food services increasingly are being implemented on a market driven basis, where participation is voluntary. Some of these emerging services choose to adopt an organic food supply policy. However where as a number of smaller local school driven initiatives has proven to be able to successfully develop organic food supply, a number of large scale cross-municipal attempts have shown to be problematic in terms of participation and in terms of perceived quality. This paper seeks an explanation to this difference. Why does large scale school food services with both an organic and healthy dimension experience problems, and can an explanation be found by asking the different stakeholders involved in these projects? The paper uses the growing number of empirical studies on Danish school food services that have been profiled as both organic and healthy as an offset for an analysis of the different stakeholders perception of the “organicness” and “healthiness” of the initiatives. The paper uses three municipal initiatives as cases.

The paper concludes that a number of ambitious initiatives linking healthy eating and organic supply has been implemented in Danish municipalities, but that a number of constraints seem to hinder the pupil participation in these initiatives and thus to influence the potential “health” impact of the school food service. It also indicates that stakeholders perceive the quality of the food services quite differently and that poor perceived meal quality seems to be an important challenge. The paper suggests that the size of the systems and lack of agreement and common sense making among the different stakeholders in the system is an important part of the explanation. However it is important to stress that these constraints are not necessarily due to the organic nature of the food supply but has got to do with other factors. The paper suggests that the market based “consumer” nature of the Danish school food services is another important part of the explanation. However the paper also suggest that the participation is dependent on the way the school food services are designed and that school driven approaches emphasizing the involvement and participation of the school in the food service seems to be superior to top down central systems.

1 Introduction

With more than 20 years of experience in “organic conversion” of organic food in the public sector, several Danish schools have gained valuable experience in how to make an organic food supply chain work. However, organic food initiatives have not taken hold, especially when it comes to larger municipal school food initiatives. Despite a significant increase in the number of school food programs, the number of schools and municipalities with food programs based on “organic conversion” is relatively limited compared to the overall number of school food programs offered in Denmark. This is the case despite the fact that “organic conversion” seems to have a “health improvement” potential and despite the fact that organic school food supply offers advantages by protecting the environment and animal welfare. In addition it has the potential to heighten pupils’ awareness about how food is made and their understanding of organic food production processes. Against this background an analysis was conducted

of the available written material to answer the question: *"Why is it difficult to make school food programs work, and even more so when "organic conversion" programs is attempted?"* The emphasis of the analysis is on the comprehensive municipal programs where complex supply chains and school food systems in many schools have to be made to function. The intention concerns socio-material structures of everyday school meal organization and their facilitating capacity for implementation of educational aims. The intention is not to examine the many small and local school food programs which have actually had success implementing organic school food.

2 Purpose

The purpose of this paper is to investigate constraints and perspectives related to development of organic "versions" of large scale multiple school meal provision in Danish municipalities. The papers aims at investigating why the apparent ambitious goals of integrating organic food and healthy eating and to "embed" the food supply into the curriculum seems to fail, and why the apparent health potential of organic food seems to lose momentum. The analysis is based on existing expert literature along with empirical statements from meal planners, pupils and decision makers. The paper seeks to indicate potential solutions for how organic school food can be implemented in relation to the overall challenges connected with running school food programs.

3 Methodology

Methodologically, the paper uses an open analysis and extant literature on organic food in schools, as well as analyses of extant empirical case material. The selected case material has been restricted to cases from the municipalities of Copenhagen, Roskilde and Gladsaxe respectively, which include the following list of informants:

- Pupils (from three schools in Copenhagen; from the 8th-9th grades and 5th - 6th grades respectively)
- Persons responsible for school food tuck shops/teachers in Copenhagen
- Municipal meal planners (Gladsaxe, København, Roskilde)
- Local school food coordinators ("Dinner ladies" / cafeteria assistants in Gladsaxe)
- School food suppliers ("1-2-3 School Food" and Copenhagen)

In order to understand the way in which Danish school food programs function today, it is necessary to understand the historical background of and the traditions belonging to Danish school meals.

Traditionally, the target recipients included poor citizens, who would receive a simple, hot meal from public soup kitchens, and not just school age children (Mikkelsen & He, 2009; 12). However, in 1937 these meals were considered to be of too little nutritional value for the children, and toward the end of the 1930s (Mikkelsen & He, 2009; Ruge, 2008b), the meals were gradually replaced by initiatives serving open faced sandwiches. Starting in the 1950s, Danish schools began to pay more attention to nutritional issues in school food and to offer school milk and vitamin pills during the school day. The tendency over time has been that pupils have been perceived more and more as consumers in the context of school food, and from the 1980s and 1990s, school food has primarily been offered in a users-pay system (Mikkelsen & He, 2009).

Commercial school food is therefore a relatively new concept in Denmark, and the notion that the food be organic is an even newer trend. This combined challenge can be a quite a burden for schools to implement in the everyday run of things (Mikkelsen & He, 2009). This means that schools offering hot meals can be hard to come by in Denmark, and surveys show that only 20-25% of Danish public schools have an actual school food program (Mikkelsen & He, 2009). Even in those schools that do have a cafeteria, the lunch box from home continues to be popular, or the older pupils simply leave school grounds and buy food from stores and snack bars near the school.

The greatest motivational factor for introducing school food programs is not just improved pupil health and a greater emphasis on the environment by using organic produce, but also that schools are experiencing a greater number of pupils who neither eat breakfast nor bring a lunch pack with them to school. The promotion of organic school food programs reflects, among other things, the ambition on behalf of the municipalities to build an organic profile in their purchases. Many schools also find that organic food fits nicely within the UNESCO driven initiative of education for sustainability. According to the Danish Ministry of Education, schools have an additional purpose besides ensuring pupils' learning and that is to teach fundamental values about society and the role of a citizen in a stable and healthy society. The political agenda of uniting health and environmental issues through meals stems from the

cultural assumption that habits, values and attitudes of adult life are to a great extent shaped in the early years of youth. Thus, the basis and motivation for organic school food programs has been that schools, and the instruction offered through them, potentially may create a framework for healthy decisions and food habits, even later in life.

Administratively, strategically and practically, publicly sponsored school food programs in Denmark have demonstrated manifold organizational shapes and sizes (Ruge, 2008a). Examples include fruit programs, school food stalls/tuckshops, school food stalls combined with cafeteria service, external catering, or school kitchens with cafeteria service. Parallel with this exists the long tradition of offering milk in school. All of these shapes and sizes of food offerings may potentially be based on organic food to a greater or lesser degree.

4 Case stories: Copenhagen, Roskilde and Gladsaxe

The chosen case material for this analysis has been based on empirical findings from three municipalities: Copenhagen, Roskilde and Gladsaxe. All three municipalities traditionally offer food in their schools and have, or have had, a political strategy for combining organic school food with a greater emphasis on healthy eating habits among pupils. All three municipalities offer both hot and cold meals for pupils, and in all three municipalities pupils/parents freely choose between available offers and pay on a per-purchase basis. However, the practical approach to the handling and organization of school food programs varies greatly.

4.1 Copenhagen Municipality

In connection with a large municipal school food project (KØSS), a large central kitchen was established. This concept has now been updated in a slightly different system (EAT). Food is produced and wrapped in the central kitchen and subsequently delivered to the individual schools. Here, the food is unwrapped by the teacher or pupils in charge, reheated and sold using small food stalls or kiosks as outlets (Mikkelsen & He, 2009). Schools receive food from and return leftover food to the central kitchen. Schools only pay for the food actually sold and do not have any financial incentive to increase sales. The KØSS project, which comprises school food programs in Copenhagen, was established in 2000 as a joint effort with the municipality's Health and Care Administration and the Children and Youth Administration (eg.: Mikkelsen & He, 2009; Holm, 2002; WP5 iPOP). One of the overall aims for KØSS was to promote pupils' concentration abilities and take in information by offering pupils affordable and nutritional lunches at school. The implicit goal was to develop good habits and a conception of good health in children in the younger grades. To the greatest extent possible, the food on offer is tailored to the tastes, appetites and cultures of the pupils (Schell *et.al*, 2008). KØSS makes use of a broad range of health promoting initiatives besides the school food programs themselves. For example by providing teaching materials and food labeling that contain nutritional information, as well as fixing serving sizes to the needs of the average child (Schell *et.al*, 2008).

A website has been constructed that allows parents to read about the various menus, organic initiatives and strategies which the municipality is pursuing. Parents also have the option of ordering food for their children over the website (Mikkelsen & He, 2009). Each school chooses a teacher to be responsible for running the school food stall, who together with the 6th graders takes care of preparing and selling the food received from the central kitchen. Most of the schools do not have an actual cafeteria or dining facilities for the children. Instead, they have school food stall from which the pupils can buy food. Only five out of fifty-two schools have created designated dining facilities or cafeterias for their pupils. The daily operation of the municipality's school food program is handled to a great extent by a school food coordinator in the central kitchen, who decides how much food should be prepared, which type of food should be prepared and whether it qualifies as organic. Individual schools therefore do not have the opportunity to pick and choose. It is the municipality who outlines the overall framework and principles for the food prepared in the central kitchen (Mikkelsen & He, 2009). Furthermore, the municipal food expert and coordinator from the central kitchen is responsible for further training of school teachers in running school food stalls. In the next instance, these school teachers are responsible for teaching and instructing the pupils in running the school food stalls (Mikkelsen & He, 2009).

4.2 Roskilde municipality

The municipality has signed an agreement with an organic food supplier, an external caterer, which takes care of the daily preparation and delivery of food to the schools. The schools only have to deal with selling the food in school cafeterias. Roskilde municipality has nineteen public schools with about 9,136

pupils. Just like Copenhagen, Roskilde has a deliberate strategy for organic food, conceived in 2001. Roskilde has been, and still is, an important main actor in the overall process of implementing school food programs and has actively sought to pursue this policy in the schools themselves (Mikkelsen & He, 2009). Today, ten out of nineteen public schools are affiliated with school food programs (Mikkelsen & He, 2009). The foundation is that every school must be able to offer healthy school meals in agreement with the advice of professional nutritional experts. The school food program has been designed so that each school's administration appoints someone to be responsible for coordinating school food. This school food coordinator cooperates and coordinates closely with the school in question, the municipality and the catering firm itself. The coordinator has been specially trained with regards to foods. Each school is thus responsible for providing dining facilities for pupils and school kitchens, and the school's coordinator is responsible for running the school's cafeteria (Mikkelsen & He, 2009). All schools in Roskilde that provide organic school food programs receive their food from the same catering service, *Frydenholm*. This catering service deals exclusively in organic food and is privately owned. The catering service has its own professional nutritional expert and is obligated to adhere to the health and food strategies outlined by the municipality (Mikkelsen & He, 2009). Financially, the municipality has designated means to support the schools in providing meals, as well as means to further train teachers for duties in connection with the school meals (Mikkelsen & He, 2009).

4.3 Gladsaxe municipality

Most of the public schools in Gladsaxe municipality have their own school kitchens with affiliated part-timers, so-called "dinner ladies"/cafeteria assistants, who daily prepare and sell the food at the individual schools. These "dinner ladies" are hired by the school administration and have received training in organic food by a municipal coordinator. The "dinner ladies" are responsible for planning the menu, buying groceries, preparing the food, selling it, cleaning up and financial reporting back to the school's administration in connection with the school food program. The municipality does not have any organic food strategy as such. Still, it does have a health and food strategy and actively helps individual schools establish school kitchens. Presently, school menus do not consist of as much organic food as the municipality would like (Mikkelsen & He, 2009). School teachers in Gladsaxe municipality are only responsible for the nutritional instruction of students in connection with classroom teaching. Gladsaxe has made a point of making individual school leaders, "dinner ladies", and school nurses aware of the municipal health and food strategy.

The aim is to have these three actors act as ambassadors for the strategy when communicating with pupils and parents (Mikkelsen & He, 2009). Most of the schools in Gladsaxe prepare their own food, so catering services and central kitchens are not as relevant here. Fourteen out of sixteen schools have their own kitchens (about 6, 348 pupils) and prepare lunch for their pupils. The municipality has developed a line of seasonal recipes which have been distributed to the "dinner ladies" in accordance with overall health and food strategy. Depending on the size of the school, each school employs one or two "dinner ladies". The municipality is not the daily supervisor on the project, but has been the initiator of it, and is available if the school board or the individual "dinner lady" is in need of assistance. There is, however, a monthly meeting, where a debriefing takes place and suggestions are brought up. The municipality is responsible for paying and educating the "dinner ladies". (Mikkelsen & He, 2009)

The municipality is in charge of the training of the "dinner ladies" and has devised a handbook with guidelines on the interior of the kitchen; how to handle grocery shopping; prescription development, etc. Furthermore, at one of the schools in the municipality, there is a program where pupils are involved through their education in preparing the lunch for the entire school – both pupils and teachers. The program teaches both about hygiene conditions and general cooking skills. (Mikkelsen & He, 2009) The municipality places great importance on teaching the schools to communicate with the parents about the school food programs, so the parents understand the intention of the program and can feel a sense of shared responsibility for the success of the program. Furthermore there has been cooperation between the food industry, the municipality and the "Dinner Ladies" about developing better pre-cooked/readymade products – for example selling a healthier yoghurt in the school cafeterias.

5 Results

The previous section reported the barriers and problems presented by the existing empirical data. It is, however, important to understand, that there are a number of significant differences between the three municipalities' political and practical-administrative strategies for the school food programs. There is a difference between the varying political strategies for food at school, for instance there is a difference between an organic supply driven food strategy and a health-based food strategy. Furthermore, the

report highlights the difference in the involvement/participation level when it comes to the school board, teachers, parents and pupils respectively, as well as the difference when looking at to which degree a food strategy for the school has been incorporated the school's nutrition and health education. Last but not least, there is the difference between the system itself and the actual administration and organization underlying the school meals. Whether the food is prepared in a central kitchen, delivered, heated or sold from school food stalls, or whether decentralized school kitchens have been established and 'sit down' dining facilities for the pupils of the schools. (Mikkelsen & He, 2009) However, there are a number of broad themes acting as barriers for school food which can be defined from the analyzed empirical material. These themes are listed below and related directly to the organizational model and specific municipality:

Theme	Copenhagen	Roskilde	Gladsaxe
	Central municipal production	External commercial production	Decentral production at school
Price, Portion Size, Selection, Wrapping, Taste and Quality	X	X	X
Ordering and Payment	X	X	X
Time, Socializing and Dining facilities	X	x	
Administration and Communication	X	x	X
Ownership and Shared Responsibility	X	x	X
Parental Influence	X	x	
Organic vs. Conventional?	X	x	X
Integrated Education	X	x	

Table 1 Barriers to organic large scale school food service.

The table illustrates the themes identified as being significant in relation to organic school food service in the three municipalities.

Similar for all three municipalities, when examining the analyzed material, is that less than a quarter of the pupil body in all three municipalities, actually use the school food program. (Mikkelsen & He, 2009) This pattern seems to be identical in spite of the relatively different approaches to the implementation and maintenance of the school food programs in practice. The analyzed material thus shows that basically the same themes are in play in all three municipalities. Only Gladsaxe municipality can, with its unique model of decentralized kitchens, dining facilities and a degree of pupil involvement, deal with the themes of socializing, dining facilities and integrated education. However, it is important to note that the empirical case material and the basis for the defined barriers and main themes to a great extent are based on studies made in the Copenhagen municipality and among a broad array of informants. Contrary to this, the empirical material from Gladsaxe and Roskilde municipalities is more limited.

6 Discussion

The data available shows that developing and operating a large scale municipal school meal service successfully under the conditions found in Denmark is a serious challenge and that it is especially challenging in an organic version. Taken into account that a number of school driven meal provision systems based on organic supply have proven to be able to survive, the findings suggests that it is the "architecture" and the size of the municipal systems that is challenging.

The presence of a large number of stakeholders with different views and expectations and the need to make a complicated supply chain work are some of the problems as well as the in-built weakness of the school provision- its consumer orientation. However data also suggest that even large scale municipal systems show differences in its appeal to a broad range of involved stakeholders and that the Gladsaxe approach with decentral kitchens seems to create more ownership and alignment of expectations. The data in addition suggests that there might ways to enhance the possibilities of organic supply in schools.

These are:

- Greater focus on the social needs among pupils in relation to school meals
- Greater focus on the administrative communications systems behind the school food
- Focus on certifying organic school food
- Greater focus on integrated education in health issues, ecology and food culture

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How to integrate sustainable consumption and healthy eating in curriculum

- An in-depth probing of the concept of whole school approach

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Abstract

This study inquired into integration of sustainable consumption and healthy eating in curriculum of three Finnish primary case schools, and carried out a preliminary in-depth probing into the working and outcomes of the 'whole school approach' in terms of teaching and learning. The whole school approach did portray as common effort by teachers and caterers to induce sustainability concept and reflective practices for pupils, and as such it presented new cross-curricular and transformative education binding reflection with knowledge and practices for every-day sustainability behaviours. As part of education for sustainable development and food education for sustainability in particular, organic food as an illustration for sustainability was used in one case school. Even though very fragmented and small-scale, the study suggests that sustainability education and sustainable food education do have chances to challenge current societal developments by today's pupils, the future citizens and consumers.

1 Introduction

Eating is a most intimate thing in terms of what goes into our bodies, how healthy it is for us and how pleasurable we find it; eating is also a very public thing in that we eat out together, consume food chosen and cooked by others and furthermore, have public interests in consequential public health (costs). Additionally, we know about huge vested interests in eating in terms of economic structures of food supply networks and finally, we have the environmental concern from local to global scale. Shortly, eating is about sustainability. If we feel there might be sustainability deficit in the way we currently eat in our societies, can schools change the way we eat?

Basically, schools have possibilities to change the way we eat on two levels. First, the current school meals as (exemplary) part of the food system could represent catering for sustainability (Morgan and Sonnino, 2008), whereby the social system mediates sustainability between individual and environment (Mikkola and Mikkelsen, 2008). Second, school meals (are supposed to) have educational influence on pupils and students, who as today's young consumers become in the future the adult ones, growing to actors within food system. At the moment, both levels seem to be challenged in terms of sustainability; school meals have been an object of societal debate both in countries where a statutory free school meal is served and in countries where it is offered (partly) on commercial basis. The double focus of the debate seems to boil down to 'better (sustainable) food for kids', but 'on whose cost?' In similar vein, the food for school meals should preferably originate from organic, local or regional and sustainable agriculture, and the overall food supply chain represent fair practices (Morgan and Sonnino, 2008).

Education for sustainable development (EfSD, <http://www.unesco.org/en/esd/>) at large and food education for sustainable development (FEfSD) in particular suggest that education could make a difference. According to Morgan and Sonnino (2008, p. 19, 169-171), the 'whole school approach' may be understood as an educational tool of the ecological era, mandating the promotion of public good through cultural transformation of individual attitudes and behaviours towards more sustainable life styles. They see new forms of 'ecological citizenship' (Dobson, 2003, in Morgan and Sonnino, 2008) to be developed by people who think critically about social and environmental interactions, engage practically with collective problems and assume responsibility for conduct in private and public life. Morgan and Sonnino suggest the Green State to utilize the public plate to educate civil society about sustainable development. Here various educational initiatives, including whole school approach, transfer the multiple meanings of food quality to schoolchildren. Given the centrality of FEfSD for ecological citizenship, we need to ask "How to integrate sustainable consumption and healthy eating in curriculum?" If the concept of the 'whole school approach' (Morgan and Sonnino, 2008) as a positive curricular approach should represent exemplary practices, what does it mean for teachers, caterers and pupils/students in terms of teaching and learning? This paper aims at an in-depth probing of the concept of the whole school approach for sustainable consumption and healthy eating in Finland as it is experienced by teachers, caterers and young people and exhibited by present curricula in three case schools. The results highlight the considerable conceptual and social integration effort done by teachers and caterers and the evidence of transformative learning of sustainable consumption and healthy eating by the pupils.

2 Methods

This study looks for evidence of the whole school approach as described by Morgan & Sonnino (2008) within Finnish primary education system. The crystallized features of whole school approach are interpreted here to consist of both teaching and learning of transformative developments such as critical thinking and experiences of social and environmental interactions, including sustainable public food, leading to capacity to eat healthy food with lower environmental impacts and fair economic relations within food supply networks. The study screens this kind of transformative development, whereby the relation with material and social environment, including food, becomes 'rearranged' towards sustainability. The method of the study is discourse analysis of a realist version, whereby the language used by interviewees is thought to be connected with 'real' material environment and feelings as experienced or known to discussants and shared by the researcher (Parker, 1992).

The study is based on interviews of nine teachers, five caterers and 3 focus groups of pupils aged 8-11 y in three primary schools within Helsinki area in 2008-2009. The interview guideline included questions regarding the views and activities regarding sustainable development and organic food for teachers, caterers and groups of pupils. The interviews, altogether 17, were transcribed verbatim and coded for transformative features by teachers, caterers and pupils.

3 Results

3.1 Teachers' educational activities for sustainability

Teachers working in primary education expressed rather strong support for education for sustainability and in principle, for sustainable food education. Teachers developed particular approaches of their own in order to explain the epistemological basis of broad environmental impacts such as climate change, ecotoxicology of pesticides and resource depletion. They illustrated their message by simple every-day analogues, such as grass pot covered by a plastic bag or chemically contaminated mice eaten by cats or they discovered with their pupils items of material environment made of oil. The epistemic area of teaching included also explorative activities whereby pupils were looking answers for their questions in the internet. The teachers stressed they wanted to develop the pupils' abilities for critical reflection of the information pouring upon them today.

The teachers also organized experiential learning for pupils, who brought the content of their waste bins at home to be analyzed at school. Within the school, there was an intensive effort to increase the source separation of waste into several fractions. The task included the identification and use of the differently labelled trash bins. The teachers took the pupils with them to nearby supermarkets to evaluate the amount of packaging around different foodstuffs. The pupils also searched for different kinds of organic food on the shelves, and learned about its labelling in addition to the information presented by school text books. The prices of foods were also looked at. The teachers made visits to 'local nature' such as forest sites where the pupils produced nature diaries about what they saw within that environment and in which season.

The teachers wanted to integrate the physical environment of school, including school catering, as a learning environment for sustainability. Food manners were looked after and food waste was particularly avoided by teaching pupils to 'take what you eat and eat what you take'. Through an additional administrative effort, a teacher managed to include organic crisp bread into school meal. Within the school, there were also other environmental practices created: the saving of water when washing hands, saving of energy by switching off unnecessary lights and source separating the various waste fractions. In developing education for sustainability, the teachers participated the caterers and other technical personnel into educational activities. They also looked for national and international projects and had interest in their school becoming recognized as an institute of progressive sustainability education. However, part of the teachers felt that during their hectic work days, they would not have the capacity at all times to participate in the project activities or to follow the new guidelines for the sparing use of resources.

Teachers made initiatives for pupils' social learning and organized pupils' environmental and sustainability groups, called 'Green Boards'. The group was responsible for following and co-educating other pupils regarding environmental practices. The Green Boards were able to make decisions about the use of limited amounts of budget money for pupils' interests. The board had a chair and secretary, in order to teach the pupils about ways of democratic decision-making.

3.2 Caterers' teaching and guiding activities for sustainability

The caterers were introduced to school's sustainability education efforts and asked to join the teaching work. The caterers were satisfied to have lessons for pupils about food culture and school menus, explaining how everybody liked and disliked at least something, and how one could learn to like different foods. The caterers also emphasized the 'take what you eat and eat what you take' in order to avoid food waste. They placed every day the 'plate model' of the day's dish at the entrance of the dining hall for the pupils to see how exemplary compilation of carbohydrate and protein containing foods as well as vegetables plus milk and bread looked like. The caterers also had a 'counselling eye' for pupils eating in the way that they gave kind remarks if a pupil had a very deviating compilation of the day's dish. They followed the amount of food waste on a daily basis and created new ways for its collection; finally, pupils took turns at the waste bin and gave advice to other pupils about not to waste food. In general, the caterers were an active resource in the kitchen and dining hall in guiding the healthy every-day food and eating behaviour.

