



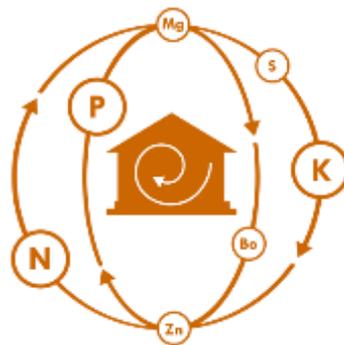
# Progress Report

*Period Jan – Sept 2015*

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[fertilegroundsinitiative.info](http://fertilegroundsinitiative.info)





*The Fertile Grounds Initiative (FGI) is a coordinated strategy of collaboration between actors in nutrient management to increase nutrient use efficiency at various spatial levels to maintain or improve soil health and productive capacity of land. Via a brokering process various sources of organic and mineral nutrients are brought together and redistributed to its optimum effectiveness thus increasing food security and reducing wastes.*

*FGI is implemented in areas facing soil fertility constraints and targets preliminary smallholder farmers. FGI is best positioned in sites where diverse farming systems and processing industries are in relative proximity.*

*FGI is jointly implemented by Wageningen University and Research Centre and local partners. More information on [www.fertilegroundsinitiative.info](http://www.fertilegroundsinitiative.info)*



# Progress report FGI

*Reporting period: April – October 2015*

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## Summary

2015 was an exciting year for us. After two years of review we are now off, or better *in*, the ground. The project, both content wise as organisational and financial, is challenging, but to our view, good progress has been made. We may now claim that FGI is a concept known by our key-stakeholders and that in-field activities are happening. In 2015 the main emphasis was on the implementation of the case studies for proof of principle in Uganda, Ethiopia and Burundi. This succeeded in Ethiopia, is well on its way in Burundi and will be further elaborated in Uganda. Case studies are based on existing projects (host projects) to which supplemental activities are added in line with the FGI process components. This way of working gives the case studies a head start once the host projects are identified and mutual agreement is found. However, the process prior to this phase is sometimes complex and time taking and consequently the development of the case studies is in different phases in the respective countries. In this reporting period work plans were approved for 2 case studies in Ethiopia. In Burundi, a larger newly developed project and an existing WOTRO-ARF project are considered part of FGI. For Uganda, the identification of appropriate new host projects is ongoing while here also one WOTRO-ARF project is considered a case study for FGI. Substantial progress was made on the thematic areas knowledge management and stakeholder networks for which more than 90% of the targets of the M&E guidelines was achieved.



## Introduction

The overall aim of the Fertile Grounds Initiative (FGI) is to halt or revert soil fertility loss in resource poor areas. Notwithstanding the considerable number of interventions, soil fertility loss is still widespread, because previous interventions were, apparently, insufficient. They lacked integration of different spatial scales and integration of supply and demand of organic and mineral nutrients. The goal of FGI is: facilitate synergy among stakeholders in nutrient management to maintain or increase soil fertility to enhance food and economic security in resource poor areas.

FGI is thus an action oriented collaboration of various partners with a common goal and where task and actions are aligned to increase the impact of all parties involved. It is based on the principles of Integrated Soil Fertility Management (ISFM), more specifically, in removing the barriers that hamper the actual implementation of ISFM. Notably, at present implementation of ISFM is often hampered by limited collaboration between actors in nutrient management. This is especially true for actors that provide (organic) nutrients (such as actors in the agro-processing industry), mineral fertilizer companies and consumers of fertilizer products (viz. farmers). An additional aspect not included in many nutrient management schemes developed so far is the realization that nutrient supplies from other than traditional (i.e. mineral fertilizer) sources can be of great added value. This relates to the growing awareness that nutrient supplies are finite, especially phosphorus supplies, which increases the need to close nutrient balances whenever possible, make better use of existing resources and consider the potential of re-using nutrients present in currently neglected material flows like household waste, food waste, manure, on- and off farm compost etc. This not only results in a more efficient way of re-utilization of nutrients, but the sources mentioned here also act as sources of organic matter. In combination with existing traditional fertilizers, new organo-mineral blends can prove to be the key to revert the combined nutrient and carbon depletion that prevails in many cropping systems.

To realize this transition towards sustainable fertile soils, the basis for Climate Smart Agriculture, the strategy of FGI comprises :

- Increasing the various nutrient application efficiencies through matching of nutrient demand for specific agro-ecosystems and the supply (including new resources like compost, manure etc.);
- Increasing awareness and interactions among stakeholders across the food production system;
- Removing logistical barriers that would prevent the development of functional and resource efficient food production systems;
- Improving economic boundary conditions that allow farmers to increase the production through improved integrated nutrient management.

To make this strategy work eight distinctive components were identified that form the core of the FGI principle. Yet it should be noted that a component can never be a blueprint, as it needs local adaptation and modification. FGI provides a framework to position the different activities that, one way or the other, are needed to initiate change, but the activities in a country may vary according to local conditions and needs. The following components were developed in close consultation with key-stakeholders in the Netherlands and abroad (see also Figure 1):

1. Inventory of nutrient demand by farmers who express their nutrient demand considering differences in soil and cropping systems.
2. Inventory of nutrient availability (sources) by potential suppliers who express what they can supply, both in terms of amount and quality.
3. Product formulation and processing: conversion and combination of diverse resources, both mineral and organic into valuable fertiliser products. Stimulate the chemical fertiliser industry to target blends and compounds for this component.
4. Brokerage: nutrients in resources and fertiliser products are valued and a commercial agreement is arranged between suppliers and clients.



5. Trade and logistics: business case design, nutrient trade and transport.
6. Capacity building: farmers, extension workers, brokers and salesmen receive training on best practices in nutrient management, site-specific fertilizer recommendations based on soil and crop requirements
7. Institutional arrangements: cooperating with existing farmers' organizations and/or setting up farmers' cooperatives, defining the role of a potential nutrient bank, legal and institutional embedding, governmental and policy support.
8. Enabling environment: mobilise support for market access, micro-credits, insurances, etc. for smallholder farmers.



*Figure 1. The eight components of the Fertile Grounds Initiative that can and should occur simultaneously.*

To be able to upscale the knowledge, processes and results, we started in three focus countries in Sub-Saharan Africa (Ethiopia, Burundi and Uganda) with a Theory of Change workshop. FGI contributes in this way also to Spearhead Food security of the Multi-Annual Strategic Plans (MASP) of the three embassies of the Kingdom of the Netherlands.

In this reporting period the main emphasis was on components 1, 2, 3, 6 and 7, which can be generally characterized as nutrient gap determination (i.e. the difference between demand and supply for organo-mineral fertilizers within a given context) was determined and assuring the capacity of institutional willingness. Both are crucial for the planned activities of the initiative. The progress report first describes a general impression and highlights of this reporting period, followed by thematic progress and geographical (case study) progress. The report concludes with an update on project management, including deliverables, bottlenecks and finance.



