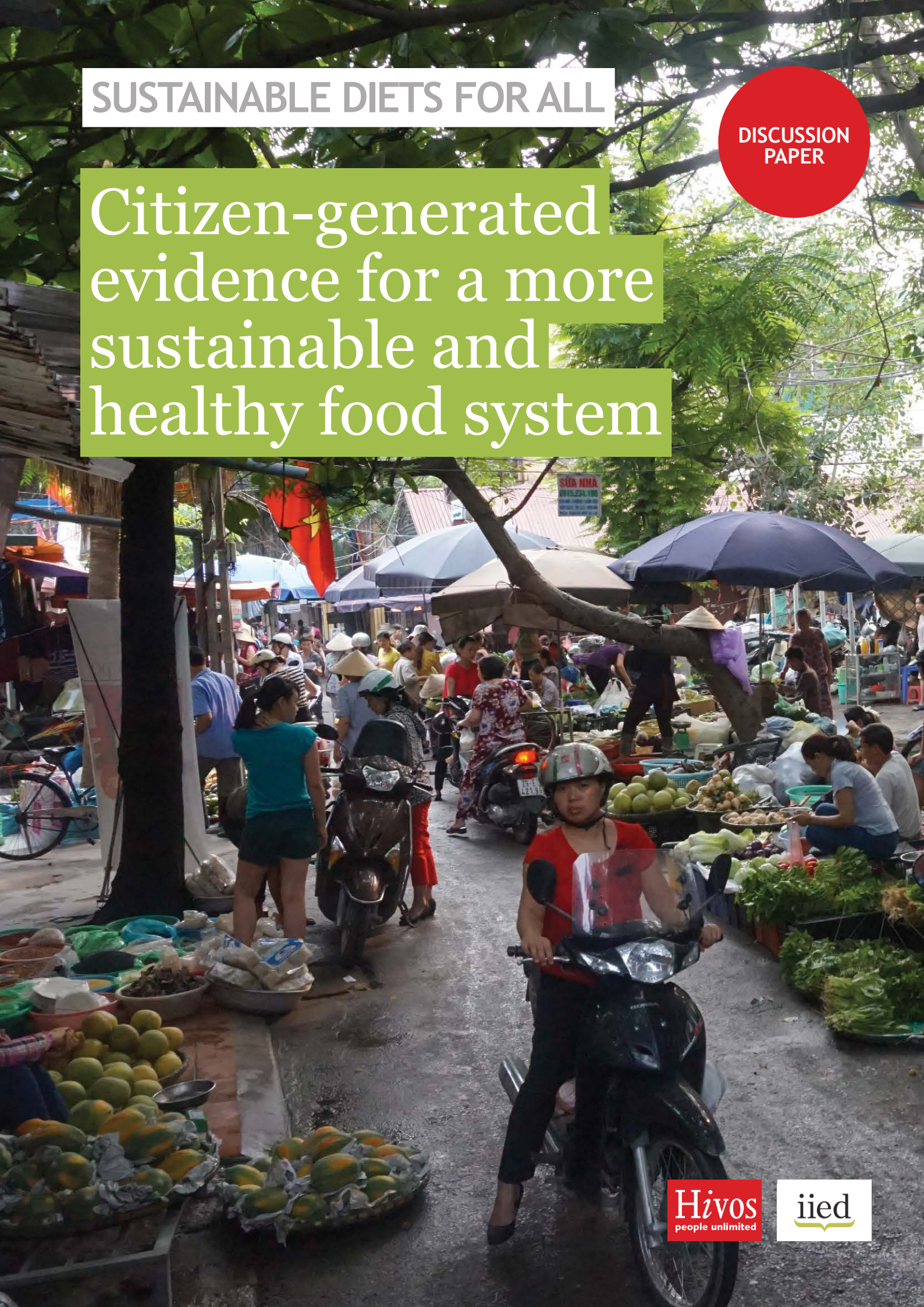
SUSTAINABLE DIETS FOR ALL

DISCUSSION PAPER

Citizen-generated evidence for a more sustainable and healthy food system



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Cover photo: Food market, Hanoi, Vietnam (Bill Vorley)

CONTENTS

1. INTRODUCTION

The realities of poor peoples' lives are often invisible to policymakers. That invisibility is a major factor in political exclusion and marginalisation. It results in frequent mismatches between policy and local realities. Legislation, planning and allocation of resources may at best overlook and at worst run counter to the interests of the poorest and of women and youth.

A lack of visible evidence does not, however, stop leaders from making assumptions about poor peoples' priorities, knowledge and agency. Experts frequently make judgements about low-income citizens' unhealthy or unsustainable behaviours, and their need for 'sensitisation' or 'capacity building'. Even non-governmental organisations (NGOs) and civil society organisations (CSOs) with a mission to work with the poorest may implement programmes using broad assumptions about their 'beneficiaries', perhaps informed by research conducted and analysed by outsiders.

1.1 Citizen agency and citizen evidence

If communities can generate evidence themselves, either as primary data or from existing information, they may be more effective in lobbying and advocacy around their priorities, and less dependent on others to set the agenda.

The scope for citizen-generated evidence underpins the concept of **citizen agency** and community self-determination, helping communities exercise their own decision-making powers in support of their own priorities (Waddington and Mohan, 2004) (Box 1).

Generating evidence allows citizens control over the use of data. After all, information is political, and "who controls data, and through what paths, can shift power dynamics, and change levels of influence among actors competing for control of resources, influence and political power" (Taylor and Koenig, 2014).

Box 1. What is citizen agency?

In policy discourse around food, from small-farm agriculture to the diets of urban consumers, much is written about supporting and empowering people — in organisations, in markets and in politics, and as beneficiaries of external initiatives.

However there is a different discourse, rooted in social sciences and familiar to the world of civic-driven change, but relatively alien to food policy. It carries another term that deserves a closer look: the notion of **agency**.

Agency is one of a set of concepts around 'people-centred development': development that allows people to take actions to help them meet their needs, manage risks and make progress towards achieving their aspirations (Bennett, 2002). It refers to the capacity of individuals to act independently and to make their own free choices. It can cover both the individual and collective capacity of people to be agents of their lives and of their development, and working with others to achieve collective cultural, political and economic goals — what Harry Boyte terms 'civic agency' (Biekart and Fowler, 2009).

Agency underpins the capacity of citizens to deal effectively with external stresses and opportunities, and to manage risk and vulnerability, including adaptation to climate change, under conditions of extreme asset constraints.

But freedom of choice only becomes freedom of opportunity when people have the capacity to act on choices. This depends on their assets and capabilities, as described by Sen (1985). A core capability is the ability to make sense of information in order to generate knowledge. That capability is the focus of this paper.