3.3 Pupils learning experiences and outcomes

By their focus groups, the pupils expressed their knowledge, critical thinking and reflection abilities, perceived practices and responsibilities as well as emotions regarding sustainability and (organic) food. Pupils told they knew organic food did not contain fertilizers or pesticides and in this respect it was healthy food to eat. Some of them knew their parents bought it home, particularly milk, eggs and bread. They were very aware that organic crisp bread and milk products were served at school meals. However, they were critical consumers comparing prices – how much the snack did cost at their own school and how much at the nearby music academy. Critical thinking and reflection were evident in an exchange whereby a pupil claimed organic food to taste good, the other asking whether the one had tasted it and when not, the other questioned the knowledge basis of the claim. The reflective thinking of responsibilities was expressed by a pupil who planned how to behave in case organic food would taste bad; she would feel like taking it to waste bin, but because it was healthy and the kitchen lady would not like food waste, she would go back with the food to her seat and eat the food. Regarding the amount of food allowed to be taken, the pupils discussed about the number of meatballs and came to the conclusion that it was seven.

Additionally, one of them remembered that there was organic milk in the refrigerator too, for the pupils who had particular nutritional needs; they knew the rules and practices in this case too. Food was also very emotional topic in the way that the pupils expressed 'their love or hate' for particular foods such as spinach or fish soup, and wanted to use them as 'comfort' when having experienced unkindness by others. They also were very critical to foods they did not know, and even more critical when the kitchen lady did not know the ingredients of the food either. The pupils' practices and responsibilities concerned foremost challenging source separation. The pupils told they did not always remember the waste fractions, and in a hurry with others to the school yard, they just threw the piece of waste into any one bin. The ones who were engaged in the Green Boards were aware of their role and knew they were expected 'to know' about recycling, food 'rules' and how to solve scuffles with the pupils' body designated for this. Others correspondingly knew or asked who were (this time) these 'resource persons' in each class.

4 Discussion

Biggs (2003) advocates educational alignment (in higher education) according to societal needs, but this need may be justly claimed to prevail in primary education as well; in the case schools, the sustainability and as its part, sustainable food education, were a perceivable part of every-day activities in school. As curricular effort, supported by cross-curricular theme of EfSD of Finnish national core curriculum (Uitto, 2009), features of integrated curriculum (Beane, 1997) were present as societal problems and their solutions were explored thematically by pupils. The effort for the complex of knowing and practicing sustainability on the premises came close to what Beringer and Adom̄bent (2008) and Bray (2008) report for university campuses. Pupils were 'initiated' into sustainability practices, which were, however, not of the stagnating and undemocratic kind, but were looked into as informed and critical reform of prevailing societal practices (Smeyers and Burbules, 2006).

To some extent, there seemed to prevail a correspondence between teachers' and caterers' teaching efforts and the pupils' learning outcomes. The pupils did express knowledge, critical thinking and reflection, as well as responsibility regarding their sustainable practices, as suggested by Abowitz (2008) and Morgan and Sonnino (2008). However, the particularities of the food networks were not quite clear

for teachers or caterers, and therefore not for pupils either, as presumed in the whole school approach. The caterers (Mikkola, 2009) and teachers saw sustainability realized not only through organic food but also numerous other aspects such as carbon dioxide, and food safety and security at large. The stage of the teaching and learning of sustainability was mostly the school premises and local environment, and the main focus was set on sustainability aspects enabling rather unambiguous measurement such as waste creation and use of energy and water. However, co-operation with caterers was very challenging for teachers whose social networks and practical responsibilities tended to grow beyond their set limits, while caterers seemed happy about new and different tasks within school community. Emotions were clearly integrated with sustainability teaching and learning activities, a field to be studied further.

However, the pupils participating in focus groups did belong to Green Boards and were those willing to meet an 'outsider', which suggests, that they could have been more aware and 'initiated' into the concept of sustainability and its practices than other pupils not willing to participate. In conventional teaching terms, they were 'good pupils', but as such, they offered evidence, although fragmented, that sustainability education and sustainable food education do have chances to challenge current societal developments by today's pupils, the future citizens and consumers. However, according to Bridges (2008), there are limits to schools' societal influence, and the main thrust of schools should be educational and not indoctrinatory.

5 Conclusion

This study inquired into integration of sustainable consumption and healthy eating in curriculum, and carried out a preliminary in-depth probing into the working and outcomes of the 'whole school approach' in terms of teaching and learning. The whole school approach did portray as common effort by teachers and caterers to induce sustainability concept and reflective practices for pupils, and as such it presented new transformative education binding reflection with knowledge and practices for every-day sustainability behaviours. Even though very fragmented and small-scale, the study suggests tentatively that sustainability education and sustainable food education do have chances to challenge current societal developments by today's pupils, the future citizens and consumers.

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Organic, fair trade and climate friendly food at Roskilde Festival, Denmark - Working with the suppliers and the audience at a major music event

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1. Background

Roskilde Festival is the largest music festival in northern Europe with 75,000 sold tickets. The non-profit event has existed since 1971. The infrastructure, restaurants and stages are built up and serviced by 25,000 volunteers through the eight day event. The festival has had environmental policy, planning and management since 1994, including a focus on buying and offering organic, fair trade and vegetarian food in the 105 stalls selling food and beverages.

2 Case description

Roskilde Festival is one of the few major international cultural events in Denmark and one of the largest music festivals in Europe and has existed since 1971. In the first week of July more than 100,000 people gather at the old cattle show area in Roskilde, to see 180 bands play on the 7 stages, get a break from daily life and be part of the wide range of activities and experiences at the festival. For eight days, it becomes one of the world's most densely populated city – and Denmark's fifth most populated city. The people attending the festival live in tents and cover their basic food needs either in the food stalls at the festival or the permanent restaurants and shops in Roskilde City.

The demography of the citizens in the temporary city is very different. Guests at the festival come from a large number of countries. Between 50 and 60 % are Danish, and Swedish and Norwegian constitute around 15 % each. The rest are mostly from Europe, but also people from Australia, USA and Asian countries attend the festival. The average age is around 22 years and about 50 % has attended the festival one or more times before. Most people are students or have a higher level education.

Roskilde Festival is a non-profit humanitarian organization of about 25 full-time employees and up to 25,000 volunteers. Each year, The Roskilde Festival Charity Society, which is the association behind Roskilde Festival, ensures that the profits from the festival are donated directly to humanitarian and cultural purposes.

The organisations wants to create an event with much focus on reducing the environmental effects of the festival. Since 1994, the festival has focused increasingly on environmental sustainability. This is achieved through continuously improving key focus areas such as transport, energy, sanitary conditions, waste sorting and buying greener products. It is the mission of the festival to improve the quality of food offered to the audience, provide a wide variety of food and increase the number of organic, fair trade and climate friendly products used in the food preparation.

3 Findings

At Roskilde Festival there is a firm focus on offering a good variation of food, instead of just giving only the choice between burgers and hot dogs. To be in line with the environmental and humanitarian focus of the festival, it is also important to initiate a shift towards more sustainable food at the festival. How this is done at the festival is explained in the following.

3.1 Who sells the food at the festival?

The festival management is running the catering at the stages and the food for the volunteers. Apart from this all food products are bought, prepared and sold by external partners. These have traditionally been sports clubs, humanitarian organisations or interest organisations. In the later years, most new food stalls at the festival is run by professionals. This development is a consequence of the more specialised needs in the menus and especially the effort it takes to run the big, busy bars and restaurants. Still the majority are run by organisations, normally driven by a group of experienced people that have gained a lot of knowledge through the years.

3.2 Controlling the products sold at the festival

Since it is not the festival itself that is running all the food preparation for the audience, the choices on products and menus could be thought to be a task for the single caterer. However, the management has decided not just to leave it to the caterers to decide these things. Since it is the management that decides who sells the food, also it is the management that have to take a stand on what is sold. Therefore the festival has been working intensively to get more organic, fair trade and vegetarian meals. This is in direct line to the rest of the work the festival does on environment and climate change in a broad sense.

The way it is controlled is that all the caterings for the volunteers as well as all partners selling food at the festival must use specific suppliers. At these suppliers the festival organisers control what products are chosen in specific categories and put a "lock" on certain product categories where products have to live up to minimum demands. This way the organisers can introduce more and more organic and fair-trade products. This work is done in cooperation between the employed and volunteers responsible for the commerce at the festival, working together with the environmental management of the festival and external suppliers. Most of the chosen products follow national and international acknowledged labelling systems for organic, fair-trade and eco labelled products. The quality and transparency of the background of products is further strengthened by collaborating closely with NGO's and non-profit interest groups.

The festival has been working closely together with the suppliers of food, to find out which products it is possible to change into either organic, fair trade, climate friendly or eco labelled products. It has not been possible to take all food served for the massive crowd of 100,000 people and make it organic overnight. But by finding an increasing number of products that can be changed to more sustainable products, the list is now long and include some of the important product categories. In 2009 the list include all milk products, juice, wine, coffee, tea, sugar, smoothies and non-food products as cleaning detergents, paper, and even merchandise t-shirts. By starting with the major categories, the change is still significant. To give an idea of the amounts, there was used 3.5 tons organic and fair trade coffee at the festival in 2009.

3.3 Food stalls that go further than the demands from the festival

There are two levels of sustainability in the food stalls at the festival. The control at the supply source means that all food stalls at the festival have to use some organic or fair-trade product. If some food stalls wish to have further sustainable products, it is possible to get a dispensation from the rules when this is towards the sustainable products. All three central suppliers have a range of sustainable alternatives and one of them is 100% organic.

At the festival there are several examples of food stalls that have chosen to be 100 % organic and/or fair trade. Some of these have been at the festival for many years and have sustainability as their basic values. Other stalls have chosen to be organic because it gives them a branding and publicity advantage as new food stalls at the festival. A good example is the cocktail bar Eco Lize. This is one of the professional bars, run by people running a bar in Copenhagen. Even though the bar in Copenhagen is not focused on organic products, the festival managers insisted that a new cocktail bar should have this focus if it was to be considered at the festival. The concept was accepted by the bar managers and has been a success and has grown to two big, 100% organic bars in 2009.

To increase the focus on the food stalls that choose to go beyond the basics they have been placed in a special area with thematic décor, information about the environmental work at the festival and an effort regarding energy savings on the stage has also been implemented. This has created a branding effect for this sustainable stage area, which the food stalls also gain from. In the area the audience find a broad range of offers from organic cocktails, organic and fair trade barista coffee, fair trade ice cream, organic milkshakes, organic hot dog stand, organic pizza and organic falafel.

3.4 Act fair – trade fair

Each year the festival has a humanitarian focus, which is a campaign towards the audience and secondarily the press and a possibility to support a humanitarian project. In 2007 and 2008 the focus was on fair trade and a broad campaign about trading fair was aimed at the audience. To support the message the festival worked intensively to find the products at the festival where a change could be made. During these years substantial changes were made in the number of "locked" fair trade products. Some products were readily available, but there were some product categories that simply were not available on the market. Two examples are fair trade certified wine in cardboard containers and fair trade certified t-shirts. This was high priority for the festival and through close collaboration with

commercial partners the products were produced for the festival. Concerning the wine, the barrier was that the wine for security reasons cannot be served in glass bottles. But there were no fair trade wine in carton containers. In a unique collaboration between Tetra Pak and the wine importer a small production of a custom made carton container that was made part of the festivals refund system was filled with fair trade wine. In 2009 this collaboration was increased to also include custom made juice containers, enabling the festival to change to organic juice instead of conventional.

3.5 Green Footsteps – Climate friendly food

At the festival 2009 the humanitarian focus was on climate change through the campaign Green Footsteps. Beside the efforts to lower carbon emissions from transportation, electricity use and waste incineration, vegetarian food offers and products with lower carbon footprints were part of the efforts to do green footsteps.

To increase the quality and number of climate friendly, vegetarian meals, all the food stalls were asked to develop good vegetarian meals. In return the festival used all available media (web page, program, festival radio and the festival newspaper) to tell the audience the vegetarian menu and where you can get it. At the festival all vegetarian meals were marked with a green foot, to indicate to the audience that it was a climate friendly, vegetarian meal..

To involve and affect the festival audience directly they were asked to do Green Footsteps themselves. All ready before the festival, people were asked to do Green Footsteps. One of these was to prepare a vegetarian dinner for their friends. The people that did three Green Footsteps and proved it, qualified to a reserved camping spot at a special area called Climate Community. This way the knowledge vegetarian food is a climate friendly alternative was made clearer and the audience was tuned into the issue already before the festival.

In the communication it is effective to use the power of the massive number of people at the festival. An example is that if all people at the festival choose one vegetarian burger instead of a meat burger they will save as much CO₂ as what is emitted from all the cars used by the festival. This makes it clear that a small change by one person can be part of a massive change at the festival. To further attract the audience to the vegetarian meals, people could send in a text message to be noted for taking a green footstep, with the possibility to win prizes for being green.

4 Discussion

Roskilde Festival is working to present a diverse range of food choices, with organic or fair trade ingredients in most meals and with some food stalls choosing to be 100 % organic and it is now considered as part of the festival experience. When catering for a population equal to the fifth largest city of Denmark, Roskilde Festival cannot change to full organic or fair trade food from one year to another. The organisers at the festival and the caterers are responsible for providing enough food for all the audience. Therefore the restaurants have to be 100% certain on delivery. Often this is not possible. First of all the needed volumes are massive. There have been examples where Roskilde Festival almost empties the market for some products in the festival period. A further barrier is that the festival is such a short, but high impact event. This means that it is difficult for the suppliers to suddenly change to deliver for this big, but very seasonal market. This can be the case especially regarding niche products such as organic or fair trade products. Therefore it is important to be sure that a change to a product that constitute a small part of the market is safe regarding certainty of delivery, and in this way the change at a major event mirrors the possibilities in the rest of the market. If a sustainable variant of the product is widely available or if the festival is a key buyer the change is often readily done for that product. A gradual change is therefore the only way forward at a major event like Roskilde Festival. As has been shown in some cases, the festival can take initiative to make products just for the event, but this naturally can only be done in a limited number of products.

4.1 Economical limitations

The economical implication of changing to organic or fair trade products is an important aspect when working for sustainable products. Even though it is a priority at the festival to make the change, the food has to be in a price range that the young audience can afford and in portions large enough to cover the need of young, partying people. Therefore the festival has a maximum price for a meal that cannot be changed. Further there are limits to how much of the economic burden can be moved to the caterers, since most are non-profit organisations or sports clubs that must have a possibility for a profit during the short period of time. This means that some products have not been changed because of economical

reasons. However there are examples where the organic or fair trade option is not more expensive than the conventional product. Here a change is more simple and few good reasons exist for not starting with these products. One promising positive economic aspect is that, when it comes to changing meals towards climate friendly and healthy dishes with less meat and more vegetables, there will often be an economic benefit for the caterer on the ingredient cost of one meal. This increased marginal profit can counter possible increased price from changing an ingredient to a sustainable alternative.

4.2 Massive effect of information

The campaigns at the festival have shown great potential for reaching a young, international crowd with environmental issues. In 2009, 21 % of the audience reply that they have learned more about climate change issues from the Green Footsteps campaign and 42 % of the people that have seen the campaign say that they are willing or very willing to change their own behaviour because of the campaign at the festival. One reason is probably that the call for a change comes from a source they respect. Secondly the messages are served in a relaxed form and a context that makes sense in the situation.

However there are limits as to how much change the festival can do. The festival is a break from the rules and dogmas of daily life and some meals are expected to be present at the festival. For some people meat based meals is closely connected to live music and this group will react strongly if general changes were made. This was seen at the festival in 2009 where fake, but well-made posters saying that in 2010 all food would be vegetarian, were put up around the festival by unknown persons. The reaction to these posters is still seen in web discussions and indicates that there are other driving factors than sustainability and health when it comes to the food choice at the festival. On the other hand interviews with audience indicate that they think the festival should go all the way in smaller, thematic areas of the festival and thereby show that the talk (the campaign) is followed by the walk. When people chose to go to the "green" area they expect it to be 100 %. The reason is probably that they need clear guidance to the sustainable products and partly because they also use it as personal branding. If the signals or efforts are mixed, then no one can see if you are doing an effort to be really green.

5 Conclusion

The case at Roskilde Festival shows that it is possible to offer wide range of food to the music audience and gradually get more sustainable products into the production. The festival organisers have to be ready to control what is used by external partners and work proactively with suppliers to get more sustainable products into the commerce system at the festival. Because of the massive size of the event and the very short period of activity, there are limits how radical a major festival can go beyond the mainstream market. The availability of products in the right quality, amounts and price range in some cases limits what products are available. Some cases, however, show how Roskilde Festival as a major event can use the size and impact to make changes in specific products by working together with the suppliers. Communication and campaigns about sustainable products towards the audience have shown great effect at the festival in terms of the awareness and sale of sustainable products, as well as beyond the festival in terms of the readiness of the audience to act sustainably in their daily life.

The work on increasing the sustainable food offers and campaigns towards the audience will continue at Roskilde Festival in the years to come. The hope is that further collaboration and exchange of experiences and knowledge between different events, universities and suppliers will increase. Such work will boost the efforts at many events, increase the available sustainable products and hopefully lead to more sustainable events in the future.

National strategies for organic supply in healthy school food systems – Results from policy analysis in four iPOPY countries.

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Abstract

Organic food offer new dimensions to school food, and schools offer new dimensions to organic food – when tackled properly. In this paper we will present findings from the iPOPY research project that is supported by from the ERA-Net, CORE-Organic programme, based on studies of school food policies in Denmark, Finland, Italy and Norway. The embedded food traditions and cultures have had different attention in these countries, why also food related consumption; institutions and markets are quite different, heterogeneous and dynamic. Where school food services are relatively widely embedded in the school systems in Finland and Italy, the Danish and Norwegian school food is predominantly defined by the packed lunch brought from home.

To analyse the strategies used and /or implemented in these countries we have selected a number of cases where in depth studies has been conducted. The perspective used in these studies has been informed by policy - and actor network theories. An attribute to this perspective is the analysis of both the organic supply chain actor networks and the school actor networks. This involves a focus on relations and translations between these i.e. the identification of key actors and the dynamics between these. As an illustration on these relations and translations the case of Public Organic Procurement in Copenhagen is presented. The concept of embeddedness of the food systems is also discussed.

1 Introduction

The daily meal for school children is a subject, which has attention in many countries these years. The discussions are often related to the considerations of how to secure pupils a healthy and genuine meal. Especially with the upcoming problems with obesity and related health problems among children it has been getting attention. School meal systems vary on many levels – on the national level there are different policies, cultures and traditions, which determines the frame for developing school food systems. Also on the local or regional level many different systems occur. In some countries there has in recent years been a focus on organic school food and this topic has been the basis for a research project, which looks at the character, effects and embeddedness of organic school food systems. In this paper it is mainly the policy- and embeddedness aspects of the organic school food which are presented.

One dimension in the examination of school food systems is that educational institutions are regarded as key carriers of cultural values and therefore local, regional, national and international attention is closely connected to school policies. Agendas raised in modern society are therefore also often addressing the school settings - the health and obesity discussions are two recent examples. The food served or brought to schools therefore also has a more symbolic meaning than the material and nutritional dimension.

Four countries have been examined in relation to selected organic school food systems – Italy, Finland, Norway and Denmark. The paper reveals differences in the way the school food is perceived and how these differences in perception also leads to different dominating ways of organizing the school food. At the same time there are also some similarities in the overall goals and visions related to healthiness and improvement of learning abilities.

1.1 Policy aspects

When looking at the different school food systems in the four countries it is obvious that there are different cultures but also different actors and processes regarding the visions and implementation of these into reality.

The policy approach towards the systems covers an analytical understanding of the systems where the focus is looking at the processes among involved actors.

1.2 Embeddedness

The theoretical-analytical concept of embeddedness has been shaped through more than five decades. Introduced by Polanyi (1944) to account for economic practices that have become re-embedded in social practices (Sonnino, 2007; Winter 2003), the assumptions of embeddedness tend to increase the interpersonal dimension and diminish the role of diversity and dynamics of relations. Policies and strategies for school food reflect this complexity and dynamism in these years in many countries. In this context the concept embeddedness will be used to describe anchoring of the school food systems in the four countries on the regulatory, the political and the civil society levels.

2 The school food systems in the four countries

The description of the systems is mainly from Nielsen et al (2009).

Looking at the four case-countries we have found some similarities in Italy and Finland and some similarities in Norway and Denmark when it comes to tradition and culture. In Italy and Finland school food is an important part of the school day. Usually a warm meal is served in a canteen for almost all pupils. On the other side Norway and Denmark are dominated by a system where lunch packages are brought from home and often eaten in the classroom. Additionally there is often a small stall or booth where it is possible to buy supplement snacks or drinks. Denmark has in some municipalities introduced prepared warm school meals but it is not yet the dominating picture throughout the country. In Norway there are almost only systems with lunch packages.

Beside these similarities there are also some differences in the systems. In Italy the school food is the responsibility of the municipality and since Italy has more than 800 municipalities there are many different systems. There has in recent years been a national focus on quality aspects of the school foods and important for this project also organic products have had national attention. The food is partly paid by the parents and partly supported by the municipality or the region/state (?). There is a graduated payment according to the income of the parents. The Italian school food is prepared in municipal kitchens or locally at the schools as the dominating ways. In some cases though there are some external suppliers getting into the market as well. The focus of the iPOPY research project has mainly been Northern Italy (including Rome) and here there are some quite different trends going on. In Milan the system has an increasing focus on price on behalf of quality and organic products while Rome has a very high attention on organic and local products which increases the expenses for the municipality quite dramatically.

In Finland the school food is free for all pupils but financed by tax-payment for all citizens of Finland. The system is dominated by a top-down approach where especially health and nutritional aspects dominated the approach towards the food. The 'plate model' (Tikkanen, 2009) is the dominating approach towards the planning of the food. The food is often prepared in a municipal kitchen although big external suppliers are also increasingly on the market due to a sometimes cheaper tender offer than the municipal kitchens.

In Norway school food especially organic school food is not very much on the national or municipal agenda –, although there was a political promise in 205 from the socialist party about hot school meals to all pupils. Since then this goal has not been fulfilled. Only Trondheim municipality has been trying to increase organic school food. In Norway it is primarily milk and fruit which have succeeded to some extent, also when it comes to the organic aspect. The fruit scheme has been a national supported initiative and therefore free for pupils/parents. The milk scheme is paid by parents. The trend in Norway is that the share of organic milk is decreasing in this national scheme (Mari-Greta??).

Denmark has as mentioned the same traditions as Norway which means that there are almost no schools with canteen facilities. At the same time there has been some political attention towards school food and for especially the municipalities near Copenhagen also organic school food since the late 1990'ies. The discrepancy between the dominant lunch package culture and the wish for more school food served at the schools has been giving some challenges for the schools. The system in Denmark is based on parent payments. For some municipalities there are different kinds of municipal support to the canteens.

To sum up, in *Italy*, the full warm meal system is well established. The management of the school meal procurement is highly decentralized and organized at the local municipal level. In *Finland*, the warm meal system is established as well as based on a long history as in *Italy*, but the school meal system is much more centralized, important decisions about the regulatory framework such as nutritional

recommendations, in-house control or vocational curriculum for cooks are taken at the national level. Moreover, *Finland* has a more scientifically based managerial approach than *Italy*. In *Denmark*, the additional food items system is changing at the moment; rather many local initiatives try to extend the school food procurement into the direction of full warm meals. In *Norway*, food procurement is mainly restricted to milk and fruit schemes.

