

# **SMALL-SCALE FARMERS AND PEASANTS STILL FEED THE WORLD**



## OVERVIEW: EXPLAINING COMPETING CLAIMS OF 70% VS. 30% AND WHY IT MATTERS

A debate has emerged as to what proportion of the global food supply is produced by small-scale food producers — one that may have big implications for policy-making addressing hunger. Civil society organisations and peasant movements have estimated that around 70% of the world is fed by small-scale farmers and peasants. However, two recent academic papers are claiming that small farm producers really only feed about one third of the world's population. Significantly, one of these new papers is authored by the UN's food agency, who are advising a policy shift toward more support for big farms.

The two studies are:

1. Ricciardi V. *et al.*, (2018), “How much of our world’s food do smallholders produce?”, *Glob. Food Sec.* 17, 64–72.
2. Lowder S.K., *et al.*,(2021) “Which farms feed the world and has farmland become more concentrated?”, *World Development*, 142.

A closer look at these papers strongly suggests they should not be relied upon to guide changes in policy. Concerns include:

1. Both studies only measure agricultural production which is an inaccurate way to understand who feeds the world (which is a matter of consumption, not production). They claim to debunk the 70% estimate while mis-characterising what it describes.
2. Both studies miss a large amount of the food that is actually consumed — especially food consumed by poorer people and peasants.
3. The studies use different, sometimes inappropriate, proxy metrics (e.g. counting harvest, land area or economic value of food as a proxy for food consumed).
4. Both studies significantly limit how they define a “small farmer” to 2 hectares while also excluding other peasants and small producers from their calculations.
5. One study (Ricciardi *et al.*) introduces significant geographical bias, excluding data from exactly the regions with the most peasants and small farmers.

This briefing provides a background to this dispute and why it matters, and describes ways in which these two studies miss the mark in illuminating who really feeds the world.

## Introduction: Seventy percent or one-third?

In a 2009 report titled ‘Who Will Feed Us?’, ETC Group first estimated that small farmers and other peasant producers are currently the main source of nutrition for approximately 70% of the world’s population.<sup>1</sup> At the time, that figure challenged policymaker assumptions that it was big industrial farms that fed the world. The 70% estimate was subsequently re-calculated and re-checked by ETC Group in two further versions of their report (most recently in 2017).<sup>2</sup> It was broadly confirmed and supported through further work by GRAIN and others including the International Fund for Agricultural Development (IFAD) who estimated that small producers provide 80% of food in large parts of the developing world.<sup>3</sup> This ‘70%-80%’ figure has since become widely quoted, including by United Nations agencies, as a statistical shorthand for the strong claim that small farmers feed the world.

Recently however a couple of academic studies have grabbed headlines by disputing this 70% figure with a very different conclusion. In particular, a recent 2018 publication by data scientist Vincent Ricciardi and his colleagues from the University of British Columbia (Ricciardi *et al.*) directly set out to debunk the 70% estimate using a data model built on formal crop production data.<sup>4</sup> That study estimated the contribution of smallholders to be closer to only 30% of food supply. Another paper was released in 2021 (by Sarah K Lowder *et al.*), published as research from the UN Food and Agriculture Organization (FAO).<sup>5</sup> That study similarly concluded that small farmers only contribute about 35% of global food supplies.

## What is at stake? Policy assumptions

The authors of both studies directly reject the claim that small farmers are the major source of global food security. Both papers in turn are now being mobilised by partisan commenters as well as newspaper fact-checkers<sup>6</sup> to strike from the record the claim that small farmers and peasants feed the world. For example, Our World In Data (OWID) is an Oxford-based ‘data-as-policy’ website run by neoliberal economist Max Roser (substantially funded by the Bill and Melinda Gates Foundation).<sup>7</sup> OWID published an article in August 2021 titled “Smallholders produce one-third of the world’s food, less than half of what many headlines claim”.<sup>8</sup> It was penned by Hannah Ritchie, business manager of a biotech startup and former carbon market consultant, now based at Oxford’s business school. The article uses the Ricciardi *et al.* study as a prop to trot out condescending tropes that smallholder farming is “gruelling work with poor returns” and that “a country cannot leave deep poverty behind when most of the population work as smallholder farmers.”

