



Unlocking Agricultural Growth - WIDE Discussion Brief No.1 of 5¹

June 2014

Key messages from the WIDE evidence

- The richness of WIDE 3 allows us to see and analyse how the interface between inequality considerations and policy design and implementation leads to different routes of development for different people in a community.
- Agricultural intervention strategies to raise productivity such as the agricultural extension service have led to enhancements in productivity though less so in the drought-prone sites. However, the service delivery quality of the agricultural extension services in some of the rural sites need improvements in various ways.
- There is a steady improvement of agricultural extension services both in reach and quality over time from 1995 to 2010/13 in the 20 rural communities. Most of the existing constraints on the effectiveness of the extension services appear to be localized. More responsive and flexible extension service are needed, which will thus have to be demand-driven and harmonized with local-conditions to account for the specificities of agro-ecologies and farming practices in different communities. In order to do this, the extension services need to be equipped with the capacity of analysing and responding to locally identified localized and evolving binding constraints.
- The approach to service delivery has major accountability problems. Moreover the extension system, working through “model farmers” who tend to be better off and male, has mainly targeted richer farmers at the expense of the poor, youth and women.
- Increasing productivity in the WIDE 3 villages had therefore mainly been generated by already richer farmers; there is a need to help middle and poor farmers to follow suit. As incomes continue to grow and more farmers seek to match model farmers, the agricultural extension system will need to deepen and broaden its services to meet the needs of different groups: poor and rich farmers, pastoralists, agro-pastoralists, women, and youth.

¹ WIDE is an independent longitudinal study of 20 rural communities in Ethiopia over 20 years. A map is provided at the end of the brief. The brief is using WIDE3 evidence to bring policy and implementation questions and possible implications to the attention of policymakers, with the aim of contributing to current debates on key issues through discussions with government, donors, and other stakeholders. Acknowledgement should be made of (1) the time and dedication of the research officers and supervisors who over the years made the data on which the brief draws, (2) the various funders who financed the research phases, and (3) the time and interest of senior Government officials, with whom the brief was discussed at a High Level Discussion Forum in March 2014, convened by the Ethiopian Development Research Institute (EDRI). The brief does not represent the views of EDRI, the Government of Ethiopia, or the financing Development Partners. The other Discussion Briefs and other research products are available at <http://ethiopiawide.net/>.

Introduction

The Agriculture sector in Ethiopia directly supports 85 % of the population, constitutes 43 % of Gross Domestic Product (GDP), and 80 % of export value. Approximately 16 % of Government of Ethiopia (GOE's) public expenditures are committed to this sector. Increasing agricultural productivity levels is considered as the most vital requirement for sustaining economic growth in Ethiopia. This is revealed by the government's stated commitment to designing and implementing policies for effective use of extension services, the adoption and diffusion of improved seed varieties and the increased use of fertilizer. Accordingly, the government has set ambitious targets and made huge levels of investments to raise productivity via its development plans, such as the Plan for Accelerated and Sustainable Development to End Poverty (PASDEP) and the Growth and Transformation Plan (GTP). For instance, the government currently spends almost 2% of GDP on agricultural extension services. Due to greater public investments and the increasing participation of the private sector, the agriculture sector has witnessed a steady growth of over 8 to 10% per annum for the past decade. However, the impact of these changes at the local rural level is not fully understood and the degree to which there are disparities (by region, geographical area and community and by sector or issue) remains vague. Hence, our knowledge concerning the total collective impact on rural citizens of several reforms in governance, service delivery and social protection initiated at sub national level can greatly expand through studies that employ community-level data.

In this regard, the WIDE 3 studies that tracked several communities over time from 1995 to 2013 in three stages are extremely informative of progress, regresses and new dynamics in rural communities in Ethiopia.