3 Actors

Looking at the school food systems in the overall perspective shows that that major actors in the school networks are confronted with market issues, regulatory issues and civil society issues.

For the market issue this implies that introducing food service systems to public schools, an economic controversy is introduced to the schools. This controversy is predominant where user payment is practiced (*Italy* and *Denmark*). The controversy is related to the relation between the price and the quality. When the major aspect of the school canteen has to be covered by what is sold in the canteens – as is the case in *Denmark* there is a limit in relation to the price of the food. If the food is too expensive the sale will drop. If the quality in the other hand is too low the sale will also drop – this is the controversy or dilemma of the user paid systems in *Denmark*. There is an expectation that the price cannot be above 3 € in *Denmark* if a certain level of sale is to be expected.

In *Italy* the user payment has quite different expressions since *Rome* has chosen to fix the price on 2 € for the parents to pay while the municipality pays the rest of the expenses. This means that in the present system *Rome* municipality has to pay 3 € for each meal in order to cover the expenses. In *Milan* on the other hand the parents pay almost all the expenses and here there has been a focus on reducing costs on behalf of the organic share and the quality of the food.

In *Finland* school food is an integrated part of being in school and the expenses are covered by the state tax-payment therefore this issue is not so dominant in the discussion. In *Norway* school lunch is predominantly brought as packages from home but the fruit scheme is covered by tax-money and the milk scheme is user paid. The model of payment for school food has been introduced as the one in *Denmark* with parent payment.

The regulatory issue shows some differences in the way that the systems are organized. In *Italy* and maybe especially in *Finland* there is a top-down approach towards the implementation of school meals. This means that the state level for *Finland* and the municipal level for *Italy* have the major decision-making power. In *Denmark* and *Norway* to some extent, there are at the same time a political wish of school meals for all pupils, but also an ideology of the free choice for everyone which makes the decision-making power more diffuse and decentralized. This combined with the strong culture of lunch packages makes it difficult to introduce the meals at the schools. Interestingly these differences also relate to some different reactions at the civil society actor level, that is parents and other civil society actors related to school meals.

For the civil society actors the differences between the systems may explain some of the differences. In *Italy* and *Finland* there is an expectation from the parents that their children will get a proper meal at school, but it seems as if there is not much activism or involvement among the parents in relation to school meals – especially in *Finland*. It is mentioned that the *Italian* parents rarely are aware of the organic share of the products used in the school meals. There is though a canteen commission at almost all schools and here the parents can be active in relation to the school food.

In *Finland* there are almost no parental voices in relation to for example the quality or to the low organic share of products. Most parents are satisfied with the possibility of their children getting a warm meal at the school as it seems as if the systems generally speaking is supported by parents.

In *Denmark* (and partly *Norway*) there are some private organizations (and some politicians) in favour of introducing school food, and also a quite living debate about food for children among civil actors. This may be connected to the less embedded school food systems in these countries which makes debate more obvious and maybe more necessary.

An exception though is the *Norwegian* organization for all *Norwegian* parents of school children. They have not expressed any public opinion about school meals. This confirms the overall picture of *Norway* as a country where the lunch package still is most dominating cultural norm. At the school level where the roles of the school leaders and teachers are much more defined from a top-down hierarchy in *Italy* and *Finland* and here there are not room for a lot of reaction from school employees or pupils. In *Norway* and

Denmark on the other hand these actors can play a very important positive or negative role regarding the implementation and support to the system. In Denmark cases shows that the attitudes among teachers, school leaders and pupils means a lot in relation to the success of a school meal system.

4 Embeddedness

In the former description it seems as if the two top-down systems in Italy and Finland naturally are the most embedded systems of the four country comparisons. Especially in Finland there is a very articulated and law-based system with the major focus on nutrition and a so called 'plate-model' of the content of the school meals. The price focus is also quite important while for example organic food is almost absent. In Italy there is a quite complex system of regulatory units on the three levels state, region and municipality. It is a bit different from place to place which focus the school food have but from the higher levels it is articulated that organic and local food is important issues to put emphasis on locally. On the other hand the involvement of parents and civil actors are seemingly more absent in these countries. It can therefore be considered if the embeddedness of the systems lacks a public support or that the public may prefer some other priorities than what is stated from the political and regulatory levels. The embeddedness in Denmark and Norway are obviously quite weak at the regulatory level. In both countries there has been a political wish both nationally and locally in relation to organic school food but when it comes to the practical actions it has been very hard to fulfil these statement due to different aspects – among others the lack of key-actors to carry the message but also economic aspects has played an important role.

4.1 Public Organic Procurement (POP) in Copenhagen

Copenhagen municipal is an example of how the development of POP is formed by a patchwork or network of different interests, political or career-wise opportunities, understandings and interpretations. The development of new POP is based on many different translations of different domains in food area (health, sustainability, quality etc). Successful translations of these domains will lead to new or changed stable network. In the case of school food the main actors in are: the users (e.g. children, parents, school administration), the producers (suppliers, kitchens, private or public caterers) and the decision-makers and municipal employees (politicians, public administration etc). Here our focus is on the internal policy-processes in the municipalities.

The municipality of Copenhagen has many years of experiences in use of organic foods in the institutions. Already in the beginning of the 90'ties Copenhagen kindergartens started to serve organic foods. This project was initiated critical "food-activists" together with the national union of pedagogical workers, in other word the employee in the institutions were among the drivers in the initial POP in Copenhagen.

This project was followed by a local project in the quarter of Nørrebro (Northern part of Copenhagen city). In the period from 1997 to 2001 Copenhagen experienced with local autonomy in some parts of the city, and in Nørrebro the local government - mainly left wing parties - decided that all the institutions for children should introduce organic foods. Several of the principal organisers of this project were rooted in one of the local initiatives at Nørrebro e.g. "Organic entrepreneurs" - a project working with empowerment of unemployed young people in the area. One of the results from Project Children's food ("Projekt Barnemad") was that from 1998 to 1999 organic foods was introduced in 33 institutions (mainly kindergartens).

Already in 1998 a parallel project was initiated by the Department of Environment, and the goal here was generally to improve the environmental impact from the municipality. One of the focus points in this work was to increase the use of organic foods illustrated by the goals that seven canteens in the administration should use seventy percent of organic products in 2001. This work in environmental administration also initiated several "organic" projects in kindergartens and elderly homes (Københavns Kommune). The work on organic food for children in the Department of Environment were later transferred to Department of Children and Youth, symbolically illustrating the focus has been broadened also to include children's health. Yet the mayor for this Department has been and still is one of the strong voices in the discussions about organic procurement.

When the experiences with local autonomy ended (2001), the knowledge gathered in the Nørrebro Project "Barnemad" was transferred to the central administration in Copenhagen, through person convergence. The leader of the "new" project KØSS ("Copenhagen Organic and Healthy School Meals" later changed to "Copenhagen Healthy School Meals"), which started in 2002 were also one of the

organisers of the local Nørrebro project. KØSS had the focus on schools, and it became compulsory for all public schools to participate.

The KØSS project is part of the wider cross municipal Dogme 2000 project, which promote sustainable procurement in a number of Danish and Swedish municipalities.

The KØSS project build on the idea to further a sustainable public consumption as well as to advance healthy eating habits for school children, thereby contributing to reducing nutritional related illnesses in the long term (www.skolemad.kk.dk). Moreover, it is the objective to further the students' concentration and energy with respect to increase the output from classes. The project initially aimed to reach 75% organic food in all schools, but later changed to 95%.

Besides focusing on organic supply the KØSS project focuses on the interaction between student and the supply chain and it assumes that by influencing their attitudes and values in relation to food, an environment of healthy eating and sustainability can be created. Therefore the project engages in in-curricular activities and the project invites schoolteachers to service trainings with subjects including nutrition, health and hygiene, environmental, as well as religious aspects of food. The purpose of these activities is to prepare teachers to participate in the operation of the school canteen and in addition it acts as a reflexive process in relation to the running of canteen operation.

All food to the KØSS-project was prepared and packed in the Central Kitchen. The Central Kitchen is a part of the Health Administration in the municipality of Copenhagen, and is situated in the residential centre in "De Gamles By" (Old Peoples City). Hot and warm dishes are produced as cook-chill production (The food is packed and cooled off immediately after it is produced.) in order to extend the durability of the dishes. Besides school food the kitchen also prepares meals to 12 residential homes. Copenhagen municipality paid approximately eight million Danish kroner (1,08 mill €) yearly for the school food production. The children paid between 15 and 20 Danish kroner (2,0-2,7 €) for one meal. One of the premises for KØSS was that it should be economic neutral for the municipal in 2007, in other words the children/parents should pay the cost. In 2006 KØSS was very far from this premise. Another critique - from a nutritional view - of KØSS was that only eight to ten per cent of the pupils bought the whole lunch package (bread, rice/pasta, salad, meat). Most of the pupils bought a light version of lunch e.g. white bread sandwich. Finally KØSS had problems in attracting the older pupils; and especially this group is - by nutritional experts- expected to have the largest need for healthy food.

In 2005 the former environmental Commissioner in EU and former Danish minister of food and agriculture were elected at mayor in Copenhagen. When she were elected she had several promises, and one of these were that she would improve the quality of the food served in Copenhagen (kindergartens, schools, retirement home etc), and the way she would do this was to establish a knowledge and information centre. Already when she was a minister of food and agriculture, she had the same ideas, but at that time she didn't manage to implement them. Being an organic apple producer herself, she has also been a strong voice for organic foods in general, e.g she was one of the drivers in the work of an organic action plan from the EU Commission.

In 2007 Copenhagen Food-house (Københavns Madhus) opened. The appointed manager of the Food-house is a former consultant helping municipals to introduce organic foods in institutions, and she also had experiences as a manager for a private organic food company. The main goals for Copenhagen Food-house was to: 1) establish a knowledge center for the people involved in food- production, 2) improve the quality of the food served in the municipality and 3) develop a rating system to evaluate the quality of the food system. In 2008 the town council granted approximately 100 million Danish Kroner (13,4 million €) to improvement of the school food production. The resources for improving school food were tipped.

Around forty people were employed, and among these five were only dedicated to work with organic foods in the municipality.

In 2009 a new concept for school food, EAT were introduced. The concept was inspired by "the Godfather-group", a group of five exclusive celebrities (chefs, food-critics etc). One of the changes from KØSS to EAT was that EAT operated with three different food "ages" and matching meals. One meal to the pupils in the first grade (5-6 years) to the third grade, one meal from the fourth to the sixth and finally a meal to the old pupils from seven to nine. This changes also caused an introduction to a new private food producer for a supplement to the public kitchen. Another change was that EAT developed "lounges" for the oldest classes. The background for these lounges was to create an appealing "eating-

place" for the most skeptical age group. One of the main goals of EAT is to raise the frequency of pupils buying the meals, especially compete with the offers from the nearby fast food operators. From EAT the explicit goal is that twenty-five percent of the pupils buys the food.

5 Conclusions

The research project iPOPY has among other things looked at the organic school food systems in the four countries Italy, Finland, Norway and Denmark. Some similarities are found between Finland and Italy and parallel similarities between Norway and Denmark.

In relation to the aspect of embeddedness of the systems it is clear that the more formalized and politically and economically supported systems are the most embedded systems in terms of how many children uses it and what the structures around the food is (canteen facilities etc.). On the other hand these top-down regulated systems may lose the civil embeddedness and the parents may feel decoupled from the decisions. In that sense the systems can be disembedded.

In the more decentralized and less regulated systems of Norway and Denmark there is a clear lack of regulatory embeddedness that gives the systems a hard time to survive. The structures are weak in relation to support the school food systems (lack of canteen facilities, lack of economical support to canteen personnel most places etc.). On the other hand the involvement of the civil actors may be clearer due to this lack of regulatory embeddedness.

It is clear from the iPOPY study that the processes around the complexity of a school food systems has many different approaches and actors involved which makes it clear that the understanding of overall discussion about solutions on obesity and health problems among children has to build on some analytical understanding of the many different aspects and cultural meanings of a given area, in this case the school meals.

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Green Events Austria – Waste management as a key issue for the sustainable European football championship UEFA EURO 2008™ in Austria and Switzerland

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Abstract

The UEFA EURO 2008™ took place between 7 and 29 June 2008 and brought the largest European and the world's third-largest sporting event to Austria and Switzerland. An environmental strategy with quantifiable indicators was implemented for the first time at a large-scale sporting event in the context of the FIFA 2006™ World Cup. The UEFA EURO 2008 SA has picked up and further developed the strategy for the UEFA EURO 2008™. The Federal Ministry of Agriculture, Forestry, Environment and Water Management has assigned the Austrian Institute of Ecology and the company brainbows to prepare, design and promote the implementation of the sustainability concept and strategy for the UEFA EURO 2008™. The UEFA EURO 2008™ was a chance, to confront the population with issues like sustainability and waste prevention. Great emphasis was placed upon the avoidance of waste during the EURO 2008. Towards this end, customized waste concepts were created by the host cities, UEFA EURO 2008 SA as well as by the organizers of the public viewings.

1 Introduction

The purpose of this paper "Green Events Austria: Waste Management as a Key Issue for the Sustainable European Football Championship UEFA Euro 2008 in Austria and Switzerland" is to give an short overview of the process from an environmental strategy for large sport events like the FIFA Football World Championship in Germany in 2006 to a sustainability strategy, than to sustainability concept and finally to a sustainability program for the UEFA EURO 2008™ in Austria and in Switzerland. The content of the "sustainability program" includes the six action fields of sustainable consumption: environmental management, energy and climate protection, mobility, waste/resources, water and regional and organic products and food. The case of the Sustainable European Football Championship has shown that with good planning phase and preparation a large sport event can also boost regional business, has positive social impacts and put minor consequences for the environment. But the most of the measures of the action fields of sustainable consumption is also suitable for small and medium sport and cultural events, regional and local events, exhibition and exposition, meeting and conferences, folk and music festivals etc. So if you are planning a sustainable event you can learn a lot from the experience of the Sustainable European Football Championship in Austria and Switzerland.

The successful FIFA Football World Championship in Germany in 2006 saw an environmental strategy with quantifiable indicators put into operation for the first time at a major sporting event. This strategy was further developed at UEFA EURO 2008™. The contributing factor and the premise for the success of the project were the Cooperation on the one hand between the states Austria and Switzerland and the UEFA Organisation EURO 2008 SA and on the other hand the collaboration and good team work of different Departments and various Ministries in each country. Recommendations of Austro-Swiss project coordination in cooperation with EURO 2008 SA and the eight host cities Basle, Berne, Geneva, Innsbruck, Klagenfurt, Salzburg, Vienna and Zurich have been prepared. The content of the "sustainability program" follows the recommendations of the sustainability concept and includes the six action fields of sustainable consumption: 1) environmental management, 2) energy and climate protection, 3) mobility, 4) waste/resources, 5) water and 6) regional and organic products and food from Austria. Regarding the implementation of the sustainability concept, the Federal Ministry of Agriculture, Forestry, Environment and Water was engaged mainly in the action fields' environment and regional economy. Responsibilities for the implementation of the sustainability projects were to be defined, and coordination talks with the official sponsors and potential project partners were held.

2 Methods

2.1 Incremental and radical innovations

2.1.1 Objectives of the sustainability strategy for UEFA EURO 2008™

Austria and Switzerland have developed a joint sustainability strategy for UEFA EURO 2008™. The Federal Ministry of Agriculture, Forestry, Environment and Water Management assigned the Austrian Institute of Ecology and the company brainbows to promote the implementation of the sustainability strategy for the European Football Championship UEFA EURO 2008™. The strategy has three main areas of focus: the environment, the economy and social aspects/culture.



Figure 1: Influences

Sphere of influence of the Austro-Swiss sustainability strategy for European Football Championship UEFA EURO 2008™

Objectives of the sustainability strategy for UEFA EURO 2008™:

- EURO 2008 was to give equal consideration to three basic pillars: the environment, social aspects and the economic dimension. By so doing, it sought to set environmental standards for future large-scale events, with a particular focus on the application of modern environmental technologies.
- EURO 2008 set a clear social focus. It brought players and supporters from different nations together and took an unequivocal stance against racism and xenophobia.
- EURO 2008 brought sport and culture closer together. EURO 2008 intended to demonstrate that well-prepared large-scale sporting events can have a positive impact on the (regional) economy: jobs were secured by targeted investment in infrastructural measures.
- EURO 2008 offered tourism an international platform and presented Austria and Switzerland as attractive holiday destinations.

2.1.2 Area 1: The environment

Both in the individual stadiums and at all the other events in the two host countries, the aims were to improve the environmental situation in four key areas – environmental management, energy and climate protection, mobility and the utilization of resources and waste. By minimizing the utilization of resources and maximizing the application of modern environmental technologies, it sought to achieve a positive ecological balance and set benchmarks for future large-scale events. A further objective was to account for considerations of climate protection on the basis of a CO₂ balance and the maximal reduction of further emissions. EURO 2008 was to be raised awareness for responsible environmental management among the stakeholders in their own particular fields of responsibility. Resource management was to be projected in a positive light. (Pladerer et. al., 2007)

Area 1: The environment

Theme	Objectives	Measures	Indicators	Responsibility of
01 Environmental management	<ul style="list-style-type: none"> To provide "environmentally friendly stadia" (implementation of an environmental management system) To implement an environmental (management) strategy for the fan zones, fan miles and public viewing areas 	<ul style="list-style-type: none"> Environmental certification of the stadia according to a defined European and Swiss standard Check-list/guidelines for environmentally-friendly organisation 	<ul style="list-style-type: none"> No. of stadia certified according to EMAS, ISO 14001 or a comparable standard No. and quality of environmental strategies implemented Individual indicators, see detailed sections 	<ul style="list-style-type: none"> Stadium operators Host cities Federal government (A)/ Confederation (CH), federal states (A)/ cantons (CH) HC organisations Private organizers + contractors
02 Energy and climate protection	<ul style="list-style-type: none"> To supply the stadia, fan zones, fan miles and public viewing areas with energy from renewable resources To ensure maximal energy efficiency To ensure maximal reduction of CO₂ emissions on the basis of a coordinated estimation 	<ul style="list-style-type: none"> Electricity supplies from renewable energies/green power Utilisation of state-of-the-art cooling and heating equipment Use of diesel aggregates is to be avoided wherever possible used; when absolutely indispensable they are to be powered by renewable sources of energy 	<ul style="list-style-type: none"> Ratio of utilised renewable energy resources Classification of appliances Energy consumption CO₂ balance 	<ul style="list-style-type: none"> Stadium operators Catering firms HC organisations Private organizers + contractors [INFRAS (CH), Federal Environment Agency (A) are to draw up a CO₂ balance]
03 Transport – Spectator movements: stadia (incl. de-parture AUT – CH)	<ul style="list-style-type: none"> To reduce traffic-related environmental load A public transport utilisation ratio above 60 % (long-distance)/ 80 % (local traffic) (verification after final draw in Decembre 2007) A ratio of pedestrians and cyclists (slow traffic) higher than 5 % 	<ul style="list-style-type: none"> Combined EURO 2008 ticket General tickets/travel passes for journalists, officials and EURO 2008 SA volunteers Defensive car parking facilities Petrol saving training for drivers Pedestrian boulevard Use of alternative transmission systems/fuels in the official fleet Diesel vehicles fitted with particle filters Information campaigns to encourage foreign visitors to use rail and bus transport 	<ul style="list-style-type: none"> Modal split EURO fleet Certified drivers CO₂ emissions 	<ul style="list-style-type: none"> UEFA, Federal government (A)/ Confederation (CH), Austrian (ÖBB)/Swiss Railways (SBB CFF FFS) Regional transport operators Host cities Stadium operators Drivers (bus, limousines, etc.) Sponsors (e.g. Hyundai/Kia)
– Spectator movements: fan zones (host cities only)	<ul style="list-style-type: none"> To reduce traffic-related environmental load A public transport utilisation ratio above 60 % (long-distance)/ 80 % (local traffic) (verification after final draw in Decembre 2007) A ratio of pedestrians and cyclists (slow traffic) higher than 5 % 	<ul style="list-style-type: none"> Attractive ticketing packages for non-stadium visitors (fan zones) General travel passes for officials and Euro 2008 SA volunteers Defensive car parking facilities Pedestrian boulevard Information campaigns to encourage foreign visitors to use rail and bus transport 	<ul style="list-style-type: none"> Modal split CO₂ emissions 	<ul style="list-style-type: none"> UEFA, Federal government (A)/ Confederation (CH), Austrian (ÖBB)/Swiss Railways (SBB CFF FFS) Regional transport operators Host cities
04 Resources and waste – stadia	<ul style="list-style-type: none"> To guarantee that every stadium has a strategy for gentle resource management, waste prevention and waste volume reduction 	<ul style="list-style-type: none"> Returnable beverage cups or a similar ecological variant "Wrap in"/"Packs ins Brot" Waste separation systems (PET, paper, etc) Limitation of the distribution of advertising materials Rain water management in the stadia Installations to reduce water consumption 	<ul style="list-style-type: none"> No. of and quality of the implemented waste management strategies Proportion of returnable systems used for beverages (if the returnable system proves to be the optimal ecological solution) Collection and recycling ratios Volumes of waste Agreements with sponsors Cleanliness in and around the stadia 	<ul style="list-style-type: none"> Stadium operators UEFA/ Euro 2008 SA Catering firms Sponsors
– cities	<ul style="list-style-type: none"> To ensure that every city has a waste prevention and waste reduction strategy 	<ul style="list-style-type: none"> Returnable beverage cups or a similar ecological variant "Wrap in"/"Packs ins Brot" Waste separation systems (PET, paper, etc) Limitation of the distribution of advertising materials Information campaign on waste prevention and waste reduction 	<ul style="list-style-type: none"> No. of and quality of the implemented waste management strategies Proportion of returnable systems used for beverages (if the returnable system proves to be the optimal ecological solution) Collection and recycling ratios Volumes of waste Agreements with sponsors Cleanliness in and around the fan zones 	<ul style="list-style-type: none"> Host cities UEFA/Euro 2008 SA Catering firms Sponsors Public viewing area operators

2.1.3 Area 2: The economy

The aim as far as the economy is concerned was to gear the infrastructural measures towards long-term and sustainable criteria and to achieve a maximal ratio of regional products and services at EURO 2008 events. Targeted projects were to generate long-term employment effects which will remain sustainable beyond EURO 2008 (in particular in the fields of tourism, logistics, event management and creative industries). The quality standards of tourist operators were to be improved by means of targeted investment in the run-up to EURO 2008 including the fields of environmental standards, energy and eco-labels (Pladerer *et.al.*, 2007).

