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THE STATE OF FOOD AND AGRICULTURE

REVEALING THE TRUE COST
OF FOOD TO TRANSFORM
AGRIFOOD SYSTEMS

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SPAIN. Fruit market in La Boqueria marketplace in Barcelona.

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CORE MESSAGES

- 1** The value of agrifood systems is not in doubt. They provide nourishment, sustain economies and shape cultural identities. However, one must also consider the environmental, social and health hidden costs associated with these systems.
- 2** True cost accounting allows the estimation of the hidden costs generated by market, institutional and policy failures. It provides decision-makers with the evidence needed to correct these failures and transform agrifood systems for the better.
- 3** True cost accounting for decision-making builds on a long tradition of economic valuation; however, a lack of availability of high-quality data, on both hidden costs and the costs of taking action, often limits its application.
- 4** This report proposes a two-phase assessment process, relying first on national-level true cost accounting assessments to raise awareness (presented in this report) and then moving towards in-depth and targeted evaluations to prioritize solutions and guide transformative actions (which will be the focus of the 2024 edition of the report).
- 5** This year's report presents a first attempt at a national-level assessment for 154 countries. Even with large uncertainty and excluding some impacts, there is a very high degree of confidence that the global quantified hidden costs of agrifood systems

amount to 10 trillion dollars or more at 2020 purchasing power parity (PPP), revealing the urgent need to factor these costs into decision-making to transform agrifood systems.

- 6** Globally, the dominant quantified hidden costs are those arising from dietary patterns which lead to diseases and lower labour productivity. These health-related costs exhibit considerable variation across countries, but are most prominent in high- and middle-income countries.
- 7** The environmental hidden costs, while not exhaustive, constitute over 20 percent of the quantified hidden costs and are equivalent to almost one-third of agricultural value added. They are mostly associated with greenhouse gas (GHG) and nitrogen emissions and are relevant across all country income groups.
- 8** Hidden costs appear to be a greater burden in low-income countries, where they are estimated to amount, on average, to 27 percent of gross domestic product (GDP), compared with 11 percent in middle-income countries and 8 percent in high-income countries.
- 9** Addressing poverty and undernourishment remains a priority in low-income countries, as they account for about half of the total hidden costs quantified in these countries.

10 The new national-level estimates are a first step in raising awareness, even if they are incomplete and involve a high degree of uncertainty. Targeted true cost accounting assessments that also look at the cost of different abatement actions – the focus of next year's report – are needed to inform decision-makers on how to leverage policy, regulation, standards and private capital for a transition towards sustainable agrifood systems.

11 For true cost accounting assessments at scale, innovations in research and data, as well as investments in data collection and capacity building, are needed to scale the application of true cost accounting, especially in low- and middle-income countries, so that it can become a viable tool for informing decision- and policymaking in a transparent and consistent way.

FOREWORD

In the face of escalating global challenges – lack of food availability, food accessibility and food affordability due to the climate crisis, biodiversity loss, economic slowdowns and downturns, worsening poverty, and other overlapping crises – we find ourselves standing at a critical juncture. The choices we make now, the priorities we set and the solutions we implement will determine the trajectory of our shared future. Consequently, the decisions we make about global agrifood systems must acknowledge these interrelated challenges.

There is increased international consensus that transforming agrifood systems to increase their efficiency, inclusiveness, resilience, and sustainability is an essential comprehensive design for realizing the 2030 Agenda for Sustainable Development. Momentum for change led to the first ever United Nations Food Systems Summit (UNFSS), convened by the UN Secretary-General (UNSG) in September 2021, followed by the UN Food Systems Summit + 2 Stocktaking Moment (UNFSS+2), hosted by the Italian Government in the Food and Agriculture Organization of the United Nations (FAO) in late July 2023. These meetings highlighted strong political will and stakeholder support for innovative solutions and strategies to transform agrifood systems and leverage those changes to deliver progress on all the Sustainable Development Goals.

To achieve these goals, including FAO's vision to **transform agrifood systems for better production, better nutrition, a better environment, and a better life for all, leaving no one behind**, it is vital that the impacts of our actions within these systems be transparent. FAO is responding to this essential need by dedicating two consecutive issues of *The State of Food and Agriculture* – for the first time since this flagship publication was launched in 1947 – to uncovering the true impacts, both positive and negative, of global agrifood systems for informed decision-making.

This year's report introduces true cost accounting (TCA) as an approach to uncovering the hidden impacts of our agrifood systems on the environment, health, and livelihoods, so that agrifood systems actors are better informed and prepared before making decisions. There is always concern that if we consider all the hidden costs of producing food, prices will go up, but integrating these costs in the decision-making process, as well as in the incentives faced by producers and consumers, is part of a much larger

process of agrifood systems transformation. TCA is about supporting the right investment decisions by countries and the private sector, to reduce existing costs instead of perpetuating them.

The 2023 report further highlights the methodological and data challenges that need to be addressed for greater adoption of TCA, especially in low- and lower-middle-income countries. It quantifies, to the extent possible, the hidden costs of national agrifood systems in a consistent and comparable way for 154 countries. These preliminary results cover hidden costs from greenhouse gas emissions, nitrogen emissions, blue water use, land-use transitions, and poverty, as well as losses in productivity caused by unhealthy dietary patterns and undernourishment.

The results we present in this report should not be viewed as a definitive assessment, but rather as a starting point for stimulating debate and dialogue. Indeed, while these results help us see the big picture of the hidden costs of agrifood systems, action to address these costs will have to be taken at country level. In this context, the next edition of *The State of Food and Agriculture* will aim to improve upon this initial preliminary quantification and analysis using country-specific information and input from in-country stakeholders and experts. This can then inform the planning for more in-depth, tailored analyses to guide transformational policy actions and investments in specific countries.

The pressing need to incorporate hidden costs into our decision-making processes, as part of the broader effort to transform the way our agrifood systems function, is underscored by the striking figures that already emerge from this year's findings, despite their tentative nature and the aim of refinement in 2024. Preliminary results strongly suggest that the global hidden costs of our agrifood systems – despite the exclusion of certain impacts and a considerable degree of uncertainty – exceed USD 10 trillion.

One of the most glaring findings is the disproportionate burden of these hidden costs on low-income countries. Here, hidden costs account for, on average, 27 percent of gross domestic product, primarily due to the impacts of poverty and undernourishment.

Compared with, on average, 11 percent in middle-income countries and 8 percent in high-income countries, this reveals a stark economic disparity. Clearly, addressing poverty and undernourishment remains a priority for low-income countries, as these account for about half of all hidden costs quantified in these countries.