Despite (or because of?) her antipathy towards peasant production, this OWID author clearly understands the policy significance of the '70%' estimate: "... it creates a misunderstanding" asserts Ritchie, "one that might convince us that a world of smallholder farmers is what we need. If they produced nearly all of the world's food, perhaps that is a future we would want to maintain. Second, it might make us concerned about the future of the global food system if countries move towards larger farms. As countries get richer, the average farm size tends to increase. If nearly all of the world's food came from small farms, perhaps we should be worried about this development".

What Ritchie presents as differences about big vs. small farms is actually a more consequential insight about two competing food systems models: the industrial food chain and the peasant food web (described below). Right now, the linear metaphor of the industrial food chain dominates decision-making about food to the point that many policymakers barely recognise the traditional webs of peasant food provisioning that exists (and pre-exists) alongside it. Over the past 80 years agribusiness has successfully built up a story in the popular imagination that the majority of the world obtains their food from the industrial food chain.

However, as many rural communities know, and ETC Group made visible with the 70% estimate, this industrial food chain story of global nutrition is wrong. In fact, the pre-existing peasant food web likely still feeds the majority of the global population – particularly outside of the industrial North. This is especially apparent when you take into account the chain's inefficiency. As Ritchie acknowledges (but ideologically dismisses), this misunderstanding is consequential. If policymakers fully grasped the importance of the peasant web of food provision it would have profound implications for the future of policymaking and challenge our belief and investment in industrial agriculture.

Whether small or large producers feed the world therefore really matters in setting policy to battle global hunger. For this reason, a closer look at these two papers is warranted. That scrutiny reveals however that the way the new studies were designed and framed, the objects they count, the data they rely on and what they leave out systematically erases, obscures and distorts the real contributions to global food security made by small food producers – potentially skewing the final headline number considerably.

This is particularly concerning since one of these papers is from the Food and Agriculture Organization<sup>9</sup> and so may directly impact global food security policy. In fact, the FAO authors explicitly make a call for their report to prompt greater policy attention towards large farms in order to address future global food requirements. They claim (but don't substantiate) that food policy is currently too biased toward addressing smallholders.<sup>10</sup> In a letter to FAO, a group of civil society organisations argue against this policy call and observe that, by contrast, in many contexts, agricultural and food policy and investment is already framed overbearingly towards facilitating large scale food production and agribusiness – especially for trade and export.

In the end, with more careful scholarship, it may be that “70%” is not the exact number to describe the contribution of smallholders and peasants to upholding global food security – although ETC still stands strongly behind that estimate. It seems unlikely to us that 30-35% is an accurate assessment.

Moreover, these figures only tell half the story. Equally as important is to accurately measure and assess the contributions of the large farms of the industrial food chain. The industrial chain should be rigorously evaluated to determine how many people that model really feeds at the end of the day as stacked up against the trillions of dollars of infrastructure, investment and the considerable health, environmental, and climate change costs associated with industrial farming. What is urgently needed is a common agreement on how to fairly recognise, count and assess not only who really feeds the world today (and at what cost) but more importantly who will be best able to keep feeding the world in an ever more uncertain and constrained future.

## **ASSESSING THE ONE-THIRD CLAIM: FIVE WAYS IN WHICH THE RICCIARDI AND FAO PAPERS DON'T STACK UP**

### **1. Mis-framing and debunking the wrong metric**

The FAO authors assert that “claims are often made that small farms are responsible for large shares of the world’s food production” and conclude that their study shows such claims are “implausible.” In a similar tone, Ricciardi *et al.* report their pre-existing incredulity towards the idea that small farmers feed the world<sup>11</sup> and were particularly keen to present themselves in blogs and interviews as heroic data-driven mythbusters – announcing in several ways that their study had disproved the common understanding that 70% of the world’s food is “produced” by small farmers. In doing so, and from the very first line on their paper, they displayed a willful misinterpretation of the actual statistic they were supposedly debunking.

Both the FAO paper and Ricciardi’s papers are about production. They are enquiries into what percentage of the world’s total farm production basket is produced by smallholder farmers. Each tries to build data models to answer this question using formal sources of data. By contrast, the 70% estimate was never about overall production. When ETC Group first introduced the 70% estimate in 2009, it was more of a relative consumption claim. It did not count total production but instead tried to understand the relative importance for food security of two parallel food systems: the peasant food web and the industrial food chain.<sup>12</sup>

The industrial food chain is a linear sequence of economic links that run from production inputs to consumption outputs – sometimes described by agribusiness as ‘the food

value chain'. This model of food production arranged in commercial chains is the dominant concept in agricultural policy today. It is inextricably linked to the global market economy, as well as financial and political systems. The chain's food production methods tend to use external inputs which carry hidden costs as a result of their detrimental environmental, climate, extractive and public health effects.