Area 2: The economy

Theme	Objectives	Measures	Indicators	Responsibility of
05 Promoting the economy	<ul style="list-style-type: none"> To ensure that UEFA EURO 2008 generates maximum benefit for the economy of Austria and Switzerland (in particular in the field of environmental engineering) To create employment and training opportunities as a spin-off of UEFA EURO 2008 	<ul style="list-style-type: none"> Site marketing strategy Training and deployment of fan guides with job prospects post-EURO 2008 Environmental support to industry 	<ul style="list-style-type: none"> Creation of EURO 2008-related value added Creation of (short-and long-term) jobs No. of supported firms or projects 	<ul style="list-style-type: none"> Federal government (A)/ Confederation (CH), federal states (A)/ cantons (CH) Host cities
06 Tourism	<ul style="list-style-type: none"> To strengthen the positive image of Austria and Switzerland as tourist countries To encourage EURO visitors to stay on in the host countries (benchmark: EURO 04 in Portugal) 	<ul style="list-style-type: none"> Image and tourism campaign Targeted holiday packages Service and friendliness campaign Promotion of tourist operators with eco- or sustainability labels 	<ul style="list-style-type: none"> No. of overnight stays Image values Awareness level No. of tourist operators with eco- or sustainability labels No. of EURO-specific packages or projects 	<ul style="list-style-type: none"> Federal government (A)/ Confederation (CH), federal states (A)/ cantons (CH) Host cities Austrian National Tourist Office Organisations of the integrated national promotion of Switzerland
07 Infrastructure	<ul style="list-style-type: none"> To ensure that the newly created infrastructure remains utilisable post-EURO 08. To guarantee comprehensive use or adequate re-sizing of stadia post-EURO 08. 	<ul style="list-style-type: none"> Multifunctional utilisation/re-sizing strategy for the stadia post-EURO 2008 Targeted integration of existing infrastructure into EURO requirements Long-term transport infrastructure measures (extension of the underground railway system, urban railway stations, extension of the infrastructure for cyclists and pedestrians, sign-posting) 	<ul style="list-style-type: none"> Volume of investment Post-EURO 2008 stadium utilisation Post-EURO 2008 infrastructure utilisation 	<ul style="list-style-type: none"> Federal government (A)/ Confederation (CH), federal states (A)/ cantons (CH) Host cities Stadium operators Transport operators
08 Regional and organic products/fair trade	<ul style="list-style-type: none"> To promote the use of organic and regional produce in catering To strengthen the regional value added chain To use fair trade products in certain product categories 	<ul style="list-style-type: none"> Consideration of this aspect in the tender procedures and voluntary commitments made by caterers Labelling and promotion of regional, organic and fair trade products Use of fair trade products for coffee, sports articles, merchandising, floral decoration 	<ul style="list-style-type: none"> Proportion of regional/organic products used (catering) Proportion of fair trade products used (catering) 	<ul style="list-style-type: none"> UEFA/ Euro 2008 SA Catering firms Host cities Marketing organisations NGOs

2.1.4 Area 3: Social aspects/culture

In the social and cultural area, EURO 2008 was to send out clear messages in support of international understanding and against all forms of racism. A package of measures was envisaged in the field of social integration and intercultural relations which is to spill over into the coordination of fan and visitor guidance in the context of EURO 2008. Large groups of the population did not have direct access to the mega-football event of EURO 2008 in the stadia. A wide range of events targeting women, children, youngsters, families and older persons was therefore to be delivered outside the stadia. All EURO 2008 events were to provide barrier-free access to visitors with disabilities. Standardized measures should guarantee access for people with disabilities and at the same time help break down barriers in people's minds. (Pladerer *et.al.*, 2007).

Theme	Objectives	Measures	Indicators	Responsibility of
09 Fan projects	<ul style="list-style-type: none"> • UEFA EURO 2008 is to send out clear messages of international understanding and against all forms of racism • To establish a pool of qualified fan guides • To build up professional fan projects for the post-EURO 2008 period 	<ul style="list-style-type: none"> • Fan guidance and anti-discrimination programme • Fan embassies • Fan guides • Youth and amateur football tournaments • Recruitment and training of professional fan guides to ensure trouble-free matches 	<ul style="list-style-type: none"> • No. of fan embassies and visitors reached • No. of fan guides • Gender mix (female ratio in the stadia/fan zones) 	<ul style="list-style-type: none"> • UEFA, FARE, FSI • Federal government (A)/Confederation (CH), federal states (A), administrative bodies, host cities • Fairplay, vidc, streetfootballworld • Österreich am Ball • Austrian (ÖFB)/Swiss (SPV, ASF) Football Association • Private initiatives (associations)
10 No barriers or obstacles	<ul style="list-style-type: none"> • To make all UEFA EURO 2008 events accessible for people with disabilities, with no barriers or obstacles • To allocate 2 seats for disabled patrons per 1 000 stadium spectators • To allocate 2 seats for disabled patrons per 1 000 fan zone visitors 	<ul style="list-style-type: none"> • Barrier- and obstacle-free stadia, fan zones and side events • Barrier- and obstacle-free access to the stadia and events 	<ul style="list-style-type: none"> • Barrier-free stadia • No. of seats set aside for disabled patrons in the stadia and fan zones 	<ul style="list-style-type: none"> • Stadium operators • Host cities • UEFA, Federal government (A)/Confederation (CH), federal states (A), • Austrian (ÖFB)/Swiss (SPV, ASF) Football Association • Transport operators
11 Youth and (football) culture	<ul style="list-style-type: none"> • To implement youth and school projects in the run-up to EURO 2008 • To promote football and physical exercise among youth • To promote integration and international understanding by means of football projects 	<ul style="list-style-type: none"> • "EURO Schools 2008" project • National and regional school projects • Cultural events, football- related exhibitions 	<ul style="list-style-type: none"> • No. of participating schools and children/youngsters • No. of (football) events • No. of cultural projects and visitors 	<ul style="list-style-type: none"> • UEFA • Fairplay, vidc, streetfootballworld • Austrian (ÖFB)/Swiss (SPV, ASF) Football Association • Federal Office for Sport (CH), 2008 – Österreich am Ball (A)
12 Prevention and youth protection	<ul style="list-style-type: none"> • To communicate (alcohol and nicotine) addiction prevention in connection with EURO 2008 • No sale of alcoholic beverages or only low-alcohol beverages on sale 	<ul style="list-style-type: none"> • Targeted communication of addiction prevention (at events) • No alcoholic beverages in the stadia • Low-alcohol beverages on sale (public viewing areas) and sale of a mineral water/fruit juice at a less expensive price than the cheapest alcoholic beverage. • Smoke-free zones • Preventive measures against women trafficking and forced prostitution 	<ul style="list-style-type: none"> • Documentation of applied measures • Provision and sale of soft drinks and low-alcohol beverages. 	<ul style="list-style-type: none"> • Federal government (A)/Confederation (CH), federal states (A),/cantons (CH) • Stadium operators and caterers • Host cities

2.1.5 Classification of measures of the "sustainability concept" of the Austro-Swiss sustainability strategy for European Football Championship UEFA EURO 2008™

The Austro-Swiss sustainability strategy for European Football Championship UEFA EURO 2008™ was the basement for the "sustainability concept". The concept was the efficient working programm for the organisation teams. The content of the "sustainability concept" followed the recommendations of the sustainability concept and included the six action fields: environmental management, energy and climate protection, mobility,waste/resources, water, regional/organic products and food from Austria.

Environment	Economy	Society/Social/ Culture
<p>Mobility/Traffic: large amount of public transport at arrival of guests and bystanders (train/bus tickets included when buying tickets for games, enhance regional traffic concepts), Use of alternative fuel/traction systems for official fleet and buses.</p> <p>Energy: supply of stadiums and their surroundings extensively with renewable energy sources. (Electricity, thermal, etc...).</p> <p>Climate protection: realisation of an event without impact on climate change by optimisation of energy efficiency measures, use of renewable energy sources and realisation of climate protection projects.</p> <p>Optimised waste management in stadiums and their surroundings, use of reusable cup systems for beverages in stadiums and their surroundings</p>	<p>Integration of local economy, long-term revenue, high amount of regional products that are implemented in the EURO environment, creation of an economy-platform.</p> <p>Tourism: quality offensive (constructional standards, qualified workforce, service offers) image build up (pro-tourism campaigns: Austria as event host) Use of the event for image and tourism advertisement (pro-tourism campaigns).</p> <p>Catering: high amount of regional and organic-based delicatessen-stores from Austria.</p> <p>Integration of sponsors and merchandising products.</p> <p>long term use of EURO infrastructure as a long term, cost-effective event, securing subsequent use of stadiums and their infrastructure, event management know-how</p>	<p>Consideration of UEFA topics such as anti-racism, children of war integration of cultural events into EURO 08</p> <p>fair trade aspects</p> <p>barrier-free access to all stadiums</p> <p>Integration of guests, actors and local population effects on soccer itself, youth trainees</p> <p>Voluntary concepts/education/occupation</p> <p>integration of guests, actors, social groups (families, kids, seniors etc.)</p>

Table 1: Classification of measures of the "sustainability concept" - of the Austro-Swiss sustainability strategy for European Football Championship UEFA EURO 2008™ (Pladerer *et.al.*, 2007)

2.1.6 Content of the Sustainable Development Charter for UEFA EURO 2008™

One important result of the sustainability programme was the sign up of a Sustainable Development Charter - to set new environmental, economical and socio-cultural standards for the UEFA EURO 2008™. Austria and Switzerland wanted to make the European Football Championship 2008 a future-oriented, sustainable sporting event.

3 Results

3.1 Implementation of sustainability measures from the sustainability strategy for EURO 08

Regarding the implementation of the sustainability concept, the Federal Ministry of Agriculture, Forestry, Environment and Water engaged mainly in the action fields' environment and regional economy. Other subjects and projects were managed by Austrian Football Association, Austrian National Tourist Office and the action "2008 – Österreich am Ball". In view of the different bodies responsible for the planning and implementation of the measures, a distinction was drawn between the venue areas for which EURO 2008 SA was responsible (i.e. in and around the stadiums), on the one hand, and public areas (fan zones, fan miles, public viewing areas, etc.), on the other.

The results allow following conclusions (Pladerer *et.al.* 2008):

All scenarios using reusable cups show significant lower environmental impact than non-reusable cups. Cups made of polylactide (PLA) do not lead to lower environmental impact. The impact is comparable to non-reusable cups made of PET and is much higher than those of cups made of carton age. Environmental impact of cups made of Belland-material is comparable to the impact from non-reusable cups made of e.g. PET

Also in single impact categories like global warming potential the reusable cup systems show lower impact than non-reusable cups. The sensitivity-analysis confirms these trends.

Based on the result of this LCA the consortium recommended due to ecological advantages the application of reusable cup systems for the UEFA EURO 2008™. The UEFA Euro 2008 SA has therefore and based on feasibility studies confirmed, that reusable cup systems were used in all Austrian stadiums (Vienna, Klagenfurt, Salzburg und Innsbruck

Further provisions in the line with the Austro-Swiss sustainability strategy for UEFA EURO 2008™ (Pladerer *et.al.* 2007) were:

Uniform waste collection and waste separation systems during the UEFA EURO 2008™ at the stadiums and at the public viewing areas.

Waste prevention related to infrastructure: reuse and recycling of materials and construction parts.

Spezial focus was related to the issue re-sizing.

Labelling and promotion of regional, organic and fair trade products and minimisation of the distribution of advertising materials

Guidelines for catering and merchandising companies

4 Discussion

4.1 Waste prevention as essential part of the in the Austro-Swiss sustainability strategy for UEFA EURO 2008™

Comparative Lifecycle assessment regarding different systems for returnable beverage cups with a special focus to the UEFA EURO 2008™ (Pladerer *et.al.* 2008)

Several producers of reusable beverage cups have pointed out ecological advantages of their systems compared to non-reusable beverage cups. Uncertainties in this discussion led to the decision of the Federal Ministry of Agriculture, Forestry, Environment and Water Management (Austria), the Department of the Environment, Transport, Energy and Communications (Switzerland), the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (Germany) and the cities: Basel, Bern, Hanover, Klagenfurt, Salzburg, Vienna and Zurich to charge the Austrian Institute of Ecology, the Carbotech AG and the Deutsche Öko-Institut e.V. to elaborate a life cycle assessment based on the experience of the FIFA WM 2006™ and the framework conditions within the UEFA EURO 2008™.

5 Conclusion

Sustainability targets were during the UEFA EURO 2008™ pursued - ensuring that visitors to Austria and Switzerland and locals also remember the responsible management of natural resources. The objective was to set environmental standards for future large-scale events, with a particular focus on the application of modern environmental technologies. The large sport event UEFA EURO 2008™ has set a clear social focus. The tournament brought together players and supporters from different nations - and continued a long-standing campaign by taking an unequivocal stance against racism and xenophobia. The tournament demonstrated that well-prepared major sporting events can have a positive impact on the regional economy. Jobs were secured by targeted investment in infrastructural measures. UEFA EURO 2008™ also provided an ideal platform for the sustainable tourist industry. The UEFA EURO 2008™ proved that with good planning and preparation, large sporting events can boost regional business, have put minor consequences for the environment and provide a cultural festival among players and fans from various nations.

The host countries conducted an overall evaluation and draw up a sustainability report on the implementation of the present sustainability strategy. Uniform indicators have accordingly been set in the four core areas to facilitate assessment and evaluation of the outcomes at both the local and the transnational level in the aftermath of EURO 2008. The verifiable effects of the event in Switzerland and Austria were documented in order to calculate its environmental impacts. This evaluation and reporting process provides the basis for the implementation of future large-scale sporting events in both countries on the basis of the principle of sustainability. Moreover, the report enables UEFA to integrate sustainability aspects into future large-scale football events (UEFA EURO 2012, UEFA Champions League, and UEFA Cup).

The real success of the Sustainability program for the UEFA EURO 2008™ in Austria and in Switzerland was that at the first time the organizers (UEFA headquarter, UEFA EURO 2008 SA, host countries, host cities) and all relevant stakeholder from Beverage and Food Providers (Coca Cola, Carlsberg, Mc Donald, etc.) to the public transport systems (ÖBB, SBB: railway, bus) and the Energy suppliers were part of the process of the Sustainable European Football Championship. The key of the success was the good planning phase, efficient communication and the cooperation between all stakeholders.

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One size fits all? – Differences in school food cultures identified in iPOPY research

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Abstract

The goal of this presentation is to explore integration of organic food into schools from the perspective of school food cultures. First, the concept of school food culture is defined. The presentation is based on data and findings from the ongoing iPOPY- "innovative Public Organic food Procurement for Youth" project, which focuses on how increased consumption of organic food may be achieved through procuring organic food in public food service for young people. Researchers in the iPOPY project have collected available information on organic school meals and have also visited school canteens. Differences and similarities in school food cultures in Nordic countries (Denmark, Finland and Norway) and Italy are discussed. School food cultures reflect local food culture and different school meals systems. School meals can be included in educational services, schools can offer commercial food services or children can bring their lunch from home. Finland and Italy recognize school meals as a part of people's right to education and serve warm lunch meals, whereas children in Denmark and Norway usually bring their lunch from home and there is a tradition with bread meals for lunch. This presentation shows that school meals and school food cultures are different in iPOPY countries and illustrates that it is not possible to give one recommendation that fits all for how to integrate organic food into schools.

1 Introduction

1.1 School food culture

Food is an important marker of cultural identity; people mark their difference from others through shared patterns of food consumption (Counihan & van Esterik 1997). Eating patterns are influenced by individual factors, social context and food availability. The ecological model, which is a framework to examine the relations and interactions between people and their environment, identifies three dimensions: individuals and their behaviour, physical and social environment. Studies in nutrition using ecological models of health behaviour have used the concept of school food environment to describe the physical factors that are associated with dietary behaviours of pupils (Cullen et al. 2007, Kubik et al. 2003). The school food environment has in these studies usually been operationalised as availability of vending machines and á la carte lunch programs.

In anthropology, Tylor (1871) introduced the concept of culture: "culture is that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society." Culture has subsequently been given various definitions and has been used in different contexts. In the context of school, school culture can be defined as shared beliefs and priorities driving the thinking and actions of people within a school community. School food culture and school climate have been used in school improvement literature (www.schoolculture.com/ideas.html). School food culture has also been used recently by some organizations who arrange actions aiming at transforming school lunches to be healthy, sustainable and environmentally friendly, for example, the Food for Life Partnership network in England (<http://www.foodforlife.org.uk/>) and the Center for Ecoliteracy in the US (<http://www.ecoliteracy.org/>). For example, the Food for Life Partnership provides a whole school approach to healthy and sustainable eating with six steps to transform school food culture: school meals, food growing (school garden), cooking, farm links, school cooks, pupil power and parent power.

School food culture is here defined as shared beliefs and priorities driving the thinking and actions related to food at school. School food culture thus reflects both shared patterns of food consumption, national/local food culture and priorities in schools and education.

1.2 The iPOPY project

The aim of the iPOPY project (2007-2010) is to study how increased consumption of organic food may be achieved by implementation of relevant strategies and instruments linked to food serving outlets for young people in some European countries (Denmark, Finland, Italy and Norway). Supply chain management, procedures for certification of serving outlets, stakeholders' perceptions and participation as well as the potential of organic food in relation to health and obesity risks are analysed. Because

schools are central arenas for public food procurement for children and adolescents the project focuses on organic food served in schools. In addition to schools/municipalities in Denmark, Finland, Italy and Norway, a Finnish congregation and a Norwegian music festival are used as cases for public serving outlets for young people. More information about the project can be found at the iPOPY website <http://www.ipopy.coreportal.org/>. (Løes & Nølting, 2009)

2 Methods

As part of the iPOPY project participating researchers have collected information (including publications, papers, reports and statistics) on organic school food in Denmark, Finland, Norway and Italy and based on this information national reports describing school meals systems have been published (Bocchi et al. 2003, Hansen et al. 2008, Løes et al. 2008, Mikkola 2008). Researchers have also visited a few school canteens in these countries and made observations, collected written material (including menus) and performed some short interviews with contractors and kitchen personnel.

3 Results and discussion

The school meal systems varies in the iPOPY countries. In Denmark and Norway pupils in general bring their own packed lunches to school and some schools provide milk and fruit subscriptions (Hansen et al. 2008, Løes et al. 2008). Some schools in both countries, especially Denmark, have started to provide, sell and serve lunches to the children. These commercial services have mainly provided sandwich type of dishes, bread and not cooked meals. In Finland pupils get a free warm lunch based on school food dietary guidelines. The pupils serve themselves a plate with a main dish including fresh vegetables, select bread and a beverage (milk or water) and carry their food to the table on a tray (Mikkola 2008). In Italy pupils get served warm lunch at school and the meal is paid by the parents (Bocchi et al. 2003, Morgan and Sonnino 2008). Italian pupils sit at tables and get served first the first course (a plate with pasta) followed by the second course, another plate with the main dish (a "protein" component and vegetables), and fruit as dessert.

The differences between the countries are illustrated in Figure 1. Finland and Italy recognize school meals as a part of people's right to education and serve warm lunch meals, whereas children in Denmark and Norway usually bring their own lunches from home and there is a tradition with bread meals for lunch.

	Warm lunch	Bread lunch
Educational service	Finland, Italy	
Domestic service		Denmark, Norway
Commercial service or public kitchen		Denmark (a few schools)

Figure 1: School meal - structure and service type in iPOPY countries

Additional differences in national school food cultures between iPOPY countries will be explored in the final presentation.

4 Conclusion

This presentation shows that school meals and school food cultures are different in iPOPY countries and illustrates that it is not possible to give one recommendation that fits all for how to integrate organic food into schools and increase consumption of organic food, which was one objective of the iPOPY project. By using the concept of school food culture we study how school meal systems are influenced by shared beliefs and priorities that drive the thinking and actions related to both food and education. School food culture adds focus on relations and interactions between people and their physical and social environment, and how these play a role in how school meal systems are structured and organized. School food culture can be used in characterizing differences in school food systems.

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The footprint of organic farms - Some ecological indicators to evaluate it

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Abstract

Agro-ecological indicators are a tool which provides an agile evaluation of the ecological footprint of a farm. This paper analyses the preliminary results of a survey in which 7 agro-ecological indicators were calculated for 81 organic farms in the region of Lombardy in the northern part of Italy.

The indicators chosen (all indicators of State) are: hedges and rows, energy input, energy output, energy output/input ratio, N balance, P2O5 balance, works unit per hectare.

The preliminary results suggest that these indicators allow to discriminate between different farms on the basis of the productive orientation (cropping classes). In perspective, the use of indicators may enable farmers to improve the management of their farm, evaluating the ecological footprint in order to reduce it gradually

1 Introduction

As recently stated by IFOAM, with the term "organic farming" we can understand the management strategy which aims to achieve three sets of goals:

- a) to exploit the natural levers of production, in order to preserve the agro-ecosystem and to maintain the integrity of its functional complexity for the future generations;
- b) to provide wholesome products in adequate quantities to satisfy the needs of society;
- c) to ensure stable and satisfactory incomes to the various actors in the whole food chain (production-processing-consumption), according to the paradigm planet / people / profit, which summarizes the elements of this conception.

To achieve these purposes we must develop, both in the surveys and in practical application, a holistic approach that considers the complexity of the agroecological system.

The context of organic farming has always been characterized by issues relating to the health of the products and the environment, which are of paramount importance. Concurrently, we need to elaborate effective methods and tools for an assessment of enterprises, especially with regard to their ecological footprint. In particular, the point is how to assess not only the quality of the products, but also the contribution to the safeguard of the environment, especially on farm level. Comparing to the general problem of agro-environmental assessment of agricultural systems, some specific needs arise if we consider the sustainable issues, such as:

- i) developing tools that enable the transfer of knowledge from research to the farmers, and to the public management officials
- ii) summarize and systematize the knowledge for different production systems (e.g. animal husbandry, horticulture) please do not call a farm "industry"! that is something we try hard to avoid in organic farming and different environments
- iii) minimize the effort required for data acquisition
- iv) simplify the evaluation, to make them the most transparent and robust and therefore can hardly debatable.

Due to the aim of organic agriculture to preserve the agroecosystems, it is particularly required for organic farms to utilize (the researchers should develop the tools) tools that enable a systematic and efficient use of available scientific knowledge, transferred to the productive context e.g. by "check lists" consisting of quantitative agro-ecological indicators.

The EU has recently defined a set of agro-ecological indicators (AEI). The European Environmental Agency (EEA) proposes to classify The AEIs according to the scheme DPSIR (Driving forces, Pressure, State, Impact, Response). During the conceptual definition of AEIs it is necessary to specify whether you should use:

- An indicator of *Driving forces*, which can be useful in quantifying human activities and behaviors related to individual and social needs, economic and productive processes and consumption which causes environmental pressures;

- An indicator of *Pressure*, which can be used to quantify the result of the presence of driving forces in the affected area;
- An indicator of *State*, which quantifies the environmental quality or features to be protected and preserved endangered by pressures;
- An indicator of *Impact*, characterizing the state of the significant changes that appear as alterations in the ecosystems;
- An indicator of *Response*, which can be able to quantify the changes occurring as a result of actions addressed to face the impacts. Not necessarily the government that takes action here! Farmers may act as well!

2 The survey INDIA (Agro-ecological indicators for organic agriculture)

The survey INDIA was carried out by the Department of Food Crops (DiProVe) of the Faculty of Agriculture – State University of Milan, and financed by the Agriculture Department of the Lombardy Region. Stefano Bocchi was the scientific supervisor; Luca Bechini and Roberto Spigarolo carried out the survey.

The purpose of this survey was to identify some indicators of crop production in order to be able to compare different farms regarding their sustainability level and to provide farmers with a simple tool for assessment of their management.

The agro-ecological indicators can be used to calculate the footprint of the organic farms and to make a comparison between them and with other types of farms (conventional and/or sustainable).

The method of calculation of the indicators used corresponds to that developed for a similar research “Application of Agro-Ecological and Economic Indicators in Northern Italy” carried out by DiProVe on conventional farms of the “Sud Milano Agricultural Park” – an area located south of Milan.

Some factors, like chemical pesticides or chemical fertilizers, were not considered in this survey because they are not applicable in the context of organic farming.

All the survey was made at “farm level” and consider only the crop production. In a second part of the survey, that will be carried out next year, also the livestock indicators will be considered and a comparison with conventional and/or sustainable farms will be developed.

A group of researchers collected the data visiting all the farms, using a checklist. All the collection of data was carried out in the first 8 months of 2008, and refers to the production of an entire year (2007).