Productivity losses from dietary patterns that lead to non-communicable diseases are the most significant contributor to the total hidden costs of agrifood systems and are particularly relevant for high- and upper-middle-income countries. Environmental hidden costs, which constitute more than 20 percent of total quantified hidden costs, correspond to nearly one-third of the value added by agriculture.

Next year's edition of this report aims to provide case studies with more targeted assessments, linking hidden costs to actions that can be taken to reduce them. These consecutive editions are part of a broader strategy by FAO to integrate TCA into agrifood systems assessments and policy advice. The findings presented in the 2023 report underscore the urgent need for systemic transformation. They also reveal the potential of TCA as a catalyst for transformation – a tool for unveiling these hidden costs, informing policy, and improving the value proposition of agrifood systems.

As we turn the pages of this report and look forward to *The State of Food and Agriculture 2024* advancing this work programme, let us remember that the future of our agrifood systems and, indeed, of our planet hinges on our willingness to appreciate all food producers big or small, to acknowledge these true costs and to understand how we all contribute to them. We all have a stake in acting upon them.

It is my sincere hope that this report will serve as a call to action for all stakeholders – from policymakers and private-sector actors to researchers and consumers – and inspire a collective endeavour to transform our agrifood systems for the betterment of all.



Qu Dongyu
FAO Director-General

SUMMARY

On a day-to-day basis, people, businesses and governments do not always know the impact of their decisions on the sustainability of agrifood systems – be they positive or negative. On the one hand, agrifood systems generate vital benefits to society, not least because they produce the food that nourishes us and provide jobs and livelihoods to over a billion people. Consequently, the value to society of agrifood systems is probably well beyond what is measured in GDP. On the other hand, market, policy and institutional failures underpinning agrifood systems contribute to hidden costs, such as climate change, natural

resource degradation and the unaffordability of healthy diets. The question then becomes: how do we transform agrifood systems so that they deliver even greater value to society?

This edition of *The State of Food and Agriculture* focuses on the true cost of agrifood systems. By introducing the concept of the hidden costs and benefits of agrifood systems and providing a framework through which these can be assessed, this report aims to initiate a process that will better prepare decision-makers for actions to steer agrifood systems towards environmental, social and economic sustainability.

FACTURING THE COSTS AND BENEFITS OF AGRIFOOD SYSTEMS INTO DECISIONS

International consensus has grown around the idea that transforming agrifood systems – towards greater efficiency, resilience, inclusiveness and sustainability – is an essential condition for realizing the 2030 Agenda for Sustainable Development. In this regard, folding a holistic assessment of agrifood systems into the process of decision-making is critical to achieving many, if not all, of the Sustainable Development Goals.

The true cost accounting (TCA) approach creates an unprecedented opportunity for such comprehensive assessments. It is defined as a holistic and systemic approach to measure and value the environmental, social, health and economic costs and benefits generated by agrifood systems to facilitate improved decisions by policymakers, businesses, farmers, investors and consumers.

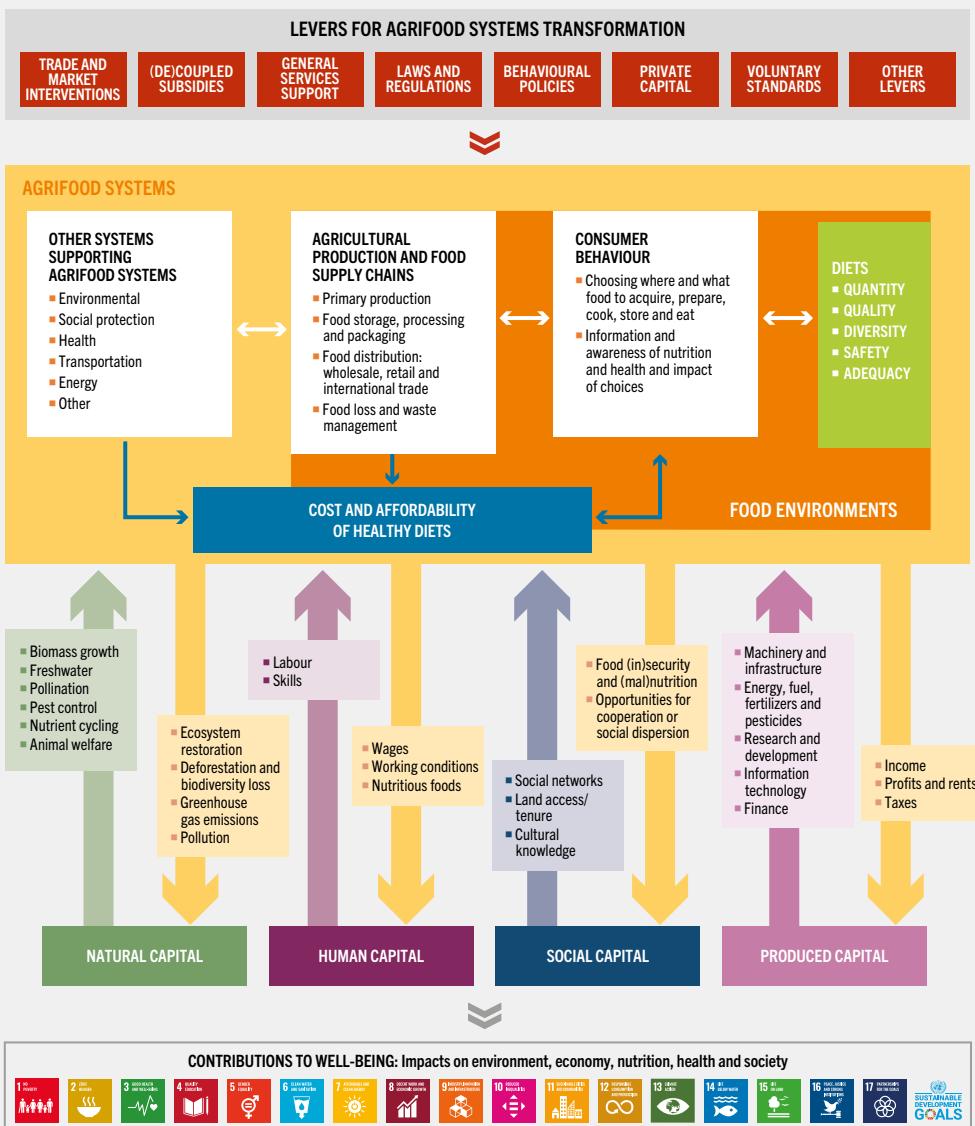
While the TCA approach is aspirational, as covering all hidden costs and benefits of agrifood systems is a massively resource- and data-intensive exercise, the aim is for policymakers and other stakeholders to avoid making decisions without a full assessment. In this regard, TCA enables decision-makers to pragmatically leverage already available data and information for an initial understanding of agrifood systems, including the most important data gaps, to better guide interventions.