The peasant food web describes an alternative food system model that exists alongside (and pre-dates) the idea of the industrial food value chain. It is a territorial food system composed of community relations between smallholder producers, usually family or women-led, including farmers, livestock-keepers, Indigenous Peoples, pastoralists, hunters, gatherers, fishers and urban and peri-urban producers. Those in these webs of relation may or may not grow all of their own food, trade with neighbours and sell the surplus in local markets. This web largely operates outside of global financial markets, may be unrecognised by formal trade surveys and often employs more agroecological production methods that are environmentally beneficial (or at least less harmful than the chain's).

The original 70% statistic in 'Who Will Feed Us?' was about estimating the relative importance of these two models to people's everyday nutrition. Specifically, that report claimed "Peasants feed at least 70% of the world's population" – i.e. that 70 percent of people draw their food provisions primarily from the food basket of the peasant food web, and not from the grocery stores and long links of the industrial food chain. To get to this number, ETC estimated the food provided by small and subsistence farmers and livestock keepers, combined it with other sources of peasant food (such as fishing, hunting and urban growing) and estimated how much of the global population's nutritional needs are met by that quantity of calories. We sought to describe from where people primarily obtained their nutrition and recognised that a lot of the calories produced by the industrial food chain are wasted or are not eaten. This 70% estimate referred therefore not only to how far smallholder farmers provide food and nutrition for themselves and their neighbours but also to how fishers, livestock keepers, hunters, gatherers and urban growers work together to make food available. It attempted to estimate not how much total food, calories or grains each system or scale of farming produced in bulk terms on the fields but rather which system actually fed the most people at the end of the day.

By the publication of the 2017 version of 'Who Will Feed Us?', the statistic, as presented, also claimed something even more nuanced: It now asserted that 70% of people 'depend on' the peasant food web.<sup>13</sup> 'Depend on' is a more subtle concept that tries to recognise how people obtain food from both systems. It can mean both that people 'mostly' get their food from the web and, more importantly, that in times of food stress – whether from famine, price spikes, social disruption or climate shocks – that it is the territorial systems of the peasant production web that keeps them fed and alive. It is a statistic about how to protect food security, resilience and nutrition in times of stress – not simply about bulk production of commodities.

## Calories Produced vs. Calories Delivered

A key issue in understanding who feeds the world is the distinction between calories produced and calories delivered. Simply because a farming method produces a lot of calories, does not mean that those calories are going towards feeding people. Calories can be wasted or channeled into animal feed, biofuels, and other non-food uses, complicating how we assess methods for alleviating hunger. Emily Cassidy and her team studied this phenomenon across major agricultural countries. They found that in India, for example, 89% of produced crop calories went to feeding people during the study period. In Brazil, however, that number was 45%. In the United States, which produces the most gross calories out of any country studied, it was only 27%.

This brings us to the key question of how we define agricultural efficiency. Agricultural methods are often assessed for how efficiently they produce calories — how many tonnes they produce per hectare. But if we're looking to understand how to feed the world, it would make much more sense to assess the efficiency of methods based on how many calories are delivered to people per hectare, as Cassidy argues. Referring to calories produced alone, in the conversation about feeding people, is practically nonsensical if most of those calories are being diverted to other uses. It also is not useful if those calories are in effect overfeeding the same people — leading to diabetes and other metabolic diseases. The industrial food chain may produce a lot of net calories but if it only reaches and overfeeds the same small portion of the global population then the brute number of calories produced tells us little about which system actually delivers nutrition.

Neither Ricciardi or the FAO paper attempted to directly estimate the nutritional question of which calories or bushels of food produced actually feed people at the point of consumption. The Ricciardi paper (which counted calories — so had a nutrition tilt) used a model that was designed with some (but not enough) sensitivity towards this problem of how large amounts of produced calories never reach people. They excluded from their model crops meant for biofuel, industrial oils or wasted on farm and they accounted differently for grains fed to animals. But their model did not account for the 17 percent of food that is wasted higher up the industrial food chain at the retail, food service or household level.<sup>14</sup> Nor did they account for the further 17% of calories that are overfeeding to the 'waist' alongside the problem of 'waste'.<sup>15</sup> The FAO paper also does not account for loss and waste or for overfeeding. Its methodology crudely determines the percentage value of food produced by small or large farmers based on overall agricultural land area held — a proxy metric which also does not discount non-food uses of that land (e.g. feed, oilseeds, biofuels) or even unfarmed land.