The findings from these community-level studies unambiguously show that between 1995 and 2013 infrastructure interventions, including new and improved roads, electricity, and the establishment of small kebeles "town" centres, contributed to lifestyle changes and improved access to schools and health services. Many of these positive changes took place after 2003 with acceleration of change after 2005. From 2003/5 to 2010/3, development interventions grew in scope and funding through a combination of closely tangled government and aid funding undertakings. WIDE3 shows that infrastructure changes contributed positively to the local economies in all the 20 sites. Unsurprisingly, WIDE3 data points out that the outcome and the role of direct economic interventions such as the extension services, improved seeds and fertiliser and in some places small-scale irrigation, is mixed and varied significantly among the communities; and that the current intervention models have resulted in highly differentiated community and household-level outcomes.

As any rural-centred development intervention, the existing system is not devoid of imperfections, gaps and problems. Drawing from the WIDE3 research as evidence base, this brief focuses on identifying and analysing the binding constraints that have lessened the impacts of extension services and of the intervention models in these 20 rural communities. It explores major constraints that have attenuated the effect of the extension policies aimed at unlocking agricultural growth in the WIDE 3 rural communities, and the implications of these constraints for future policy design and implementation.

The WIDE 3 reports contain rich information on major constraints that have impeded the growth and transformation of the agricultural sector, including other factors influencing farmers decisions on crop mixes and use of inputs and technology; issues related to suitability of inputs and to marketing;

and the role and influence of broader modernization process such as urbanization, greater access to markets, communication and education. In the interest of brevity and focus, this discussion brief is limited in scope and mainly examines the influence of agricultural extension system on agricultural productivity and the ensuing implications for rural communities' wellbeing. Our reading of the vast evidence base contained in WIDE 3 research certainly suggests that there are several other important factors that can potentially explain the state of the agricultural sector in the 20 rural communities. We think that these deserve careful scrutiny and hence merit separate discussion briefs. Some of the topics mentioned above are addressed in a companion Discussion Brief on 'Farming and Value Chains'.

Unlocking agricultural growth: the role of extension services

Agriculture extension services is meant to enhance farmer's responsiveness to improved technologies with the expectation that adoption these technologies will strengthen their efficiency and eventually their income and welfare. In this brief we adopt a comprehensive definition of extension services, to include facilitation of linkages of farmers with other institutional support services and factors such as the input supply, seeds and fertilizer, credit, greater access to markets and the overall modernization process. Therefore, extension service is defined in this brief as a service of information and knowledge to enhance the adoption of higher agricultural technologies and facilitation of linkages with the input supply, output marketing and credit systems and the overall modernization process.

Through the years, a range of policies and investments to boost agricultural productivity have been designed and implemented in Ethiopia. In 1995, Ethiopia introduced its first largely spread out extension programme as part of the Participatory Demonstration and Training Extension System (PADETES) which was later renamed as the National Agricultural Extension Intervention Program (NAEIP). The basic objectives of these programmes involved enhancing the accessibility of improved seed, fertilizers, and extension services for smallholder, resource-poor farmers. The extension service was conceived as facilitating and linking smallholder farmers with important packages, including but not limited to improved seed, fertilizers and credit. The system targeted to influence about 9 million farmers, using the adapted Training and Visit (T&V) model. From 2003 onwards, the T&V agriculture extension model was adjusted and a large expansion of the extension programme has taken place, increasing the number of extension workers (locally named "Development Agents (DAs)") three times by 2008 to reach a larger number of farmers. Currently, the extension system, measured in terms of the number of DA per farmer, is among the most intensive systems worldwide, with 600 farmers per DA which is similar to China. India has eight times and Tanzania has four times as many farmers per DA (Davis et al., 2010).

In addition the GoE established Agricultural Technical and Vocational Education and Training (ATVET) colleges and Farmer Training Centres (FTC) as critical knowledge backstopping institutions supporting the transformation of the agriculture sector². The training of farmers is hoped to equip farmers with entrepreneurial skills that expands their opportunities to engage in agriculture as a business at different levels, as producers, agro-processors and marketers. The work on strengthening the extension system is expected to supplement the its focus on production with markets being the centre of attention.