Unpacking the impacts and dependencies of agrifood systems

Agrifood systems are influenced by policy, business and consumer decisions. Their activities also depend on – as well as affect – natural, human, social and produced capitals, which form the foundation of human well-being, economic success and environmental sustainability (**Figure 1**). For example, natural capital contributes biomass growth and freshwater to agrifood systems. In return, agrifood systems can negatively affect natural capital with GHG emissions and pollution. In contrast, if regenerative agriculture is used, production practices can contribute to ecosystem restoration. Social capital can contribute to agrifood systems through cultural knowledge and shape customs of access to resources such as land, while agrifood systems produce food security and nutrition (or food insecurity and malnutrition) in return, depending on their efficiency, resilience and inclusiveness. Produced capital contributes research and development, while agrifood systems generate income, profits, rent and taxes in return.

While these flows seem intuitive, little has been done to measure them and manage their impacts, with the exception of produced capital. Data that are commonly included in economic assessments pertain to the flows and impacts of produced capital and, to some extent, human capital (for example, labour and wages), which are transacted through market mechanisms and »

FIGURE 1 | HOW ASSESSMENTS OF CAPITAL FLOWS CAN INFORM LEVERS FOR AGRIFOOD SYSTEMS TRANSFORMATION



SOURCE: Adapted from FAO, IFAD, UNICEF, WFP & WHO. 2022. *The State of Food Security and Nutrition in the World 2022. Repurposing food and agricultural policies to make healthy diets more affordable*. Rome, FAO. <https://doi.org/10.4060/cc0639en>; TEEB. 2018. *TEEB for Agriculture & Food: Scientific and Economic Foundations*. Geneva, Switzerland, UN Environment. https://teebweb.org/wp-content/uploads/2018/11/Foundations_Report_Final_October.pdf

- » therefore easily observed, measured and quantified. Flows and impacts related to natural, social and (part of) human capital, in contrast, are not, so their inclusion in economic assessments is largely partial and not systematic.

When decision-makers lack a full assessment of the agrifood systems activities impacting capital stocks and flows – for example, relating to ecosystem services – the resulting knowledge gap can hinder progress towards more sustainable agrifood systems. This is especially so because, although some positive progress has been made towards improved food security and nutrition, negative impacts have become increasingly significant. Negative impacts that are not reflected in the market price of a product or a service are referred to in this report as **hidden costs**. For the sake of simplicity – and given that most benefits are likely to be internalized by markets – the term “hidden costs” herein encompasses *net* hidden costs, thus also including hidden benefits expressed as *negative* hidden costs.

Integrating all of the hidden costs and benefits into decision-making processes is not an easy task. Decision-makers face conflicting objectives, and addressing the hidden costs of agrifood systems can require significant changes to current production and consumption practices. This may be met with resistance from governments, businesses, producers and consumers, who may prefer the status quo for fear

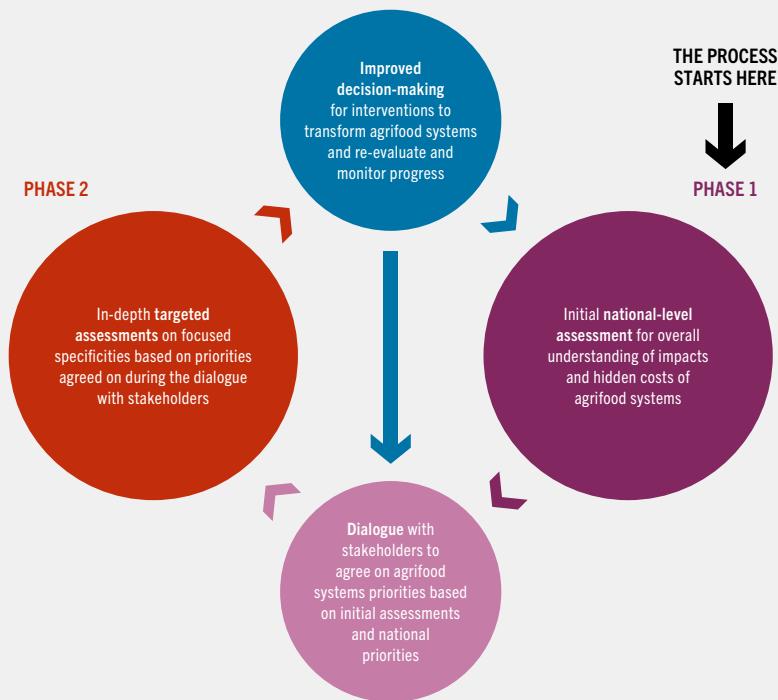
of high transition costs or changes in habits, culture or traditions.

Another reason for resistance to change is the fact that trade-offs may arise. For example, the use of agrochemicals to increase productivity can reduce poverty, but also lead to ecological degradation over time. This makes policy decisions more complicated. There is also a significant disparity between who receives the benefits of agrifood systems globally and who pays the costs, that is, the distributional impacts of the transition to new patterns of production and consumption.

Resistance to change can also be driven by a dearth of sufficient data and information on, for example, the costs of policy change (that is, the abatement costs). This raises the issue of valuing costs in a way that is practical. Investing resources in achieving the disclosure of relevant information should be prioritized.

A proposed two-phase assessment using true cost accounting

Against this backdrop, this report proposes a **two-phase assessment** using TCA to provide decision-makers with a comprehensive understanding of agrifood systems and identify intervention areas to improve their sustainability (**Figure 3**). The **first phase** entails undertaking initial national-level assessments that analyse and quantify as much as possible the hidden costs of agrifood systems across the different capitals using readily

FIGURE 3 | TWO-PHASE AGRIFOOD SYSTEMS ASSESSMENT PROCESS

SOURCE: Authors' own elaboration.

available data. The main role of the first phase is to raise awareness about the magnitude of the challenges.

The **second phase** is devoted to in-depth assessments targeting specific components, value chains or sectors of agrifood systems to guide transformational policy actions and investments in a specific country. The

selection can be inspired by the results of the first phase, but can also be guided by country priorities per consultations with relevant stakeholders. The stakeholders involved may vary by context, but they are generally policymakers, research and accounting institutions, and representatives of key actors in agrifood systems, such as agricultural producers, processors and distributors.



MYANMAR

People buying food in a market in Mandalay.