## General impression of the past period

In this reporting period main emphasis was on designing and implementation of the case studies as they will provide the proof of principle information for the FGI approach (Figure 2). Good progress was made in this area. Also, publicity is ongoing and has found its own mechanism, i.e. FGI is frequently requested for presentations and contributions to publications. The concept, apparently, is appealing as we received many interests from different stakeholders to become involved.

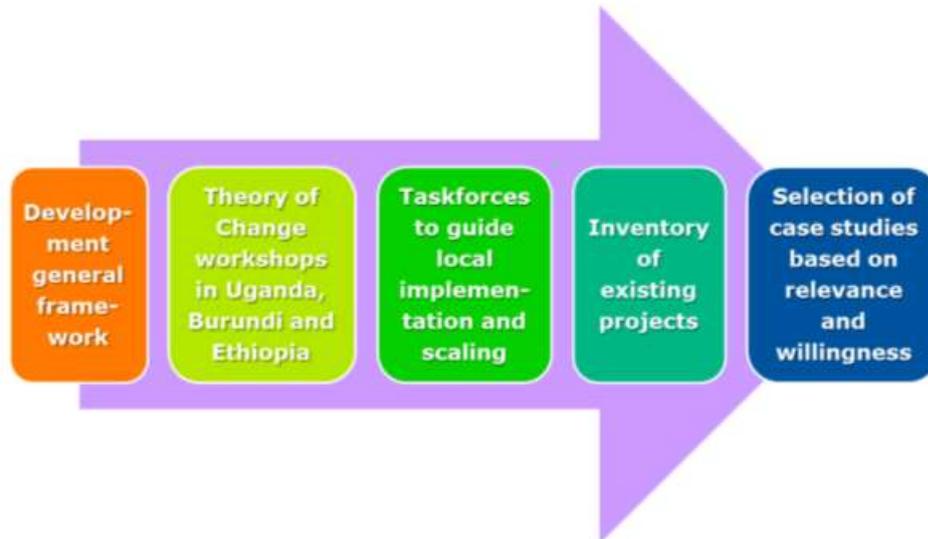


Figure 2. Process towards selection of case studies. This approach was followed in each of the case study countries.

In the subsequent chapters progress is reported through four highlights, per thematic pillar, and per case study according to the project plan 2015-2018.



## Highlights

During this reporting period FGI achieved four highlights that are related to awareness, knowledge management, and proof of principle activities.

### Highlight 1: Awareness

FGI was present at the celebration of 15 years Earth Charter on June 29 with its 'banana balance'. This mobile equipment demonstrates nutrient trade and disconnection to wide range of people to create more awareness on this topic. Steven Rockefeller, Ruud Lubbers, Rabbi Awraham Soetendorp, senior advisors Mary Evelyn Tucker, Rick Clugston, Jan Pronk and Herman Mulder attended the celebration in June.

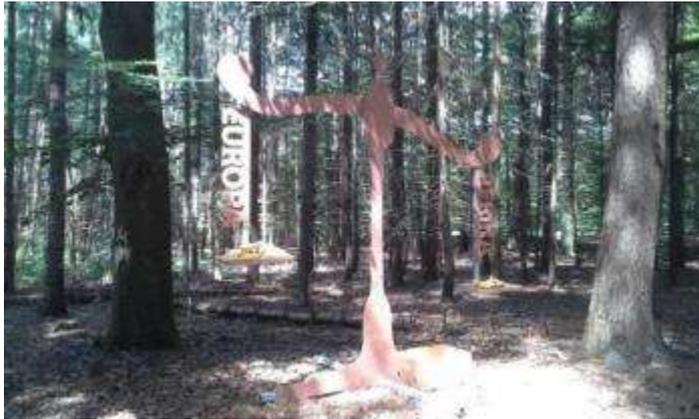


Figure 3. The 'banana balance' helps to create awareness of the disconnection of nutrient cycles. Here the balance is shown during the anniversary of the Earth Charter in Doorn (June 29, 2015).

### Highlight 2: Knowledge management

A first version of the digital soil fertility toolkit is ready and will be tested by the TAMASA consortium in extended field trials in Tanzania and Ethiopia. Interest is shown by many potential users from research (e.g. IITA and ASC), private sector (via MVO-Nederland) and NGOs (e.g. ZOA). The soil fertility toolkit is unique in the sense that it uses physical data (i.e. data collected on the ground by farmers or extension workers) to fine tune recommendation based on legacy data in the digital part of the toolkit. This combination results in more involvement of the people who actually manage the soil without losing scientific validity

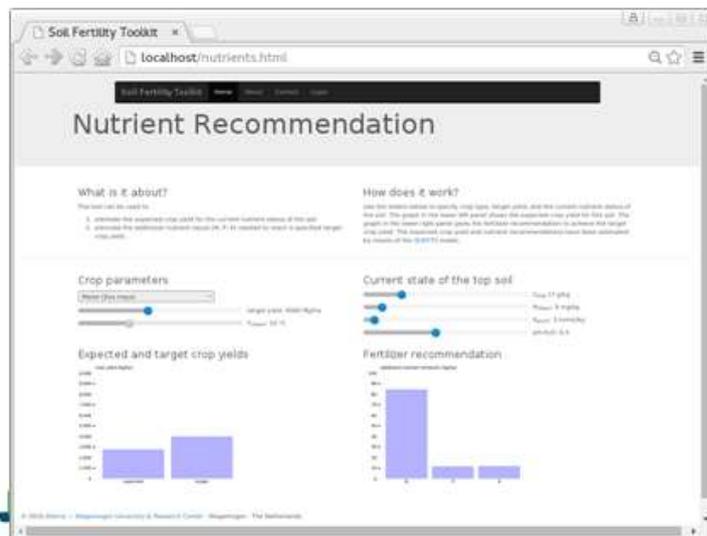


Figure 4. A screenshot of the soil fertility toolkit.



### Highlight 3: Proof of principle (case studies)

Much effort was given to the case study workplans, that are now ready for implementation in Ethiopia, i.e. all MoUs are signed and detailed activities, responsibilities and planning are agreed. The case studies are located in Adet (Amhara) and Ziway (Oromia).