² Ato Tefera Derbew, Minister of Agriculture, reported at WIDE meeting on November 27th 2013

Overall and among other livelihood and non-livelihood related topics, WIDE 3 provides evidence that can help assess the long term effectiveness of the extension system, and has identified a series of weaknesses.

The WIDE 3 reports consistently show a gradual improvement of agricultural and livestock extension services and packages both in reach and quality over time from 1995 to 2010/13 in the 20 rural communities. Particularly, better access to improved seeds, fertilizers, and new planting practices has augmented agricultural productivity.

However, the research suggests that at least until very recently, the main focus of agricultural extension has been on promoting the use of fertiliser in the production of cereals while the shift to higher-value crops was mainly farmer-led; relatively marginal attention was being given to other subsectors, especially the high value crop commodities and livestock subsector. The focus of the extension services on cereals is partly attributed to farming and technological challenges associated with the production of high value crop commodities. A recent greater focus on market oriented agriculture has raised the importance of high value crop commodities and indicated that the extension system should provide sufficient attention to the development of these commodities. While there are improvements in recasting the focus of the system towards these commodities, this does not appear to have similar breadth as the interest in cereals, particularly in drought-prone areas.

It is also important to note that the impact of the extension system is mixed. In some instances, within and across the WIDE 3 sites, agricultural packages of selected seeds and fertilizer provisions did not bring about the intended changes sometimes due to the climatic conditions and other times due to unsuitability of inputs with the local system. For example, there were complaints about the lack of local suitability and weak disease- and drought- resistance of some types of seeds recently introduced in some of the WIDE3 communities, while they were being successfully adopted in other communities. The WIDE3 research also highlights deficiencies in the implementation modalities of the agricultural extension system, particularly in communities proving to be less suitable for certain components of the agricultural extension package.

The WIDE 3 studies broadly document an increasing adoption of new agricultural technologies notably fertiliser and selected seeds in most sites, improved livestock breeds in some, tractor hire, broad-bed makers and manual threshers in a few by enterprising farmers. However, there have been serious problems with some of these new practises. For example, the discontinuation of fertilizer subsidies and credit had the immediate effect of increasing prices and reducing access to financing. As the increased prices also put fertiliser beyond the reach of many poorer households, some of them became indebted, particularly when rains were erratic or insufficient. Subsequently, the alternative of using compost fertilizer has been promoted in all sites as part of the extension system. However, this does not address the issue for poor households because the effective use of compost fertilizers requires constantly adding animal dung to the soil whereas poor households do not keep much livestock and hence cannot produce much dung.

Furthermore, WIDE 3 points out that the supply of improved fertilizer and seeds on credit is inadequate, and mostly targets model farmers, who are generally already wealthier farmers with more land, livestock and access to cash. Given the inadequate supply and system bias towards wealthier farmers, poorer farmers are wary of investing in improved fertilizers and seeds. This is

particularly the case in the drought prone sites, where high crop failures risks are sometimes compounded by insufficient extension advice. In general, WIDE 3 suggests that the focus of agricultural extension services being on male and richer farmers tends to exclude the poor and landless youth and women. Sometimes middle-wealth farmers also benefit, usually with a lag. Women headed households also tended to be overlooked since they generally have less land and need male labour for agriculture. Even for better-off farmers with more land, labour and capital, the balance between higher output prices pushed up by inflation and higher costs of inputs remained uncertain in many instances given the uncertainty of the weather conditions and decades of under-investment in irrigation.