Source: Vorley *et al.* (2012)

The potential benefits of citizen-generated evidence are summarised in Box 2.

Box 2. The power of citizen-generated evidence

- **Engagement and effectiveness**. Strengthens role and voice in planning and resource allocation through use of policymakers' and technocrats' own language, such as in the form of empirical data or maps.
- **Accountability**. Bridges communication gaps between citizens and their government. Allows people to communicate their ideas, concerns and aspirations directly with duty bearers and compels them to act. Makes local government more accountable, especially in an era where significant political decision making has been decentralised.
- **Visibility**. Makes the unseen visible, for example to present alongside national data. Captures and uncovers local tacit and traditional knowledge. Shows the complexity of peoples' struggles and the diversity of local conditions.
- **Relevance**. Challenges received wisdom, such as the perception that poor people are ignorant about healthy diets, or that their food is unhygienic.
- **Mobilisation and creative capital**. Participation in evidence generation can: enhance people's capability to have a role in their own development, changing citizens from research 'subjects' into active researchers; foster 'creative capital' and a culture of innovation through awareness, motivation, improved trust and leaderships, and new alliances; mobilise community group engagement; generate ownership of data; and contribute to building local adaptive capacity.

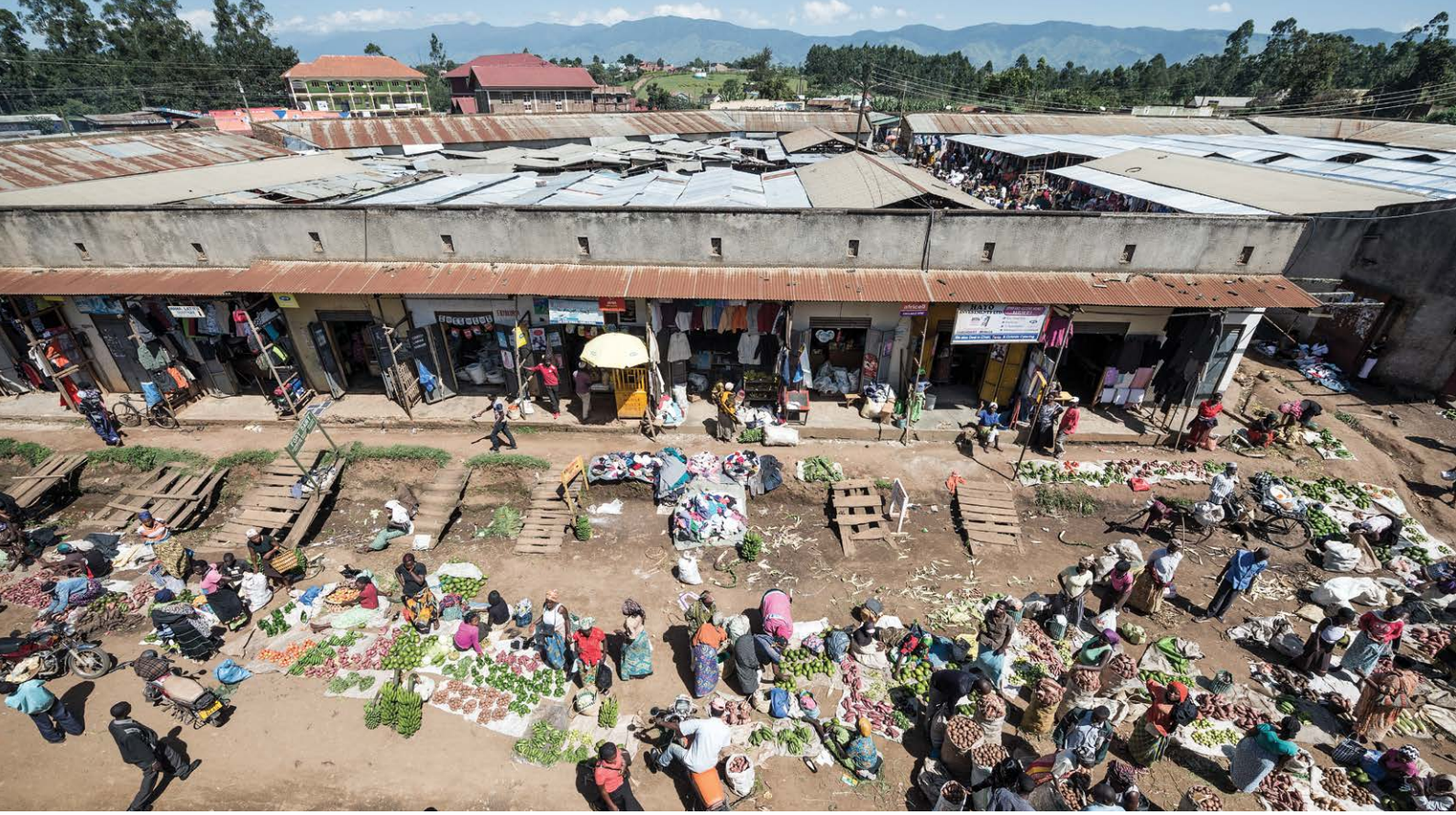
1.2 Evidence and the food system

This paper focuses on evidence as a means for defending and improving the food system of the poor. That food system is no stranger to invisibility and mismatches between policy intent and local priorities, all along the chain from smallholder farming households, to traders, processors, vendors and consumers.

Causes of this invisibility are many, both deliberate and accidental. There are strong vested interests in support of large-scale agribusiness and food distribution. The food system of the poor may have a low priority in a policy climate of modernisation and economic transformation. Governments, CSOs or businesses may apply frameworks of sustainable or healthy food with little understanding of — or adaptation to — local conditions. Government priorities are shaped by global narratives that may not reflect local realities and priorities.

Food is almost always absent from urban planning, in both the global South and North. The needs of low-income consumers and the traders, processers and vendors — many of them women — who form the backbone of the food system are not factored into planning decisions. On the contrary, they are planned out of the town or city because of blindness or hostility towards this 'unmodern' and informal part of the economy. National plans and modernisation strategies such as Rwanda and Nigeria's Vision 2020, Kenya and South Africa's Vision 2030 and Uganda's Vision 2040 lack clear ways and means to meet the poor in their own food system. Citizens may have a low level of trust in the policy process and view initiatives to 'improve' the food system of the poor with a good deal of suspicion.

Evidence generation by and with low-income citizens is particularly important to improve understanding of the **informal economy**. The informal food economy is the main route for low-income communities to secure their food, and is an important source of employment especially for women and youth. The very nature of informality means that official statistics are often missing and/or inaccurate.