©Tony Wu/Pexels.com

PRELIMINARY ASSESSMENT OF THE HIDDEN COSTS OF AGRIFOOD SYSTEMS FOR 154 COUNTRIES

To date, there have been various attempts to estimate the hidden costs associated with global agrifood systems. Two studies, by the Food and Land Use Coalition (2019) and Hendricks *et al.* (2023), in particular, conclude that the magnitude of hidden costs is sizeable relative to the value of food products transacted in markets. Despite their comprehensiveness, however, both studies are aggregate in nature and do not provide estimates at a national level.

Against this background, and as a starting point for the first phase of the two-phase process, a preliminary TCA analysis was conducted for this report to quantify the hidden costs of agrifood systems for 154 countries. It uses national-level data to model impacts and combines these with monetary estimates to value (monetize) the hidden costs. This enables the results to be aggregated and compared on different dimensions and geographical scales and to be used as a foundation for dialogue with decision-makers.

Hidden benefits are captured as negative hidden costs. However, because food holds intangible value – for example, in terms of cultural identity – some benefits cannot be monetized, so are excluded from the analysis. Some hidden costs have also

been omitted due to data gaps, for example, costs associated with child stunting, pesticide exposure, land degradation, antimicrobial resistance and illness from unsafe food.

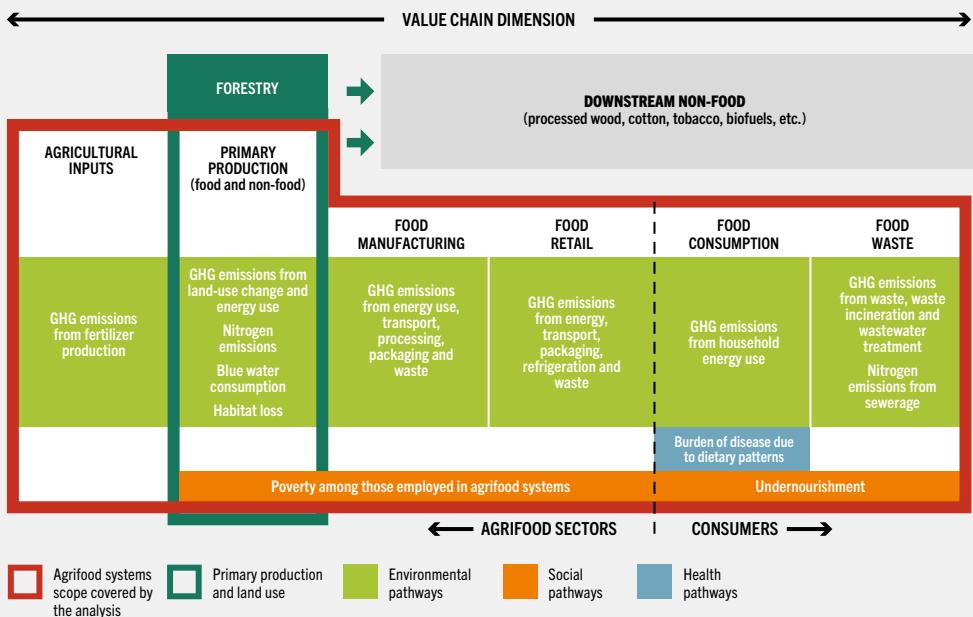
Therefore, the quantified hidden costs include GHG and nitrogen emissions, water use, and land-use change (environmental pathway); losses in productivity due to unhealthy dietary patterns (health pathway); and poverty and productivity losses associated with undernourishment (social pathway) (Figure 5).

This report estimates that the global **quantified hidden costs of agrifood systems were approximately 12.7 trillion 2020 PPP dollars** in 2020 (Figure 6). When compared to the value of the world's economy, these are equivalent to almost 10 percent of global GDP PPP in 2020. Per day, these costs are equivalent to 35 billion 2020 PPP dollars.

These estimates take into account the large uncertainty in cost calculations: it is estimated that global hidden costs have a 95 percent chance of being 10.8 trillion 2020 PPP dollars or higher. Uncertainty was largest for environmental hidden costs, due to a lack of knowledge about the impact of nitrogen emissions on ecosystem services. Yet, even the lower bound reveals the undeniable urgency of agrifood systems transformation.

The majority of hidden costs are generated in upper-middle-income countries (39 percent of total quantified

FIGURE 5 SCOPE OF THE ANALYSIS: AGRIFOOD SYSTEMS STAGES AND PATHWAYS THROUGH WHICH HIDDEN COSTS MANIFEST



NOTES: GHG = greenhouse gas. For more information on the scope of the analysis, data sources and valuation, see Annex 1 in the full report.
 SOURCE: Lord, S. 2023. *Hidden costs of agrifood systems and recent trends from 2016 to 2023 – Background paper for The State of Food and Agriculture 2023*. FAO Agricultural Development Economics Technical Study, No. 31. Rome, FAO.

hidden costs) and high-income countries (36 percent). Lower-middle-income countries account for 22 percent, while low-income countries make up 3 percent (Figure 7).

Hidden costs differ not only in their magnitude, but also in their composition

by income level. In all country groups apart from low income, productivity losses from dietary patterns that lead to non-communicable diseases are the most significant contributor to agrifood systems damages, followed by environmental costs. Unsurprisingly, social hidden costs are the main issue in

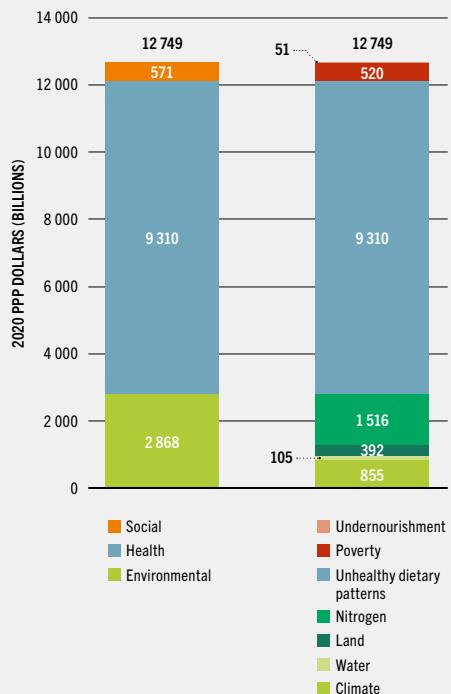
low-income countries (more than 50 percent of all quantified hidden costs).