This not, however, to suggest that the system's focus on the model approach is misguided or incorrect. There are at least two reasons as to why the model approach is adopted. First, since it is impossible for extension workers to have close and intense engagement with each and every farmer, using the model approach can introduce additional mechanisms for disseminating useful technologies and farming practices using existing local networks. The question is then how effective is the model approach in improving the conditions of farmers who are not model farmers, compared to a situation where the approach is absent. Notwithstanding inequality implications, the WIDE 3 results unambiguously indicate that the welfare of the farmers improves with extension services albeit with the presence of significant untapped potentials for further improvements. Second, the extension system is partly responsible for the creation of qusai-class formation, associated with the rise of a new and rich farmer's class (often model farmers) in rural communities. This, of course, should not be seen in a negative light as the emergency of a category of entrepreneurial farmers is a prerequisite for the transformation of rural economies.

WIDE 3 also documents that the current extension service is also confronted with problems that relate to incentive structure and morale of the extension agents. High turnover of Development Agents (DAs) is indicative of this problem: indeed due to insufficient remuneration and a number of other reasons such as working conditions and perceived lack of opportunities to move on, DAs frequently move on outside of the agricultural sector. The current incentive structure does not succeed in motivating many of them to properly serve the rural communities. For example, in some communities there was a perception that DAs do not conduct enough demonstrations to convince farmers of the effectiveness of given technologies and, even when they carry out such demonstrations, they often choose periods that do not accommodate the needs of farmers. Additionally, the WIDE 3 research suggests that in many cases DAs have insufficient capacity to carefully tailor and implement agricultural technologies to the specific situations and needs of the local farmers.

Agents implementing the extension systems also often undervalue the involvement of women in agriculture (see forthcoming brief on 'Transforming Lives: women and men, girls and boys'). Having limited time and resources, DAs often chose to work with already wealthy farmers to be selected as model farmers. As a result, the poor landless and women farmers were much less likely to benefit from the extension services.

Development agents are on the frontline of efforts to improve agricultural productivity and production. Growing crops efficiently through improved varieties and related technologies is, however, a necessary but not sufficient condition to improve farm yield. Without facilitating farmers' access to both input and output markets, it is not clear how gains in production and

productivity are translated into improvements in farmers' welfare. The role of DAs should thus evolve to reflect this reality in alignment with the changing needs of farmers in rural areas. This requires a shift in mindset and skills of DAs, who should not only transfer production technologies but also facilitate functional linkages along the value chains and have a broader set of skills and competencies than previously was needed.

In general, the above suggests that there is an issue of DAs' accountability, responsible for delivering services of a nature and in ways that are not locally defined, and that this in turn, makes the services not fully matched to the contextual needs, constraints and opportunities of the farmers. Policymakers may want to consider options to address this issue. This may include further decentralizing the system and putting farmer groups in charge of service provision. Conscious of the local circumstances, farmer groups can in fact engage on both sides of the market for extension services. On the demand side, they can increase overall demand for information because they reach more farmers and can negotiate for their demands more successfully. On the supply side of the market, they can deliver services to their members and finance them.

To further support the development and transformation of the agriculture sector, in 2010/2011 the GoE designed and implemented the formation of new sub-kebele structures, called development teams and 1-5 groups, in rural communities. WIDE 3 reports that these structures are used for a wide range of purposes, including: mobilisation for kebele meetings and public works programmes, disseminating information about the agricultural and health extension programmes, and night time security patrols. The agriculture extension DAs are meant to teach and mobilize the leaders of the development teams, evaluating the work of team leaders and holding regular meetings to receive feedback. The development team leaders are the main means of implementing the agricultural extension programme, acting as a bridge between the DAs and the farmers. The DAs also work through model farmers (who are often development team leaders), using their plots to demonstrate new techniques. WIDE 3 points out that the DAs usually work with the male development teams, as men are considered to be the main people involved in agricultural work.