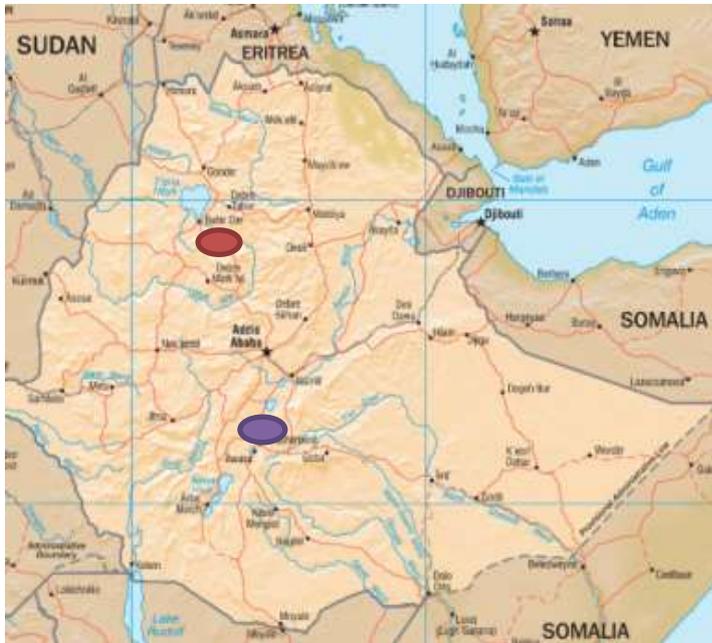
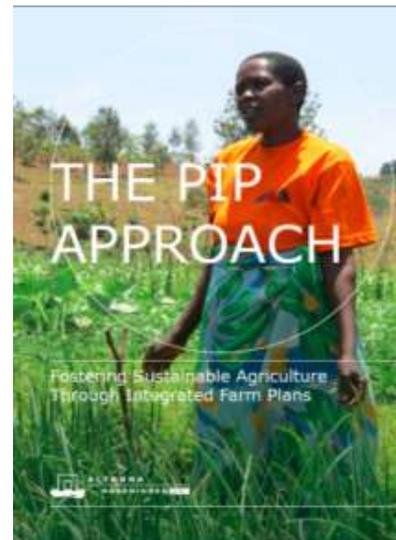


Figure 5. Locations of Ziway case study (purple) and Adet case study (red) in Ethiopia.

### Highlight 4. Building a new national project based on the FGI-ToC

The Theory of Change (ToC) workshop on soil fertility, organized by FGI and IFDC in Burundi (January 2015) has been the basis for the development of an improved integrated subsidized fertilizer vouchers program from IFDC (i.e. PAPAB). That includes a rolling out the PIP approach and together with other measures to increase the effectiveness and nutrient use efficiencies.

The PIP approach, developed in the framework of the FDOV-project Fanning the Spark, is an innovative way of transforming small-scale subsistence farm households into more productive and sustainable farms. It is based on a visionary integrated farm plan which is developed and drawn on a map by all family members, as well as a concrete action plan how to realise that vision. Changing farmers' mind-sets and making them aware that they can transform their reality by conscious collective action is at the core of the PIP approach. This bottom-up approach creates more integrated farms, brings dynamics into a give village, and subsequently a market for both organic and inorganic fertilizers to sustain the increased yields. We consider the PIP approach as a possible and sometimes preferred way of involving farmers in FGI case studies. In Burundi, PAPAB is the basis for FGI, and the WOTRO-ARF project 'Building on Fertile Grounds' is the first case study of FGI. In this way FGI makes optimum use of the scarce financial resources available, and we expect to address certain issues related to site-specific fertilizer recommendations and implementing ISFM at a larger scale.





## Thematic progress

The progress of the thematic pillars is evaluated against the M&E target values.

### Knowledge management

Output	Target	Achieved
<b>Popular publications</b>	2	1 (article De Helling)
<b>Trainings and courses</b>	2	4 NUFFIC training Hawassa, lecture Addis Ababa University and MonQI trainings Uganda and Burundi
<b>Scientific publications</b>	2	1 (and 1 in progress)
<b>Presentations</b>	2	3 Wageningen soil meeting, Hope University and GIZ/ELD
<b>Trade fair</b>	0	2 Trade fair organized by EKN-Kigali EXPO event in Milan.
<b>Presence on social media</b>	100 hits on website	Website launch November 2015

FGI performed especially well on trainings and courses. A proposal for a tailor made training course was submitted to NUFFIC by Hawassa University and approved. This 10 day training will be given October 20-30, 2015 in Hawassa. The course flyer is added in Annex 1.

FGI was presented at the Wageningen Soil Meeting and gained much interest<sup>1</sup>. An abstract on FGI is submitted to the Africa Soil Science Society (no response received yet). A presentation was also given to the Economic Land Degradation (ELD) with GIZ participation. Courses on monitoring farm management and farm performance using the MonQI toolbox are scheduled for the end of 2015 in Ethiopia and for the beginning of 2016 in Uganda.

FGI is largely involved in the Ethiopia soil week with presentations and demonstrations<sup>2</sup>.

<sup>1</sup> The abstract can be found here [http://www.wageningenur.nl/upload\\_mm/6/c/6/3bb550bd-2b03-4a59-a50e-2cf1157109e8\\_Final\\_Book%20of%20Abstracts\\_WSC%202015.pdf](http://www.wageningenur.nl/upload_mm/6/c/6/3bb550bd-2b03-4a59-a50e-2cf1157109e8_Final_Book%20of%20Abstracts_WSC%202015.pdf).

<sup>2</sup> See <http://agriprofocus.com/ethiopian-soil-campaign>.



## Stakeholder networks

Output	Target	Achieved	Remarks
<b>Functional linkages</b>	2	4	Functional linkage with IITA and ASC, projects within WOTRO-ARF project (other than those in which Alterra is a partner).
<b>Adoption of FGI as working concept</b>	1	?	Interest shown by CIAT, RDA, WB and AGRA
<b>Linking to enterprises</b>	0	5	<ul style="list-style-type: none"> <li>Two social investors showed interest to contribute financially;</li> <li>a dairy cooperation in Uganda is building its grass-rooted business case in collaboration with FGI;</li> <li>a Netherlands investor sought support to develop an integrated farm in Uganda with right investment in the soil;</li> <li>a Dutch consortium headed by MVO-Nederland is likely to invest in the further development of the soil fertility kit.</li> </ul>

In 2015 much emphasis was given to involving stakeholder networks. This was sometimes complicated by differences in mandates of organizations and/or vested interests. Yet, substantial progress was made with CIAT, IITA and ASC (Africa Study Centre), viz.

- CIAT has shown interest to outscale FGI in their soil fertility programme. A follow up meeting is planned for November 2015.
- IITA will test the FGI soil fertility toolkit in their TAMASA programme. Formal arrangement will follow after the board meeting of TAMASA (October 2015). In addition, we will develop a joint PhD program in Uganda, and a program around involvement of youth in agri-business in Burundi together with Spark.
- A joint workshop was organized with ASC in August 2015 on frugal innovations in soil fertility management. Follow up is planned for the 4<sup>th</sup> quarter of the year.

Additionally, a One WUR meeting was organized in June 2015 to involve other scientific disciplines in the project. This was successful for the socio-economic chair group of prof. Ruerd Ruben, for which the collaboration strategy is now being formulated.

FGI was presented at the EXPO event in Milan.

## Case studies

Output	Target	Achieved
<b>Case studies in place</b>	3	2

Taskforces are operational and functional in all 3 countries. More information about the case studies is provided in the next chapter.