Food market, Fort Portal, Uganda (Sven Torfin/Hivos)

Mapping food outlets in informal settlements, for example, or recording food flows through informal trade networks (including small-scale traders and vendors who play such a central role in the food system), can draw policy attention to these day-to-day realities.

The sustainable diets framework (FAO and Bioversity, 2012) forms the context of this paper. It brings production, consumption, sustainability and health into a single systems framework. At its core, the framework has a simple objective: sustainable diets from sustainable food systems, or healthy food from healthy ecosystems. The linkages between production, trade and consumption are critical to the effectiveness of the food system. Food and nutrition security cannot be left to the production focus of agricultural science on one hand, or the consumption focus of nutritionists on the other. But the systemic linking of production and consumption poses particular challenges for policy and citizen agency. The actors in informal food systems, separated by long distances between rural producers and urban consumers, rarely engage in advocacy as a system. The joined-up sustainable diets framework is not reflected in policy practice.

1.3 Objective and structure of the paper

This paper sets out to integrate knowledge — from both academic and non-academic literature — on citizen-generated evidence, especially as it pertains to citizen agency in support of sustainable diets and food security. The paper first frames the concept of citizen-generated evidence within the traditions of citizen science and participatory development. It then presents some examples of the range of methodologies and their application, though it is not a comprehensive handbook. The paper also addresses the translation of information into evidence that is effective in advocacy.

The paper is part of the Sustainable Diets for All (SD4All) programme, which Hivos and IIED have been implementing since 2016.[1] This is a strategic partnership with the Dutch government, which is active in four countries — Uganda, Zambia, Indonesia and Bolivia. The aim of the programme is to influence policies and practices of public and private sector actors through citizen agency and capacity development for the promotion of sustainable diets for all. SD4All is one of four thematic areas under a Citizen Agency Consortium that links Hivos, IIED and the organisation Article 19, supported by the Netherlands Ministry of Foreign Affairs' Dialogue and Dissent programme.[2]

It is designed for practitioners and their support organisations, and may also be useful for researchers who seek a closer engagement with communities.

2. CONCEPTS OF CITIZEN-GENERATED EVIDENCE

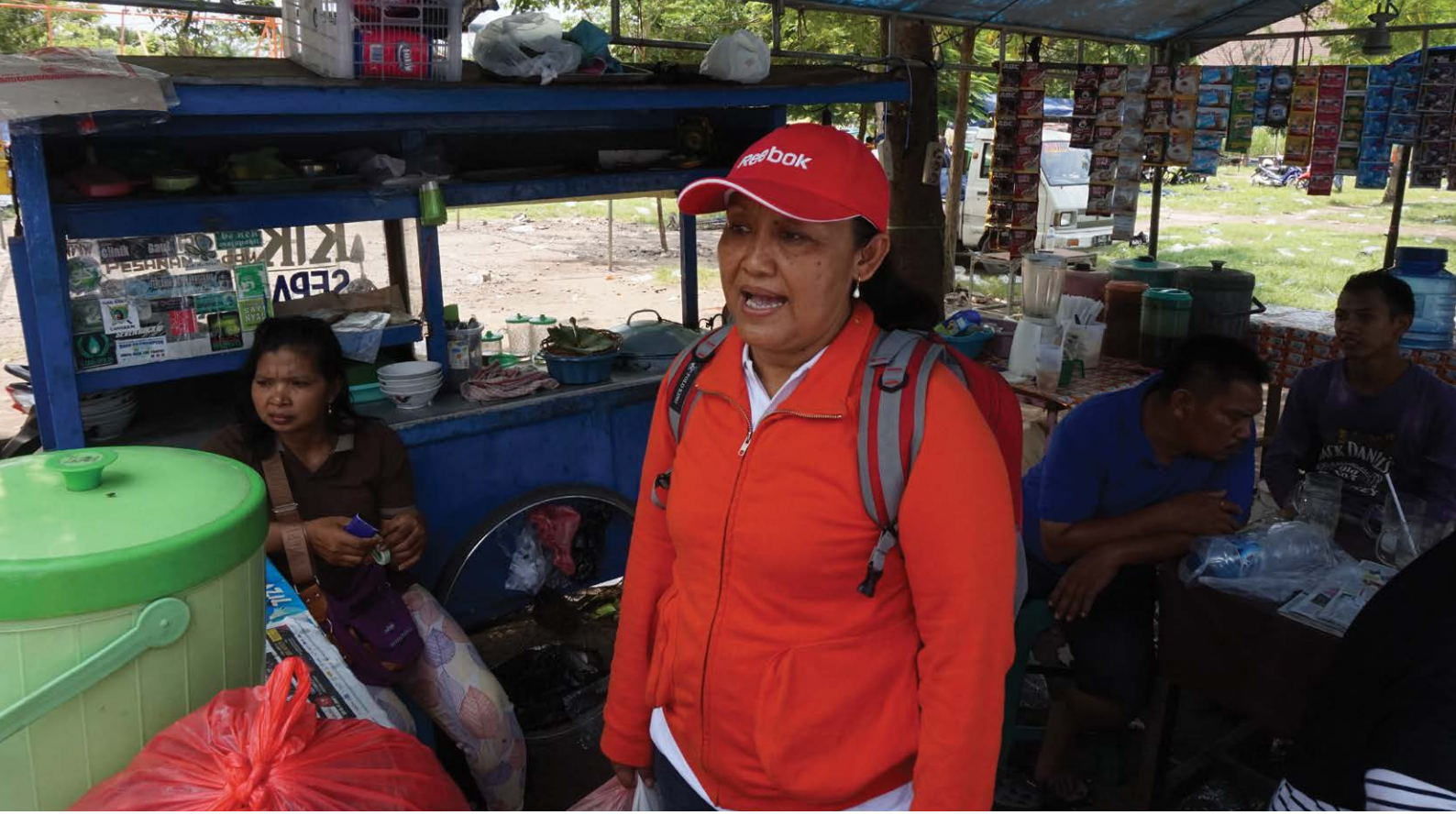
Citizen-generated evidence is part of the tradition of participatory development which entered mainstream development thinking in the 1980s and 1990s. It was a response to the clear limitations of the 'technology transfer' model, and an understanding that **praxis**[3] helps to democratise development processes, and actively engages people in advocacy, dialogue and networking. There was a surge of interest in participatory approaches in research and development project interventions, with overlapping concepts of citizen science, action research, community-based research and participatory learning and action.

2.1 Citizen science

Citizen science is defined as "scientific work undertaken by members of the general public, often in collaboration with or under the direction of professional scientists and scientific institutions" (OUP, 2014). It is often applied to public participation in crowdsourcing data, and has a very long history of enlisting people for nature and weather observations. Alan Irwin locates citizen science at "the point where public participation and knowledge production meet" (Irwin, 2015).

