True Cost Accounting (TCA): a methodology for making the global food system more sustainable

A vision for the further development of TCA

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At present our food system is not sufficiently sustainable, which is having a negative impact on our welfare

Businesses and governments make a substantial positive contribution to economic growth and jobs. But business activities also carry with them negative externalities. At present, our food system is not sufficiently sustainable. Over the past century, agricultural land use has played a major role in biodiversity decline and climate change. In many parts of the world, environmental pollution, the risks of poverty, a lack of training and employment opportunities, and depopulation are everyday occurrence in rural areas. FAO, the Food and Agricultural Organization of the United Nations, has reported that 700 million people worldwide are living in poverty, three quarters of them in rural areas (FAO). In addition, agriculture accounts for 70 percent of all water use, and as much as 95 percent in some developing countries. In short, the way we currently produce and consume food has negative impacts on the environment, people and animals. These impacts are already being felt both within and beyond Europe, and they are set to continue.

When negative externalities are present, production and consumption have an unintended negative impact on our welfare. Producers do not usually intend to pollute the environment or deplete natural resources. These negative externalities lead to social costs. However, these costs are not factored into the prices of products, meaning that the additional costs incurred as a result of production and consumption are borne by others in society, in other parts of the world or by future generations and not by the producer or consumer causing them. In order to set specific sustainability goals, it is important to know what the negative impacts on our welfare are and therefore what major negative externalities we face as a society.

Better insights are needed to make the food system more sustainable

Solving the problem of negative externalities calls for behavioural change on the part of stakeholders in the food value chain, by consumers in the composition of their diet and in society as a whole. Sustainable production and consumption of food is relevant to almost all of the Sustainable Development Goals set by the United Nations (UN) for 2015-2030. It is essential to know what impact public bodies and businesses have on the food system so that we can continue to build a common strategy framework for a more sustainable world. A key challenge here is to provide

appropriate insights so that producers, consumers and all other actors can make the right decisions. The concept of True Cost Accounting (TCA) can play an important role in making the food system more sustainable, when combined with other tools and interventions.

True Cost Accounting is a method of making the costs and benefits of the food system more transparent

True Cost Accounting (TCA) is a calculation system that takes hidden costs and benefits of the food system into account. It is used to measure and value all environmental, social, health and economic costs and benefits to facilitate sustainable decision-making by governments and food system stakeholders (UNFSS).

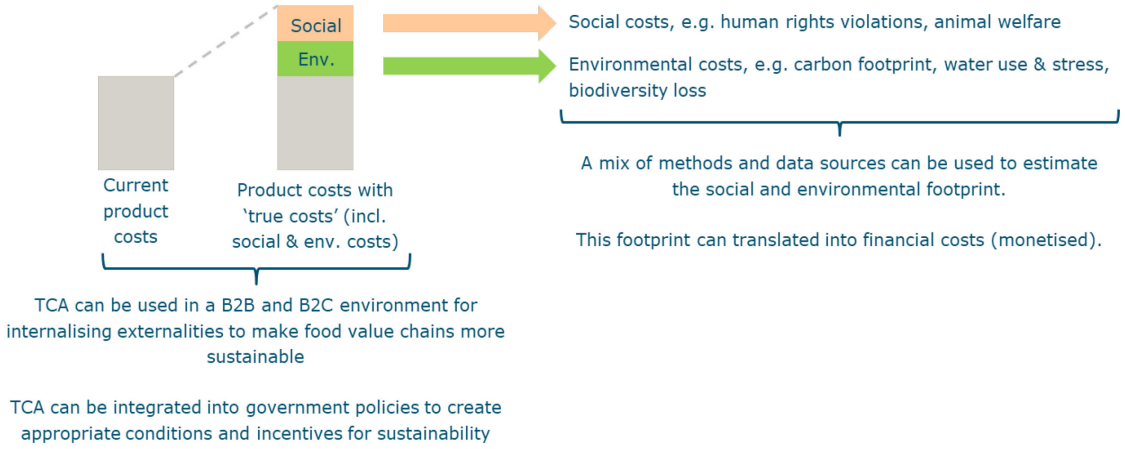

Figure 1 *Current production costs and true costs*
Source: 'Valuation Framework for True Price Assessment of Agri-food Products'

TCA provides an opportunity to make the externalities of production and consumption transparent and easier to communicate. In addition, TCA can potentially be used to weigh up sustainability themes against one another. Lastly, TCA can be used as a basis for calculating and charging polluters the actual price of externalities. But TCA as a tool is still undergoing development. Depending on the aims of decision makers, different aspects could be highlighted in the research agenda for TCA.