Then, in the last months of 2008, all data collected were submitted in the devoted software program. The results were presented and discussed in a seminar organized by Lombardy region in march 2009.



3 Materials and methods

3.1 The sample selection

The sample for the survey was selected from the official database of organic farms in the region of Lombardy, in the northern part of Italy, subjecting the initial scope to a double selective filter:

- only entirely organic farms were selected. Partially conventional farms have been excluded: that ruled out the possibility of considering “parallel crops”;
- only those farms that had completed the conversion period were selected.

This allowed us to circumscribe the scope and to provide uniform data analysis.

Altogether, 81 farms were selected. This number of farms represents more than 20% of all the entirely organic farms that had completed the conversion period in Lombardy.

This sample was chosen according to a matrix that interlaces two selection criteria:

- the territorial representation: it was considered the “territorial weight” in terms of number of farms present in the various provinces;
- the representativeness of ordering crops: it was considered the number of organic farms by type of cultivation system according to the official national classification.

The survey is based on data on crops grown in 2007. The farms were classified into cropping system (Fig 1), farm size (Fig. 2) and land type (plain, hills or mountains, Fig. 3)

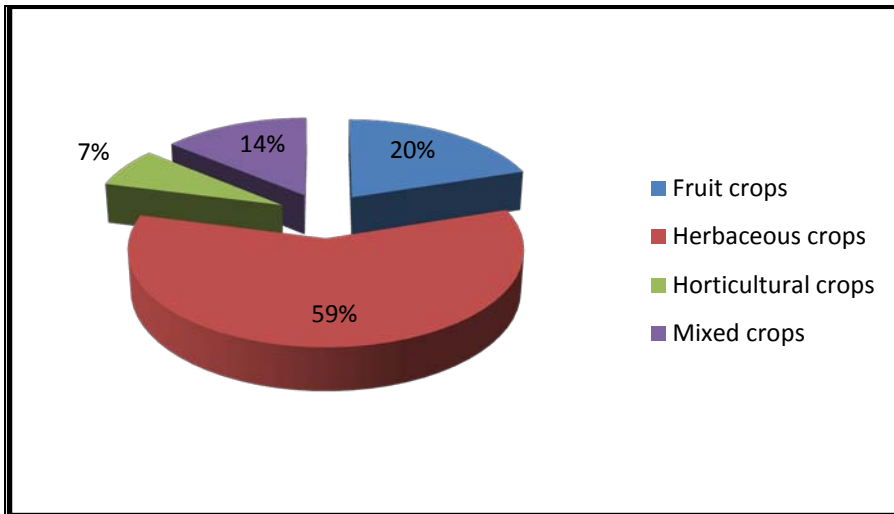


Fig. 1. Share of the farms - (n =81) in various cropping systems

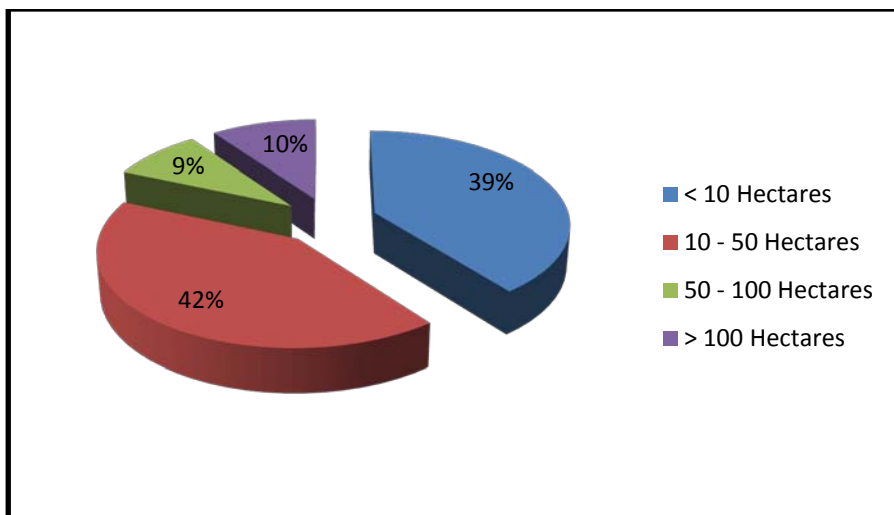


Fig. 2. Share of the farms - (n = 81) in various groups of acreage

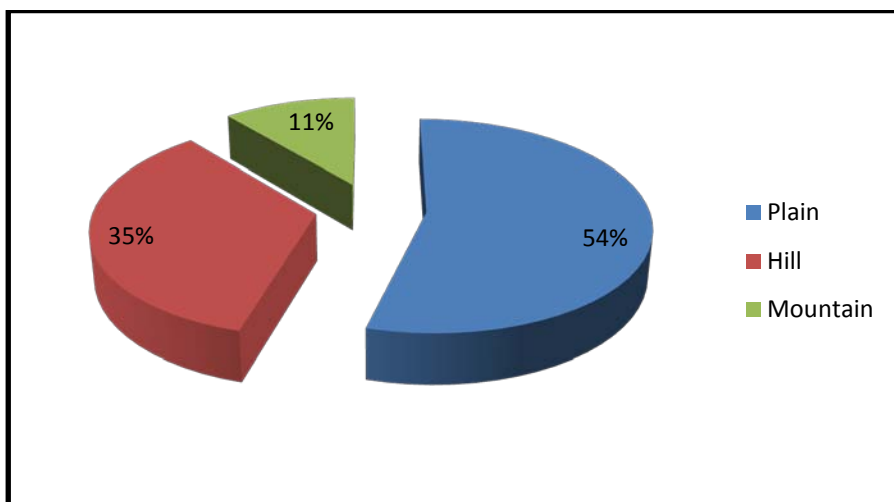


Fig. 3. Share of the farms - (n= 81) in different land types

3.2 The agro-ecological indicators used

Altogether, seven agro-ecological indicators were considered in this survey (a-g). In addition to energy input and output, N and P balance the amount of hedges and total workload were assessed. The first six indicators (a-f) were calculated also in the previous survey on conventional farms. Furthermore, some data are available on the workers employed in different farms. So, in the second part of the survey, a comparison with conventional and/or sustainable farms will be carried out.

All these are **Indicators of State**.

Below the method of calculation of each of them is highlighted.

For energy indicators, the specific energy equivalent (SEQ) of various factors included was used to calculate the energy input or output. The SEQ is the amount of energy stored or embedded in a factor per unit of volume, or per unit of mass, depending on the context, and is expressed in MJ * UM⁻¹. **UM = Unit of Measurement**

a. Hedges and Rows

were measured as meters of hedges and rows / ha of ASU = Agricultural Surface Used. It excludes the unproductive surface, as buildings, ditches.

b. Energy input

was measured as the sum of:

- **Machining:** input fuel consumption (l) * SEQ + lubricants (kg) * SEQ
- **Phytosanitary treatments:** pesticides used (kg) * SEQ - *only organic pesticides were considered*
- **Mineral fertilizer:** Mineral fertilizers used (kg) * SEQ (default values: kg N contained in 1 kg of fertilizer) – *not considered*
- **Organic Fertilizer:** Organic Fertilizer used (kg) * SEQ (default values: kg N contained in 1 kg of fertilizer / 2)
- **Energy embedded in machinery** (MJ * l⁻¹ fuel consumed
- **Other materials:** quantity used (UM) * SEQ

N.B.: energy embedded in every material has been considered, according to the values of Table 1

Materials	UM	Energy embedded (MJ * UM ⁻¹)	Source
Surface irrigation	m ³	0,045	estimated
Sprinkler system irrig.	m ³	0,346	Ribaudo, 2000
Electricity	kWh	3,6	calculated
Diesel fuel	l	36,4	Patzek, 2004
Lubricants	kg	83,7	Dalgaard et al., 2000
Energy embedded in machinery	MJ/l of diesel consumed	12	Dalgaard et al., 2000
Harvest boxes (wood)	kg	2,5	estimated
Harvest boxes (plastic)	kg	125,6	estimated
PE for mulching	kg	125,6	estimated
Galvanized iron wire	kg	63	estimated
Chemical herbicides	kg	288	Biermann, 1999
Chemical fungicides	kg	196	Biermann, 1999
Chemical insecticides	kg	237	Biermann, 1999
Organic fungicides	kg	108	estimated
Organic insecticides	kg	50	estimated
String	kg	10	estimated
Plastic strings	kg	125,6	estimated
Mineral NH ₄ fertilizers	kg FU (Fertilizer Unit)	39	Kongshaug, 1998
Mineral ureic fertilizers	kg FU (Fertilizer Unit)	48	Kongshaug, 1998
Mineral NO ₃ fertilizers	kg FU (Fertilizer Unit)	32	Kongshaug, 1998

Mineral phosphatic fertilizers	kg FU (Fertilizer Unit)	4	Kongshaug, 1998
Mineral potassium fertilizers	kg FU (Fertilizer Unit)	5	Kongshaug, 1998
Vineyard stakes (wood)	kg	2,5	estimated
Seeds of winter cereals	kg	31,4	estimated
Seeds of corn	number of seeds * 1.000	20,376	estimated
Seeds of rice	kg	31,4	estimated
Seeds of forage grasses	kg	31,4	estimated
Seeds of pulses (soia, beans)	kg	40,4	estimated

Table 1. Energy embedded in the productive factors

N.B.: the factors highlighted in yellow were not considered in this survey

C. **Energy Output** was measured as the sum of :

- **Total Biomass produced by all the crops = for every crop:** total ha cultivated * kg / ha dry matter produced * SEQ + kg / ha dry matter of secondary products (e.g.: straw) * SEQ
- **Waste** (sold or otherwise transferred out of the farm) = kg * SEQ
- **Vegetal byproducts** (sold or otherwise transferred out of the farm) = kg dry matter of byproducts * SEQ
- **Animal products, raw or processed** (sold or anyway transferred outside of the farm) = kg / ha dry matter * SEQ

d. **Energy output / input ratio**

Self evident

e. **N Balance was calculated as**

N Input - N Output

Input = Sum of the following:

- **Organic fertilizers used** = kg * default values (kg N contained in 1 kg of fertilizer) OK
- **Mineral fertilizers used** = kg * SEQ * default values (kg N contained in 1 kg of fertilizer) - *not considered*
- **Biological nitrogen fixation** = crop * cultivated hectares * default values (kg N fixed by the crop every year)
- **Atmospheric nitrogen fixed** = 15 kg / ha * y

Output = Sum of the following:

- **kg N in the sewage** (sold or otherwise transferred from the farm) kg * default values (kg N contained in 1 kg of sewage)
- **Plant products, raw or processed** (sold or otherwise transferred from the farm) = **for every crop:** total ha cultivated * kg / ha dry matter produced * default values (kg N contained in 1 kg of vegetal product, raw or processed, rejects included)
- **Animal products, raw or processed** (sold or anyway transferred outside of the farm) = kg dry matter produced * default values (kg N contained in 1 kg of animal product, raw or processed, rejects included)

N.B.: *default values* used are taken from the official table of food composition of INRAN (National Research Institute for Food and Nutrition)

http://www.inran.it/servizi_cittadino/per_saperne_di_piu/tabelle_composizione_alimenti

f. **P₂O₅ Balance was calculated as**

P₂O₅ Input – P₂O₅ Output

Input = Sum of the following:

- **Organic fertilizers used** = kg * default values (kg P₂O₅ contained in 1 kg of fertilizer)

- **Mineral fertilizers used** = kg * specific SEQ * default values (kg P₂O₅ contained in 1 kg of fertilizer)

Output = Sum of the following:

- **kg P₂O₅ content in the sewage** (sold or anyway transferred outside of the farm) kg * default values (kg P₂O₅ contained in 1 kg of sewage)
- **Plant products, raw or processed** (sold or anyway transferred outside of the farm) = **for every crop**: total ha cultivated * kg / ha dry matter produced * default values (kg P₂O₅ contained in 1 kg of vegetal product, raw or processed, rejects included)
- **Animal products, raw or processed** (sold or anyway transferred outside of the farm) = kg / ha dry matter produced * default values (kg P₂O₅ contained in 1 kg of animal product, raw or processed, rejects included)
- **N.B.:** *default values* used are taken from the official table of food composition of INRAN (National Research Institute for Food and Nutrition)
http://www.inran.it/servizi_cittadino/per_saperne_di_piu/tabelle_composizione_alimenti

- g. **Work units per hectare** was measured as annual work = h / ha * y

4 Results

The most significant aspect in the comparison of the data are the cropping classes, so we classified the results according to this criterion.

Indicators	Hedges and Rows	Energy Input	Energy Output	Energy output /input ratio	N balance	P ₂ O ₅ balance	Work units per hectare
Cropping classes	m/ha	GJ/ha	GJ/ha		kg/ha	kg/ha	h/ha
Fruit crops (n = 16)	75,86 (*)	12,46	56,77	5,39	99,07	46,46	690,26
Herbaceous crops (n = 48)		13,28	164,64	14,93	134,93	-2,17	276,97
Horticultural crops (n = 6)		32,88	65,39	3,35	15,75	-23,25	65,56
Mixed crops (§) (n = 11)		12,54	106,79	10,18	82,97	2,61	460,73

Table 2. Average values for the ecological indicators in each of the four cropping systems

(*) the data was available in only 39 farms (out of 81) and, in this case, the difference between cropping systems is not significant

(§) at least 20% of fruit or herbaceous crops

n = number of farms in each group (out of the 81)

4.1 Comments to the results

The survey has shown Research has shown that the indicators used allow to discriminate between different farms on the basis of the productive orientation (cropping classes).

The results of calculations show that it is possible to distinguish between the management of the farms.

No outliers were found and the values of the indicators found do not differ significantly from the average.

The differences between the various results are all explicable on the basis of cropping systems, groups of acreage and different land types to which the different farms belong.

All the results of the survey were published in Bocchi S., Bechini L., Spigarolo R. "Indicatori agroecologici per l'agricoltura biologica" - Research handbook of Regione Lombardia n. 97, march 2009.

5 A tentative of comparison between organic and conventional farms

At the moment, it is not possible to drive a significant comparison between organic and conventional farms: a similar research "Application of Agro-Ecological and Economic Indicators in Northern Italy" conducted by DiProVe on conventional farms of the "Sud Milano Agricultural Park" was carried out on a different basis of data, mainly at crop level.

Anyway, the table below show three indicators (Energy input, Energy output and Energy O/I ratio) calculated at crop level for the main herbaceous crops, with the same formulas of the India survey. The data show that the cultivation of herbaceous crops in organic farms have on average a lower consumption of energy and a better Energy O/I ratio than conventional farms.

Crops	Corn	Rice	Wheat	Barley	Permanent meadows	Soybean	INDIA Herbac. crops
Indicators							
Energy Input (GJ/ha)	27,3	22,7	16,4	12,0	13,1	11,6	13,28
Energy Output (GJ/ha)	220,3	138,2	156,0	164,3	139,3	139,3	164,64
Energy O/I ratio	8,5	6,2	10,1	14,5	10,6	10,6	14,93

Table 3. Average values for ecological indicators in conventional farms

6 Perspectives

Now the research group is testing a website in which all farmers can input their data about the consumption of materials, fertilizers, fuel and so on (the same parameters of the survey).

The software calculate their indicators and compare them with the averages found in the survey. So the farmers can very easily compare their management system with simple parameters (the indicators), and try, e.g., to reduce their energy inputs and/or to improve the N balance. The website system memorize their data, so, 1 year later, submitting the new data after the change, they can evaluate their success.

The website will be ready in march 2010.

The survey will be implemented with another step. In the second part of the survey, that will be carried out next year, also the livestock indicators will be considered and a comparison with conventional and/or sustainable farms will be developed.

Furthermore, we will try to find some parameters in order to realize a significant comparison between conventional and/or sustainable farms.

The preliminary data from a recent survey carried out by the IT group of iPOPY (a comparative analysis of one hundred municipal call for tenders for school meal services) shows that in the call of tenders for school canteens in Italy one of the most frequent requirement is to ask products coming from short supply chain, highlighting them as "zero km". This request, however, is ambiguous and not allowed by European rules on transparency in tendering.

For this reason, in a recent conference held in Bologna, Italy, in September 2009 about the quality in school canteens, the IT group of iPOPY proposed to introduce the calculation of the footprint as an objective requirement to assess the ecological impact of the cropping systems and of the supply chain instead of using the zero km requirement.

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School food provision in Germany - A first analysis of the role of organic produce

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Abstract

School meal provision in Germany is changing from a type of supplementary food provision towards full warm school meals. Reasons for this transition are longer school days, the expansion of the all-day school model, and an increasing interest in a healthy nutrition for children and young people. However, the organisation of school meal systems is patchy and confusing; there is an enormous range of services in various qualities. This paper describes the current situation and explores chances for sustainable school meal systems emerging out of this change. The focus is on the use of organic food in school meals.

1 Introduction

The school system in Germany is undergoing changes and, as a consequence, the demand for public school meal provision is increasing. The reasons include changes in the German school organization towards an all-day school system, longer school days as well as the rising awareness for children's health. The growing amount of children with allergies and weight problems in Germany similarly requires dealing with. Thus the offer for public school meals including a warm lunch has to be adapted in order to meet many different needs especially of the pupils. Organic school meals may contribute to a healthy, environmentally friendly nutrition and serve as a vehicle for food education at school.

1.1 Purpose

The aim of this study is to gain a first insight into the school food situation in Germany. Of special interest is the role of organic food in German school meal provision, as there is very little data available on this. We cannot give an overview over all German states here. For this reason we focus on the two federal states of Berlin – representing the East German legacy of warm school meals - and North Rhine-Westphalia, representing the situation in the western part of Germany.

2 Methods

This paper is based on a desk study analysing publications, official documents, newspapers, and websites informing about school food and complemented with information from interviews with experts in the federal states of Berlin and North Rhine-Westphalia.

Furthermore data from two case studies for school food provision in North Rhine-Westphalia are presented, focused on secondary schools. These are publicly available portrayals which were generated during an organic information project focused at the school meal sector in the Federal Organic Programme. The two examples have representative character for the current situation in North Rhine-Westphalia and illustrate easy, successful adoption of organic produce in schools.

3 The current situation of public school meal systems in Germany

For decades school meal provision had only a low priority in the Federal Republic of Germany, whereas in the former German Democratic Republic pupils were served warm meals until 1990. In western Germany, the normal type of school lunch has been more like a supplementary food provision rather than provision of full warm meals. This was only different at all-day schools, but this type of school was a minor part of the school system until recently. Today school days are longer in Germany and since the children spend more time at school, a solution for a full warm meal provision is needed. At the moment German school meal provision is inadequately structured and insufficiently organised due to the fact that there is no compulsory regulation which includes all federal states. Each federal state government is responsible for school education and school meals within its own borders. This results in a broad variety of institutional, organizational and financial structures of school meal systems. Particularly in western Germany the development of full school meal provision is a completely new field. This is due to the fact that until now vending machines and school kiosks were the dominant form for on-grounds school food availability. With the expansion of the all-day-school model since 2003, the situation is changing and more and more professional caterers are involved in school meal provision.

To bring together both knowledge and experience in school meal provision and to create a central contact point, nearly all federal states opened coordination centres solely orientated to school meals and school food provision. For example, these centres give advice to schools which intend to build own canteens or search for reliable caterers.

Organic food is included in this changing process but on a smaller scale than it might be. The drivers come firstly from organic-sympathetic bodies such as NGOs with a view to a greater diffusion of organic produce, secondly from parents concerned about the health of their children and thirdly from the political arena in support of both thrusts. Sometimes public authorities refer to the official guidelines of the German Society for Nutrition (DGE – Deutsche Gesellschaft für Ernährung e.V.) which recommend a proportion of 10% organic food in school meal provision. The recommendation is the result of a dialogue process between the DGE, Consumer Groups and the consultancy Ökologischer Großküchenservice (ÖGS), as organic foodservice representative. Nationwide, the dominant forms of school food provision are by means of kiosks and vending machines. Parents Initiatives, often school caretakers (janitors) and increasingly teachers are the main stakeholders who care about the school food. Currently the schools and regional authorities are responsible for their individual concepts for school food and its provision. Often the aspect of organic food is considered less in the daily business.

3.1 School meal provision in North Rhine-Westphalia

A very diverse structured system is identifiable in North Rhine-Westphalia when considering school meal provision. No compulsory declarations concerning organic food are made by the government. However, the public authorities refer to the official guidelines of the German Society for Nutrition. Some case studies in North Rhine-Westphalia demonstrate good results but these examples are individual examples, mostly developed by teachers' or parents' initiatives.

The first case is the *Realschule im Kreuzviertel*. This school provides food for 70 pupils daily in a school kiosk in Münster. Food is served with a contingent of organic food of more than 20%. An important fact to consider is that the school kiosk is managed by pupils in a self-reliant way. This initiative was created by two teachers. The pupils care for the sale of food and this presents a good opportunity for several pupils to get involved in a small business venture project. The school works in cooperation with a regional bakery which delivers bread rolls daily. Furthermore, local apple juice in organic quality is served.

The second case is the *Annette-von-Droste-Hülshoff Gymnasium* in Dülmen. The school was established 10 years ago so in fact it is a very young one. In this case the school kiosk was created by a parent's initiative. Since the school is relatively new, the school kiosk does not have to deal with a great number of pupils. About 150 bread rolls and other snacks are sold daily. More or less four mothers care for the purchasing, processing and serving of the food. They are coordinated and supported by one teacher. If organic products are just barely more expensive than other qualities they choose to buy them. Otherwise non-organic food is bought. As in the previous case study, this school also receives its bread rolls from a local bakery. The share of organic food is around 6-10%, but the focus lies on fresh and healthy food. Sweets, only in organic quality, are sold but for a higher price to support healthy food habits. The experience here is that scholars buy less of more expensive items, or buy them less often (in this case sweets). The teacher responsible is very pleased about the feedback and considers his concept to sell more healthy food to the young person's substantiated.

3.2 School meal provision in the city state of Berlin

In comparison to North Rhine-Westphalia, the schools in Berlin are one step ahead in the organisation of school meals. There all-day schools provide a warm lunch for all pupils up to the 6th grade.

In Berlin the first major step to improve the school food system was carried out in 2003 with the development of the *Berlin Quality Criteria* (Berliner Qualitätskriterien). These criteria address purchasing and processing of school food as well as meal selection, transport and so on. They focus on primary schools. Especially the recommendation for the adoption of 10% organic food in the daily school food provision was innovative in Germany. Even if the criteria do not have any obligatory character, they provide a basis for all stakeholders. Meanwhile the Berlin Coordination Centre has accomplished that the quality of the food is one of the determinants in the call for tenders and not only the price of the offers.

All in all, the school food system for primary schools, all of which are all-day-schools, is well organized in the city state. The Berlin School Law from 2004 makes the offer of a full lunch in all primary schools mandatory. School meals are provided by professional caterers. Nevertheless, the secondary schools have no guidelines for a school food system. The public authorities are not involved in this topic and no funds are available for this purpose. This is attributed to the federal state of Berlin spending all the money for the construction of a reliable meal provision for primary schools.

By now 11 of the 12 districts recommend demanding an organic food contingent of 10% from all catering firms. Some plan an increase up to a 20% share of organic food and one district is even planning a share of 30% organic food in the daily food provision in primary schools. For poorer districts in Berlin a 10% organic food contingent is still practicable, but an increase, which is always connected with an increase of the school food costs, is not feasible.

The well-organised and wide-spread offer of school food in the primary schools and the high participation provides an opportunity for more and also improved professionalism. This is especially so with the support of current policies which provide clear, practical guidance on integrating organic produce.