## Upscaling

Output	Target	Achieved
<b>FGI mentioned in strategic discussion papers</b>	1	?

We learned that upscaling can be hampered by several institutional and legal barriers, e.g. in Ethiopia the absence of a benchmark for compost hampers the trade of compost and in general (i.e. not limited to



Ethiopia) proper testing of organic soil amendments is weak. The first barrier was tackled by developing a ToR for an assignment for developing compost benchmarks for Ethiopia. The ToR went out in September 2015 and the deadline for bidding is October 31. With regard to the second barrier a proposal for a testing centre for organic soil amendments was produced and submitted to WUR (in progress).

The soil fertility toolkit is expected to have a large contribution to upscaling as it also creates awareness and provides concrete recommendations. The testing version will be released November 1, 2015.



## Progress per case study

### Ethiopia

In Ethiopia 2 case studies are now in full swing. Below a description of each case study is presented/

#### The 'Ziway case study'

Main aim in the Ziway case study is to increase the (local) production, transport and use of compost by farmers through increased production using waste from local (rose plant) growers. Major activities at present are related to the composting business itself (Soil and More Ethiopia), i.e. increasing the capacity for compost production. At present main inputs are from rose plant growers. Part of the compost is returned to the rose growers themselves and part of the compost is distributed to farmers. Payment for the compost is, at present, provided by HoAREC. Aim is to show farmers the benefits of compost as a fertilizer/soil improver next to or instead of inorganic fertilizer. Through increased production levels (yield) resulting from improved farm management (a.o. through compost application) income is generated that is to be used (partly) to buy compost.

*Main added value through interaction with FGI:*

1. Better assessment of farmers needs in terms of nutrient demands depending on the crop produced, soil type etc. (FGI component 1);
2. Expanding of source for material to produce compost which is now largely limited to rose growers waste streams. Potential alternative sources include animal manure, human waste, local household waste (FGI component 2);
3. Include possibilities to provide more tailor made products in combination with inorganic fertilizer (blending; FGI component 3);
4. Expand the range of target farmers. At present the farmers targeted by SME is limited. Depending on the availability of compost and the capacity of the plant to provide base materials for blending;
5. Explore the possibility to create a brokerage system that includes trade logistics (FGI components 4, 5). Ultimately the number of farms to be reached also depends on the distance from the central plant. In the Ziway case, the production of compost is centralized in one location which limits the potential number of farmers to be reached (costs for transport);
6. Provide training to farmers representatives (MonQI/Quefts) to fine-tune crop specific fertilizer recommendations.



#### The 'Adet case study'

The Adet case study is hosted by LIFT programme of DfID. LIFT has three main components:

1. Increase the access of farmers to (micro)credits through land certification that document the right of ownership/rent of the land. This mainly involves the identification and mapping (GIS/satellites) of all areas used by the farmer resulting in a certificate showing the extent of the farm worked by a specific farmer. This then serves as collateral to obtain credits by banks.
2. Increase the production of high quality wheat to be supplied to the market and can be labelled as 'organic' which requires a shift in fertilization from inorganic fertilizer to organic fertilizer. At present there is a growing demand for organically grown wheat by bakeries (ao in Addis Ababa) that cannot be met by current farming systems. One solution is to switch from current fertilization practices



involving the use of inorganic fertilizer to organic fertilizer notably compost. To improve the composting SME will supply inoculants.

3. improve the productivity of the land by increases access to organic fertilizers (via the so-called compost 'hub') and reduced tillage (switch to two wheel tractor/row planting) and other technological improvements (technology 'hub'). The main idea behind a hub is that all activities related to either production and/or distribution of compost or technological developments are to be organized at local or regional level (depending on the farming systems and distance to such centralized hubs).

As such the Amhara case covers a number of activities related to FGI, notably the access to credits and integration of technology and supply of compost via the hub concept.

At present however it is unclear to what extent compost, in case of a complete shift from inorganic to organic fertilizers is able to supply the soil with required nutrients. Not only are nutrients from compost less available compared to those from inorganic fertilizers, also the composition of compost is such that it may prove difficult to achieve an optimum supply of N, P and K in their required ratios. Ultimately this depends on both the crops demand as well as the source material of the compost.

*Main added value through interaction with FGI:*

- Better assessment of farmers needs in terms of nutrient demands depending on the crop produced, soil type etc. (FGI component 1)
- Include possibilities to provide more tailor made products in combination with inorganic fertilizer if organic fertilizers prove to be insufficient (blending; FGI component 3)

Similar to the Ziway case study the added value of cooperation between the LIFT programme and FGI is a better understanding and optimization of nutritional needs of crops in relation to soil type and providing optimum amounts of nutrients in view of the quality of fertilizers applied (which in case of Amhara can be largely organic fertilizers).

## Uganda

Of all three target countries most difficulties were observed in Uganda where we had to start almost from scratch with the ToC workshop November 2014. This year, a stakeholder analysis was carried out by a consultant. The objectives of the study included: i) capturing relevant details and needs of major ISFM stakeholders, initiatives and policies at national level in Uganda; ii) obtaining relevant details and needs of major ISFM stakeholders in the FGI pilot zones; iii) identifying major constraints and current needs of stakeholders; iv) Identifying critical partnerships for cooperation, together with operations that could contribute to synergies with FGI; and v) identifying possible quick wins for restoring and maintaining land productivity through ISFM in each of the FGI pilot zones.

The study methodology comprised of document analysis, interviews and supplementary analysis of relevant studies. The research techniques included gathering key assignment insights, initial discussions with district and national level stakeholders, as well as internet search. The gathered information was largely qualitative and therefore analysed using contextual and thematic analyses.

The major FGI stakeholders in the FGI pilot zones comprise of local governments, Government of Uganda Ministries, involved in the agricultural sector and government bodies established by statutory instruments; NGO and CSOs; national and interventional level research Institutions; the NAADS and extension service providers, financial Institutions; producers and farmers organizations; importers, whole sale traders, stockists, and farmers.

This following interventions that are likely to make FGI successful were identified:

- Supporting the process for finalising and operationalising the National Fertilizer Sub-Sector Development Strategy and Investment Plan (NFS);
- Undertaking a meta-evaluation/ assessment on organic fertilizer use and application-these findings should support FGI's evidence based advocacy work;



- Providing guidance on the legal framework for fertilizer trade;
- Engaging MAAIF, NARO, IFPRI, EPRC, to identify priority areas that FGI could potentially support,
- Collaborating with National Agricultural Research Laboratories (NARL) - Kawanda, and IFDC;
- to update Agricultural Research Information Systems, soils resource maps and soil database;
- to develop partnerships in disseminating soil analysis findings and nutrient deficiency information to farmers;
- undertaking awareness raising activities and training events on fertilisers through district farmers associations.

