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## Creating an enabling environment for private sector investment in fertilizer value chains in SSA: Empirical evidence & knowledge gaps

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on behalf of the PEMEFA team

IFDC Workshop on “Developing Private Sector Agro-Input Markets:  
Lessons Learned and Emerging Perspectives on Subsidy Programs”  
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## Introduction (1)


- 1990s: Liberalization of SSA input markets
- Although continued intervention by some countries (fertilizer subsidies) is generally accepted that to develop sustainable, private sector led fertilizer markets it is necessary to create an “enabling environment”
- “Enabling environment” refers to the **policies, laws, and supporting regulations and institutions** that are designed and implemented to encourage increased private sector participation in value chains, business development and growth. (Christy et al., 2009)








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## Introduction (2)


- An “**effective**” **enabling environment** for the fertilizer sub-sector – one that creates favorable conditions (policies, laws and regulations) for increased private sector participation and investment in fertilizer value chains
- Advantages of increased private sector participation:


Increased competition

Lower prices


Wider range of quality inputs


Improved farmer access






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## Continuum of enabling environments for private investment in fertilizer markets in SSA


Heavily state-run:	Nascent:	Transitional:	Fairly competitive	Competitive
Procurement and distribution managed by the state; regulatory system state-dominated.  Result: very minor private investment and participation	Demand driven by NGOs/ donors projects – very small fertilizer markets <5% farmers; limited regulatory framework  Result: low level of private investment and participation	Mostly state managed with some private sector players; relies on decrees or command system from the state; heavily subsidized  Result: Low to medium private investment	Mostly private sector driven but with significant state subsidies and ad hoc policy pronouncements and regulatory implementation  Result: Medium to high private investment	Private sector-run fertilizer markets; appropriate state oversight with mainly ex post regulatory control  Result: High levels of private investment
<u>Example:</u> Ethiopia	<u>Examples:</u> Uganda, Mozambique	<u>Examples:</u> Benin, Togo	<u>Examples:</u> Tanzania, Kenya	<u>Example:</u> South Africa






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## Introduction (3)

- But: **little knowledge and understanding among policymakers** of the **impacts of policies and regulations on the performance** of fertilizer markets and on smallholder farmers' access to fertilizers.
- Key reason: there have been **no systematic stock-taking of the empirical evidence** on the types of policies, laws, and regulations that enhance versus hinder an effective enabling environment for fertilizer businesses.



## Objectives of the Synthesis Report

- To **synthesize the empirical evidence** and **distill the lessons learned** with regard to how policies and regulations can facilitate the development of sustainable and competitive fertilizer markets in SSA;
- To **highlight key knowledge gaps** where further study is needed.

Synthesis report has 2 main sections:

- Fertilizer Policy and Regulatory Frameworks and the Creation of an Enabling Environment for Fertilizer Markets in SSA: Evidence of Impact and Knowledge Gaps (Maria Wanzala-Mlobela to present)*
- Fertilizer Subsidy Programs and the Creation of an Enabling Environment for Fertilizer Markets in SSA: Evidence of Impact and Knowledge Gaps (Nicole Mason to present)*





## Objectives of this presentation

- To share **preliminary findings** of the synthesis report with you
- To get **your feedback** so that we can improve the report



## Fertilizer Policy and the Creation of an Enabling Environment for Fertilizer Markets in SSA: Evidence of Impact (1)

- Few **fertilizer policy impact studies** (apart from subsidies) due to the ever-changing policy environment:
  - It is difficult to track the same policy for sufficient time to do reliable analysis
  - Makes it difficult to attribute specific outcomes or events to certain policies
- Some studies have attempted to **estimate the impact of policy changes using quantitative and qualitative measures**
  - Ariga and Jayne (2009)
    - Kenya policy reforms led to decreasing marketing margins and reduced distance between farmers and agrodealers
  - Sheahan et al. (2016)
    - Study's estimates found a 27% reduction in real fertilizer prices between 1997 and 2010 due to falling marketing margins associated with market reforms





## Fertilizer Regulatory Frameworks and the Creation of an Enabling Environment for Fertilizer Markets in SSA: Evidence of Impact (1)

- **First category:** literature which describes the **current status of fertilizer regulations in different countries** around the globe and **infers or predicts the impact on the private sector**
- Example 1: the global index “**Enabling Business in Agriculture**” (EBA) developed by the World Bank and implemented in 100 countries since 2012-13 (World Bank, 2017)
  - The EBA benchmarks elements of laws and regulations that impact the enabling environment for agribusiness markets and uses the results to promote policies that support inclusive participation in agricultural value chains.
  - EBA has developed three indicators to measure good regulatory practices for fertilizer



## Fertilizer Regulatory Frameworks and the Creation of an Enabling Environment for Fertilizer Markets in SSA: Evidence of Impact (2)

- For **fertilizer registration:**
  - Fertilizer registration should not be expensive and should not expire;
  - An official catalogue of registered fertilizers should be made available online;
  - Registration of fertilizer product should not be required if it is registered in another country in the region.
- For the **importation and distribution** of fertilizers:
  - All entities can import and distribute fertilizers;
  - Import permits not be required or not expensive and easy to obtain.
- For fertilizer **quality control:**
  - Fertilizers must be packaged in sealed bags and properly labelled in at least one of the country's official languages ;
  - Regulations should exist that prohibit the sale of mislabeled and open fertilizer bags and impose penalties on those who fail to comply with set standards.