## 2. Missing 'Food' – Hiding harvests by limiting data

Importantly, the original 70% figure attempted to make visible the whole food web that peasants rely on – including the food drawn from the sea and rivers by artisanal fishers, hunted on the savannah or in jungles as bush meat, picked at the margins of fields or in the forest and grown in the back gardens and empty land of cities and shanties. It is an estimate intended to encompass the uncounted food that migrant workers take home from the fields or that communities share in their collective gardens and milpas. All of these are sources of nutrition that go beyond the economic concept of 'smallholder farmer' used by Ricciardi and the FAO paper. That term at best only describes food grown and counted on land that is formally held by farmers (excluding the landless and in some national circumstances also possibly sharecroppers and tenants). In this way, the official market-based production statistics that the modellers relied upon "invisibilises" these other ways in which both rural and urban people feed themselves daily.

In its 2009 report ETC had tried to visibilise these additional sources by disaggregating the 70% figure to assert that small farmers produced 50% of food while noting that a further 20% of nutrition is sourced from these other aspects of the peasant food web (artisanal fisheries, hunting and gathering, urban production). Neither the Ricciardi paper nor the FAO paper address that other 20% of peasant food sources and in so doing likely miss a significant percentage of peasant nutrition from their calculations.

Even within the limited set of formal 'farming' data, a too-narrow focus on crops can leave out calorie-rich nutrition that comes from meat, eggs, dairy, fishing and seafood, hunted and gathered wild foods, food grown or raised for home use or shared with neighbours, and urban/peri-urban food production. For example, Ricciardi *et al.* tracked 154 key crops and vegetable types but left out all of the other categories mentioned above, thereby hiding a large part of the dinner bowl. While the model created by the University of British Columbia researchers accounted partially and indirectly for some calories from meat, dairy and eggs (when animals were fed with commercial grains), it excluded nutrition from pastoral grazing and animals fed from scraps or wild sources, as well as excluding hunted and gathered food, insects, fish, seafood etc.

The authors of the FAO study derived their dataset only from data on the aggregate value of all national food production found on 'agricultural holdings', the definition of which included crop and livestock production but did not include fish or seafood production unless those landholdings happened to also include crops and livestock.<sup>16</sup> In this way they actually departed from the wider descriptions by which the FAO has defined family farmers in the past,<sup>17</sup> erasing peasants from their model. They also erased fishers, pastoralists, and forest users from their definition of "small farmers". In some jurisdictions small landholdings for food production struggle to even be formally recognised as farms for statistical purposes. This definition of an 'agricultural holding' would for example exclude food from gardens, urban growing, allotments and communal production areas.



### 3. Mixed up metrics — What is being compared and counted? Calories? Land? Value?

Even though both studies are trying to measure overall production of food and land with similar-sounding results, it is interesting to note that the FAO and Ricciardi studies count different units in different ways. Ricciardi *et al.* chose a methodology that first counted the harvest of different crops formally reported as produced on farms and then converted that into calories (a nutrition metric).

By contrast, the FAO study authors had an unusual way of assessing food production. They first looked at overall land area held by recognised agricultural units of different sizes (regardless of how much of that land grew food). They used this as a proxy to determine what percentage of national food production to allot to small versus large farmers and converted that as a percentage of overall “value of food production” reported as produced in that country. So, if ‘large farmers’ held 80% of agricultural land in a country (whether or not all that land grew food), the FAO authors choose to assume that they also were responsible for 80% of the net value of food produced in that country.