Finally, the study provided the following recommendation:

1. Register the FGI as a formal organization in order to enable it engage in sustainable collaborations, partnerships and networks;
2. Undertake a feasibility study on organic fertilizer production in Uganda;
3. Support existing research institutions to disseminate research results on the fertilizer sub-sector.
4. Commence an intervention that strengthens links between NARO, NAADS, farmers (through their associations) and other service providers;
5. Build the business case for organic fertilizers;
6. Partner with the Uganda Micro Finance Support Centre (MSC);
7. Support further research in the fertilizer sub-sector.

The possible case studies and leads identified are listed in Table 1.

At present most promising lead is IITA and Amate Gaitu Coop that will be further explored during the planned workshop in December. The WOTRO-ARF project 'Farmer-led Innovations to sustain food production' is considered a case study for FGI. No MoUs signed yet.

Table 1. Attempts and results of different leads to host FGI case studies in Uganda.

Lead	Description	Status
<b>Kumi Hospital farm</b>	A mixed farm (maize, sunflower, cattle) of 1000 ha that needs a soil management plan. Social investor who is also interested in natural resource management.	Pending
<b>IFDC</b>	Logical partner for case study, but strict focus on own mandate and interests.	Investigating possibilities
<b>Kampala Capital City Authority (KCCA)</b>	Kampala Capital City Authority (KCCA) is responsible for the operations of the capital City of Kampala in Uganda	Already in consortium for waste recycling, but interested to work on waste water treatment -> lead passed on to colleagues in water management.
<b>IITA</b>	Interested in doing meta study on nutrient flows. Hosts PASIC that works on policy aspects	Very interested, good opportunities
<b>Operation Wealth Creation</b>	Developing plans for organic manure waste plant in Uganda	Showing interest
<b>WOTRO-ARF project</b>	Cashew nut introduction project	Interested in collaboration on nutrient management using MonQI
<b>Amate Gaitu Coop</b>	Works on yogurt business case and improved pastures. NAADS will provide 10 tractors with implements for pasture development and cattle feed production component of the project. 100 farmers are interest; FGI could help in database development so that we can monitor productivity increase, soil fertility and other important parameters. Also possible to link this with a company who wants to sell dried cow dung.	In progress



The ongoing case study WOTRO-ARF project 'Farmer-Led Innovation for food Security' addresses the constraints in food production in Northern Uganda, namely labor, unsustainable soil fertility management, and climate change. Some farmers have themselves developed a range of promising Conservation Agriculture (CA) initiatives. This project will 1) establish the relationship between these promising initiatives, the productivity of the farming systems, and the sustainability and resilience of its land management. 2) identify and develop methods for improving these local CA initiatives, and 3) build the capacity of extension services so that best methods will be incorporated in their farmer support and dissemination mechanisms. The M&E tool MonQI is also being used here, so that resource use efficiencies can be compared to other FGI and other studies.

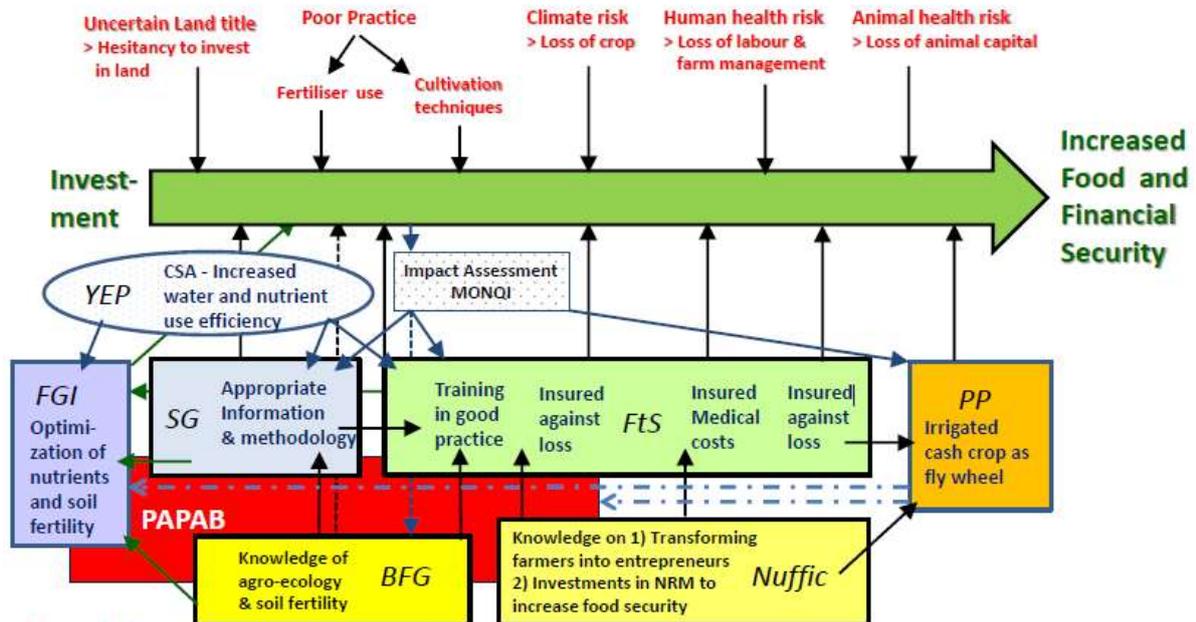
## Burundi

In Burundi, FGI was well on its way to identify new case studies, when the political situation caused a major delay. On the other hand, we were able to work on the project proposal for the PAPAB project based on the results of the FGI-Theory of change Workshop held in January 2015 linked with the new phase of the subsidized fertilizer scheme with an increased focus on getting farmers to use these fertilizers appropriately. PAPAB has thus become an integral part of FGI and will be launched mid November 2015. In Burundi, Alterra has built a track record on improving food security through improved natural resource management and participatory bottom up approach. The WOTRO-ARF project 'Building on Fertile Grounds' is considered a case study for FGI. Carried out in the South of Burundi (Makamba province), it has been designed to address the the high variability of the soils and climate regimes in the area, to make inputs and advice much more site-specific required to increase adoption rates of improved technologies. The project will develop, field-test and refine innovations per agro-ecological zone. The best assessed propositions - in terms of improved access to food/income, improved land and labor productivity, sustainability and adaptation to climate change - will be embedded in ZOA's on-going agricultural programs and in the government rural extension services. This project will on the one hand use scientific knowledge on agro-ecological zones and crop suitability, and on the other hand farmer's knowledge on soil fertility to develop proposals for innovations based upon detailed cost/benefit, sustainability and climate (change) analyses. Soil samples will be taken and be used to validate the local farmer's classification system. Propositions will be tested by farmers, coached by the project staff, per each agro-ecological zone. The results will be assessed in a participatory way, and subsequently the innovations refined.

The integration of current activities and their relation to FGI is shown in Figure 6.