2.2 Action research

Action research (AR) is defined as "any research into practice undertaken by those involved in that practice, with an aim to change and improve it" (Open University, 2005). AR always involves the participants, at least in knowing what is being explored and why. Thus another term, 'participatory action research' (for example, Parkes and Panelli, 2001), is in fact a tautology; participation is built into the definition of AR. It is usually highly applied, and very specific to a context.



Street vendors' market leader, Surabaya, Indonesia (Bill Vorley)

2.3 Community-based research

Community-based research (CBR) is defined as the "broad participation of various parties, both in the conception of the goal and in the activities, including research" (Lynn, 2000). The term is commonly used in health promotion within public health and community improvement initiatives, and will be more familiar to the consumption side of the sustainable diets framework. Beckman *et al*. (2011) have developed a framework to improve the effectiveness of CBR, such as in programmes to reduce obesity.

2.4 Participatory learning and action

Participatory learning and action (PLA) is a family of approaches, methods, attitudes, behaviours and relationships, which enable and empower people to share, analyse and enhance their knowledge of their life and conditions, and to plan, act, monitor, evaluate and reflect (IDS, undated). The development of PLA marked a shift to interactive mutual learning in the early 1990s. It is "based on the assumption that community members are the best 'experts' about their own health and social situations" and that the role of facilitators is then "to help community members tap into their own knowledge and resources and use them effectively" (RCPLA Network, 2010). PLA became widely used in rural development and managing natural and common resources, such as through participatory watershed management.

2.5 Participatory technology development and participatory innovation development

There is a long history of participatory approaches to technology development and innovation, such as through **farmer participatory research**. For instance, **participatory plant breeding** is a collaborative process for crop improvement that enables farmers and plant breeders to share decision making at every stage of the research — from determining desirable traits and parent lines, to the breeding process itself, to the evaluation of the resulting varieties.

3. WHOSE EVIDENCE? PARTICIPATION AND CITIZEN AGENCY

There is a huge variation in the degree to which citizen-based participatory research initiatives are conducted on citizens' own terms and reflect citizen engagement and agency.

'Participation' has often been code for consultation by experts and 'surveying needs' of a community ahead of a development intervention that is designed outside of the community around a problem that was also defined externally. Or 'participation' may be a process of quality assurance, where citizens are consulted at the end of an intervention to test the findings' relevance. This is participation-lite: techniques and tools to extract information efficiently, rather than understanding the local context and/or jointly creating knowledge. It was already recognised in the early 1990s in the case of farming systems and farmers' livelihoods (Scoones and Thompson, 1994). The authors concluded that some approaches to farmer participatory research "have only offered farmers the chance to participate in the agricultural scientists' research projects, rather than providing the opportunity for true collegial learning."

Nutrition studies are also no strangers to such instrumental approaches to participation. Community-based participatory research in health and nutrition may extend only to focus groups and stakeholder interviews (Goh *et al.*, 2009). 'Participatory nutrition' is still very much directed at improving expert-led interventions by development practitioners, such as new feeding practices.

There has been a wide range of citizen involvement in research and evidence generation. In most cases the basic terms and conditions, and particularly the experimental methodologies, are still set by the researcher. There has been much less attention to agency in research encounters, leading to the irony of **imposed participation** — an "imposed means of facilitating participation in knowledge construction, analysis and decision-making". Participation can be used — even unconsciously — to "legimitise what development agents can offer rather than allowing people to exercise their own decision-making powers" (Waddington and Mohan, 2004).

There is nothing wrong with consultation and needs assessment in project planning. Participation as consultation is seen in the Reality Check Approach[4] "to try to understand context, people's aspirations, their behaviours and day to day lives through their lenses". This approach was used in Indonesia to understand local perspectives and experiences of village law (Kompak, 2016), and in Ghana to provide insights into adolescents' perceptions, attitudes and behaviours around sexual and reproductive health (Masset *et al.*, 2016). The problem comes when it is presented as citizen participation. Projects will often talk of 'empowerment' even though they typically involve managerial interventions by outside experts and intermediary organisations, especially NGOs (Long and Villareal, 1994). 'Citizen-driven' initiatives will be nothing of the sort if they have already been designed and framed (with funder expectations for delivery), before citizens are even engaged. Just the process of applying scientific

Table 1. Levels of participation in citizen science

Level 4 'Extreme'	Collaborative Science — problem definition, data collection and analysis
Level 3 'Participatory science'	Participation in problem definition and data collection
Level 2 'Distributed Intelligence'	Citizens as basic interpreters
Level 1 'Crowdsourcing'	Citizens as sensors

Source: Sui *et al*. (2013)

frameworks can already create a gap between citizens and their research, and raise the question of where the initiative comes from.

Sui *et al*. (2013) distinguish four levels of engagement in evidence generation in citizen science, from 'citizens as sensors'[5] at the low end of engagement, to 'collaborative science' at the other (Table 1). A similar distinction is made by Lakshminarayanan (2007), between "using citizens to do science" and "citizens as scientists".

The seminal *Work with Us* publication (Burns *et al*., 2013) addresses participatory research at the Level 4 'collaborative science' end of the spectrum, where "participants have control over the research agenda, the process and actions. Most importantly, people themselves are the ones who analyse and reflect on the information generated, in order to obtain the findings and conclusions of the research process." Of course, this requires a high level of motivation and buy-in on the part of participants, and significant time commitment, as well as skills in facilitation and brokering.

Beyond science, these different levels mirror the range of approaches to wider participation in development, from non-participation at one end, through tokenistic project add-ons by experts, to participation as a transformative and political undertaking at the other. This was presented as a 'ladder of citizen participation' by Sherry Arnstein (1969), and developed in more detail by the Resource Centres for Participatory Learning and Action network in 2010, who distinguished between participation as a means and participation as an end (RCPLA Network, 2010).

The focus in this paper, in support of sustainable diets, is the same: evidence generation and analysis by citizens for their learning; in other words, a reverse of the usual direction of evidence generation in lobbying and advocacy. It starts from the premise that people possess significant agency and significant knowledge of parts of the system that make up sustainable diets. Advocacy to tackle the specific food system challenges faced by women necessitates a leading role for women in the process of generating evidence. That role, in turn, requires a process that is designed around the constraints faced by women, especially time poverty.

While appreciating the validity of critiquing the different approaches to participatory research, we should acknowledge that a huge amount of research is still conducted along entirely extractive lines. Researchers continue to design and conduct household surveys — which may make considerable demands on respondents' time — for use in policy and academic discourse, with zero involvement of or feedback to the surveyed communities. An industry has grown up around household surveying, driven by donors, in pursuit of evidence-driven development interventions led by experts. That traditional approach may be hard to avoid, given donor priorities and project timelines.