Besides providing insight into externalities, TCA is also essential for defining strategy frameworks

Welfare in the broad sense encompasses economic, social and ecological aspects. The desire to promote welfare in general depends very much on what one wants to achieve. This requires more than simply insights into the situation regarding the negative externalities; it also calls for an understanding of how they can be tackled. Legislation, financial instruments, communication and the importance of reputation can all be used to create incentives to produce more sustainably. Governments can unilaterally ban production methods with major negative externalities, for example, or introduce 'emission ceilings' coupled with rights and quotas for certain environmentally harmful activities. Businesses can work on reducing negative externalities by entering into mutual arrangements and covenants with governments. Quality labels or rankings can be used to give consumers an insight into which products cause major externalities, which in turn can help reduce consumption of these products. Pre-competitive collaboration and a common agenda between governments and businesses are essential, since huge leaps are needed in almost all areas to achieve a sustainable global food system. Reducing emissions by up to 90 percent is an example of a gigantic task that requires more collaboration between different stakeholders.

There are different ways to internalise externalities with different costs and effects

There are different ways to internalise the costs of externalities. This can be done through private and public measures and agreements, which can be aimed both at an individual producer or consumer and at a group. Examples include taxes and sustainability labels commanding higher prices. Producers or consumers can also be made to pay for the negative consequences of production and consumption. Charging for externalities can sometimes be advantageous because one can obtain an optimum in the market via an invisible hand. Ideally, the internalisation of negative externalities would lead to increased welfare in general. The social costs for the rest of society and generations to come or elsewhere in the world would decline. At the same time, producers and consumers would be incentivised to reduce these costs because they become an explicit part of their production and consumption considerations.

Not all methods of intervening in negative externalities lead to the same welfare gains. Moreover, organising incentives incurs implementation costs. The costs of different ways of intervening need to be established and compared and can then be included in the decision on whether or not to intervene and how to do so. It is therefore important to know what the best incentives for more sustainable behaviour are and to ensure the cost of intervening does not rise too high.

Prioritising external effects can make strategy frameworks clearer

In practice there are many forms of externalities, which can differ depending on the product, the production region or the consumer group. Once we understand the tools that can drive down negative externalities, the question is in what areas intervention will be needed and when. Knowing which negative externalities are important is therefore key. Moreover, it is helpful to also take trade-offs into account – in other words, when a reduction in one negative effect can cause another to increase.

Development paths leading to a robust, harmonised and widely supported methodology for TCA

Since 2016, WUR has been building up a knowledge and innovation (K&I) base for TCA with various public and private stakeholders, such as governments, companies and ngo's (see Annex 1). As part of this, knowledge has been developed on both the methodology and the challenges associated with its implementation. The aim for 2030 onwards is to have a robust, harmonised and widely supported methodology for TCA in place that is implemented in public and private decision-making. The figure below provides an overview of the key K&I projects at WUR relating to TCA.

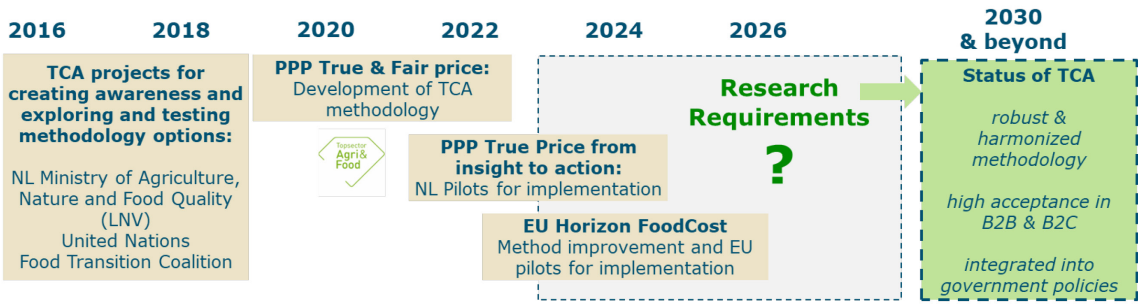

Figure 2 *Overview of WUR's main knowledge and innovation projects relating to TCA*

However, there are still various important development paths for achieving a fully effective and efficient integration of TCA as a driver of sustainability in the food system. We have defined seven development paths that are needed to meet the requirements for optimising the status of TCA.