## Inhibitors



## Enablers

Links between the projects *Fanning the Spark* (FtS), *Secured Growth* (SG), and *Building on Fertile Grounds* (BFG), PhD research (Nuffic), *Fertile Ground Initiative* (FGI), *Increasing water and nutrient use efficiencies for CSA* (YEP) *Patchouli Project* (PP) and *Projet d'Appui à la Productivité Agricole au Burundi* (PAPAB), and their alignment towards increased FFS.

Figure 6. Integration of different activities of Alterra in Burundi and the link to FGI.



## Relationship between the case studies

The relationship between the on-going case studies in terms of subject dealt with is mainly the role of organic matter, i.e. compost and manure. In Burundi, Building on Fertile Grounds (BFG) works on site-specific ISFM recommendations (using compost as C-source) while in Ethiopia the Ziway case study works on the adoption of compost and compost benchmarks. In Uganda, the project Farmer-Led Innovations (FLI) investigates the role of conservation agriculture also in relation to organic matter in the soil. The spatial relationship is illustrated in Figure 7.

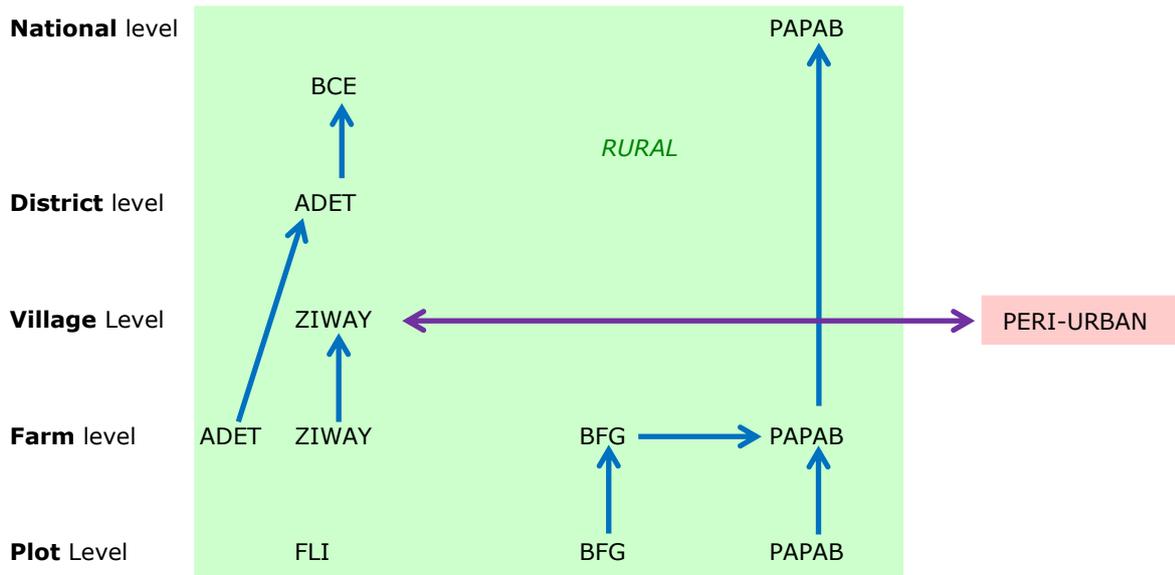


Figure 7. Spatial relationships for the existing case studies. PAPAB = *Projet d'appui à la Productivité Agricole au Burundi*; BFG = *Building on Fertile Grounds (Burundi)*; FLI = *Farmer-led Innovation for Food Security (Uganda)*; BCE = *Benchmarking Compost in Ethiopia*; ADET (*Ethiopia*); ZIWAY (*Ethiopia*).

## Project management

### Staffing

The initiative is managed through the Wageningen based coordination team together with local task forces in 3 countries that work on a voluntary basis. The staffing of the different roles is shown in the following Table.

Table 2. Staffing of the FGI project. \*Members of YEP programme living in respective country.

Task	Name	Organization	Main task
Advisory Board	Hans Brand	Ministry of Economic Affairs	
	Frits van der Wal	Ministry of Foreign Affairs	
	Gerard Teuling	MVO_Nederland	
	Pieter Windmeijer	Food & Business Knowledge	



		Platform	
<b>FGI coordination Team</b>		Roelof van Til	ZOA
		Christy van Beek	WUR
		Niek van Duivenbooden	WUR
		Paul Romkens	WUR
		Nadine Herold	WUR
		Tomek de Ponti	WUR
		Ruerd Ruben	WUR
		Jennie van der Kolk	WUR
<b>Ethiopia taskforce</b>		Jelleke de Nooij	Agri profocus
		dr Teshome Soromesa	CES Addis Ababa University
		dr Hirpa Legesse	Wollega University
		dr Wassie Haile	Hawassa University
		Tegbaru Bellete	ATA
		dr Christy van Beek	WUR
		Dr Eyasu Elias	
		Endy Yaregal	LIFT
<b>Ethiopia case studies</b>	Adet	Yihenew G Selassie	Bahir Dar University
		Anniek Elemans*	YEP
		Paul Romkens	WUR
	Ziway	Hussen Ahmed	Soil and More Ethiopia
		Tulu Tolla	Addis Ababa University
		Paul Romkens	WUR
		Anniek Elemans*	YEP
<b>Burundi taskforce</b>		Jean Ndimubandi	University of Burundi-FABI
		Alexis Ntamavukiro	IFDC-Burundi
		Ferdinand Nderagakura	MEEATU/PNLAE
		Emmanuel Ndagijimana	ZOA-Burundi
		Cyriaque Nzojibwami	GIZ/ACCESS
		Cyrille Hicintka	ISABU
		Joseph Nduwimana	MINAGRIE
		Dévote Nimpagaritse	ISABU
		Christian Nimubona	OHP
		Prosper Dodiko	DFS
		Astère Simbashizweko	IFCD
		Theodomir Rishirumuhirwa	consultant
		Niek van Duivenbooden	WUR



<b>Burundi case study</b>	Building on Fertile Grounds	Kaboneka Salvator	ISABU	University of Burundi
		Erwin Boogaard	Agrifirm	Consultant
		Geoff Andrews	ZOA-Burundi	Project coordinator
		Roelf Voortman	SOW-VU	Micro-nutrient interactions
		Roelof van Til	ZOA	Food security
<b>Uganda Taskforce</b>		Drake Rukundo	Bureau of the president / consultant	Chairman; links to major networks including government
		Koen Sneyers	ZOA	Facilitator, administration
		Vacant**	Sustainable Land management	To be filled Dec 2015 when FGI has visibility and pilots
		Simon Peter Nkeroko	IITA/PASIC	Left in the summer; replacement will be proposed soon
		David Hirsh	IFDC	Facilitating meeting room
		Patrick Nganzi	Private consultant	Links to SME & farmers
		Agnes Nayiga Kayondo	Private consultant	Per October; links to policies
		Niek van Duivenbooden	WUR	Uganda coordinator (till Dec. 2015)
		Nadine Herold	WUR	Uganda coordinator (from Dec. 2015 onwards)
		<b>Uganda Case study</b>	Farmer-led soil innovations	Koen Sneyers
Giregon Olupot	Makerere Univ.			Field and analytical work
Niek van Duivenbooden	WUR			Backstopping
Aad Kessler	WUR			Backstopping
Roelof van Til	ZOA			Food security
Hanneke Heesmans	WUR			Workshop MonQI and follow up
Irene Moed	WUR			Workshop MonQI and follow up

\*\*\*) FGI will be in the task force meetings of SLM.