4. CITIZEN EVIDENCE: APPROACHES AND TOOLS

This section looks at different citizen-driven approaches to gathering and translating evidence — both the collection of primary information and the interpretation of available secondary information. Evidence may be in maps, in numbers, in photos, videos or stories. The focus is on the food system of the poor, but insights from other sectors are also included.

4.1 Mapping

Much attention is now being invested into the use of citizen mapping. There are many opportunities for citizen science in mapping, with 'citizen cartographers' enabled by mapping apps and GPS-enabled smart phones and platforms, especially OpenStreetMap, to quite literally put marginalised communities on the map.

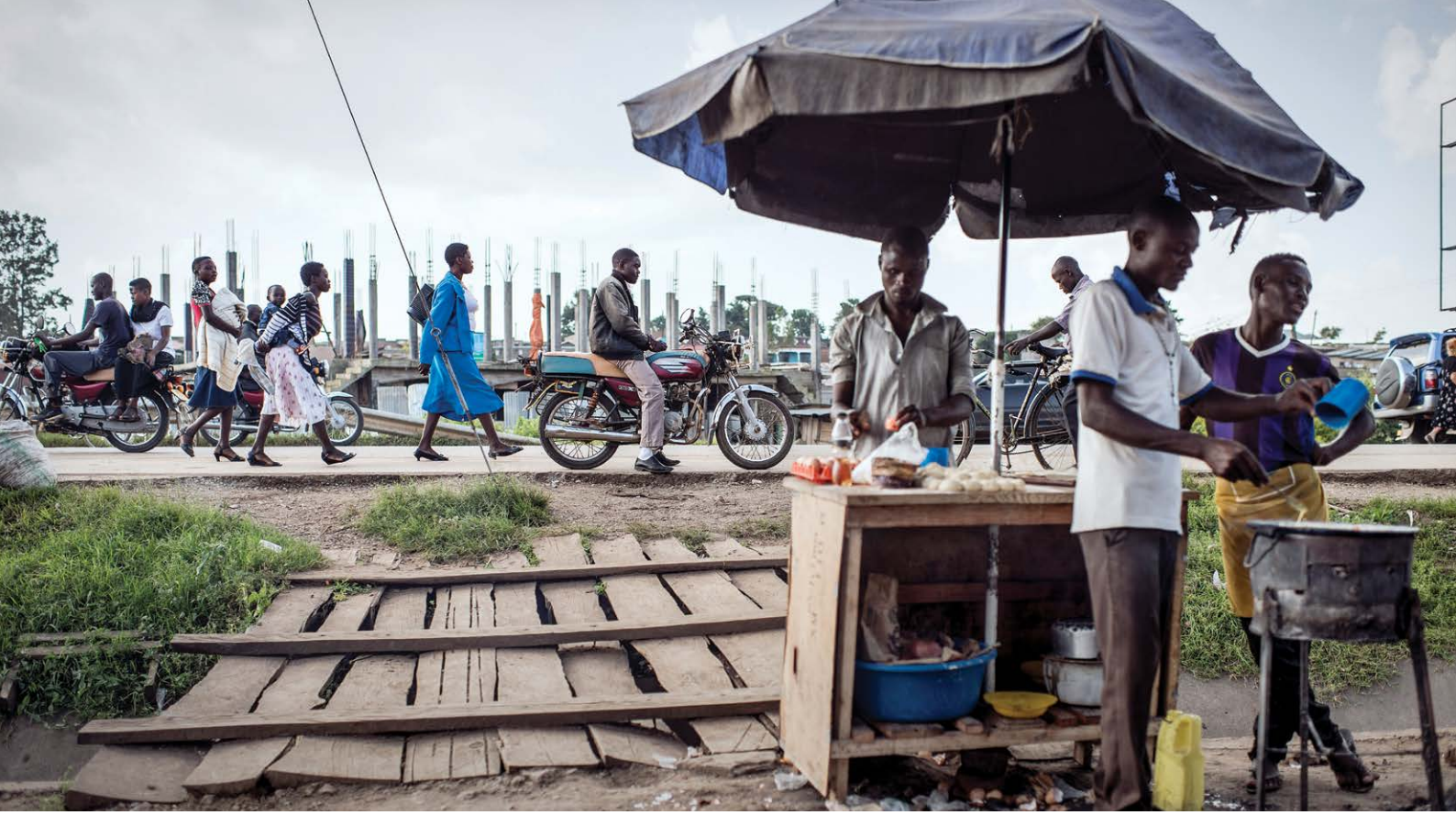
The most established examples come from informal urban settlements such as in Nairobi where, despite being home to nearly two-thirds of the city's population, residence is not officially documented. This deprives residents of basic services. Map Kibera in Nairobi (Box 3) and the Spatial Collective,[6] a Nairobi-based social enterprise, use global information systems for community development.

The process of locally led data collection is a powerful tool not only for mapping but to engage communities and authorities in discussions around available resources, risks and priorities in development initiatives. Participatory asset mapping is a tool for identifying community strengths and supporting change initiatives (Healthy City, 2012). Kota Kita in Indonesia find that using 'mini atlases' of information collected about neighbourhoods and the condition of services can help people discuss what to prioritise in the annual participatory budgeting process, known as *musrenbang*.

Box 3. Map Kibera

Map Kibera was born in the Nairobi slum of Kibera, but has grown to connect communities across Nairobi and Kenya. Kibera was a blank spot on the map until November 2009, when young Kiberans created the first free and open digital map of their own community. Map Kibera has now grown into a complete interactive community information project. Young mappers from the community collect data with GPS devices, from which maps are built using OpenStreetMap, a free and open editable map of the world. Maps may range from general surveys of the slum, or focus on one subject such as health, security, water and sanitation or education. See http://mapkibera.org

Source: Map Kibera (undated)



Street vendors, Fort Portal, Uganda (Sven Torfin/Hivos)

Maps and data can help the development sector to better respond to crises affecting unmapped areas. An example is the Missing Maps project set up by medical charities and OpenStreetMap to map areas that require medical support.[7]

Citizen mapping has not been much applied at scale to improve food systems. An exception is the use of low-cost aerial photography to map the locations of environmental hazards relative to food vending outlets in Nairobi (Box 4).

Citizen science has also been employed to gather evidence of barriers to accessing healthy food, for example in the California Bay Area (Box 5), in Los Angeles (Box 6) and in New York where citizens have mapped 'food deserts' in Brooklyn, charting which food stores carry fresh produce and which don't (Diep, 2011a and 2011b; Brooklyn Food Coalition[8]).