The success of the development teams and 1-5s within the WIDE 3 sites appears to be mixed, according to the views of rural households in these communities. Some community members noted that despite their initial doubts they had found the 1-5s to be useful, especially for exchanging ideas about farming. However, some others within WIDE 3 sites explained that the 1-5s were not operating as they are supposed to; one of the main reasons being that community members preferred to focus on their own individual activities or traditional means of interaction in their communities, rather than contributing to the work of the 1-5s. Furthermore, the WIDE 3 reports show that some leaders of the teams appear to be too old and poorly trained and consequently are unable to lead their teams effectively.

The Discussion Brief 5 on 'Models and realities of transformation' has more to say on the effectiveness of 'models' and the new sub-kebele structures more generally. With regard to their role in the agriculture sector one should note that, despite some observed weaknesses in the structure and functions of these structures, a recurrent observation in the WIDE3 communities is their importance as platforms for sharing experiences among farmers thereby enhancing the effectiveness of the extension programmes.

WIDE3 highlights that economic exclusion resulting from unequal distribution of resources affected specific groups of people or types of household, or groups of people distinguished by their attributed statuses in the communities. Unequal access to resources such as land and livestock holdings, irrigable land and other productive assets resulted in major de facto economic exclusions, predominantly affecting the very poor and impoverished with gender and age dimensions, and hampering their prospect to benefit from development interventions.

The above suggest that many of the constraints on the effectiveness of the agricultural extension system are strongly localised, which in turn, suggests the need for a locally-based demand driven and sustainable extension system, in which the needs of specific agro-ecologies and farming practices would drive extension priorities and support for staple crops would be balanced with attention to market-oriented products that drive farmer incomes and livelihoods upward. The most important recommendation for policy one can also draw from the constraints identified above is not only to develop, with a high degree of specificity, a detailed roadmap of how to achieve a specific strategy but also to institutionalize the diagnostics of the extension system in view of the facts that constraints and contexts are diverse and change overtime.

This brief has noted the variation in extension services required by poor and rich farmers, agriculturalists and agro-pastoralists, men, women, and youth in the 20 sites researched by WIDE 3. The extension system will need to broaden its services to meet the needs of all these groups, particularly as incomes continue to grow and more farmers seek to match the model farmers. Moreover, the observations above call for strengthening the contact between extension agents and farmers through, among others, ensuring that DAs have adequate training in extension methods and communication skills and possess sufficient technical, marketing and management knowhow. In-service training programmes must be organized on a regular base to help extension agents' advance in knowledge, skills and attitudes necessary to meet increasingly varied demands.

Flip-side of the 'extension service' coin: Other Factors influencing farmer's decisions

With hopes of replicating the Asian Green Revolution, understanding how technologies spread and what factors other than the extension system influence farmers' decision on crop varieties and use of inputs continue to be a vital policy question. In Ethiopia there has been much debate on some of the constraints related with the adoption of new technologies, such as the supply of improved seeds. As reflected in this brief, the WIDE 3 research suggests that the influence of government-paid DAs, government-organized development teams and 1-5 networks and government-selected model farmers is notable, as well as frequent meetings and training.

The WIDE3 research shows that among other factors influencing farmers' adoption or not of improved farming technologies are the high risks involved in taking up relatively expensive new technologies without insurance against harvest shortfalls. Levels of technology adoption can also be explained by access to appropriate formal financial instruments or lack thereof and imperfect information about the returns to a new technology. The last factor highlights the consequent importance of learning hence the need to pay attention to how flows of information are shaped by the structure of local social networks.

Overall, WIDE 3 studies point out that technology adoption is on the rise in all the 20 communities; but that the positive gains appear to be below what is expected. This is partly because of some

farmers in some communities being resistant to taking-up and adopting some of the technologies made available by the region or farmers highly resented being “coerced” by government to take risky fertilizer or seeds on credit. In contrast, poorer farmers could not get credit for fertilizer or seeds at all. This suggests that crop variety choices and technology adoptions are highly heterogeneous, which might be heavily dependent on local and individual level idiosyncrasies.

