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How to cope with largely dysfunctional market signals for sustainable agriculture?

In 2013, the UN Conference on Trade and Development (UNCTAD) published the report “Wake up before it is too late: Make agriculture truly sustainable now for food security in a changing climate”.¹ The report pointed out that the world needs a paradigm shift in agricultural development: from a “green revolution” to an “ecological intensification” approach. This implies a need for a rapid and significant shift towards a mosaic of sustainable, regenerative production systems that in turn considerably improve the productivity of small-scale farmers.

The UNCTAD report emphasized that a move is needed from a linear to a holistic approach in agricultural management; one which recognizes that a farmer is not only a producer of agricultural goods, but also a manager of an agro-ecological system, providing a significant number of public goods and services. The required transformation is much more profound than simply tweaking the existing industrial agricultural system. Rather, what is called for is a better understanding of the multi-functionality of agriculture, its pivotal importance for pro-poor rural development and the significant role it can play both in dealing with resource scarcities and in mitigating and adapting to climate change.



Climate change has the potential to irreversibly damage the natural resource base on which agriculture depends, with grave consequences for food security but also for the economic development of a large number of developing countries that significantly rely on agriculture. In these countries, agriculture accounts for more than two-thirds of total production and employs, directly or indirectly, the majority of the population. Therefore, meeting the dual challenge of achieving food security and mitigating and adapting to climate change requires urgent action for a fundamental and fast transformation of agriculture. In fact, time is becoming the most important scarcity factor in dealing with climate change.

2013 UNCTAD Report

This IAASTD+10 report provides plenty of examples of giving up external-input and pollution-intensive industrial agriculture and adopting agro-ecological and more socially inclusive and equitable production practices. These examples undoubtedly show that transition can work and, on a limited scale, is already happening. But these harbingers of transition cannot thrive without societal support, nor be uncoupled from an analysis of the bigger economic and policy issues necessary to send the right signals and create incentives for farmers and customers alike.

One of the main causes of slow progress is the lack of economic incentives.

The pressure for action for a fundamental transformation of our agro-food system is very high, but there is a clear lack of adequate and effective behavioral change of farmers. This is despite the fact that suitable truly sustainable production methods, management approaches and techniques are well known, readily available and, under certain conditions, economically viable even under the current economic framework.² As the UNCTAD Trade and Environment Review 2013 pointed out, however, the sheer scale at which modified production methods would have to be adopted, the significant governance issues, the power asymmetry problems in food input and output markets as well as the current international trade rules for agriculture pose considerable challenges.

One of the main causal factors for inaction or slow progress is the lack of economic, and to some extent cultural, incentives for applying reproductive agricultural practices. There are virtually no market mechanisms for agricultural production that encourage ecosystem and reproductive agricultural and soil management.

Farming is the most significant human management system of the planet. Farmed landscapes account for more than half of the terrestrial area of our planet and even a bigger share of its biological production.³ In other words, human existence on the planet largely rests upon how we manage our farmland and soils. This has important implications for agricultural policies, because it means that managing farmland, soils and ecosystems is almost as important as producing agri-food products. But farmers are not encouraged by market signals and mechanisms to be land, groundwater, soil and biodiversity stewards. On the contrary, modern day farming has removed much of the land husbandry and stewardship that was previously an integral part of a regenerative farming system.

The monetary value of agricultural ecosystem services is estimated to be much higher than the total value of agricultural production.

Prevailing market forces encourage agricultural production that is entirely modeled after the industrial recipe, with a mechanistic view of nature and a linear external-input-intensive production approach, largely removed from its ecological and location-specific context. The model consciously and knowingly disconnects or violates ecological rules believing that the inevitable collateral damage will be taken care of by

other technological interventions and remedies, from which other industries again profit. Globalization has reinforced competition and has globally turned the role of the food system into a mechanism that transforms synthetic fertilizers via crop plants into nutrients for people (and animals) in the cheapest way.

Today, productivity is measured by how many tons of soybean or maize kernels a harvester combine can extract from a hectare of land. But as natural resources dwindle, the real productivity lies in how these resources re-generate. A productive system is one where there is more forest the next year than the year before, where there are more fish and if the soil becomes more fertile each year instead of becoming exhausted and eroded. Similarly, we are more productive if the food we produce and consume is healthy rather than just cheap. This is the rationale for defining the term 'integral productivity', combining the economic with social, cultural, health and ecological components.⁴

While many observers recognize the urgent need for transformation, too much hope is pinned on the potential of modern techno-fixes to mitigate the effects of resource-mining agriculture. There is no doubt that some new technological developments can reduce the environmental impact of industrial agriculture. But the danger is that a reliance on such fixes simply slows down the deployment of real solutions, thus prolonging our trajectory towards resource mining. In addition transformation will require a change of the incentive structure and thus the related market signals.