Presenting hidden costs as a share of GDP gives a better sense of the burden placed on national economies and provides an indication as to where to prioritize international resources to address these costs (Figure 8). This share is highest in low-income countries, where it averages 27 percent, but can surpass 75 percent. This signals that improving agrifood systems in low-income countries will be instrumental in addressing these hidden costs, especially those related to poverty and undernourishment, which alone are equivalent to 14 percent of GDP. The ratio of hidden costs to GDP is 12 percent and 11 percent in lower- and upper-middle-income countries, respectively. However, social hidden costs are of notable relevance only in lower-middle-income countries. In both upper-middle- and high-income countries, most hidden costs come from unhealthy dietary patterns (Figure 9).

Quantifying hidden costs for policy action

The hidden costs described are meant to help identify entry points for the prioritization of interventions and investments. In this respect, the first step should be to identify where in a given agrifood system hidden costs are more significant and due to what activities. Starting with the environmental dimension, estimates suggest that these costs occur mostly in primary production, with pre- and

FIGURE 6 QUANTIFIED HIDDEN COSTS OF AGRIFOOD SYSTEMS BY COST CATEGORY (LEFT) AND SUBCATEGORY (RIGHT), 2020

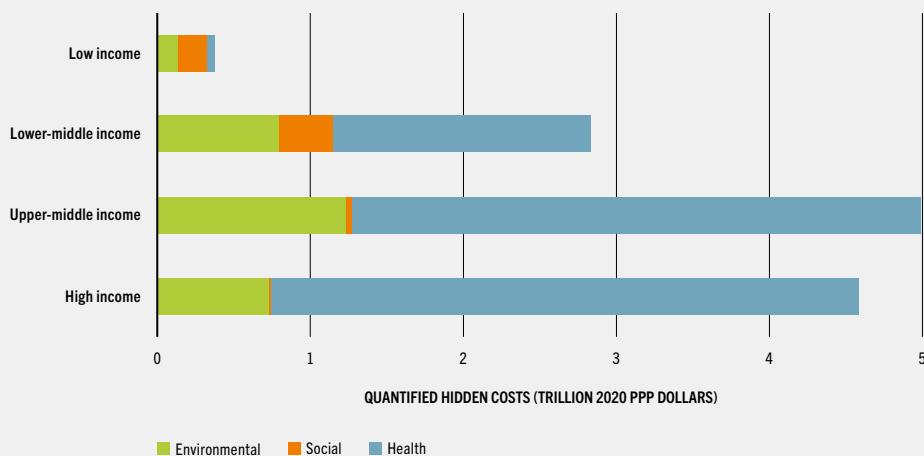


NOTE: All values are expected values.

SOURCE: Lord, S. 2023. *Hidden costs of agrifood systems and recent trends from 2016 to 2023 – Background paper for The State of Food and Agriculture 2023*. FAO Agricultural Development Economics Technical Study, No. 31. Rome, FAO.

post-production costs comprising less than 2 percent of total quantified hidden costs. In other words, the primary sector should be seen as the main entry point for effecting change in environmental pathways. Globally, hidden costs from »

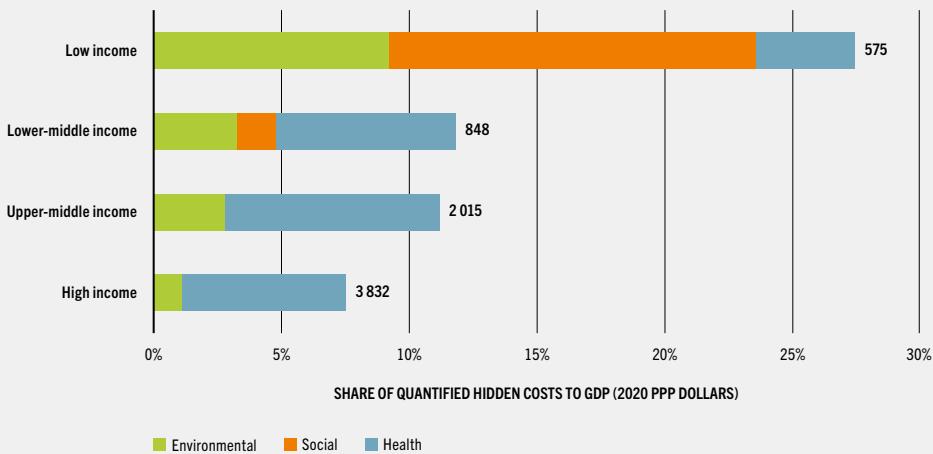
FIGURE 7 TOTAL QUANTIFIED HIDDEN COSTS OF AGRIFOOD SYSTEMS BY INCOME GROUP



NOTE: Health hidden costs are captured by unhealthy dietary patterns only.

SOURCE: Adapted from Lord, S. 2023. *Hidden costs of agrifood systems and recent trends from 2016 to 2023 – Background paper for The State of Food and Agriculture 2023*. FAO Agricultural Development Economics Technical Study, No. 31. Rome, FAO.