1. **Complete overview of externalities.** Identifying and defining externalities in order to obtain an overall picture of the social impact of food production and consumption. Great strides have been made with regard to defining and ensuring transparency in some footprints (e.g. carbon). Much work still remains to be done to gain insight into other key environmental (e.g. biodiversity) and social themes (e.g. human rights violations).
2. **Translating impact into money.** Expressing an externality in euros or other currencies. This is essential in order to provide a picture of the cost of externalities to society and their comparability.
3. **Harmonisation of TCA.** Establishing the definition, calculation rules/method and consistency in data usage for various stakeholders. In order for a dialogue to take place, it is essential that social partners use common starting points for TCA.
4. **Finding solutions for implementation issues relating to pricing.** Solving governance issues: who sets the prices nationally and how, and what is the government's role in this? Who sets the prices internationally and how, without a central government to make decisions? Who makes changes to the calculations over time and how?
5. **Integrating TCA models for government policies.** Determining how externalities can be internalised in the general equilibrium models with differentiation according to policy actors and including the externalities as output in the model. That means that alongside products, aspects such as emissions and other impacts can be included in the research results. This is necessary in order to identify the most effective policy scenarios for the future, taking externalities into account.
6. **Roadmap for TCA implementation in B2B, B2C and government policies in Europe.** Investigating the effectiveness and efficiency of various forms of internalisation of externalities: nationally and internationally, on a small and large-scale, both within the supply chain and by governments. Making recommendations for ways in which one policy can strengthen another and what roles the various actors such as producers, retailers, IT service providers, banks and accounting firms play.
7. **Pilots and scalable implementation of TCA for B2B and B2C in Europe.** Testing and improving TCA applications on a smaller scale to facilitate implementation on a larger scale.

Collaboration and behavioural change are key requirements for achieving a sustainable food system

The research development paths are therefore relevant to all actors involved in the food system: suppliers of inputs, primary producers, the food processing industry, retail, but also governments, financial institutions and quality label organisations, for example. A more sustainable production method is a priority for the actors in the production chains, while financial institutions want to invest in sustainable production and governments want to design their policies in a way that will promote sustainable food production and consumption. Good collaboration throughout the supply chain is essential for making our food more sustainable. Wageningen Economic Research is therefore working on research projects that focus on fairness in pricing and supply chains.

Wageningen Economic Research wants to help create a scientific basis for the methodology for TCA and ensure harmonisation and transparency in both the methodology and the data used. In addition, we can carry out ex-post or ex-ante research into policy alternatives or company strategies. Lastly, Wageningen Economic Research can use modelling to identify the overall impact of certain future scenarios, especially for policy.

Annex 1 WUR track record in measuring and improving sustainability in the food system

Wageningen Economic Research contributes to the gathering of insights by:

1. Identifying the consequences of sustainability policy in advance for policymakers. We do this using general equilibrium models that can simulate the effects of agricultural, trade, land and bioenergy policies on the world economy, paying particular attention to the effects of land use, agricultural prices, food and food security for households. An example of such an equilibrium model is MAGNET (Modular Applied GeNeral Equilibrium Tool).
2. Creating critical performance indicators (KPIs) for analysing the sustainability performance of businesses and sectors.
3. Monetising indicators in order to expand the comparability of different externalities and make any trade-offs between externalities transparent, and in doing so, harmonising calculation methods and data usage.
4. Gathering and calculating raw data for sustainability indicators for products, businesses and sectors, such as Life Cycle Analysis, Product Environmental Footprint Category Rules (PEFCR), Farm Accountancy Data Network (FADN) and Internet of Food and Farm (IOF).
5. Gathering, analysing and sharing knowledge relating to how insights into externalities can contribute most effectively to making the global food system more sustainable.

Links

https://www.wur.nl/nl/project/echte-en-eerlijke-prijs-voor-duurzame-producten.htm
https://www.foodcost-project.eu/
https://www.wur.nl/nl/project/true-price-van-inzicht-naar-actie.htm
https://ec.europa.eu/environment/eussd/smgp/PEFCR_OEFSR_en.htm
https://agriculture.ec.europa.eu/data-and-analysis/farm-structures-and-economics/fadn_en
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