There are a number of problematic assumptions baked into this proxy methodology. First they equated overall agricultural landholding (a metric that includes “non-food” uses of land) with value of “food” produced. Again let’s imagine large farmers formally hold 80% of land in a country. Even if those large farmers in that country were using all of their lands for biofuels, fiber crops, forestry, animal feed and other non-food uses this methodology would still report them as producing 80% of the ‘food’ in that country. Agricultural land may even not be in production but still counted as food producing. This is not so theoretical: Recent data shows that international investors acquired 33 million hectares for agricultural production since 2000, displacing huge numbers of small farmers and pastoralists, but 70% of these lands taken over have yet to be put into production.<sup>18</sup> Secondly, the FAO authors chose to assume that different farm sizes overall have equal yields per hectare. Therefore, if small farms cover a certain percentage of a country’s land, then that must correspond to the percentage of food that small farmers produce. In other words in the FAO study, the land occupied by small farmers directly translates to the amount of food they supposedly produce.

This is likely a faulty assumption to make, because there is ample evidence, even some found strongly by Ricciardi and his team, that small farms are actually significantly much more productive than large farms — and they produce less waste. Specifically, Ricciardi *et al.* found that farms under two hectares devote a greater proportion of their production to food, while farms over 1000 hectares have the greatest proportion of post-harvest loss. They also found that “The smallest two farm size classes (0–1 hectare and 1–2 hectare) are the greatest contributors to global food production compared to all other classes.”

The FAO study also problematically chose to measure overall national food production not in calories, bushels or nutritional units but in value – reflecting the economic price the food produced fetches in the marketplace. The value of food measure does exclude non-food agricultural produce but is a poor proxy for the amount of nutrition that food offers, let alone of what is ultimately consumed. Consider that some foods cost more per unit but may not be very nutritious (e.g. flavours or sweeteners). Those who are poor may eat cheaper (e.g. locally purchased) foods while expensive foodstuffs may go disproportionately to a small fraction of the global population. More importantly, a large amount of food that is consumed, especially by poorer communities and peasants does so outside of the formal market economy. Food produced by subsistence farming or sharing and barter among neighbours is an essential part of nutrition in the peasant food web but would not be captured by any formal national statistics measuring market “value” of food produced.

#### **4. Who counts as a “small farmer”? Problematic thresholds**

What it means to be a small farmer or peasant differs according to culture, geography and national circumstance. To date, the term has often been self-selecting rather than imposed in policy settings. In an odd and very limiting decision, the model underlying the Ricciardi paper chose to uniformly define “small” farmers as those working on less than two hectares regardless of location or context. This is inconsistent, even from their own previous work. At least one of the Ricciardi authors (Navin Ramankutty) had recently co-published a paper that defined an agricultural holding under 2 ha as a “very small” farm and defined a “small” farm as between 2 and 5 hectares.<sup>19</sup> The FAO paper also chose to define “small farms” as less than 2 ha. This despite the fact that the FAO held a global consultation on the metric of small farms in 2018 that rejected setting a universal threshold. The formal FAO position paper about defining “small producers” drafted by the FAO’s chief statistician in 2017 had explored the reasonable possibility of 5 ha as a universal threshold but never mentioned 2 ha as appropriate.<sup>20</sup>

But as GRAIN’s 2014 “Hungry for Land” dataset shows (and as the FAO chief statistician clearly explains in their paper on the topic),<sup>21</sup> setting any universal definition ignores regional differences since many countries’ governments define “small” differently, based on relevant contextual factors such as relative farm size, economic and cultural factors etc. GRAIN’s data, using national-level definitions of “small,” finds that the global average size for a “small” farm size is actually above 2 ha (2.2 ha) – meaning the Ricciardi study excluded the ‘average’ small farm and suggesting any meaningful universal threshold should be at least double that. GRAIN also found that average sizes of farms described as small are far higher in some regions such as Latin America, the Caribbean and North America. The average “smallholder farmer” in North America holds 67.6 ha of land and in Latin America and the Caribbean the average size of a small farm was found by GRAIN to be 9.7 ha.

Indeed most of the data that Ricciardi *et al.* use comes from countries that would consider the threshold for a “small” farm to be much higher than two hectares. Most of Ricciardi’s dataset concerns European countries (see below) where a small farmer is usually defined not by size of landholding but by ESU (European Size Unit – an economic measure that represents a standard gross margin of EUR 1,200). One European country that does not use ESU’s is Switzerland which defines small farms as anything under 20 ha – ten times larger than Ricciardi’s threshold. In their Hungry for Land report, GRAIN found that the average size of a small farm in Europe was 2.2 ha. This suggests that Ricciardi *et al.* may have discounted over half of all the small farms in Europe and misclassified them as ‘large’. This, in turn, represented over half of the countries in their sample.