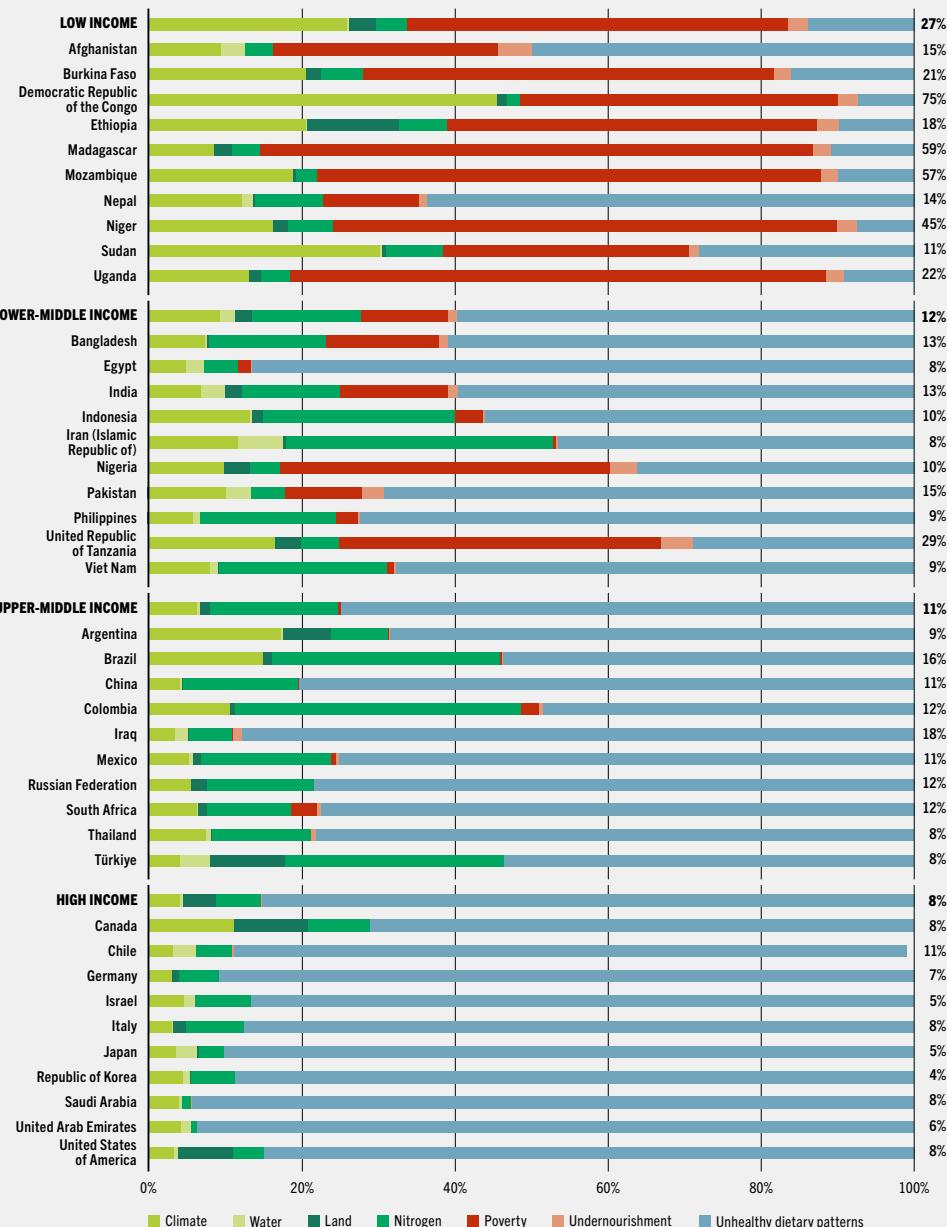
FIGURE 8 SHARE OF QUANTIFIED HIDDEN COSTS OF AGRIFOOD SYSTEMS TO GDP BY INCOME GROUP (HIDDEN COSTS PER CAPITA ON THE RIGHT-HAND SIDE)



NOTE: Health hidden costs are captured by unhealthy dietary patterns only.

SOURCE: Adapted from Lord, S. 2023. *Hidden costs of agrifood systems and recent trends from 2016 to 2023 – Background paper for The State of Food and Agriculture 2023*. FAO Agricultural Development Economics Technical Study, No. 31. Rome, FAO.

FIGURE 9 QUANTIFIED HIDDEN COSTS OF AGRIFOOD SYSTEMS BY SUBCATEGORY FOR SELECTED COUNTRIES BY INCOME LEVEL (SHARE OF HIDDEN COSTS TO GDP [2020 PPP DOLLARS] ON THE RIGHT-HAND SIDE)



NOTES: Countries were selected based on population, geography and relevance of the agrifood sector. See Annex 2 in the full report for the results of the full set of countries.

SOURCE: Adapted from Lord, S. 2023. *Hidden costs of agrifood systems and recent trends from 2016 to 2023 – Background paper for The State of Food and Agriculture 2023*. FAO Agricultural Development Economics Technical Study, No. 31. Rome, FAO.

- » agriculture – through environmental pathways – are equivalent to almost one-third of agricultural value added.

For some countries the focus will likely be on the vulnerable actors and specifically on the contribution of agrifood systems to moderate poverty – that is, the overall distributional failure of sufficient revenues. The report finds that, to avoid distributional failure costs in agrifood systems, the incomes of the moderately poor working in agrifood systems need to increase, on average, by 57 percent in low-income countries and 27 percent in lower-middle-income countries.

Another area that emerged as clearly important is that of average productivity losses per person from dietary intake. Globally, this value is equivalent to 7 percent of GDP PPP in 2020; low-income countries report the lowest value (4 percent), while other income categories report 7 percent or higher.

Overall, the results suggest that the quantified hidden costs associated with agrifood systems are substantial for all countries, even after accounting for uncertainty. They reveal the magnitude of transformation required but do not measure the cost of mitigating or preventing the different challenges, nor do they express whether it is feasible to do so. Rather, they indicate the relative contributions of various activities or pollutants and highlight areas for further investigation in targeted assessments to fill data gaps and

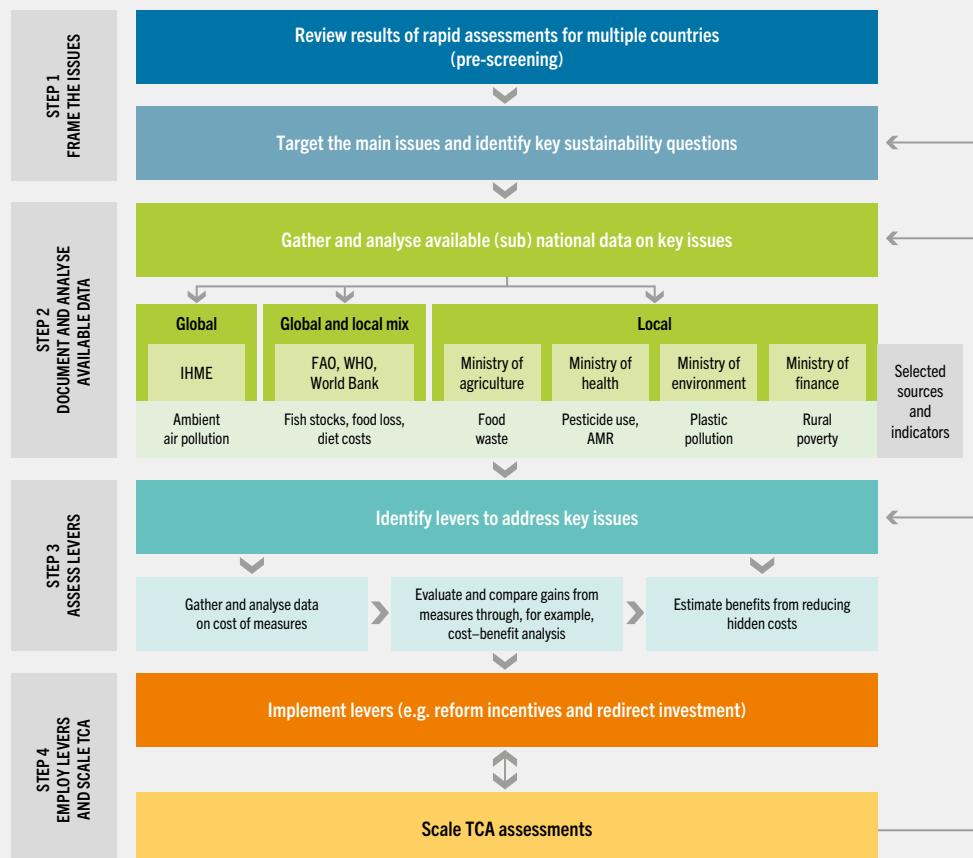
understand the abatement costs. Only with such targeted assessments is it possible to guide interventions by both public and private entities to transform agrifood systems for the better.