4 Discussion

In both North Rhine-Westphalia and Berlin two main constraints were identified which often obstruct a greater spread in the use of organic food in school meal provision. These are the price of the individual school meals and also the lack of willingness for the adoption of more organic school food by public authorities. Sustainable and/or organic school food is an emerging topic for all German stakeholders who are involved in the process of school catering, including teachers, school directors, parents and public authorities. Given that the situation in Germany is undergoing far-reaching changes and that these changes will take some time, it should be possible to spend more money for the school meals if the organic portion should increase. Even if the whole catering system for schools all around Germany is still in its infancy, there are many initiatives and projects underway where organic food finds its integration successfully.

5 Conclusion

Other European countries such as Italy and Finland have better established school meal provision systems at their disposal than Germany does with regard to the quantity of served warm school meals – which also requires a higher level of organisation and professionalism (Nielsen et al. 2009). Some, such as Italy, also have more developed systems for the incorporation of organic food than Germany does. Even so, the current situation in Germany is a chance with many opportunities for all stakeholders to create a well-organised school meal system in all federal states. It will be important for all stakeholders to focus on professional school food systems on the one hand, especially when addressing the price barrier, and to regard the aspect of organic food provision on the other hand, preferably in a linked process. In the short term any development will need to be largely bottom-up, if public authorities remain slow to adopt. The newly established coordination centres for school food in all federal states could and should play a key role in this process.

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Organic Food for Children – How to promote healthy food for kindergartens and schools

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Abstract

The paper describes the project activities of the Ökomarkt e.V to promote healthy diets for children in kindergartens and school canteens. This German NGO, based in Hamburg, has developed a set of services and tools for expert advice to caterers, canteen personnel and the leadership of schools and kindergartens on healthy, organically produced food and diets. The results of the project activities are guidelines for professionals trying to improve or optimise the existing food supply systems for children and teenagers in schools and kindergartens and create a set of educational activities for caterers as well as students and teachers on healthy diets and consumption patterns. The introduction of organically produced, balanced and age adapted food in schools and kindergartens are more likely to be successful if required changes are supported by educational programs, so that the offered healthy food is accepted by prospective consumers (students and teachers). As the evaluation of the organic meal planner in kindergartens has shown the introduction of organic food can be achieved without substantive increases in diet costs if the kitchen personnel is well trained and motivated to introduce organic food.

1 Background

The Ökomarkt e.V. is a consumer and producer education and extension service. It supports since about twenty years the expansion of organic farming in Germany, especially in the region of Hamburg. Besides educational activities for children, the Ökomarkt e.V. carries out educational activities for owners of organic food stores, organises events to inform consumers about organic agriculture, and executes many targeted consumer education programs, such as teaching young mothers about organic food for babies, information weeks in university canteens, shopping guides for organic food, a consumer journal etc. (see www.oekomarkt-hamburg.de), etc. From 1996 to 1998 the Ökomarkt e.V. was a partner in an EU funded research project with the aim to establish an information and education service for business canteen kitchens regarding the use of organic food. The information of the canteen users on what organic food was one objective. With these experiences the Ökomarkt e.V. led a national research project (2004-2006) dealing with the food situation in German kindergartens and schools called "Organic food for children". As a follow up to this work the Ökomarkt e.V. established a working group to continue project work in this area.

2 Case description

In 2004 an investment program called "Zukunft Bildung und Betreuung" started as a federal measure to support the German states (Länder) in building and expanding all-day schools in Germany. To date, about 3.000 schools profit from the investment program (Federal ministry of education and research 2.1.2010). In addition, the number of day care options for small children (under 3 years) is continuously growing (Federal ministry of family, retired people, women and youth, 2.1.10). Therefore there are today more and more schools and kindergartens that have to serve a warm meal during lunch time.

Like other countries, Germany is wrestling with a growing number of obese children, which is likely to become a severe problem for the social health care system. Latest research studies (KIGGS Studie, Nationale Verzehrsstudie) have shown that 15 % of children and teenagers are overweight and 6,3 % are obese (Bundesgesundheitsblatt 2007). As nutrition habits are learned during the first years of childhood, schools and kindergartens are potentially a good setting for learning how to eat healthy and develop consumption patterns that support a healthy lifestyle. But unfortunately studies show that education programs on nutrition and sustainable food choices are often missing (Ernährungs-Umschau 51 (2004), Hesecker & Beer 2005). Meals offered in schools and kindergartens often do not comply with the scientific recommendations for child nutrition (Ernährungs-Umschau 51 (2004), Hesecker & Beer 2005). Warm meals are often too fat, meat is offered too often, fresh components like salads and fruits are frequently missing, and the time in which the meals are kept warm is too long (DGE-Arbeitskreis Ernährung und Schule 2003, Steinel & Könner 2004). In schools sweets and soft drinks are frequently sold during the morning brakes (Grimm 2004).

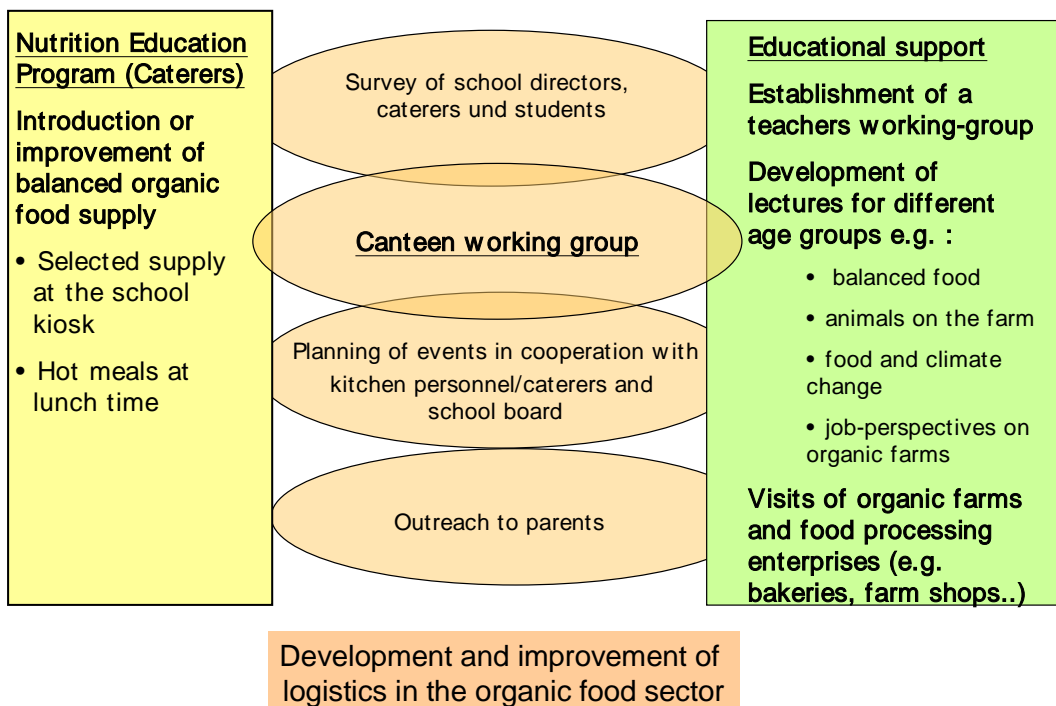
The working group „Organic food for children“ was established in the Ökomarkt e.V. in 2004. The group investigates concepts, methods and implementation options for introducing healthier diets in kindergarten and school kitchens. Strategies developed in a joint research project with University of Applied Science,

Hamburg (HAW) are the basis for on-going work. One aim of the working group is to introduce as much organically produced food as possible into the daily diet plans of kindergarten and school kitchens without pushing the costs of offered meals above budget limits. In average a kindergarten in Hamburg can spend 5,- Euros per week per child, school caterers calculate their meals with 70,- cent per student per day or even less.

Activities of the working group include capacity building activities on nutritional issues and healthy diets for kitchen personnel, teachers and parents as well as children in schools and kindergartens. The group has two main activities:

- An information and education service on nutritional issues for the kitchen personnel of kindergartens and schools. The Ökomarkt e.V. staff for example visits caterers or kitchen personnel in schools or kindergartens to discuss weekly meal plans, strategies to introduce organic products, how to calculate the meal costs or to change recipes, how to organise kitchen routines and food-supply systems for schools, how to find alternative (organic) food suppliers or how to organise the bio-certification.
- A set of educational activities for children, parents, teachers and kindergarten staff to increase the acceptance of changes in the diet. Here the Ökomarkt e.V. team organises workshops for teacher or kindergarten staff, arranges excursions for kindergarten children, students and their teachers to organic farms, gives lectures in schools on healthy nutrition and helps the teachers to cook with the children and teenagers. Information events for parents on healthy child nutrition are another part of the work program; some of them are combined with a cooking session.

The work covers the breakfast service in schools and kindergartens as well as the warm meals during lunch.



Graph 1: Food supply in schools and kindergartens – a conceptual framework for the introduction of balanced, age differentiated and (partly) organic food supply in schools and kindergartens

2.1 Project activities since 2004

2.1.1 Research Project, case study Hamburg (2004-2006)

The Ökomarkt e.V., Hamburg implemented a research project, using case studies in seven all day-schools and three kindergartens in Hamburg, to develop a concept for introducing organic food into the daily diet plans. These activities were carried out in cooperation with the University for Applied Sciences Hamburg, which investigated reasons for resistance to organic food, and additional problems arising when trying to introduce organic food components into existing diet plans. The results of these studies were combined with results of discussions with selected target groups. (Laberenz et al. 2006)

2.1.2 Workshop campaign: "Bio is possible for everybody" (2004-2009)

As one way to disseminate the project results the Ökomarkt e.V. organised workshops for caterers, teachers and kitchen personnel of schools and kinder gardens in Hamburg, Schleswig-Holstein and parts of Lower Saxony (see www.biokannjeder.de). In more than 50 workshops the strategies to introduce organic food were discussed with more than 400 participants from kindergartens and all school types, like primary schools as well as secondary schools. In particular the workshops are very interesting for all-day schools and focused on those schools that have very little experience with the organisation of food supply in school.

2.1.3 Organic Meal Planner for kindergartens and caterers (2006-2008)

Since October 2006 the Ökomarkt e.V. is developing an organic meal planner for kindergartens in co-operation with the University for Applied Sciences Hamburg (Lange&Zurek 2009). The menus are planned in the way that they:

comply with the recommendations of the D-A-CH reference values (Negotiated Standards for child nutrition set by four societies of nutrition (Germany (DGE), Austria (ÖGE) and Switzerland (SGE+SVE), and the recommendations of the German Society for Nutrition (DGE), Deutsche Gesellschaft für Ernährung, and

use 100% organic and seasonal food and as much as possible regionally produced food.

In addition:

the costs per week per child should not go over the limit of 5,- Euro, and

the recipes must be adaptable for canteen kitchens.

All recipes were tested in the university kitchen and 50% were additionally tested by kindergarten personnel and their children. Interviews with the kitchen personnel showed that the recipes were accepted by the children and that that they can be realised with organic products without going over the available budget.

3 Findings

Based on the research activities, the work program of the Ökomarkt e.V. has developed a set of services and tools for the expert advice of caterers, canteen personnel as well as the leadership of schools and kindergartens. These services are:

A nutrition education program which provides:

- Education of kitchen personnel,
- Address list of caterers working in the region,
- Checklist of how to negotiate with caterers,
- List of suppliers of organic food (conditions and minimum quantities),
- Checklist for supplies at the school kiosk (recipes for healthy and freshly made snacks, etc.)
- Improvement in the supply of organic food,
- Discussions with owners of organic farms and traders of organic food, and
- Discussions with conventional traders who are likely to integrate organic food in their supply.

And an educational support program, which provides:

- Lectures on agriculture, food and nutrition for all age groups,
- Visits to organic farms,
- Planning and organisation of canteen events,
- Educational meetings with parents.

Results of the research and implementation activities demonstrate that changes in diet plans and work structures are achievable, if all concerned parties– school or kindergarten management, teachers, parents, kitchen personnel – decide together which kind of food (organic or conventionally produced)

should be made available to the children. In addition, information and capacity building activities for the children regarding better food and healthy diets is also important. The problem is often that senior school managers don't feel responsible for diet plans, and therefore don't give sufficient guidance to kitchen personnel. Educational programs on child nutrition and food supply should address this target group too. Finally, logistical issues, prices and work organisation often seem to be more important than food quality and healthy diet plans.

To introduce organically produced food step by step into existing diet plans seems to be more successful than trying to achieve this goal with one step. Best practice examples show that a successful introduction can be achieved without substantive increases in diet costs. Precondition for this is that qualified kitchen personnel implements changes in cooking plans and shopping options.

In kindergartens, diet plans are often better structured than in schools. The knowledge and the awareness of kitchen personnel concerning organically produced food though needs to be improved in both places. Important here is also to incorporate the parents into better information management. In the long run better and binding quality standards for kindergarten and school kitchens should be developed to improve health levels of children and to avoid increased costs for the medical system due to obesity problems. Furthermore it is likely that the children who have been acquainted with the idea of healthy food and diets develop more sustainable consumption patterns when growing up.

4 Conclusions

The introduction of organically produced, balanced and age adapted food in schools and kindergartens is more likely to be successful if required changes are supported by educational programs, so that the offered healthy food is accepted by prospective consumers (students and teachers). As the evaluation of the organic meal planner in kindergartens has shown the introduction of organic food can be achieved without substantive increases in diet costs if the kitchen personnel is well trained and motivated to introduce organic food.

As project results demonstrate external extension and capacity building is important for kindergartens and schools in order to develop improvements of existing diet plans and kitchen work structures, and to facilitate the dialogue between the various actors. Due to the German governance structure, there is a need for local extension services that can give guidance and provide nutritional capacity and knowledge building under the specific regional circumstances.

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Section B: Abstract & Presentation/Poster

How to eat healthy and environmentally friendly in the Nordic countries?

Bere, Elling, University of Agder, Norway, elling.bere@uia.no

Abstract

Because most of the top determinants of world-wide burden of disease are diet-related (Ezzati et al., 2002), promotion of healthful diets is important for population health across the world. Furthermore, changes in eating habits may also contribute to preservation of the environment.

In this presentation it will be argued that recommendations for healthful eating should be more tailored to regional circumstances. This will promote population health as well as help to preserve cultural diversity in eating habits and contribute to more environmentally friendly eating. A regional Nordic diet, mimicking to some extent the traditional Mediterranean diet (more plant food, less animal food, food being local, usage of nature, natural foods, few processed foods), will be presented as an example.

Based on four criteria³, a few foods have earlier been presented for a theoretically health enhancing and environmentally friendly Nordic diet; berries, cabbage, wild and pasture fed meat, seafood, rapeseed oil and oat/barley/rye (Bere & Brug, 2009). In addition, several foods (especially plants, e.g. nettle and seaweed) are no longer eaten, and their health potential (e.g. their nutrient composition) is often unknown.

However, putting such a diet into practice comes with some challenges. First, how can we produce/harvest enough healthy animal foods (meat as well as fish) without expensing the environment? A second challenge is whether all plant food we'll need can be produced or harvested locally. Finally, how can we get people to indeed eat these foods instead of the (sweet, fatty and salty) foods modern people have grown accustomed to?

Keywords: Health, environment, local diets, regional diets, new Nordic diet

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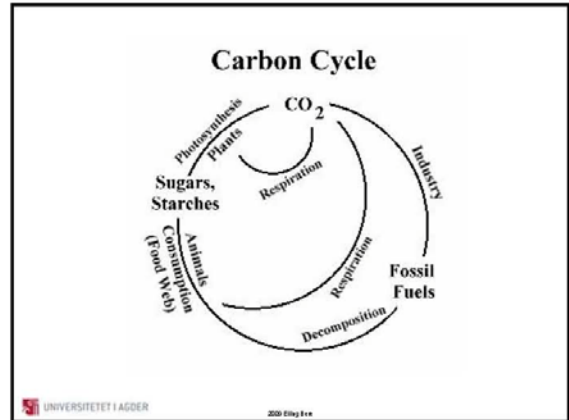
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³ (1) Potential of local environmentally sound production, (2) tradition as a food source, (3) potential health effects superior to other foods within the same food category and (4) potential of being eaten in amounts as foods (not only as supplements such as spices).

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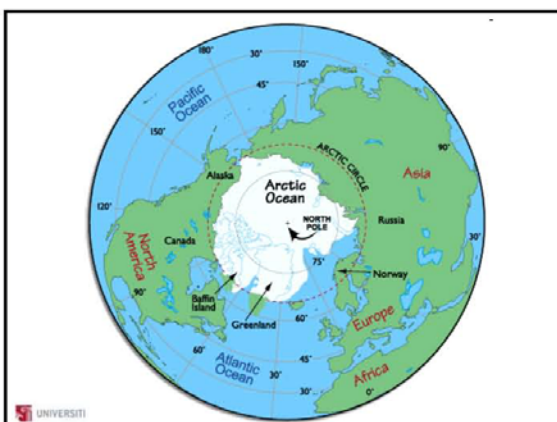
How to eat healthy and environmentally friendly in the Nordic countries?

Elting Bere, Dr.Philos
elling.bere@uia.no

- ### Food and CO2
- Type
 - Animals vs. plants
 - Production
 - Wild vs. organic vs. conventional
 - Outdoor vs. indoor (energy for heating)
 - Transport
 - Under production/harvest
 - To the supermarket
 - From the supermarket
- UNIVERSITET I AGDER 200 Elting Bere

- ### Food and CO2
- Type
 - Animals vs. **plants**
 - Production
 - **Wild** vs. organic vs. conventional
 - **Outdoor** vs. indoor (energy for heating)
 - Transport
 - **As close to home as possible**
- UNIVERSITET I AGDER 200 Elting Bere



Public Health Nutrition 2017, 15(1):1-10

Towards health-promoting and environmentally friendly regional diets – a Nordic example

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Abstract

Abstract: The purpose of the top recommendations of the worldwide burden of disease are to reduce the prevalence of harmful diets to improve the population health across the world. Furthermore, changes in eating habits may contribute to sustainability of the environment. In this present paper, it is argued that the transition of health-promoting, dietary recommendations into practice of recommendations for localized eating should be more tailored to regional circumstances. This will promote population health as well as help preserve cultural diversity in eating habits and contribute to more environmentally friendly eating. A regional Nordic diet, mimicking the Mediterranean diet to some extent, is presented as an example. Considerable differences in health outcomes are presented including an evidence-based ingredients list: water, berries, 100% cabbage, 100% water fish and other seafood, 100% wild and pasture-fed and forest animals, 100% rapeseed oil, and 100% oat flakes (no).

Keywords: Health, Environment and the Nordic diet, Regional diet

Some of the top recommendations of the burden of disease are to reduce the prevalence of harmful diets to improve the population health across the world. Promoting healthy diets is therefore an important aspect of preventing and reducing many chronic, and the recommendations for localized eating are “eat ‘local’ actual diets” [1]. In the present paper, we argue that the transition of health-promoting dietary recommendations into practice of recommendations for localized eating should be more tailored to regional circumstances. Such regional tailoring of recommendations can help to preserve cultural diversity in eating habits, dietary supplements, nutrient enrichment or fortification of foods, and the development of functional foods. This avenue has been tried in the past where the identification of specific regional systems, nutrient requirements, and water, fortification or supplementation schemes have helped to address a number of dietary deficits in large parts of the world. However, the macro-nutrient advice in general appears not to be less effective in addressing the most important preventable nutrition-related health problems, which are related to socio-economic status, rather than

Criteria

1. Ability to be produced locally over large areas within the Nordic countries without usage of external energy e.g. for the production of greenhouses.
2. A tradition as a food source within the Nordic countries.
3. Possessing a better potential for health-enhancing effects than similar foods within the same food group.
4. Ability to be eaten as foods, not only in small amounts as dietary supplements (e.g. spices).

Identified foods

- (FRUITS) native berries
- (VEGETABLES) cabbage
- (FISH) native fish and other seafood
- (MEATS) wild (and pasture-fed) land-based animals
- (FATS) rapeseed oil
- (GRAINS) oat/barley/rye

Berries

	Wild berries (blue-, cloud-, cowberries)	Most eaten fruits (orange, banana, apple)
Antioxidants (mmol/100g)	30	2,9
Omega-3 (mg/l)	1,4	0,07

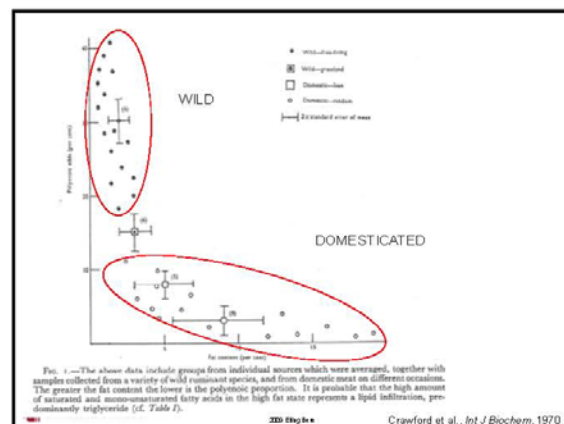
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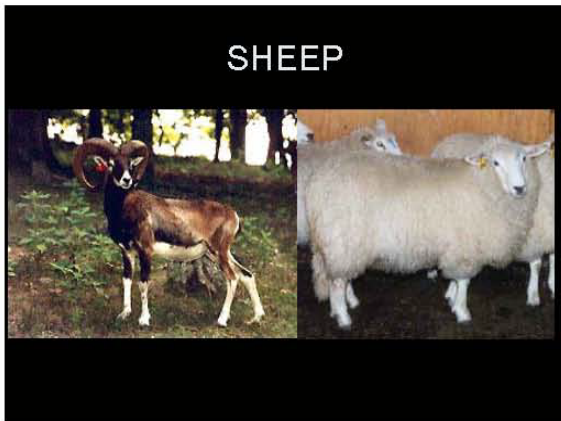
Fruits eaten in Norway

- In 2002, the most eaten fruits in Norway were
 - apples (in 2004 79% of the apples were imported),
 - citrus fruits (all imported),
 - bananas (all imported),
 - pears (96% imported),
 - grapes (all imported),
 - kiwi (all imported),
 - pineapples (all imported),
 - strawberries (30% imported),
 - peaches/nectarines (all imported)
 - blueberries/cowberries/cranberries.
- IMPORT: 93%

WHY?

- In Norwegian productive forests there is between 120 and 220 million kg of blueberries and cowberries
 - which alone is almost the recommended 2-a-day of fruits for all Norwegians
- In addition, there is considerable blueberry and cowberry production in non-productive forest and mountain areas
- And there are at least twenty-eight other edible wild berries in Norway





Challenge 1

- How can we produce/harvest enough healthy animal foods (meat as well as fish) without expensing the environment?
- We probably can't – too many people...

UNIVERSITETET I AGDER 2009 Oleg Dav

Eat more plants!

UNIVERSITETET I AGDER 2009 Oleg Dav

Challenge 2

- Can all plant food we'll need be produced or harvested locally?

figur 16 Selvforsyningsgrad og dekningsgrad 2006. %

Category	Domestic production share (%)	Coverage for export (%)
Korn, til jernmel	~100	~100
Poteter	~100	~100
Sukker, honning	~100	~100
Grønnsaker	~100	~100
Frukt og bær	~100	~100
egget	~100	~100
Kjøttproduktar	~100	~100
Egg	~100	~100
Fisk	~100	~100
Milk og fôr	~100	~100
Ust	~100	~100
Solør	~100	~100
Margarin	~100	~100
Annst fett	~100	~100
Total	~100	~100

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Usage of farm land in Norway

- Gras and pasture: 65%
- Grains (mainly to animal feed): 30%
- Only 0,7% of farm land is used to grow freeland vegetables

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How much vegetables are produced here?