Box 4. Balloon mapping health hazards in Nairobi

In Nairobi, the Urban Zoo project worked with a federation of the urban poor, Muungano wa Wanavijiji, using community-led mapping to explore how to improve food safety and work with street vendors and livestock keepers. Balloon mapping is a low-cost aerial photography alternative to satellite maps, for mapping infrastructure and environmental hazards.

The project's citizen scientists have mapped how close environmental hazards are to the area's street vendors, a low-income group of mostly women who sell fresh produce and hot meals. These vendors play an important part in the city's food security — feeding thousands of people each day — but they cannot afford stalls or shops, and so sit alongside sewers that can send waste perilously close to their goods when they overflow.

Armed with these maps, the street vendors can stake their claim to the contested public space. And they can act to improve their safety by showing which environmental hazards are most important to remove — by covering drains or designating waste disposal points, for instance.

Source: Cravero (2015); Ahmed *et al*. (2015)

Box 5. Gathering evidence of barriers to accessing healthy food in San Mateo County, California

An example of citizen science linked to sustainable diets is the programme by the Healthy Aging Research and Technology Solutions Lab, at the Stanford Prevention Research Centre, to create healthier neighbourhoods in the US Bay Area. A tablet-based 'discovery tool' app is used by citizen scientists to assess barriers experienced by low-income older adults to accessing healthy food. With those assessments, citizen scientists meet to prioritise issues and brainstorm solutions, and meet with local policymakers to advocate for change.

Source: Winter, 2015a; 2015b

Citizen involvement is also quite widely employed in urban environmental monitoring. The Stockholm Environment Institute has led on an air pollution monitoring project in the Mukuru and Viwandani informal settlements in Nairobi, in collaboration with Muungano, a community organisation. Community members were trained to collect air quality data and conduct perception interviews, "thereby informing and educating the affected public about the risk air pollution poses to their health and options on how to overcome this threat" (Odera, 2016). Another example of citizen science used to map community air quality comes from London, where residents in over 30 locations have been able to collect data; a number of communities have embarked on campaigns to see that their results lead to action (Mapping for Change, undated).

In the Indian state of Bihar, participatory land mapping has supported marginalised communities in rural areas (sharecroppers and landless labourers) to claim their legally valid land entitlements (Banerjee, 2010; Banerjee *et al.*, 2015). Participatory 3D modelling based on local spatial knowledge, land use and cover has been successfully employed in natural resource management, forest management, and adaptation to climate change (Piccolella *et al.*, 2013; Pedrick, 2016).

Community mapping in rural areas has combined local knowledge of natural resource management with satellite imagery in dryland areas, to encourage a stronger link from resource management to local knowledge and generate a fuller description of key resources and usage patterns. The resulting maps have been used to design bye-laws and inform planning for the management of resources central to local livelihoods and the local economy, particularly in a context of increasing climate variability, such as the drylands of Kenya and Tanzania (Rowley, 2013).

Box 6. Community assessments for improving food environments, Los Angeles

In Los Angeles, Project CAFÉ, a community-based participatory research project addressing local food environments, was undertaken in three neighbourhoods. To document the availability and affordability of foods, community-based groups were trained and participated in a community food assessment. Participants 1) mapped the number and type of food stores and restaurants in the project areas; 2) conducted an in-depth survey of stores for product availability, pricing, and quality; and 3) surveyed five participating schools to examine the school food environment. Participants documented a total of 1,273 food establishments in the three neighbourhoods. The most prevalent food establishments were convenience/liquor stores, fast-food restaurants, carry-out restaurants, and full-service restaurants. Full-service supermarkets comprised less than 3 per cent of the total number of food stores/restaurants. Following the completion of community food assessments, participating community members will brainstorm and prioritise action strategies for improving food environments.

Source: Gottlieb *et al.* (2010); Azuma *et al.* (2010)

A related approach has been taken by Global Forest Watch, which connects satellite technology with local people to monitor and map deforestation in near real time, making information available to forest users for lobbying and advocacy.[9] The combination of scientific and community-sourced data addresses one of the main challenges of citizen-generated evidence: accusations of bias.

4.2 Diaries

Diaries are a particularly effective way of uncovering information on behaviour such as dietary choice. Food diaries, for example, normally involve recording all foods and beverages consumed for a specified period (usually one to seven days), though actual methodology may be adjusted depending on study objectives (WHO, 1996). In terms of the participation levels shown in Table 1, food diaries may simply be a Level 1 method of data gathering for expert surveys (as with 24-hour dietary recalls, food frequency questionnaires or food habit questionnaires). But with the right process they can also be part of Level 3 or 4 citizen science, designed with the community, and with results interpreted by and used by the community in advocacy. This requires high participant involvement. Examples associated with the Sustainable Diets for All initiative in Uganda and Indonesia are presented in Box 6.

Box 7. Food diaries in Kabarole, Uganda and Bandung, Indonesia

The concept of food diaries was introduced by the CSO Kabarole Research and Resource Centre in 2015, when they supported 200 rural women in nine sub-counties in Kabarole district, Uganda, to keep a record of each of their household's meals over the course of seven days, and to report the origins of that food and what food the household had sent to market. The results showed that farming households are relying increasingly on the market rather than their own farms for their food. Applying the World Food Programme's Food Consumption Score, which is based on dietary diversity, food frequency and nutritional importance of the food groups consumed, showed that on average only 40 per cent of households were achieving an acceptable level of food consumption.

Focus group discussions held in association with the research verified that mothers know what good food is. For example, most people described how good diets include any of the starchy foods such as *matoke* (cooking banana), sweet potatoes or millet bread eaten with beans or groundnuts and steamed leafy vegetables. This evidence runs counter to the common assumption that poor people lack knowledge about diet and need 'sensitisation' as a solution to nutrition issues. However, women cited a number of barriers to bridging the gap between knowledge of good diets and practice. One barrier is farming households selling excessive amounts of food when production is low, or to deal with cash emergencies such as school fees and medical care. Another is time constraints, with women's increasing role in trading and other activities outside the home; and limited household labour. Women discussed the results they collected for their households with a nutritionist on community radio, and the diaries thereby became shared knowledge (Vorley and Boerwinkel, 2016).

Food diaries kept by young women factory workers in Bandung Indonesia showed the very high importance of informal food vendors in meeting their nutrition needs at all mealtimes, morning, noon and night. This has important policy implications. Although food stalls and itinerant food vendors are often viewed negatively by municipal authorities, they were shown to play a central role in the food system of the working poor (CAPAS, in press).

4.3 Visualisation through photo stories and participatory video

Digital and visual evidence gathering and storytelling, while less 'scientific' than mapping and empirical data gathering, can provide a very effective window into local experience. Testimonies of the rural and urban poor are widely used in reporting, such as by the United Nations' Information for All Programme (Warrington, 2011). And there is a growing set of examples of digital storytelling and participatory video that are citizen-led (Box 8).