MOVING ON TO TARGETED TRUE COST ACCOUNTING ASSESSMENTS: THE SECOND PHASE OF A TWO-PHASE PROCESS

The results of this stocktaking exercise of national estimates are preliminary and therefore need to be complemented with more accurate and disaggregated data from targeted assessments. The objective of the second phase is to identify the potentially preferred transformational actions, comparing the costs and benefits of each while managing future options and trade-offs in order to allocate resources to the most feasible and cost-effective ones. This would then lead to implementation of policies, investments and other interventions to address the concerns identified (Figure 11).

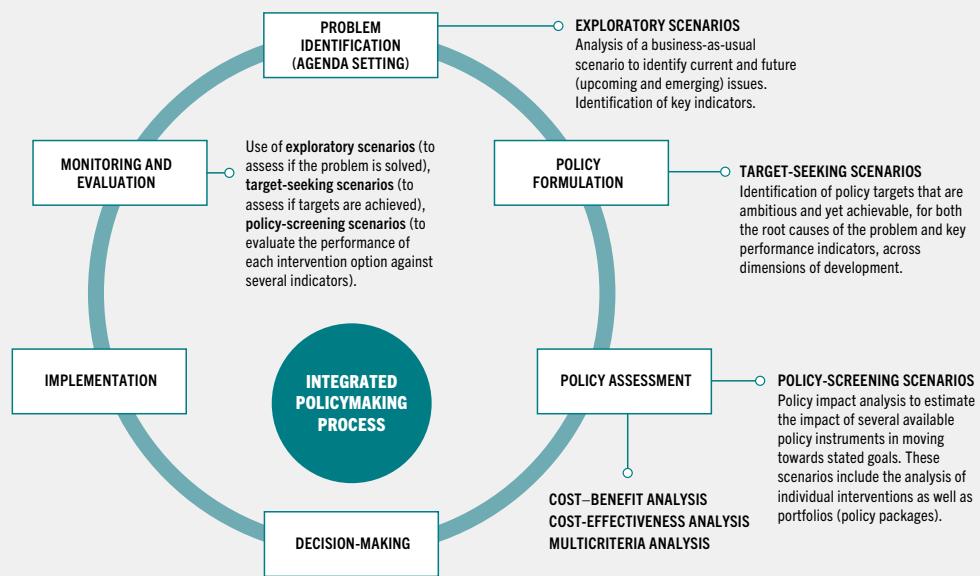
Policy and scenario analyses have fundamental and complementary roles in targeted TCA assessments. Scenario analysis allows the comparison of potential future paths and assesses the impact and effectiveness of different policies and management options (Figure 13). Doing so is essential for identifying emerging issues from inaction, as well as synergies and trade-offs from action. Such trade-offs »

FIGURE 11 | A FOUR-STEP PROCESS TO INITIATE AND SCALE UP TARGETED AGRIFOOD SYSTEMS ASSESSMENTS



NOTES: AMR = antimicrobial resistance; IHME = Institute for Health Metrics and Evaluation; TCA = true cost accounting; WHO = World Health Organization.

SOURCE: Adapted from Markandya, A. 2023. *Accounting for the hidden costs of agrifood systems in data-scarce contexts – Background paper for The State of Food and Agriculture 2023*. FAO Agricultural Development Economics Working Paper, No. 23-12. Rome, FAO.

FIGURE 13 | THE ROLE OF SCENARIOS IN INFORMING POLICYMAKING

SOURCE: Authors' own elaboration based on Bassi, A. 2023. *A guide to applying TEEBAgriFood for policy assessment*. Geneva, Switzerland, the Economics of Nature Unit, UNEP.

- » can then be carefully weighed to formulate stronger strategies and assess the effectiveness of different potential actions using cost-benefit analysis or cost-effectiveness analysis.

True cost accounting can nudge agrifood business and investment towards sustainability

It is unlikely that all issues can be addressed through policy alone. Agrifood systems are, at their core,

private-sector endeavours, and the private sector will have to take on some of the responsibility for minimizing hidden costs. True cost accounting provides a framework for businesses to assess and manage their impacts and dependencies more comprehensively and accurately. By integrating TCA into everyday decision-making and management strategies, agrifood businesses can monitor and unlock opportunities at different stages of the

supply chain, achieve sustainable production, attract private investment and avail of government incentives. When adopted by policy and backed by laws and regulations, TCA redefines key performance indicators and changes the bottom line of business success by including human, social and natural capitals. In brief, it redefines the concept of “successful business”.

A comprehensive assessment of costs and benefits with TCA can also help businesses mobilize financial resources for the transition to sustainability, respond to the growing demand for supply-chain transparency from consumers, and qualify for voluntary certifications (such as fair trade) and government incentives.

MAINSTREAMING TRUE COST ACCOUNTING FOR AGRIFOOD SYSTEMS TRANSFORMATION: OPPORTUNITIES AND CHALLENGES

When based on TCA, levers can be used to improve agrifood systems sustainability

Different levers can influence the inner workings of agrifood systems: they can affect the supply side (production and intermediaries), the demand side (consumption) and public goods supporting agrifood systems (Figure 15). When informed by TCA, levers can be redirected or reformed to support and scale up promising and emerging

strategies for agrifood systems sustainability. The choice of lever will also depend on the results of scenario and policy analyses, context-specific needs, priorities and available resources. Beyond governments, other actors – research institutions, civil society organizations, businesses and financial institutions – also play significant roles in shaping the performance of agrifood systems. Likewise, other sectors outside agrifood systems (for example, the health care and energy sectors) need to be considered in the interim and in terms of synergies and trade-offs to create incentives that are coherent to this end.

Will addressing hidden costs raise the price of food?