FGI puts emphasis on involving members of the YEP programme in the case studies. With regard to the project staffing Nadine Herold is the successor of George Rots who left Alterra.

## Communication and publicity

Some time was needed to decide on the website strategy (in house, or external). The website is now being developed by an external party. The management of the website will be done by the project team. The website will go live the second half of October 2015.

The first newsletter is ready and will be distributed as soon as the website is launched. The newsletter is linked to the website.

Two leaflets were produced, viz. the added value of FGI (for host projects ) and soil fertility toolkit. Both leaflets are put in the Annexes of this document.



## Deliverables

In this reporting period many deliverables were produced, many more than listed in the workplan. Table 3 shows the deliverables of this reporting period, including the ones that were not foreseen, but turned out to be required for proper progress and hence were developed.

Apart from additional deliverables, there was also some output that was promised in the workplan that was not delivered. These include:

- Report on key success factors
- Explorations on impact of FGI approach on climate, water, and productive capacity of land.

For both deliverables it was considered too early to make proper assessments using FGI impacts.

Table 3. Deliverables of FGI 2015. Deliverables marked with an \* are part of the workplan 2015, in italic the 'extra' deliverables (i.e. not part of the workplan).

<b>Deliverable</b>	<b>Objective</b>	<b>Remark</b>
<b>Minutes of FGI taskforce meetings*</b>	Recording	Available on request
<b>Screening methodology developed*</b>	Implementation	Available on request
<b>Brochures and leaflets</b>	<i>Publicity/awareness</i>	<i>Available on request, will become available on website, example in annex 2</i>
<b>Training programme</b>	<i>Capacity building</i>	<i>Available on request</i>
<b>Minutes of project meetings</b>	<i>Recording</i>	<i>Available on request</i>
<b>Presentation general introduction to FGI</b>	<i>Publicity</i>	<i>Available on request, will become available on website</i>
<b>Lecture (MSc level)</b>	<i>Capacity building</i>	<i>Available on request</i>
<b>"Banana balance"</b>	<i>Awareness creation</i>	<i>Available on request</i>
<b>Workplan case studies (2)</b>	<i>Implementation</i>	<i>Available on request</i>
<b>Report "mapping of ISFM stakeholder in pilot zones of FGI Uganda"</b>	<i>Output</i>	<i>Publicly available</i>
<b>Report "Screening and project intake for FGI waste management case studies" Ethiopia</b>	<i>Output</i>	<i>Available on request</i>
<b>PIP paper</b>	<i>Scientific proofing</i>	<i>Publicly available</i>



## Annex 1: Leaflet Tailor Made Training



### Soil fertility; the backbone of agricultural development

Soil is precious, it needs protection, that much is clear. But how to achieve this? Soil is used to feed billions of people each day, and each day we lose valuable fertile soil around 12 million ha of land are still lost each year because of mismanagement. Despite ample evidence of this alarming trend, mankind seems incapable to halt or reverse this trend. This somehow paradoxical situation made us, applied soil scientists from Wageningen, realize that some key elements of the solution are still missing, urging us to develop a different approach. An approach that starts with people instead of soil!



Large areas of fertile soils are lost...

**THE 8 FGI-STEPS**

- I: DETERMINATION OF NUTRIENT DEMAND
- II: DETERMINATION OF NUTRIENT AVAILABILITY
- III: PROCESSING OF ISFM PRODUCTS
- IV: BROKERING BETWEEN DEMAND AND SUPPLY
- V: NUTRIENT EXCHANGE FACILITY FOR NUTRIENT TRADE
- VI: CAPACITY BUILDING OF DIFFERENT TARGET GROUPS
- VII: INSTITUTIONAL ARRANGEMENTS FOR SCALING UP AND SCALING OUT.
- VIII: STIMULATING GREEN GROWTH

One of the key components, and in fact one of the few things that can be actively managed, is the correct use of both organic and mineral nutrients. Extensive literature review and local experiences show that proper (i.e. right amount, right type, right placement and right timing) application of organic and mineral nutrients is the best way to restore and recover fragile soils. However, true implementation of this integrated soil fertility management (ISFM) is hampered by fragmented activities and isolated approaches from various stakeholders active in a given region.



...because of ignorant land management

The paradigm behind the fertile grounds initiative (FGI) is that there are additional sources of nutrients available in a specific area than currently being used. This results in low nutrient recoveries and valuable losses. However, in order to make use of these 'hidden' resources a new way of thinking in soil management is required. One of the goals of FGI therefore is to bring together actors in nutrient management to facilitate an optimal arrangement for nutrient trade.

FGI has developed a 8 step approach for better nutrient management based on a match-making approach (see text box).



The Fertile Grounds Initiative helps to restore soil fertility by bringing actors in nutrient management together.



### A course on setting up your own FGI

Alterra, part of Wageningen University and Research Centre offers together with local partners tailor made trainings on restoring soil fertility by using the FGI principles. During the course participants learn to identify, qualify and quantify the 8 steps of FGI. A typical 10 days course looks like:

- Day 1 and 2: Integrated soil fertility management. Reviewing past activities on soil fertility management, identification of success factors.
- Day 3 and 4: Determining potential nutrient supply and demand using state of the art tools.
- Day 5: Actors in nutrient management, their roles and possible contributions.
- Day 6: Field visit: design your own FGI case.
- Day 7 and 8: Determining the potential FGI case; boundary conditions and affordability.
- Day 9: Workshop with local stakeholders
- Day 10: Conclusions and graduation



### For who?

The course was developed actors in nutrient management, e.g. policy makers, scientists and NGO who have experience in rural development and agricultural production systems and are ready to make a difference. The Dutch Science Organization (NWO-NUFFIC) supports the development of the course.



### Summary

In this 10 day training course participants learn to broaden their view on soil fertility and food security. Integrated Soil Fertility Management (ISFM) is taken as entry point, but from there-on we take a different route: starting with the people to bring together supply and demand of nutrients. The aim is to create win-win situations by closing nutrient loops for example through the re-use of wastes as a precious product with potential rather than something to be disposed of.

At the end of the training participants are able to:

- Evaluate the soil fertility status for specific farming systems and regions;
- Identify different sources of nutrients in a specific region and determine their use potential;
- Provide crop- and soil specific fertilizer recommendations using the QUEFTS software;
- Design a stakeholder platform for matchmaking between supply and demand of nutrients.