Foto: M.O.Furuset www.geilobilder.com

The potential is great... (I)



The potential is great... (II)



Challenge 3

- How can we get people to indeed eat these foods instead of the (sweet, fatty and salty) foods modern people have grown accustomed to?

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2009 Diap One

Motivation, ability and opportunity (Rothschild, 1999)

- This foods should be highly available and accessible
- People should have the abilities to prepare palatable meals
- People should be motivated to eat these foods

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2009 Diap Two

FOOD OF LIFE, OPUS - sundere mad, bedre liv, nyt nordisk køkken
Det Biomedicinske Fakultet

OPUS Center
OPUS: "Optimal ernæring, sundhed og sundhed for danske børn gennem en sund ny nordisk kost" er et forskningsprojekt, der skal løbe over fem år (fra 2009-2013) og vise, hvad det er, der gør børnesundheden herhjemme.
Projektet er blevet til med støtte fra Janssærfonden.

NORDEA FONDEN

Symposium og Konference Juni 2009
D. 15. og 16. juni afholdt OPUS et symposium og en konference for at starte [OPUS](#) op.

Gastronomy – Nordic Foods

- Kjøkkenmanifestet
 - www.nordiskkoekken.dk
- NOMA
 - www.noma.dk
- Matprogram på TV
 - New Scandinavian Cooking
 - www.scandicook.com
 - Smaken av Norge
 - www.tv2underholdning.no/smaken/
- Matmagasinet NORD
 - www.matinorden.no/
- Nordisk ministerråds satsning på ny nordisk mat
 - www.nvnordiskmad.org/

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2009 Diap One

New Nordic Diet

- As local foods as possible
- Seasonal foods
- More plants
- Less meat
- Wild and organic foods
- Sustainable seafood
- Harvest nature!
- Plant (fruit) trees!
- Grow your own vegetables!
 - At least herbs!
- Walk or cycle to get your food!

The 'Climate Balance' Tool - An interactive online tool to raise awareness on the climate impact of food among consumers

Van Dooren, Corne, Voedingscentrum (Netherlands Nutrition Centre), dooren@voedingscentrum.nl

Introduction

20 to 35% of the emission of greenhouse gasses is related to the production of food. Nearly half of the Dutch consumers is interested in this relationship but they have a lack of knowledge and priority.

Materials & Methods

The tool is developed by Netherlands Nutrition Centre in cooperation with the Centre for Agriculture and Environment (CLM) and the University of Groningen (IVEM). The tool exists of national LCA-data on agricultural production, transport and processing of food (550 products) in combination with Excel-sheets including calculation modules. The tool is evaluated by experts.

Results

The Climate Balance is an online tool that calculates the impact of a hot meal on climate change: www.klimaatweegschaal.nl. Based on what you buy, how you store and how you prepare your meal you receive a score on the protein, carbohydrate en vegetable part of your meal. This can be high, low or medium (2,1-2,6 kg CO₂eq) including an explanation and advice. We have developed a simple version (with the most sold products) and an advanced one with additional options: distance to shops, choice of pots, portion size, family size, drinks, desserts, etcetera.

In the first four months we counted 15.000 users. 90% of them used the simple version.

The simple version is very consumer friendly: The user can choose the most consumed products and the basic storage and preparation methods in a few seconds, within a pull down menu. The (change in) score of each step is directly visible in two ways: percentage and four coloured bars.

Conclusions

- Because of statistical variation in data and lack of scientific consensus about calculation modules the outcome is no absolute number but a relative score.
- The power of the model is the combination of national food chain data, possibilities for choices in consumers' own behaviour and effects of vegetable choice influenced by seasons.
- In the future we are able to apply the tool for climate friendly recipes, school meals and food services.

Keywords: interactive tool, climate impact, food choice, consumers behaviour

Voedingscentrum

eerlijk over eten

'Climate Balance' tool

'Klimaatweegschaal'

Corné van Dooren
November 26th, Copenhagen



Netherlands Nutrition Centre

- The Netherlands Nutrition Centre wants to increase the understanding of food qualities and to encourage consumers to eat healthily and safely, aimed at consumers who make informed choices and at health gain.
 - Government funded foundation
 - Education and campaigns
 - 80.000 consumer calls a year
 - 5 million website visitors a year

Food quality campaign

- Food quality campaign
- Years 2006-2010
- Budget € 1,8 mil. / year:
 - television, print, website, youth programme
- Raise consumer awareness about values:
 - Animal welfare
 - Environment (including climate change)
 - Fair trade
 - Nature and culture
 - Food waste


Food quality campaign

<p>Hebben jouw kippenpootjes gescharreld?</p>  <p>voedingscentrum.nl</p>	<p>Wat doet jouw eten met het klimaat?</p>  <p>voedingscentrum.nl</p>
<p>Kook jij een halve maaltijd voor de afvalbak?</p>  <p>voedingscentrum.nl</p>	<p>Jij kan kiezen!</p>  <p>Voedingscentrum.nl</p>

Introduction/ Problem


"Food, energy and climate. For the first time in history, these three are closely linked."

(FAO at work, 2008)



Introduction/ Problem

- 20 to 35% of the emission of greenhouse gasses is related to the production of food.
 - (Kramer 2000, Tukker et al., 2006)
- Half of this: meat & dairy!



Voedingscentrum eerlijk over eten

Introduction/ Problem

- 48% of the Dutch consumers is interested in the relationship food and environment.
- But** (66%) have a lack of knowledge and priority. (Motivation, 2008)

Goal of the project:

Develop an interactive online tool to **raise awareness** on the climate impact of food choices and related behavior among consumers.

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Voedingscentrum eerlijk over eten

Bron: Voedingscentrum, naar Food Matters, Kramer.

- Meat is not the only issue
- 24% consumer activities:
 - shopping, storage, cooking and waste
 - Not included in carbon label

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Voedingscentrum eerlijk over eten

Introduction/ Problem

UK: comparable data (CIAA, 2008)

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Voedingscentrum eerlijk over eten

Consumer awareness



- Movie 1: <http://www.vimeo.com/7705122>

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Voedingscentrum eerlijk over eten

Materials and Methods

- Development in cooperation with:
 - Centre for Agriculture and Environment (CLM)
 - Calculations of greenhouse gasses at farm level
 - www.clm.nl
 - University of Groningen (IVEM)
 - Long track of research in household energy expenditure, food consumption and land use
 - www.rug.nl/ivem
 - Witling (1996/98)
 - K.J. Kramer (2000)
 - P.W. Gerbens-Leenes (2006)
 - E. Elferink (2009)

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Voedingscentrum eerlijk over eten

Materials and Methods

- Emissions of most common agricultural products (550)
 - Regional Climate Model (CLM)
 - National LCA data
 - Energy Analysis Program (IVEM)
 - = +/- 95% of consumption volume
- Excel-model including calculation modules for greenhouse gasses
 - Cooking
 - Storage
 - Transport
 - Waste
 - Season calendar vegetables
- The tool is evaluated by experts

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Voedingscentrum

Materials and Methods

Example 1: Cooking calculation



- Cooker hood
- Pans & pots: weight and volume
 - Lid on pot or not?
- Heat absorption steel
- Energy needed to raise water temperature
- Cooking time and water volume
- Cooking stove type and energy use
 - Natural gas
 - Electricity/ Ceramic/ Induction
 - Microwave/ Oven
 - BBQ

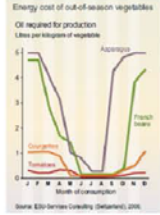
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Voedingscentrum

Materials and Methods

Example 2: Season

- Season calendar vegetables
 - Main source by month
- Greenhouses energy use
- Transport mode
- Transport distance
- Model uses the current date!
- Pop-up info about country of origin



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Voedingscentrum

Results

- Movie 2
<http://www.vimeo.com/7705331>
- An online tool that calculates the impact of a hot meal on climate change.
- Based on what you buy, how you store and how you prepare your meal you receive a score on the protein, carbohydrate en vegetable part of your meal.
- www.klimaatweegschaal.nl



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Voedingscentrum

Results


- The score: high, low or medium
- Medium (grey area):
 - 300 meals calculated av. 2,35 kg CO2eq (2,1-2,6)
- Including an explanation and advice
- 2 versions:
 - simple version (9 variables to choose; 3 with selection of the most sold products) and
 - advanced version with additional options: distance to shops, choice of pots, portion size, family size, drinks, desserts, etcetera.

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Voedingscentrum

Klimaatweegschaal

De manier waarop voedselproducten worden gemaakt, bewaard en bereid heeft invloed op het klimaat. Hoeveel invloed verwacht je? De Klimaatweegschaal maakt dat inschatelijk. Stel hieronder een maaltijd samen. Geef aan hoe je de gebruikte producten bewaart en bereidt. Je ziet direct hoe jouw maaltijd scoort op de Klimaatweegschaal. Klik voor een toelichting op de blauwe bolletjes in de score. Kijk daarna eens hoe je score verandert door andere producten of bereidingswijzen te kiezen.

Aardappel, pasta of rijst	Bewaarmethode	Bereidingswijze	
Aardappel rauw	Niet gekookt	Koken / stomen	
Groente	Bewaarmethode	Bereidingswijze	
Bonen sperzie in blik glas	Niet gekookt	Koken / stomen	
Vlees	Bewaarmethode	Bereidingswijze	
Varkensvlees	Koelkast	Bakken / braden / wokken	

Influïerd op het klimaat voor bovenstaande maaltijd per persoon.

Bonus informatie:
Berekening in kWh of gas
Verbruiken

De resultaten zijn beschikbaar voor algemene informatie over het product.
De analyse geeft het gemiddelde aan van de categorie waar het product toe behoort.
De rode lijn geeft de voorgaande waarde van het product ter vergelijking.

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Voedingscentrum

Results

Example of the climate impact of a hot meal (June):

- potatoes cooked (9%),
- green beans cooked (12%)
- pork meat chilled and roasted (80%).

- Total: low score (Voedingscentrum, 2009).
- In November beans = 40%!



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Voedingscentrum eatlijk over/eten

Results

- Choices with the highest influence:
 - Portion size (especially meat and cheese)
 - Choice of protein source beef, pork, chicken, egg or vegetable
 - Shopping by car or by feet/ bicycle
 - Lid on the pot or not
 - Cooking on natural gas or electricity or oven or BBQ
 - Vegetables from the season or from greenhouses or transported by air
 - Potatoes, French fries, pasta or rice
 - Family size and number of pots used
 - Duration of storage
 - Fresh, conserved or frozen.

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Voedingscentrum eatlijk over/eten

Results

The simple version is very consumer friendly:

- The user can choose
 - the most consumed products
 - the basic storage and preparation methods
 - in a few seconds
 - within a pull down menu.

The (change in) score of each step is directly visible in two ways:

- percentage
- four coloured bars.

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Voedingscentrum eatlijk over/eten

Results

- In the first four months: 15.000 users
 - 90% of them used the simple version
- 10% of the Dutch consumers knew the word 'Climate Balance' tool (Motivation, 2009)
 - TV and free publicity

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Voedingscentrum eatlijk over/eten

'Klimaatvriendelijk koken is kicken, man'



Pierre Wind bereidde een menu dat goed is voor het milieu. Foto: GFD/ Evert-Jan Daniels

DEN HAAG – Topkok Pierre Wind bereidde gisteren voor het eerst een klimaatlunch. Het menu, met onder meer couscous, kip en een fruitshake, was getest met de klimaatweegschaal die het Voedingscentrum op zijn site lanceerde. Wind: "Klimaatvriendelijk koken is echt kicken, man."

Top chef: "Climate friendly cooking is really cool, man!"

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Voedingscentrum eatlijk over/eten

Conclusions

- Because of statistical variation in data (and lack of scientific consensus about calculation modules) the outcome is no absolute number but a relative score.
- The power of the model is the combination of
 - national food chain data
 - insight in consumers' own behaviour and possibilities
 - impact of vegetable choice influenced by seasons.
- In the future we want to apply the tool for
 - climate friendly recipes
 - school meals and food services.

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Voedingscentrum eatlijk over/eten

Future

- Climate and our education model: Wheel of Five
 - (Dutch)
 - (English)



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Voedingscentrum aanpak over eten

Future

- Environmental impact through Dutch consumption patterns (Nijdam & Wiling, 2003)

Piece of menu	Land use	Greenhouse gas emissions	Water use
1 Vegetables and fruit	11,3%	9,5%	32,1%
2 Bread, potatoes, rice, grains, pasta, legumes	14,0%	11,5%	13,1%
3 Dairy, meat, fish, egg, meat replacers	27,5%	38,7%	17,2%
4 Fats and oils	2,1%	1,7%	2,6%
5 Drinks	12,7%	10,5%	16,2%
Other Candy, confectionary, sauces, snacks, ready-to-eat	31,5%	30,1%	38,8%

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Voedingscentrum aanpak over eten

Future

Environmental impact of food

More general advices to consumers?

- Overconsumption - obesitas
- Basic foods
- Choice of meat
- Quantity of meat and dairy
- Seasonal vegetables
- Cooking attitudes
- Food waste
- 'Foodprint'

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Voedingscentrum aanpak over eten

End

Thank you

Questions?

dooren@voedingscentrum.nl

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School food supply in North Rhine-Westphalia - Analysis of the current situation

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Abstract

This paper presents first findings about school meal provision in the region of North Rhine-Westphalia. This is the German federal state with the highest population and also with the highest number of pupils in Germany. Findings demonstrate that the situation and regulation for school meal provision in this region is somewhat disordered and less structured than for example in the city state of Berlin.

The situation is presently changing since the school days have to be longer through the expansion of the all-day-schools, regulated by the communal law. Also, the awareness of a healthy offer for lunch is increasing. Within this process, more and more money has been spent by the government in North Rhine-Westphalia to improve the situation, e.g. the "All-day Initiative" (Ganztags-Offensive). A Coordination Centre (Schulvernetzungsstelle) was created to facilitate communication with all schools. It will also build a central point of reference for school meal provision in North Rhine-Westphalia, even though there are no centralised solutions for all schools in this federal state. Every communal school authority or the individual school itself has to find its own system for presenting a lunch offer to the pupils, e.g. with a school-owned canteen or food provided from catering firms.

There are no compulsory guidelines for the use of organic food in school meal provision in North Rhine-Westphalia. The government only refers to general official guidelines of the German Nutrition Society (DGE – Deutsche Gesellschaft fuer Ernaehrung e.V.) which only recommend that 10% organic food should be used in school meal provision. At the moment, and because of the changing situation, the schools are more focused on developing their own infrastructure for serving food or on receiving an overview of caterers' offers. Therefore the integration of organic produce in school food usually plays a minor role. This disordered situation could constitute an interesting point of action for organic catering. It could also be the right point in time for several stakeholders to care about the development and to enforce the provision and the consumption of organic meals in schools. Lastly, it might possibly create a well-organised structure with a high usage of organic food.

Keywords: iPOPY, school meals, organic, Germany, North Rhine-Westphalia, policy, quality standards

SCHOOL FOOD SUPPLY IN NORTH RHINE-WESTPHALIA ANALYSIS OF THE CURRENT SITUATION



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Introduction

The school system in Germany is undergoing far-reaching changes such as the change into an all-day school system. At the same time there is a rising awareness about children's health and well-being. This has to do with more and more pupils being affected by Diabetes and overweight as in many other European countries too. All these contribute to the demand for a well-organised school food provision system. This is especially so in the federal state of North Rhine-Westphalia, which has the highest population and also the highest number of pupils in Germany (in the school year 2008/2009: 2.040.000 pupils). A first analysis of the status quo and the strengths and weaknesses of this situation are presented here.

Results

First findings in the region of North Rhine-Westphalia about the school meal provision demonstrate that the situation and regulation for school meal provision in this region is less structured than other regions in Germany, e.g. Berlin, and somewhat disordered. The situation is presently changing since the school day is longer through the expansion of the all-day-school model regulated by the communal law. Also, the awareness to do more about healthy offers for lunch is increasing. Within this changing process, more and more money has been spent by the federal government in North Rhine-Westphalia to improve the situation.

A Coordination Centre for School Food in North Rhine-Westphalia (Vernetzungsstelle Schulverpflegung NRW) was created to facilitate communication with all schools and to build a central point of reference for school meal provision this federal state, even though there are no centralised solutions for all schools. The Coordination Centre has started its work in 2008 and is now the main contact and coordination point to improve the situation. Every communal school authority or the individual school itself has to find its own system for presenting a lunch offer to the pupils, e.g. with a school-owned canteen or food provided from catering firms. There are many stakeholders to take into account (see Fig. 1). In addition to this, there are no compulsory guidelines for the use of organic food in school meal provision in North Rhine-Westphalia and no cross-national policies to combine all activities in several federal states.



Fig. 1: Stakeholders in school meal provision

Materials and Methods

To gain an insight into the situation and build up a first status quo this research has been done as a desk study. Current scientific literature as well as advisory and consumer information was analysed. Furthermore, to gain more detailed information, one expert interview was held with the head of the Co-ordination Centre in North Rhine-Westphalia.

The government only refers to general official guidelines provided by the German Nutrition Society (DGE – Deutsche Gesellschaft für Ernährung e.V.) which recommends that of 10% organic food be used in school meals. At the moment and because of the changing situation, the schools are more focused on developing their own infrastructure for serving food or on receiving an overview of caterers' offers. Therefore the adoption of organic produce in school food usually plays a minor role. Presently a great lack of information and advice exists mainly during the decision making process about which catering form should be adopted. Because of this, the decision about which catering form is preferred in schools is this often made according to the criterion "price". Some steps to improve the situation are shown in Fig. 2.

Important steps to improve the situation in North Rhine-Westphalia

- Improve the acceptance of school meals
- Networking with all important stakeholders
- Provision of information
- Satisfy the demand for consultation

Fig. 2: Steps for improvement

Case studies in North Rhine-Westphalia

Successful examples in this federal state, often established by initiatives of teachers and parents, show how easy an adoption of organic food in a school kiosk can be. One such example is the "Realschule im Kreuzviertel" in Münster. Two teachers established a pupil-managed school kiosk system, where pupils care for the supply and the sale of snacks, e.g. bread rolls. About 70 pupils get their snacks here daily and they embrace this offer. In this concept organic food is integrated by more than 20%. To support the regional value chain, the kiosk works together with a local bakery and local apple juice is sold.

Conclusions

This disordered situation could constitute an interesting point of action for organic catering and this could be the right point of time for the several stakeholders to care about the development and to enforce the offer and the consumption of organic meals in schools and possibly create a well-organised structure with a high usage of organic food, for example with compulsory guidelines.

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Expert-Interview by phone : Ursula Tenberge-Weber, Leader of the Coordination Centre in North Rhine-Westphalia (16.06.2009)
Case studies: assessable under <http://www.oekolandbau.de/grossverbraucher/bio-kann-jeder/praxisbeispiele/>

Climate strategy for public food systems: data and tools - Reduction of the CO₂-emissions from food consumption

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Abstract

The paper presents the development of a method and tool for calculating climate impact as CO₂-equivalents related to food products and a CO₂-pyramid serving as a tool for showing the relative levels of CO₂-emissions related to a number of food products.

The project was carried out at the Technical University of Denmark (DTU) in cooperation with the municipal food production for elderly (Den Kommunale Madservice) in Lyngby-Taarbæk Municipality north of Copenhagen and had as its overall aim to develop proposals and tools for reduction of the climate impact from the food production while taking into consideration the elder people's dietary needs and health conditions.

The project took its starting point in the annual procurement of food ingredients and food products for the municipal food service and in the recipes for 30 different dishes in the municipal food service.


The back ground data used in the project originates from a former Swedish project where the lifecycles energy for 150 different food items was calculated. The 150 food items were food items that could be bought in an ordinary Swedish supermarket around the year 2002. Some food items were the same type of food but processed in different ways or originating from different parts of the World. The lifecycle energy included, among others, energy from production and processing, but excluded energy for packaging, production of machinery and waste disposal.

The CO₂-pyramid shows the impact on the climate from different food items from all processes "from soil to table" as kg CO₂-equivalents pr. kg food item. The higher a food item lies in the CO₂-pyramid, the bigger impact does the food item have on the climate.

A method was developing to transform the lifecycles energy to lifecycles CO₂-emission. This was done by construction of a conversion factor for all food items. In addition an extra emission was included for non-energy related climate impact from methane and nitrogen dioxide from agricultural production of food items such as beef, dairy products and rice.

*The proposals for reduction of climate impact are based on climate optimisation of the single dishes by full or partly substitution of food ingredients following the guidelines on the CO₂ pyramid **and** on changes in the frequency of the single dishes.*


Keywords: climate impact, CO₂-pyramid, CO₂-emissions, food consumption, conversion tool.



Climate strategy for public food systems: data and tools

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&
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Technical University of Denmark (DTU),
The Science Shop



Project background

- In cooperation with Lyngby-Taarbæk municipality and DTU Science Shop
 - The project took its starting point in two production Kitchens
 - Food to elderly people
 - 30 dishes
- Project objective
 - Develop tool to map the climate impact from the menus
 - Develop tool to reduce the climate impact
 - Map the climate impact from the food
 - Develop proposals for climate optimization of menus

2

Data

- Background data from a Swedish project
 - Total lifecycle energy for 150 food items
 - Included in the calculations:
 - Transport, processing, storage and preparation
 - Different 'versions' of the same food item
 - Different origin and/or processing
- From energy consumption to climate impact
 - Conversion factor from Australian project applying Danish energy mix
- Adding contribution for non-energy related emissions (methane and NO_x) (rice, cows etc.)

3

Constraints in the optimization of food for elderly people

- Need to be energy rich food
- Ensure desire for food among the elderly
- Menus from earlier in their lives is important
- Fish is important due to n-3 fatty acids
- Easy to chew
- Lentils and rice is not good if denture

4

Local data for menus

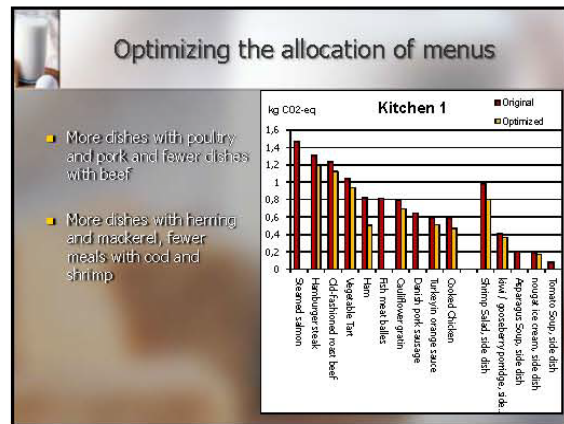
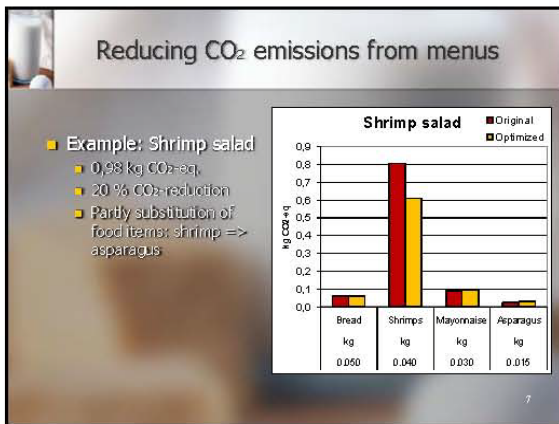
- Database developed in the project
- Data from the kitchens:
 - List with the distribution of the different menus over the year.
 - Was used to choose 30 representative menus.
 - Menus with different meat types and accompaniments was chosen.
 - Recipes on the 30 chosen menus

5

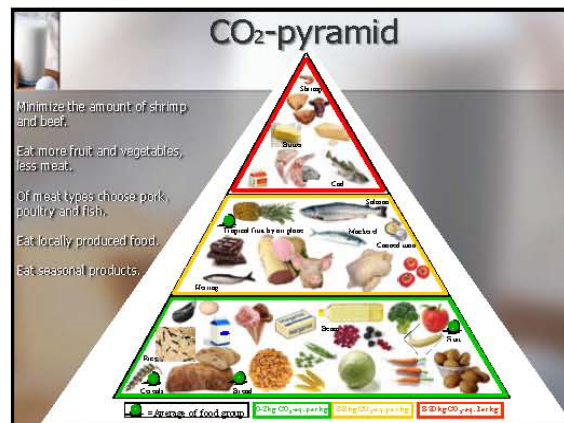
Reduction proposals

- The overall CO₂-eq. emission per year:
 - 578 ton CO₂-eq. pr. year
 - 14 % CO₂-reduction proposed
- Optimization of single menus:
 - Partly substitution of CO₂-intensive food items:
 - Meat => meat
 - Meat => vegetables
- Changing frequency of menus
 - E.g. shrimp salad => mussel salad

6



- ### Tools
- Database, as calculation tool.
 - CO₂ pyramid as overview of substitution options.