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There are almost no market mechanisms in place for undertaking the important task of managing the agriculture landscape and the resource base for farming, and currently there is a limited potential for such mechanisms to emerge. Even if they did they might never reach the extent required, considering that the value of agricultural ecosystem services is estimated to be much higher than the total value of agricultural production and even global GDP.⁵ At present the market is still driving farmers the other way, into more and more specialization and monocultures and less stewardship of natural resources.⁶

Against this background, for decades many scholars have pointed to the need for internalization of the social and environmental costs and compensation for ecosystem services as the silver bullet for overcoming market failure and ill-conceived economic incentives for farmers. This would however require very extensive and complex regulation and government intervention. Such mechanisms have been proposed for more than half a century and very little progress has been made so far.

There are a number of examples of national programs for rewarding farmers for generating environmental services, but their results are mixed and potential systemic problems underestimated. For example, as early as 1996, Costa Rica introduced a system which rewarded landowners for carbon sequestration, bio-

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diversity protection, water regulation and conserving landscapes. In 2001, the payments under this program had reached US\$30 million and covered a total of 280,000 hectares (around 6% of the country's land mass). The payments thus amounted to about US\$ 107 per ha per year.⁷ Farmers in the Scoltel Té project in Chiapas in Mexico also sell carbon sequestration in the soil and in vegetation for between US\$300 and 1,800 per farm, big sums for households where the average income is about US\$1,000.⁸ In 2003 more than 10% of England's agricultural land was enrolled in long-term contracts between the government and farmers to provide environmental services. There was a high uptake of the elements of the programs that didn't require fundamental changes to farming practices. But, in intensively farmed areas the uptake was low, as the incentives were not sufficient to persuade farmers to make more demanding changes. In a sense the program was just 'greening the edges'.⁹

There are many other potential problems with payments for ecosystem services, some of which are not initially seen. It also means that more ecosystems are 'commodified' and integrated in the global economy. This could lead to a new frontier of exploitation, where rich countries use land in developing countries as a 'dumping' ground for their waste, e.g. by paying for climate compensation to allow continued emissions in the industrial countries.

In the light of the conceptual considerations listed above and the undoubted level of urgency, most fruitful and likely to encourage interest amongst farmers is to roll out one or two powerful mechanisms that would serve to change the entire incentive structure - rather than the far tougher challenge of conceiving farmers to embrace a fully different system. The most powerful measure one should consider in this regard is the removal of energy subsidies.

Higher costs for energy will then cascade through the system and make things that today seem 'efficient' and 'rational' appear like lunacy and completely irrational. Consequently, many of the fallacies of today's system will automatically disappear; in particular production systems based on external-input-dependent, highly specialized production, mass transport of food and cold chains for fresh convenience foods. The consequent 'freed' financial means from reduced energy subsidies can then be redirected towards compensating (or rather rewarding) farmers for providing environmental goods and services, bearing in mind the limitations listed above. An example of this compensation would be incentives for carbon sequestration in soils, which would increase soil fertility, mitigate climate change, arrest soil erosion, and encourage farmers to implement other regenerative agriculture practices.

Another key hurdle for agricultural transformation is the lack of political will to limit or correct the power asymmetries in international food supply chains through competition or anti-trust regulation. Farmers are therefore autonomously seizing the opportunity to sever the links with their classical markets, which are now dominated by large food processors, traders and retailers.¹⁰

Producer groups or cooperatives may develop various forms of community-supported agriculture, where, on the one hand, producers market their produce directly without intermediaries, thus profiting from higher prices and lower costs,¹¹ and, on the other hand, consumers take a stake or invest in farming. While monetary transaction may still be important in such systems they are in fact built on relationships rather than an anonymous market. Such approaches allow farmers to put much more emphasis on the qualitative and reproductive aspects of production, including soil fertility, and largely protect themselves from the treadmill pressure of mass commodity production. In addition, it may offer consumers – or citizens – a much needed way of reconnecting with food production. That will motivate them to support local production as well as policies directed towards regenerative agriculture.

Policy makers at local and community level can support such a development by a host of policy measures, such as changes in land planning and public procurement. In several countries, municipalities have become members of community-supported farms and purchase vegetables, fruit and sometimes meat for schools directly from farms. Territorial food initiatives that address sustainability problems and reinject democracy into food systems have also been rolled out, including the use of 'food policy councils'¹², and through other kinds of incentives that include free space for farmers' markets and making public land available on favorable terms.

To conclude, public awareness and pressure for a far-reaching transformation of agriculture and related food systems have undoubtedly increased considerably in recent years. This pressure has shown itself in support for initiatives like the Fridays for Future campaigns and public outrage over nitrogen contamination of soil and ground water and related industrial livestock production. However, with very few exceptions, political will and economic incentives on truly sustainable transformation of agriculture remain largely insufficient. Most political and market signals go in an opposite direction, mislabeled as 'green deals' or 'climate-smart agriculture' that still emphasize techno-fixes in order to avoid any deep-rooted socio-economic (and truly ecological) transformation of agriculture and food systems.¹³ In this way, resource erosion and environmental destruction in agriculture are unlikely to be significantly slowed down, let alone stopped and reversed. In fact, the current situation resembles that of the fight for climate change mitigation in general: A spate of positive practical examples on greenhouse gas reduction opportunities and a large body of knowledge on the catastrophic consequences of likely temperature increases of 3-4 degrees or even more are apparently insufficient to alter the current greenhouse gas intensive, GDP-growth-fetishizing development paradigm. It seems as if true transformational change can only be triggered as a result of recurrent natural catastrophes and related human and development crisis situations, such as the recent massive bushfires in Australia – change by disaster, rather than transformation by design – a very sober bottom line.