Concluding Remarks

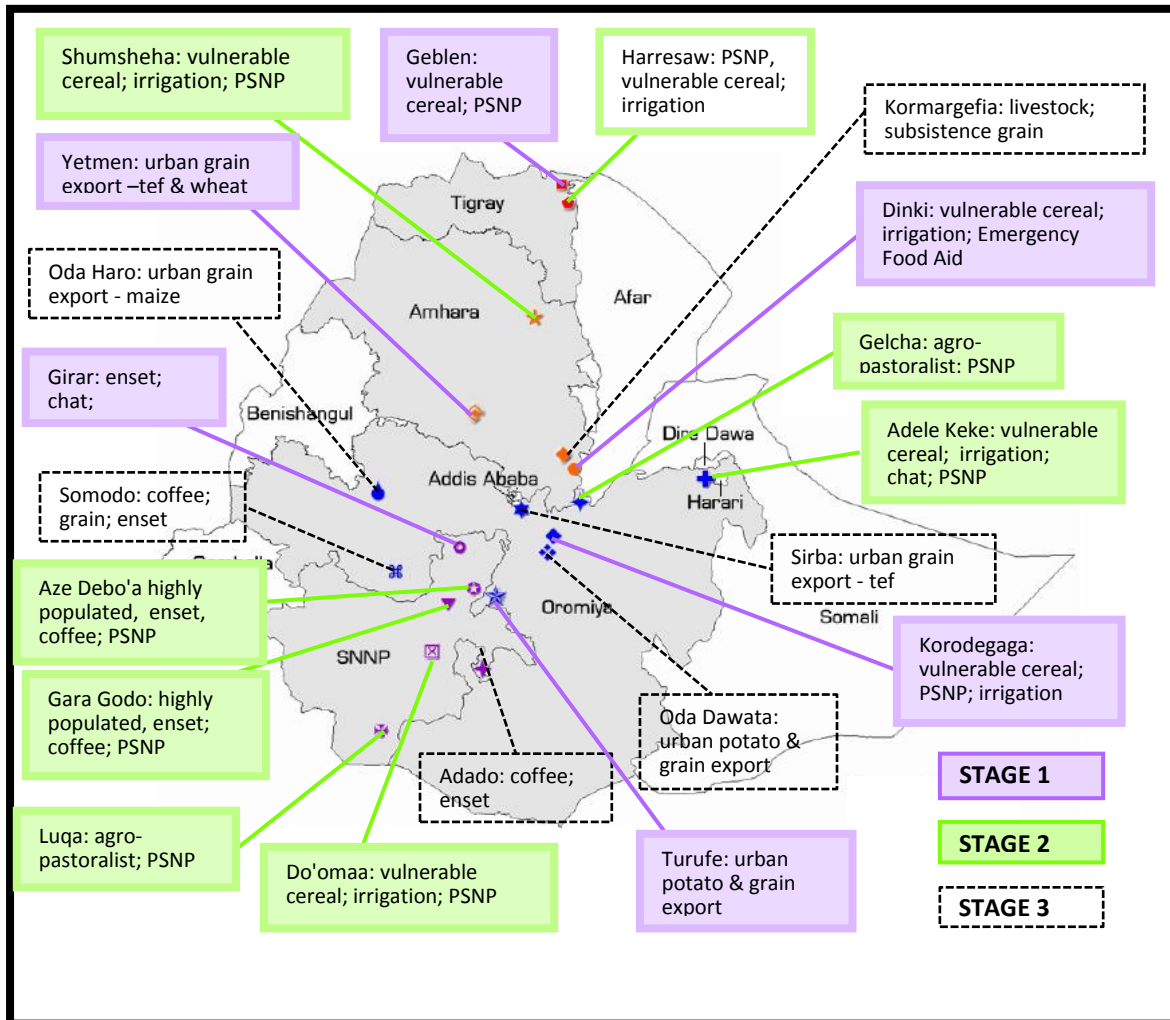
Ethiopia's rural livelihood systems are quite diverse, even within weredas, posing deep problems for the macro-design and implementation of economic policies and programmes appropriate to particular local conditions. WIDE 3 is an entirely unique and revitalizing research that works with the deep appreciation of the importance of contextual circumstance, and the ensuing policy combinations as a path to benefiting from development interventions. WIDE 3 study identifies constraints at the local communities; this is the level at which development does, or does not, happen in poor rural societies (Pankhurst et al., 2011).