### Contact

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## Annex 2. Leaflet “ Added value of FGI”



Fertile Grounds Initiative

### The Fertile Grounds Initiative: Working first with people to improve soil fertility as step towards increased food security

Soil is precious, it needs protection, that much is clear. But how to achieve this? Soil is used to feed billions of people each day, and each day we lose valuable fertile soil around 12 million ha of land are still lost each year because of mismanagement. Despite ample evidence of this alarming trend, mankind seems incapable to halt or reverse this trend. This somehow paradoxical situation made us, applied soil scientists from Wageningen, realize that some key elements of the solution are still missing, urging us to develop a different approach. An approach that starts with people instead of soil!

One of the key components, and in fact one of the few things that can be actively managed, is the correct use of both organic and mineral nutrients. Extensive literature review and local experiences show that proper (i.e. right amount, right type, right placement and right timing) application of organic and mineral nutrients is the best way to restore and recover fragile soils. However, true implementation of this integrated soil fertility management (ISFM) is hampered by fragmented activities and isolated approaches from various stakeholders active in a given region.

The paradigm behind FGI is that there are additional sources of nutrients available in a specific area than currently being used. This results in low nutrient recoveries and valuable losses. However, in order to make use of these 'hidden' resources a new way of thinking in soil management is required. One of the goals of FGI therefore is to bring together actors in nutrient management to facilitate an optimal arrangement for nutrient trade. This will result in:

- Higher efficiencies of nutrient use at various level of scale with less waste and spillage.
- Higher yields for less costs.
- True valuation of, indeed valuable, nutrients derived from various sources.
- Increased soil health and reduction of land degradation rates.

THE 8 FGI-STEPS	
I:	DETERMINATION OF NUTRIENT DEMAND
II:	DETERMINATION OF NUTRIENT AVAILABILITY
III:	PROCESSING OF ISFM PRODUCTS
IV:	BROKERING BETWEEN DEMAND AND SUPPLY
V:	NUTRIENT EXCHANGE FACILITY FOR NUTRIENT TRADE
VI:	CAPACITY BUILDING OF DIFFERENT TARGET GROUPS
VII:	INSTITUTIONAL ARRANGEMENTS FOR SCALING UP AND SCALING OUT.
VIII:	STIMULATING GREEN GROWTH

FGI has developed a 8 step approach for better nutrient management based on a match-making approach (see text box). For steps I to VI guidelines are developed which are geared towards local conditions. Steps VII and VIII are tailored towards local contexts.

In short, **FGI is a coordinated strategy of collaboration between actors in nutrient management at various spatial scales.** FGI is targeted, but not limited to, areas prone to soil fertility depletion. It is based on bringing together people who have a supply and demand of nutrients within a specific geographical area, to process these and to make optimum use of site-specific interventions and available nutrients, supplemented with external imports.





**How to set up projects according to the FGI principle?**

FGI specifically targets those farming systems and areas prone or vulnerable to soil nutrient depletion. In order to be successful, i.e. to generate sufficient additional sources of nutrients areas close to urban areas are considered the most promising. In such settings FGI has the highest potential but needs a few targeted actions:

- To develop a joint vision on, and pathways towards change regarding food production and sustainable soil management *Theory of Change workshops on agricultural productivity and soil fertility* are organized. .
- National embedding of the project is achieved through the Installation of local taskforces.
- To make best use of existing activities screening of existing projects as well as the institutional setting is required resulting in the selection of case study sites,
- Implementation and evaluation of the case study.
- Implementation of 8 step approach.

**The FGI kit**

Although each FGI project has its own characteristics, they also share similar functionalities, e.g.

- Training: setting up your own FGI project (10 days training)
- Toolboxes for determining nutrient requirements and farm management.
- Monitoring equipment and guidelines for environmental parameters.
- Guidelines for implementation and backstopping



**Get involved**

Based on the determination of the potential supply and demand of nutrients a gap analysis is made, which forms the basis for supplementation with mineral fertilizer. Crucial for FGI to succeed is the active involvement of nutrient suppliers, i.e. waste industry, processing industry, organic and mineral fertilizer sector. Working with projects that investigate alternative types of fertilizers (e.g. based on water hyacinth) could increase our quest for improved and sustainable soil fertility. Only together we can make FGI work! FGI started in 2015 but already farmers and other stakeholders welcome the approach and case studies are launched in Ethiopia and Burundi.

Share your ideas on  
[www.fertilegroundsinitiative.info](http://www.fertilegroundsinitiative.info).





## Annex 3. Leaflet “ Soil fertility toolkit”



### Why does soil quality matter?

#### How can the Soil Fertility Toolkit help in keeping soils productive?

#### Why a soil fertility toolkit?

Every year large areas of fertile soils are lost due to ignorant land management. Also in many regions, soils are overexploited leading to a decline in crops yields. Already farmers complain about the loss of productive capacity of their land and producer organizations worry about the continuity of their products. Consequently, there is a need for a tool to assist farmers and producer organizations in identifying best bets for soil fertility improvement.

With the soil fertility toolkit we aim to i) increase awareness on current soil quality, threats and opportunities, ii) build capacity on sustainable land management and iii) provide concrete actions for soil quality management.

#### What is the toolkit?

The toolkit uses a tree-step approach to get to a better soil quality management:

- assessment (what is the current status of the soil)
- analysis (what has been done in the past, what are plans for the future, what resources are available)
- recommendations (match plans and resources, such that soil quality improves or is maintained)

The toolkit has an integrated approach by including multiple aspects of soil quality, including:

- nutrients
- organic matter
- erosion
- acidification
- soil related pests and diseases
- soil physical quality



Large areas of fertile soils are lost...



...because of ignorant land management.



The soil fertility toolkit can help to keep soils productive.



The toolbox consists of 3 parts:

1. A tangible toolkit for on-site assessment of soil quality. It includes easy-to-use measurements and guidelines for field assessment of soil quality.
2. A digital toolkit that to assess future development of soil quality and provides tailor-made recommendations to counteract negative trends. The digital toolkit uses data from the field measurements and uses databases on soil properties, climate, crop properties and fertilizer composition. The digital toolkit prioritises current soil threats and actions, based on costs and benefits soil quality management actions.
3. A training and support programme, which includes
  - awareness on soil fertility
  - sustainable soil management actions
  - how to use the toolkit



The digital toolkit provides insight in future trends of soil fertility

### For who?

The toolkit is currently being developed for farmers, producer organisations, and advisory organisations for smallholder farmer. The Dutch ministry of Economic Affairs supports the development of the toolkit.

### Summary

Ignorant land use can lead to overexploitation of soil and losses of fertile soils. The consequences are severe drop in crop yields.

The soil fertility toolkit can help to identify threats for soil fertility and help to define actions that improve and maintain soil quality. With this the soil's productivity can increase and be sustained in the future



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