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Endnotes

- 1 Available at: <https://unctad.org/en/pages/PublicationWebflyer.aspx?publicationid=6662>
- 2 See also Abrecht S., Fuchs N., Hoffmann U. (2018). Agricultural Transformation Review (Vol.1): Soil stewardship reinvented. Issued by the Federation of German Scientists, Berlin. Available at: <https://ag-trans-review.org/> and Van der Ploeg, J. D. (2009). The New Peasantries: Struggles for Autonomy and Sustainability in an Era of Empire and Globalization. Earthscan Publications.
- 3 For a more elaborate analysis see: Rundgren, G. (2015). Global Eating Disorder; Regeneration, Uppsala, p. 121 ff.
- 4 Haerlin B., Fuchs, N., Willing O. (2018). Für einen integralen Produktivitätsbegriff und eine selbstbewusste Bio-bewegung. Ein Diskussionsbeitrag der Zukunftsstiftung Landwirtschaft in der GLS Treuhand zum Thema „Bio 3.0“, Bochum, Germany. Available at: [www.zukunftsstiftung-landwirtschaft.de /media/Dokumente_Aktuelle_Meldungen/ZSL_zu_bio_3_0_I1Pkt.pdf](http://www.zukunftsstiftung-landwirtschaft.de/media/Dokumente_Aktuelle_Meldungen/ZSL_zu_bio_3_0_I1Pkt.pdf)
- 5 The monetary value of nature's services is estimated by several studies as high as some \$125-145 trillion for the year 2007 – that is two or three times higher than the annual global GDP, estimated at \$55 trillion (Constanza, R., De Groot, R., Sutton, P., Van der Ploeg, S., Anderson, S.J., Kubiszewski, I., Farber, S., Turner, R.K., 2014. Changes in the global value of ecosystem services. *Global Environmental Change*, Vol. 26, pp. 152-158 as well as The Economics of Ecosystems and Biodiversity (TEEB) (2018). Measuring what matters in agriculture and food systems: a synthesis of the results and recommendations of TEEB for Agriculture and Food's Scientific and Economic Foundations report. UN Environment, Geneva. Available at: <http://www.teebweb.org/publication/measuring-what-matters-in-agriculture-and-food-systems-a-synthesis/>).
- 6 Historically unprecedented low interest rates in most developed countries have recently boosted investment in acquisition of farmland in expectation of speculative gains. This has contributed to significant increases in farmland prices. One would expect that higher land prices would encourage land/resource stewardship, but actually they increased the pressure on productivity and profitability improvements further expanding, for instance, the production of flexi-monocrops such as maize or soy beans for feed, food and fuel.
- 7 FAO (2007). The State of Food and Agriculture 2007. Rome. Available at: <http://www.fao.org/3/a-a1200e.pdf>
- 8 World Bank (2008). World Development Report 2008. Washington, D.C. Available at: <http://documents.worldbank.org/curated/en/587251468175472382/pdf/41455optmzd0PA18082136807701PUBLIC1.pdf>
- 9 Dobbs, T.L. and J. Pretty 2008. Case study of agri-environmental payments: The United Kingdom. *Ecological Economics* 65, pp. 765-775.
- 10 Whereas in many developing countries direct marketing by peasant farmers is by far still the most important selling track, in the European Union only about 2% of the total volume of fresh food is sold directly from producers to consumers (European Commission (2015). You are part of the food chain: Key facts and figures on the food supply chain in the European Union. EU Agricultural Markets Briefs, No. 4. Available at: https://ec.europa.eu/agriculture/sites/agriculture/files/markets-and-prices/market-briefs/pdf/04_en.pdf).
- 11 It is estimated that buying from independent shops generates about 2.5 times as much local income as buying from supermarkets, because local shops also tend to buy local services (Transition Town Totnes, 2012. Economic Blueprint for Totnes & District: Our local food economy. Transition Town Totnes).
- 12 For more information in this regard see: International Panel of Experts on Sustainable Food Systems (2019). Towards a common food policy for the European Union. Brussels, pp. 87-88. Available at: http://www.ipes-food.org/_img/upload/files/CFP_FullReport.pdf
- 13 It remains to be seen whether the new "Farm to Fork initiative on a fair, healthy and environmentally friendly food system" as part of the new European Green Deal will really trigger far-going transformations on the ground.



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