It is instructive to notice what happens if Ricciardi *et al.* had followed the 5% threshold for “small” used by one of their own authors in a previous paper. Ricciardi’s particular dataset (with all its limitations) showed that farms under five hectares produce closer to almost half of food calories (44-48%). That closely mirrors ETC’s original estimate set out in the 2009 Who Will Feed Us? report that 50% of food comes from small farmer production.

A more accurate way of approaching this would have been to dispense with an arbitrary universal cut off and apply instead the national definitions of “small” farmers as determined by countries themselves.

## **5. Two-fifths reporting? Geographical bias and erasure**

Perhaps one of the most troubling aspects of the Ricciardi *et al.* study in particular is that, while it makes a bold global claim, it does so using a limited and tilted dataset. Ricciardi draws on a 55-country dataset, representing barely a quarter of all countries and two fifths of the global population.<sup>22</sup>

Well over half of the countries (31 of them) are European countries. The rest include the USA, wealthier BRICS nations (Brazil, Russia, India, South Africa) and then a smattering of other countries – mostly from Latin America and Africa – including countries with stronger agribusiness sectors (e.g. Mexico, Nigeria, Columbia). As such, this sampling systematically excludes data from almost all of Asia, especially South East Asia, the Caribbean and the Pacific (including significantly China). There is only one island nation (Timor Leste) and only seven are from the UN’s list of 46 ‘least developed countries’. By contrast the dataset boasts almost half (22) of the top 46 richest countries ranked by GDP.<sup>23</sup> This biases the data heavily towards describing farming situations in the Global North where peasant food production is, indeed, more marginal. The dataset does not accurately represent the world and certainly doesn’t represent the Global South.

This is significant because the omitted countries tell a very different story about smallholder production. For example, FAO reports that in China (accounting for almost one fifth of global population) small-scale producers produce 80% of food. In Latin America, 17 million smallholder farms produce 51% of the maize, 77% of the beans, and 61% of the potatoes consumed.<sup>24</sup> Africa as a continent has about the same percentage of global population as China and there also it has been calculated that 80% of African food consumed is grown by peasant and small-scale farmers.<sup>25</sup> Further skewing results, several of the few non-industrialised countries that are sampled by Ricciardi *et al.* are those where calories from pastoralism, meat and dairy are important but are here rendered invisible by the sole focus on crops. (e.g. Mongolia, Kazakhstan, Tajikistan, Nigeria).

Ricciardi *et al.*, in their 2018 paper, discuss a different paper (Samberg *et al.*),<sup>26</sup> which used a larger Global South-biased dataset and a different methodology to conclude that 55% of food was produced by farmers with under five hectares of land (in line with ETC's original estimates). One of the authors on the Samberg paper is also a key author on the Ricciardi *et al.* paper and in that paper, published two years earlier, they concluded that their data showed that "in much of the developing world, food production on smallholder farms is not only a key facet of food security for the rural poor but also makes up the majority of production and underpins agricultural sustainability at national and regional scales".

In the Ricciardi *et al.* paper the authors even go so far as to acknowledge that if their updated methodology were applied to that earlier South-biased Samberg *et al.* dataset and it was described as a global sample dataset as theirs is, then 76% of food would be reported as coming from farms under five hectares. That is a very significant counter-finding which they mention but fail to account for.

If the point of enquiry is finding out which farming method will best mitigate world hunger it would be important to choose a dataset that includes or even emphasises the places with populations most vulnerable to hunger.

## Conclusion

Ricciardi and his team arrived at their conclusions through methodologies that systematically overlook and erase from record the food provisioning contributions of most smallholder farmers and other peasants. Their dataset was culled from a partial, northern-skewed sampling that unnecessarily restricted the definition of smallholders far beyond national definitions and to a threshold even their own authors had previously described as “very small”. They also only paid attention to calories from crops. Given the limitations of their data, they vastly over-claimed in their headlines and didn’t investigate their own counter-findings. Nor did they disprove the 70% estimate that they so zealously set out to overturn failing at the first hurdle to even understand or measure the same metric. While there are very important insights in that paper, their headline conclusions should not be relied upon to guide policy.