A commonly asked question is whether addressing the hidden costs of agrifood systems will raise food prices. The basic premise is that it will depend on the hidden cost being addressed and the instruments being used. Addressing the social hidden costs from distributional failure, for instance, could improve productivity in the food and agriculture sector, exerting downward pressure on food prices, broadly benefiting consumers. Conversely, if producers are made to pay for measures (polluter pays principle) – for example, through taxes or regulations stipulating less environmentally harmful practices – not complemented by advice on how to limit costs where a hidden cost occurs, then these will be passed down the

FIGURE 15 | LEVERS FOR AGRIFOOD SYSTEMS TRANSFORMATION

IMPACT AREA	LEVER	POTENTIAL TRANSFORMATION PATHWAYS
AGRIFOOD SUPPLY CHAINS	<ul style="list-style-type: none"> ● Trade and market interventions ● Fiscal subsidies to producers ● ● Laws and regulations ● ● ○ Public and private capital 	<ul style="list-style-type: none"> Generate price incentives or disincentives to stimulate production of sustainable and nutritious foods Stimulate production of specific sustainable and nutritious foods and influence input use Restrict environmental impact, safeguard labour well-being, manage food safety, food labelling and food fortification Facilitate investment in sustainable and transparent production processes and businesses
FOOD CONSUMPTION	<ul style="list-style-type: none"> ● Fiscal subsidies to consumers ● Taxes on foods that constitute unhealthy and unsustainable diets ● ● ○ Consumer purchasing power ● ● ○ Marketing and promotion ● ● ○ Labelling and certification 	<ul style="list-style-type: none"> Incentivize the consumption of sustainable and healthy diets Disincentivize the consumption of foods that constitute unhealthy and unsustainable diets Prioritize products with clear information, reflecting values Promote the consumption of nutritious foods Enable consumers to choose nutritious and sustainable foods
GENERAL SERVICES	<ul style="list-style-type: none"> ● ○ Infrastructure expenditure ● ● ○ Research and development ● ● ○ Knowledge transfer services ● ○ Inspection services 	<ul style="list-style-type: none"> Target bottlenecks contributing to inefficiencies, expensive foods and food loss and waste (e.g. invest in cold storage) Advance science, innovations and technologies that improve the sustainability of agrifood systems Disseminate knowledge on sustainable agrifood systems practices and technologies Manage food safety
DECISION-MAKER OR STAKEHOLDER INFLUENCING CONTROL OF LEVER		
● Government ● Research and civil society organizations ● Businesses and financial institutions		

SOURCE: Authors' own elaboration.

- » value chain or on to consumers in the form of higher food prices.

The alternative is to apply the beneficiary pays principle, which places the burden of covering the true costs of agrifood systems activities on the beneficiaries – usually the public, but also specific groups particularly affected by activities in which they are not involved. In such cases, policies should not result in an increase in the price of food. One example is payment for environmental services, where the beneficiary pays the parties whose activities may be damaging to the environment to modify their behaviour.

One set of policies involving a mixture of the polluter pays principle and the beneficiary pays principle is the repurposing of agricultural subsidies. However, subsidies place a burden on already scarce fiscal resources. Ultimately, the choice between the policy instruments will depend on equity implications, which, in turn, depend on who the beneficiaries are.

Targeted TCA assessments can inform the design of taxation and repurposing schemes to change relative food prices in favour of more nutritious and sustainable options. When tax revenues are directed to promote healthy and sustainable diets, household food budgets might remain unchanged. In the long term, improvements in public health leading to increased productivity could translate into higher household incomes. In this case, even if healthier

diets may be costlier, the increase in incomes could help offset this additional expense. However, more research is needed to understand the costs involved.

Creating an enabling environment to scale TCA for agrifood systems transformation

Scaling up the adoption of TCA cannot be achieved by a single set of actors; it requires complementary contributions from different stakeholders that influence the functioning of agrifood businesses. Governments, with their policies, laws and regulations, play the central role in creating a conducive environment for the scaling of TCA. Research organizations and standard setters are also key for advancing methodologies and setting standards for data collection. Ultimately, it is the producers, businesses and consumers – and the alliances they create – that will make the change and implement new standards.

For this to happen on a large scale, especially in middle- and low-income countries, two major barriers must be overcome: data scarcity and lack of capacity.

FOR THE FIRST TIME EVER, FAO WILL DEDICATE TWO CONSECUTIVE EDITIONS OF *THE STATE OF FOOD AND AGRICULTURE* TO THE SAME THEME

By dedicating two editions to this topic, FAO is investing in the disclosure of relevant information to guide decision-making in agrifood systems towards sustainability. In this year's report, novel findings of the preliminary national assessments have been presented, creating an unprecedented opportunity to support decision-makers worldwide in pinpointing the broad (hidden) challenges faced by their

systems and initiate a process to construct a joint vision for agrifood systems transformation.

Next year's report will emphasize how targeted assessments can be tailored based on the priorities of policymakers in specific contexts. The aim will be to showcase the flexibility of TCA in its application to different scopes, from an entire agrifood system down to a single product. As a continuation of the work started in this report, scenario and policy analyses will feed into TCA, examining a range of plausible futures, including the outcomes and effectiveness of various policy or management options to guide the transformation of agrifood systems for the better. ■



2023

THE STATE OF FOOD AND AGRICULTURE

REVEALING THE TRUE COST OF FOOD TO TRANSFORM AGRIFOOD SYSTEMS

Agrifood systems generate significant benefits to society, including the food that nourishes us and jobs and livelihoods for over a billion people. However, their negative impacts due to unsustainable business-as-usual activities and practices are contributing to climate change, natural resource degradation and the unaffordability of healthy diets. Addressing these negative impacts is challenging, because people, businesses, governments and other stakeholders lack a complete picture of how their activities affect economic, social and environmental sustainability when they make decisions on a day-to-day basis.

The State of Food and Agriculture 2023 looks into the true cost of food for sustainable agrifood systems. The report introduces the concept of environmental, social and health hidden costs and benefits of agrifood systems and proposes an approach – true cost accounting (TCA) – to assess them. To operationalize the TCA approach, the report proposes a two-phase assessment process, first relying on national-level TCA assessments to raise awareness and then moving towards in-depth and targeted evaluations to prioritize solutions and guide transformative actions. It presents a first attempt at national-level assessments for 154 countries, suggesting that global hidden costs from agrifood systems amount to at least 10 trillion 2020 PPP dollars. The estimates indicate that low-income countries bear the highest burden of the hidden costs of agrifood systems relative to national income. Despite the preliminary nature of these estimates, the analysis reveals the urgent need to factor hidden costs into decision-making for the transformation of agrifood systems. Innovations in research and data, alongside investments in data collection and capacity building, are needed to scale the application of TCA, especially in low- and middle-income countries, so that it can become a viable tool to inform decision- and policymaking in a transparent and consistent way.



[The State of Food and Agriculture 2023 \(full text\)](#)



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