WIDE 3 findings indicate that the agricultural extension service has largely led to achievements in productivity enhancements in the 20 sites. As incomes grow and more farmers seek to match “model” farmers, the extension system will need to broaden its services to meet the needs of different classes of farmers, who hitherto have limited experience utilizing the services. Moreover, the DAs epitomize the front line of Ethiopian extension, and as such their own capabilities, commitment & motivation and knowledge to serve farmers are of the highest importance. Strong DA motivation and capacity to serve farmers is critical to the delivery of knowledge to farmers.

In the light of the findings from WIDE 3, it is imperative that policymakers pay utmost attention to context specific constraints that beset smallholder agriculture in order to unlock the potential of the agricultural sector. The review of the agricultural extension situation in the 20 sites of WIDE 3 reveals that extension technologies and policies have sometimes not been consistent with the farmer’s local constraints, objectives, and expectations. The DAs are, for example, evaluated by the quantity of farmers they involve in the extension programme, not by the livelihood impacts documented. Improving the incentive structure and modifying the evaluation measures are imperative for DAs to offer useful and more value creating services to smallholders. This will make agricultural extension schemes and variety adoption strategies more flexible and productive.

Reference map: The 20 WIDE communities

The 20 WIDE communities are examples of the major types of agro-ecological systems found in the four central regions of the country.



Research and Publication Information:

Research:

WIDE is a longitudinal study of 20 rural communities in Ethiopia over 20 years. WIDE1 produced 15 village profiles from 15 communities, selected by Addis Ababa University Economics Department and the International Food Policy Research Institute in the early 1990s, representing different agro-ecological types. (See: the Centre for the Study of African Economies, 1994: www.csae.ox.ac.uk/evstudies).

Three cash crop communities were added and in 2003 WIDE2 added two pastoralist sites during the Wellbeing in Developing Countries/University of Bath study (www.welldev.org.uk).

WIDE3 returned to the 20 communities in three stages. Stage 1 in 2010 involved six communities that had been studied in-depth in WIDE2; stage 2 in 2011-12 included eight drought prone communities; stage 3 in 2013 studied the remaining six growth potential sites.

Community situation reports have been produced for all 20 sites over three research stages. Rapid briefing notes have been shared with an electronic work net of interested organisations and individuals. Key findings have been presented to key government stakeholders through the support of the Ethiopian Development Research Institute (EDRI) at workshops and through meetings with ministers, as well as to donors and international organisations.

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This is one of five briefs produced based on the WIDE3 data and commissioned by the World Bank. This brief has been written by Girum Abebe and Eden Teklay, Ethiopian Development Research Institute (EDRI) and Economic Policy Analysis Unit (EPAU Addis Ababa, Ethiopia, P.O.BOX 2479.

Three of these briefs have been produced by the Economic Policy Analysis Unit (EPAU) of the Ethiopian Development Research Institute (EDRI) on:

- Unlocking agricultural growth
- Farming and value chains
- Job creation for the rural youth

Two briefs have been produced by independent consultants on:

- Equitable service delivery
- Models and realities of transformation.

Disclaimer:

These five briefs, drawing on the WIDE 3 evidence, have been produced to bring policy and implementation questions and possible implications to the attention of policymakers, with the aim of contributing to current debates on the key issues addressed through engaging in discussions with government and the donors. They do not necessarily represent the views of the World Bank, the financing donors or the WIDE research team.

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