If the intention of the FAO paper by Lowder *et al.* was to understand the nutrition question about which farms actually feed the world (as their headline advertises) they set about it using the wrong methodology. To answer a consumption question they were mistaken to rely on production statistics, land area and value metrics — none of which measure nutrition. They excluded from view the fuller web of peasant production and provisioning, relied on land holding as a proxy metric for food production and value of food as a proxy for food consumed. They chose not to distinguish between different rates of efficiency between small and large producers. They also ignored the FAO’s own guidance on how to define small farms. It is concerning that their study carries the imprimatur of the FAO and even goes as far as recommending that more policy attention should go to large farms. This deeply flawed study should not be the basis of policy changes at that institution.

Unfortunately, the headline-grabbing conclusions of both studies have had the effect of reinforcing an unhelpful myth: that small producers are neither productive nor effective at meeting global food and nutrition needs. This myth, as further mobilised by outlets such as Our World in Data, may encourage continued policy prioritisation for the industrial food chain while erasing or belittling the important contributions of peasants from the conversation.

Regrettably, by attempting to only narrowly ‘myth-bust’ the 70% estimate, the headlines failed to also interrogate the unsubstantiated claims simultaneously made by the industrial food system even though the studies produced useful data in that regard. We must ask why industrial agriculture continues to dominate policy-making spaces when we have growing amounts of data confirming its extreme inefficiency and environmental devastation, and its major contribution to greenhouse gas emissions, biodiversity erosion and negative health impacts.

Also, we must ask why there is so little investment in accurately gathering data to measure the exact contribution that small producers and peasants produce, when we have data showing their substantial efficiency, and capacity to produce food in ways that increase resilience?

These are all too important questions to get wrong. Going forward, more data collection, fair definitions, clarity about methodological weaknesses and choosing assumptions that do not erase nor belittle the contributions of peasants will move the conversation forward more productively.

## Endnotes

1. ETC Group (2009), "Who Will Feed Us? Questions for the Food and Climate Crises.", 1st Edition. Communiqué #102. Available online at: [https://www.etcgroup.org/sites/www.etcgroup.org/files/ETC\\_Who\\_Will\\_Feed\\_Us.pdf](https://www.etcgroup.org/sites/www.etcgroup.org/files/ETC_Who_Will_Feed_Us.pdf)
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5. Lowder S.K., et al.,(2021) "Which farms feed the world and has farmland become more concentrated?", *World Development*, 142. Available online at: <https://www.sciencedirect.com/science/article/pii/S0305750X2100067X>
6. For example on 23rd September an article written by authors from GRAIN And La Via Campesina for The Guardian (UK) Newspaper was published. While the manuscript as submitted referred to how 70% of the world was fed by small farmers, it was edited by fact-checkers to say 'one third'. The article now carries an editor's note. <https://www.theguardian.com/global-development/2021/sep/23/small-farmers-have-the-answer-to-feeding-the-world-why-isnt-the-un-listening>
7. See: <https://ourworldindata.org/funding>
8. Ritchie, H. (2021) "Smallholders produce one-third of the world's food, less than half of what many headlines claim", *Our World in Data*. Available online at: <https://ourworldindata.org/smallholder-food-production>
9. All 3 authors are credited as "Food and Agriculture Organization of the United Nations, Rome, Italy" and the FAO put out a news release promoting the research headlined "Small family farmers produce a third of the world's food". Available online at: <https://www.fao.org/news/story/en/item/1395127/icode/>
10. "However, to the extent that international organizations focus on what is happening at the lower end of the distribution, their attention may be diverted away from the state of medium and large scale farms which represent the vast majority of agricultural land. It would be difficult, if not impossible, to have an unbiased picture of the state of large scale and corporate agriculture if international organizations focus only on smallholders and small farms." in *FAO 2021 report*; Lowder S.K., et al.,(2021) "Which farms feed the world and has farmland become more concentrated?", *World Development*, 142, p.p.4.
11. At a blog article on Springer Nature, Ramankutty (one of Ricciardi et al. authors) explains how the paper was driven by his incredulity that small farmers could feed 70% of the world :*"She had read that smallholders produce 70% of the world's food and wondered how that was known and what the implications were. I was astounded by that statistic. My work involves mapping the world's agricultural land use, and knowing that nearly 50% of the world's land is in wheat, maize, rice, and soy, I couldn't imagine how this could be possible."* Ramankutty, Navin, "Are Small Farms Better?", Sustainability Community, *Springer Nature*, 26 March 2021. Available online at: <https://sustainabilitycommunity.springernature.com/posts/are-small-farms-better>
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