Box 8. Citizen-led digital storytelling and participatory video initiatives

In Kenya, the Seed Institute has supported youth-led participatory video in informal settlements in the Mathare slum as part of its work to inform, inspire, and mobilise community members to take action against poverty and inequality in slums and rural communities. Also in Mathare, the Spatial Collective created a community forum on sanitation, in which community representatives and leaders met to screen participatory video on sanitation and discuss what should be done as a response.

In Cape Town, South Africa, a digital storytelling process has allowed community health workers to better show the multiple, interconnected issues surrounding public health and communicable diseases, and ensure that their knowledge should be engaged in public health programming.

In Kampala, Uganda, community researchers worked with residents to develop digital photo stories from the Katanga slum, which sparked dialogue in forums with academics, decision makers and the media on issues of inclusive and equitable urban development.

In Egypt, the Centre for Development Services has worked with youth to create films that ignite discussion with youth and community members on the issues that affect them and their aspirations for change. Marginalised youth in Sierra Leone and Liberia have also created participatory video.

Mapping, along with arts and media, has been used by youth in Mozambique, Kenya and Cameroon for involving the broader community, local councils and divisional authorities in dialogue and support for resolving issues that youth identify.

Sources: Burns *et al.* (2013); Burns *et al.* (2015); Kamara and Swarray (2011); Miamen and Jaitner (2011)

Food diaries research, Ledokombo, East Java (Bill Vorley)

4.4 Accessing existing public information

Important data may already be available and can become powerful evidence for community advocacy, instead of or in addition to primary data generation.

There has been a huge growth in interest in 'open data' to address the transparency and accountability gap in governance and to hold public service providers to account. Examples include tracking budgeting and public expenditure, or tracking social and economic indicators of development, or monitoring the impact of policies.

Data may be open but not accessible — physically or linguistically — to communities. "Data needs combining, contextualising and explaining in order for it to be turned into information that people (whether governments, politicians, business, civil society and individual citizens) can act upon" (Palmer and Hudson, 2013). This presents an important role for information intermediaries ('infomediaries') who can "synthesise, translate, simplify and direct information on behalf of others" (Carter, 2016). It also creates a need for tools that non-technical people can use to access or translate data.[10]

That accessibility is central to innovations in social auditing. Community score cards were used by communities in Kenya supported by the Seed Institute to reflect on progress made in achieving Millennium Development Goals and eradicating poverty.[11] Citizen report cards are also used to assess the quality, adequacy and efficiency of service delivery; service users generate quantitative data, which is used by CSOs to advocate for government accountability through media coverage and campaigning.[12] Score cards can be part of participatory process evaluation, for example in nutrition education (Cornwall, 2014) or to track resources flowing to communities, in order to create feedback loops with decision makers (Development Initiatives, 2014). Within the context of food systems, data on state budgetary support for agribusiness and export sectors compared to the food systems of the poor could provide citizens with powerful advocacy tools.

In participatory impact assessment, community assessment tools can create and sustain an environment of healthy eating and physical activity to prevent childhood obesity (Peters *et al.*, 2016). Related examples of wellbeing measures are used by the NGO-IDEAs network, where people set themselves goals or targets and measure who achieves these goals and to what extent. People analyse the trend of change, and who/what contributes to it, and decide what they should do next to achieve their goals. Mostly, but not necessarily, this is done in peer self-help groups (Causemann and Gohl, 2013).

5. EVIDENCE INTO ACTION

Data alone, of course, is not enough for effective advocacy.

First, it must be translated into credible evidence to challenge and inform policy through advocacy. Citizen-generated information must address the common reputational issue of bias and poor quality. But the issue of credibility raises a question: credibility to whom? The science and policy establishment has a responsibility to meet citizens halfway in their assessment of credibility and quality, and be open to alternative framings (IDS, 2006).

And second, even the best data requires organisation and agency to drive successful advocacy. Evidence without political agency is unlikely to lead to improved public accountability (Edwards and McGee, 2016). This reality is becoming increasingly apparent, after a lot of early optimism around citizen science and open data supported by information and communication technologies.

5.1 Building capacity for citizen science/evidence generation

There is an important role for knowledge institutions and professional researchers to support citizens in the collection, use and interpretation of data that conforms to basic standards of quality, precision and ethics (Haklay, 2010). This is central to an ambition of supporting citizens as decision makers rather than data providers.

Organisations such as Mapping for Change and Kota Kita provide capacity building for communities to engage in participatory mapping. Mapping for Change has supported many communities to take part in citizen science initiatives such as gathering data on environmental pollutants.

Then there is capacity building in the use of evidence for impact and advocacy. Map Kibera uses a five-step engagement model.[13] In Zimbabwe, the Zimbabwe Evidence Informed Policy Network (ZeipNet) Trust and INASP[14] have worked with partners to develop an innovative and practical Evidence-Informed Policy Making course. The course aims to strengthen knowledge and skills in using evidence in policy making; and provides participants with an opportunity to critically reflect on the role of evidence in their own workplaces. The VakaYiko consortium has recently produced a toolkit on Evidence-Informed Policy Making.[15]

Information intermediaries have a critical role in capacity building, in two ways: first, in supporting citizens to use their evidence in advocacy, giving it the weight it deserves; and second, in translating publicly available data for communities.

5.2 Bringing evidence into 'innovation labs'

Rather than using evidence in a one-off or linear process of lobbying-to-advocacy — which may last only as long as project funding — there are benefits to bringing evidence into a longer and more dynamic process of learning and innovation. There are different models for this, including social innovation 'labs' (such as Hassan, 2014) and the Food Policy Councils and Food Security Councils found in many cities around the world, or citizen voice platforms. The theory at the centre of the lab process is actually a path of co-creation of knowledge, through an iterative process of identifying evidence gaps, building evidence through action research, and returning to the problem statement. Hivos, IIED and partners are supporting lab processes around sustainable diets in Uganda, Zambia, Indonesia and Bolivia, with new and existing evidence injected into the processes (such as Vorley and Boerwinkel, 2016). Special attention has to be paid to designing processes that enable and encourage the participation of women.

6. CLOSING THOUGHTS

Achieving sustainable diets will, like all political processes, involve an interplay between power, knowledge and agency (Brock *et al.*, 2001). Citizens involved in generating evidence in support of their advocacy can contribute to all three. An emphasis on citizen-generated evidence recognises the independent intellectual capacities and grounded nature of citizens (Leach *et al.*, 2005) in co-creating meaning and knowledge. In generating and using evidence, citizens can become policy 'makers' rather than 'takers', and participants rather than objects, in their own development.