By:
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&
Associate Professor, Michael Sogaard Jorgensen

Greening the 2014 Soccer World Cup – A new challenge for organic food and farming in Brazil

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Abstract

Brazil as an organic locomotive

The perspective for developing organic food and farming in Brazil seems promising. The global Greendex survey, that studies environmental friendly lifestyles in countries by examining the impact of individual consumer behaviour, found that consumers in Brazil and India tied as most green, while those in the United States scored lowest. Brazil hosts the main yearly organic event in Latin America: BioFach América Latina and ExpoSustentat, that Planeta Orgânico co-organizes, in cooperation with Nuremberg Messe and with the consultancy of Organic Services. Thus it is natural for Brazil now to have taken the first steps and has begun discussing how the World Cup in 2014 as a part of greening Brazil.

A brief history of an organic trajectory

The Brazilian consensus building about an organic future for the coming large events have evolved around the BioFach and Vivanes in São Paulo and have lasted for 2 years. These exhibitions serve as meeting places for important stakeholders in the process. They also work as world trade fairs for organic products and provide information on the global trends in organic and natural products for more than 46,000 trade visitors in the Nürnberg exhibition centre. Brazil hosts the only BioFach events in Latin America: BioFach América Latina and ExpoSustentat. In 2009 these two concurrent trade fairs took place in São Paulo, Brazil, October 28th.-30th.

The 328 exhibitors at BioFach América Latina and ExpoSustentat 2008, made contacts and conducted business involving certified organic products, services and sustainable products at an event that gathered 7,874 people. Within the global expansion of business in organic services and products, the production chain offered by Brazil to the domestic and foreign markets is growing. These two fairs have provided an opportunity to meet the demand for guaranteed traceability and the preservation of biodiversity. In 2008, BioFach América Latina and ExpoSustentat introduced several novelties in the food & beverage, cosmetics and textile sectors. The Regional Halls were the highlight of ExpoSustentat: the Andes-Amazon Hall brings together products from five countries, and the Caatinga-Cerrado Hall represents 6,300 families.

First ideas for a green world cup in 2008

The first steps in discussing how the World Cup in 2014 can be a part of Green Brazil's strategy was taken in 2008 during the 2008 BioFach América Latina/ExpoSustentat Conference. At this conference a workshop on developing organic catering projects focusing especially on schools were held. The workshop highlighted a number of Brazilian projects and had a contribution from Denmark on the Scandinavian experiences in this field. During the same conference a panel on "Opportunities for an organic catering at the World Cup 2014 in Brazil" was organised. Different actors from the Brazilian government and the Brazilian private agricultural and economic sector presented their views. The entrepreneur Ingo Plöger, CEO of IPDES, presented an overview of the challenges and opportunities in a green World Cup 2014. He gave a scenario of Green Brazil 2014, based on figures and statistics from the World Cup in Germany, 2006.

During the BioFach América Latina/ExpoSustentat 2008' opening ceremony, the former Minister of Agriculture, Luís Carlos Guedes Pinto, currently vice-president for Agribusiness at Banco do Brasil, pointed out Brazil's contribution to global sustainability. According to Guedes, "Brazil is the region that most preserves primary forests on the planet. The Brazilian energy matrix is renewable in character; in it, the use of bio fuel is the most significant. Direct planting reduces water and soil losses by 60%". The former minister considers that it is possible to triple Brazilian farm production in the coming years, without the need to put down trees. "We have technology and areas that have already been incorporated into the production process. The world increasingly cares about Brazilian production".

Egon Krakhecke, Secretary for Extraction and Sustainable Rural Development at the Ministry for the Environment, also present at the opening of the event, highlighted the importance of the partnership between government and society to promote socio-biodiversity. "For the products of these biomes to have access to new markets, it is necessary for the forces of government and society to work together. One

cannot think that this will be resolved by a single social agent, however important it may be. The Federal Government is important, but it will not manage on its own either. For that reason, it is fundamental that the organizations that represent the populations involved in extraction, the traditional communities and family farmers should be well organized, and that they should play the leading role in sustainability with regard to the use of these biomes' resources" said Egon Krakhecke.

Next steps taken in 2009

Through an invitation of Planeta Orgânico, the Secretary for Social Inclusion, Mr. Joe Valle, representing the Brazilian Ministry of Science and Technology, visited BioFach at Nuremberg, in February 2009, Mr. Valle delivered in hands to Mr. Claus Raettich, director of the Board of Nuremberg Messe, a letter from the Brazilian President Lula, suggesting that Brazil should be the country of the year at BioFach 2014, the year in which the World Cup will take place in Brazil (in July 2014).

The discussions on an organic World Cup were continued at the BioFach in 2009 in Sao Paulo, including a round table among key stakeholders. Dr. Bent Mikkelsen gave a presentation on "Football and foodprints – what are the connection?". The presentation highlighted some of the challenges related to such an undertaking.

International cooperation is essential

The preparation for green sport events has been evolving around a strong Brazilian European alliance. Denmark and Germany is playing important roles. Brazilian - Danish conversations has been going on for quite a while, on a novel and innovative approach to foodservice at the upcoming world cup 2014 and the 2016 Olympics. The Brazilian Danish talks originates at the Organic Out of Home seminar at Biofach Nuremberg 2008, continued at the Biofach Latina in Sao Paulo, October 2008, continued at the Organic Out of Home seminar as well as at expert consultations at Biofach Nuremberg 2009. The Brazilian Danish cooperation was confirmed at the Joint Actions for climate change in Aalborg (Denmark) in June 2009 where a workshop was held with contributions from both Danish and Brazilian papers on the Food Greening of sports events. The talks have included the possibility of using these events as locomotives for development of organic food and farming in Brazil. Denmark has a long experience in greening of large scale food service supply chains as well as experience in making them healthier. Also traceability in relation to large scale food service has been an important topic.

Brazilian and German conversations has also been going on and these European contacts with leading organic countries are important if progress should be made. Since the German Brazilian Economic Meeting in Cologne, Germany, in 2008 Planeta Orgânico has taken part in Brazil-Germany Agribusiness Group since 2006, when this meeting took place during the World Cup in Germany.

Support is growing in Brazil

The idea of using the 2014 World Cup, and now the Olympic Games 2016 in Rio, as driving forces to promote healthy catering, sustainable tourism and initiatives committed with sustainable development is gaining momentum. Recently, one of the major newspapers in Brazil, VALOR, requested an interview and published, in highlight, the growing idea of a Green World Cup, with organic products as value added for catering and restaurants. The Brazilian Government support the idea, and want to promote the inclusion of family farming products. In Brazil 70% of the food comes from family farming that is getting market access thanks to a continuous support from the Government.

Mr. Joe Valle is Secretary of Social Inclusion from the Ministry of Science and Technology and he is strongly committed with the issue of including organic products in school meals at federal, state and municipal schools. Mr Valle has promoted horticulture in public schools in Brasilia, Brazil`s capital, and the results of this initiative motivated him to accept the challenge of supporting a Green World Cup in 2014.

In Brazil this subject is even more important and urgent, because of the approval of Law no. 11,947, of June 16, 2009, which provides for changes in the school meal service. In addition to the 36 million students served at present, the School Meal Program will also cover secondary school students, which will bring the total to 43 million students altogether.

At BioFach in Nuremberg, February 2009, Dr. Bent Mikkelsen had a brief meeting with Mr. Joe Valle when the issue "Organics and Caterings" was discussed, as well a possible partnership between Brazil and Denmark in this context. Also in Nuremberg Maria Beatriz Costa (Planeta Orgânico) had a meeting with Dr. Carola

Strassner (A-Verdis) who gave important inputs about the possibility of organic products in caterings during the World Cup in Brazil in 2014.

Next steps

The support to the Brazilian plans on developing organic food and farming is growing. The coming large scale events have the potential to drive this development further. The next important steps will be taken during negotiations during the BioFach in Nuremberg in February 2010 where Danish, German and Brazilian delegations will meet.

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Brazil

Green opportunities and challenges at World Cup 2014



A global survey reveals which country's citizens have the most environmentally friendly lifestyles by examining the impact of individual consumer behavior.

Greendex Rankings: Housing



Consumers in...



The National Geographic Society and the international polling firm GlobeScan today unveiled 'Greendex 2009: Consumer Choice and the Environment - A Worldwide Tracking Survey.' (The National Geographic Society owns National Geographic News.)



- 32 teams will play 64 games in 12 different cities.
- Each stadium will sell an average of 62,000 tickets.
- Transmission coverage in over 200 countries with a projected audience of 32,000,000,000 people.
- Over 50,000 new jobs will be created during the World Cup, and 1/3 in the safety, hotel and restaurant areas.
- Catering for VIPs at the stadiums (10% of the stadium capacity) - 3,000 people
- + Catering for closed events in the cities during the World Cup.
- + Catering for open events in the cities.
- Approximately 16,000 meals for a medium-size city; for large cities such as São Paulo and Rio, there could be 60,000 meals.
- 4n São Paulo and Rio, Catering services will have to supply 10% of the meals at festivities that will take place before the World Cup

What will be the social and environmental impacts?

How many families will benefit before, during and after the World Cup?



MAIN ORGANIC PRODUCTS

Fruit: guavas, papayas, mangoes, passion fruit, bananas, grapes, strawberries, citrus fruit

Vegetables: lettuce, kale, tomatoes, carrots, water-cress, aubergines

Field Crops: rice, soy beans, maize, manioc, coffee, cacao and sugar cane

Animal Produce: meat (beef and pork), poultry, milk, eggs, fish and honey

Extractive Products: palm hearts, Brazil nuts, cashew nuts, cabbage palm (açai), babassu



Brazilian Organic Sector's Legislation

Art. 117: O Ministro de Estado da Agricultura, Pecuária e Abastecimento, no âmbito de sua competência, expedirá os atos de cumprimento deste Decreto.

Art. 118: Este Decreto entra em vigor na data de sua publicação. Brasília, 27 de dezembro de 2007; 186o da Independência e 119 o da República.

LUÍZ INÁCIO LULA DA SILVA
Reinhold Stephanes
Miguel Jorge
João Gomes Temporão
João Paulo Ribeiro Capobianco
Gustavo Cassol




BioFach Brazil Seminars 2002-2003
PPP Project
DEG *Ministério da Agricultura*

BioFach América Latina Seminars 2004-2006

Seminários BioFach América Latina 2004

Seminários BioFach América Latina 2005

BioFach América Latina ExpoSustentat 2006

BioFach América Latina ExpoSustentat 2007

BioFach América Latina ExpoSustentat 2008

BioFach América Latina ExpoSustentat 2009



BioFach Globally present
with the world's leading trade show network for organic agriculture


BioFach 2010
 February 17 - 20, 2010
 February 16 - 19, 2011

BioFach América Latina / ExpoSustentat
 São Paulo, Brazil
 September 12 - 05, 2010

BioFach 2010
 São Paulo, Brazil
 May 27 - 29, 2010

BioFach 2010
 Munich, India
 December 07 - 09, 2010

BioFach 2010
 São Paulo, Brazil
 September 21 - 23, 2010



BioFach 2009
 18 - 22.02.2009
 Vivantes

The Secretary for Social Inclusion, Mr. Joe Valle, representing the Brazilian Ministry of Science and Technology, visited BioFach at Nuremberg, in February 2009.

Mr. Valle delivered in hands, to Mr. Claus Raettich, Nuremberg Messe Board Director, a letter from the Brazilian President Lula, suggesting that Brazil should be the country of the year at BioFach 2014, the year in which the FIFA World Cup will take place in Brazil (July 2014).

Hertha Krausmann, Claus Raettich and Joe Valle



Possible partnerships with the Brazilian organic sector

Development of researches

Public-Private Partnership in Logistics and Processing

Investments in Family Farming with Brazilian Government support





SALA

ANDES
AMAZONIA

Potential for revenues for local populations through sustainable use of biodiversity - BioTrade.

Platform to promote products and services derived from the sustainable use of the Andes-Amazon Region Biodiversity: BOLIVIA, BRAZIL, COLOMBIA, ECUADOR and PERU

Food and Health

Beauty, Cosmetics

Ornament, Fashion

The Biomes

Caatinga Cerrado
Comunidade Eco-Produtora


- Cover 35% of the Brazilian territory
- Two of the wealthiest biome in the planet in terms of biodiversity
- Home to important rivers
- Shelter over 40% of the Brazilian family farming
- Great sociocultural and prod
- Potential to valuing sociobiodiversity products
- Permanent and open networking
- Composition: 200 enterprises, 20 thousand families, 20 networks and 14 Brazilian states
- Partnership with the Federal Government, German Cooperation and Non-Governmental Organizations





Some facts about big cities:

- They represent 1% of Earth surface
- They consume 75% of produced energy
- They produce 80% of the emission (CO2)
- Half of the world population live in cities. In 2025 it will represent 60%
- They represent the major contribution to climate change
- Climate change are already a reality and must be present in every initiative public or private





The City of São Paulo — 11 million inhabitants

- 12,500 restaurants
- 240,000 stores
- 4,000 pharmacies
- 72 shopping centers, which receive 30 million visitors per month
- 900 open markets a week
- 38% of the 100 largest private capital enterprises in Brazil
- 63% of the international groups operating in Brazil
- 17 of the 20 largest banks
- BOVESPA – the largest stock exchange in South America

Germany World Cup 2006

Growth sectors during World Cup 2006

- Hotel and food sector: 29%
- Food industry: 24%
- Airlines companies: 52%
- Audio-Visual and Midia: 25%
- Publicity: 18%

Source: DIHK (Der Deutsche Industrie- und Handelskammertag)

Largest events in the Planeta

Economic Impacts in US\$ billions

Rank	Event	2010	2011	2012
1º	Olimpic Games	1.2	1.1	1.0
2º	World Cup	1.0	0.9	0.8
3º	America's Cup	0.8	0.7	0.6
4º	Fórmula 1 (anual)	0.6	0.5	0.4
5º	UEFA	0.5	0.4	0.3

Fonte: Alliant; Economic Impact report into the America's Cup
 *Impactos Diretos: eventos, espectadores e patrocinadores
 †Impactos Indiretos: construção civil, turismo, hospitalidade e transporte



Roberto Ugas – IFOAM's Vice President

Market Trends

- Consumers are concerned about WHO grows, giving attention to local and regional products
- Growing replacement of carbonated drinks for fruit juices
- Reports from both McKinsey Quarterly and Corporate Library suggest that environmental issues are high on the corporate agenda. The most critical issues are:
 - Ecology and environment
 - Safe products
 - Ethics along the value chain
 - Ethics in advertising and marketing



Thank you!

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School food supply in Lower Saxony - Analysis of the current situation

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Abstract

For some years now the number of all-day schools providing school meals in the federal state of Lower Saxony, Germany, has increased continuously.

This paper aims at analysing the political determinants and the organization of the provision of school meals in Lower Saxony with a special focus on the provision of organic food and sustainability.

As to methods, literature was researched and internet sources were evaluated. In addition, interviews with experts in the field contributed to the findings.

The results show heterogeneous approaches to and different forms of the organization of school meal supply. School boards, as the chief agents of provision, seem to enjoy a high degree of organizational freedom. Due to small budgets, time constraints and lack of experience, the quality of the meals provided may suffer and the range of organic products may be affected. It often results in pragmatic solutions dictated by cost saving.

With respect to the invitation to tenders, existing quality standards have not been made legally binding for commercial food suppliers to date. Neither is the quality of school meals of particular significance for school inspections.

Stakeholders of school meal provision receive support from the Consumer Council of Lower Saxony (Verbraucherzentrale Niedersachsen) and the Coordination Centre for School Food of Lower Saxony (Vernetzungsstelle Schulverpflegung Niedersachsen). The latter opened in spring 2009. A series of workshops within the public campaign "Anyone can go organic" (Bio kann jeder) run by the Hanover Centre of Environment (Umweltzentrum Hannover) provides advice and/or initial training to schools and school boards concerning the use of organic food.

Keywords: iPOPY, school meals, organic, Germany, Lower Saxony, policy, quality standards

SCHOOL FOOD SUPPLY IN LOWER SAXONY ANALYSIS OF THE CURRENT SITUATION



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Introduction / Problem

The state of Lower Saxony is in the north of Germany and has about eight million inhabitants. The capital of the state is the city of Hanover. For a couple of years the number of all-day schools in Lower Saxony providing school meals has increased continuously. The present paper aims at analysing the political determinants and the organisation of the provision of school meals in Lower Saxony with a strong view to the provision of organic food and sustainability.

Materials and Methods

Research encompassed literature and internet sources which were evaluated. In addition, interviews with experts in the field contributed to the findings. Research took place from June to August 2009. The methods take the IPOPY project into consideration.

Results (Part 1 of 2)

According to state law, responsibility of providing and funding school meals is incumbent upon school boards (districts, city and/or regional councils) which dispose of these issues with a high degree of organisational freedom (see Fig. 1).

Heterogeneous conditions at the schools, lack of experience, time constraints and short budgets often result in pragmatic solutions dictated by cost saving i.e. in basic provision. This apparently has detrimental effects on the quality of the school meals in general and organic food in particular.

Though quality standards for school meals were set up in 2007, they have not been made legally binding. (see Fig. 2)

Invitations to tenders are defined by the price and are not bound to quality criteria by law.

Results (Part 2 of 2)

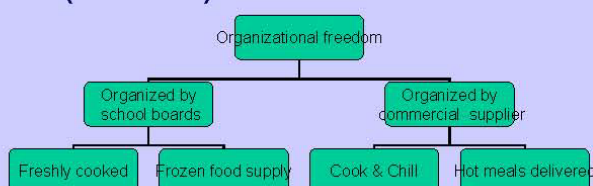


Fig. 1: Organizational freedom of school boards

Furthermore Lower Saxony has not set up specific regulations for the provision of a minimum amount of organic food in relation to overall supply of school meals. It must also be taken into account that the level of acceptance of school meal among pupils is still low. Breakeven has not been reached yet and school boards subsidize school meals.

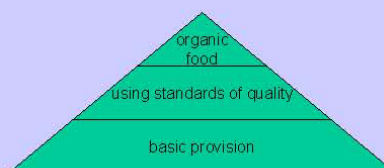


Fig. 2: Levels of school meal provision

Higher costs for organic food pose an even bigger problem. Organizers of school meal provision receive support by the Consumer Council of Lower Saxony (Verbraucherzentrale Niedersachsen) and the Coordination Centre for School Food of Lower Saxony (Vernetzungsstelle Schulpflegung Niedersachsen). The workshops of the national campaign "Anyone can go organic" (Bio kann jeder) in Lower Saxony are run by the Centre for Environment in Hanover (Umweltzentrum Hannover). This provides advice to schools and school boards on the introduction of organic food.

Conclusions

Strong signals from political decision-makers are required to introduce the provision of highly qualitative organic school meals in Lower Saxony. Counselling networks pooling their respective competences may have a positive effect on the introduction of organic school meals and may give general assistance to school boards. Schools which have successfully integrated organic food into their school meal can share their knowledge and experience with other schools on Internet fora. Last but not least, organic food suppliers can take active steps towards promoting their goods to school boards and making attractive offers.

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Conclusion

The FoodPrint'09 conference, on novel strategies for climate mitigation, sustainability and healthy eating in public foodscapes, held in Copenhagen in the end of November 2009 underlined the need to take climate impact of public food into consideration when developing strategies for sustainable consumption and healthy eating in public food systems.

Traditional food choice strategies address the responsibility of the individual. The iPOPY research project takes a different approach – a collective one. iPOPY research focus on how professional decision makers, public planners and politicians can impact climate through the strategies chosen in large scale food environments and how organic food supply can be integrated. The conference focused on settings where large number of individuals gathers and especially places where young people can be reached - places such as schools, festivals, and sport events.

The conference dealt with important topics on why public food services should consider environmental issues as a part of their menu planning, and how to achieve this objective. Different foodscapes was explored on the conference and the conference dealt with strategies and approaches that involve a potential for significant long-term shaping of food habits through branding and learning. Hence, such settings may act as an important way to educate consumers of tomorrow to both healthy and sustainable food patterns.

The following is a short wrap-up of some of the punch lines and conclusions from the conference:

- There is a clear need to compile integrated climate and food data into tools that can be used by food planners
- There is also a need for intelligent data interfaces needed for public food planners for exchange of climate and other traceable food data
- There is need to link food sustainability issues closer to health and nutrition
- There is a need for more local foods for public food systems
- There is a need to integrate food & health praxis at schools in curriculum and to use the whole school approach in developing school food service
- Decisions on change and transition in public food systems should take into account both a top down as well as a bottom up approach
- Change and transition processes in public food systems can often be made easier in small steps
- Exchanging experience within the field of public food systems is important and should involve both practitioners and researchers
- More research is needed into climate impact of organically based public food systems, especially whether there might be some spinoff effects of changing the supply chain
- There seems to be a significant perspective in branding the food supply and service at large scale events

The FoodPrint'09 conference on *Novel strategies for Climate Mitigation, Sustainability and Healthy Eating in Public Foodscapes* was arranged by Researchgroup for Food, People & Design at Aalborg University. You can find all the presentations from the conference and learn more about the related activities at www.foodprint.aau.dk

Mia Brandhøj & Bent Egberg Mikkelsen 27.01.2010, Researchgroup for Food, People & Design Aalborg University, Denmark

iPOPY – Innovative Public Procurement for Youth

Abstract

The main aim of iPOPY is to identify and describe efficient ways of implementing organic food in public serving outlets for young people. Young people are the future daily food shoppers and guests for the out-of-home eating sector, and most European governments search for strategies to foster sustainable nutrition, including an increased consumption of organic food. As the youth resides longer in public institutions and eating habits are often unsatisfactory, school meals attain large public interest as a lever for change. School meal systems are the main practical cases in the project, and hindrances and promoting factors for organic food to be consumed in schools are explored in Denmark, Finland, Italy and Norway. The school meal systems in these countries are highly diverse. Whereas Finland and Italy have well developed systems with warm lunch served daily for all pupils, Denmark and Norway rely on a packed lunch brought from home. Italy and Denmark have ambitious goals for the consumption of organic food in schools, whereas Finland and Norway have not focussed much on organic food in schools so far. The project has four explorative work packages, studying policies, supply chains and certification, the young consumers' perception and learning about sustainability and organic food, and health effects of organic menus. A coordinative work package ensures project management and draws the main conclusions. More information, newsletters and publications are found at the project web site, www.ipopy.coreportal.org.

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