The paper has cited inspiring examples of citizens as data generators and of citizen capacity to analyse and interpret available data. Many of these examples have come from outside the world of food systems.

Much of the power of citizen-generated evidence will be applied at the national and especially sub-national (eg municipal) policy level. For the urban and rural poor, central state institutions may be seen as distant, inaccessible, irrelevant, and there to serve someone else's political or economic interests (Vorley *et al.*, 2012). But local citizens' perspectives and data can challenge national and international meta-narratives or stereotypes, such as those that drive policy hostility towards informal food distribution.

Citizen-generated evidence takes time to introduce new skills and approaches (Kent, 2013), and if not done well can reproduce existing power structures and gender dynamics (Rambaldi *et al.*, 2006). Participatory data-gathering may perform no better than traditional academic research if the findings do not get back to the people who provided it, in a way and in a language that is easily understood. This is especially true for remote communities (Raftree and Nkie, 2011). This means that mechanisms to share information in easily understandable formats need to be identified.

Achieving policy progress in support of sustainable diets is not simply a technical challenge to place the right evidence into the policy mix, but is part of people's struggle against institutional inertia and vested interests. The transformative potential of local participatory approaches, including citizens generating evidence about their own realities, are reliant on broader political change (Hickey and Mohan, 2004). But those participatory approaches themselves can help develop the capabilities of citizens to influence local policy through shared action — in partnership with researchers and 'infomediaries' where appropriate — and to hold duty bearers to account.

Data and maps can miss the most important aspects of people's — especially women's — lives, which can be uncovered through storytelling or visualisation. Quantitative methods may be distrusted by community practitioners, as reminiscent of formal data collection practices used by the state (Kent, 2013). This paper has pointed to the benefits of combining formal and empirical data gathering and mapping with stories and visualisations, for which there are many different techniques which recognise the different approaches needed for participation of women and youth (Burns *et al.*, 2013).

Ironically, one of the biggest gaps in evidence concerns how and when citizen-generated evidence actually makes it into the policy debate. And if it does, is it taken up differently than other types of evidence? Hivos, IIED and partners will be collecting insights into these important questions over the coming years.

Much of this paper has been about citizens generating evidence to make themselves more effective in their lobbying and advocacy, by speaking policymakers' own language of empirical evidence. Not much has been said about policymakers adapting their learning style to speak citizens' own language. For a step change towards sustainable diets, capacities need also to be built among planners, policymakers, urban and rural development functionaries and NGOs themselves, to seek out, value and interpret citizen-generated evidence.

RESOURCES

African Monitor is an independent African body that acts as a catalyst to monitor development funding commitments, delivery and impact on the grassroots, and to bring strong additional African voices to the development agenda. Programmes include Grassroots Focus Index, a pilot to generate an index that assesses and determines the extent of grassroots prioritisation in development. It also runs a constituency-building programme to support African voices from grassroots communities — especially youth — to participate in and inform the development agenda. www.africanmonitor.org/

Extreme Citizen Science ExCiteS. UCL's interdisciplinary Extreme Citizen Science research group ExCiteS brings together scholars from diverse fields to develop and contribute to the guiding theories, tools and methodologies that will enable any community to start a citizen science project to deal with issues that concern them. www.ucl.ac.uk/excites

Kota Kita Foundation is a non-profit organisation based in the Indonesian city of Solo. It has expertise in urban planning and citizen participation in the design and development of cities, based on projects in Indonesia and other fast-urbanising countries in the region. It provides education, facilitates citizen participation and collective action, and works with governments to build bridges between officials and their constituencies. It has a rich library of resources, including www.kotakita.org

The **Making All Voices Count** initiative is linked to reducing information poverty, promoting the right to information and improving the quality of statistics and information available to citizens and their capacity to analyse and interpret data. www.makingallvoicescount.org

Mapping for Change works with groups and organisations who want to understand, improve and produce information about the places that matter to them. It offers a range of participatory mapping services to voluntary and community groups, business organisations and government bodies. mappingforchange.org.uk

Map Kibera uses evidence from mapping for impact and advocacy across Kenya, especially the Ibera, Mathare and Mukuru slums of Nairobi http://mapkibera.org

Participate Initiative is a global network of participatory research organisations. It works to ensure that marginalised people have a central role in holding decision makers to account from local to global levels. Participate has launched a new phase, the **Participatory Monitoring and Accountability** programme, which focuses on the effective implementation of the Sustainable Development Goals. participate2015.org

Participatory Research Group is a network of organisations committed to bringing knowledge from the margins into decision making at every level of society.

Praxis Institute for Participatory Practices is an India-based knowledge organisation with the aim of facilitating participation towards democratising development processes and results. https://praxisindia.org

Restless Development focuses on youth-led development http://restlessdevelopment.org/. It offers a toolkit, *Youth and Governance in a Post-2015 World*, for young people who want to make sure their voice is heard (though without an emphasis on evidence generation). http://restlessdevelopment.org/file/global-agreements-grassroots-advocacy-toolkit-pdf

SAGE Handbook of Action Research https://uk.sagepub.com/en-gb/eur/the-sage-handbook-of-action-research/book228865

Work With Us: How people and organisations can catalyse sustainable change http://www.ids.ac.uk/files/dmfile/Workwithus_HowpeopleandorganisationscancatalysesustainablechangeFINAL.pdf

Zimbabwe Evidence Informed Policy Network (ZeipNet) Trust seeks to bridge the research-policy divide. Its mandate is to promote evidence-informed policy making in Zimbabwe through various interventions. It also builds coalitions around policymakers and influencers, the media, government and civic societies that aim to support national processes for evidence-informed policy making. www.zeipnet.org/

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NOTES

1 See https://hivos.org/focal-area/sustainable-diets-all
2 See www.iied.org/encouraging-dialogue-dissent
3 Praxis is the process by which a theory, lesson, or skill is enacted, embodied, or realised. It may also refer to the act of engaging, applying, exercising, realising, or practising ideas. (Wikipedia)
4 See www.reality-check-approach.com
5 This can be passive sensing, eg via smartphones; or participatory sensing, eg local air quality.
6 See http://spatialcollective.com
7 See www.missingmaps.org
8 See http://foodcensus.org/survey/locations/map
9 See www.globalforestwatch.org/
10 See http://blogs.worldbank.org/developmenttalk/open-data-and-the-average-citizen-building-the-youtube-of-data
11 See http://seedinstitute.com/?page_id=65
12 See www.participatorymethods.org/glossary/citizen-report-cards
13 See http://mapkibera.org/work/methods/
14 See www.inasp.info
15 See www.inasp.info/en/training-resources/courses/229/

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