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- EBA (World Bank, 2017) findings: **The majority of countries with the worst performance on these fertilizer indicators were located in SSA.** Why?
  - Majority of countries in SSA require all fertilizer products to be registered; all new products have to be tested and registered before release onto the market
  - Many countries that performed poorly with respect to regulations for importing and distributing fertilizer were also primarily located in SSA:
    - Import permits are more expensive and import permits and importer registrations are valid for a shorter period of time.







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- The lowest scores in the quality control indicator were again found predominantly in SSA due to:
  - Absence of laws/lack of implementation of laws prohibiting mislabeled and opened fertilizer bags
  - Lack of appropriate penalties
  - Absence of labelling requirements in at least one of the official languages of the country.
- *Impact: The EBA study surmises that these **regulatory shortcomings negatively impact the availability of fertilizer** in SSA by creating a discouraging environment for the private sector, but does **not do any analysis or provide any rigorous evidence** to support these inferences.*





## Fertilizer Regulatory Frameworks and the Creation of an Enabling Environment for Fertilizer Markets in SSA: Evidence of Impact (3)

- **Example 2. NML Legal Guides** developed with AFAP through AGRA SSTP/USAID
- Assess both design of legal/regulatory system and its implementation
  - Assess both national laws/regulations and relevant regional frameworks
  - Highlight priorities, tradeoffs, and sequencing for policymakers
  - Benchmark against good regulatory practices (like EBA)
  - Reflect incremental approach to implementation that aligns with public and private sector priorities (Unlike EBA)
- Geographic coverage of four countries: Ethiopia, Malawi, Mozambique, Tanzania - showed common implementation gaps (as discussed by NML)
- Findings: Longer process needed over time to fully assess impact of changes in law/regulations and their implementation on private sector



## Fertilizer Regulatory Frameworks and the Creation of an Enabling Environment for Fertilizer Markets in SSA: Evidence of Impact (4)

- **Second category:** literature from other regions of the world showing the **impact of deregulation on technology transfer and private sector participation.**
- Gisselquist and Grether (1998) present two case studies that show that deregulation does lead to a significant increase in technological transfer.
  - In Bangladesh, the lifting of restrictions on imported diesel engines in the late 1980s led to a fall in price and an increase in their use by farmers as consumers shifted to cheaper and smaller engines.
  - In Turkey, deregulation of seed imports (1982-84) caused a large increase in the number of varieties allowed for sale and a rapid expansion of private company participation.
- **But: not rigorous studies, just correlation not causation**





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Fertilizer Regulatory Frameworks and the Creation of an Enabling Environment for Fertilizer Markets in SSA: Evidence of Impact (5)

- **Third category:** literature that analyses the **impact of fertilizer regulations on private sector participation in the fertilizer industry.**
- **Example: Ethiopia:**
  - 1990s liberalization of fertilizer importation and distribution and removal of all subsidies
  - By 1996 several fertilizer importers, 67 wholesalers and 2300 retailers dominated the domestic fertilizer market.

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Fertilizer Regulatory Frameworks and the Creation of an Enabling Environment for Fertilizer Markets in SSA: Evidence of Impact (5)

- **But:** government regulations heavily biased in favor of parastatals and private fertilizer firms could not compete
  - Hidden subsidies in the form of lower interest rates on finance provided to a government parastatal
  - Import licenses required; fertilizers must be imported in lots of 25,000 tons and importers must deposit 100 percent of the value of fertilizer to be imported (valued at between US\$5–10 million) for an import license to be issued.
- **Result:**
  - Market share of private importers declined from 33 percent in 1995 to 0 in 2009.
  - Public sector's share of distribution soared to over 70 percent, while that of private agrodealers was reduced to only 7 percent of sales nationwide
- Not rigorous empirical evidence, **only a correlation, not causation**

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Fertilizer Regulatory Frameworks and the Creation of an Enabling Environment for Fertilizer Markets in SSA: Evidence of Impact (6)

- **Fourth category:** literature that analyses the **impact of fertilizer regulations on private sector participation in the fertilizer industry** that is more rigorous.
- Study by Gisselquist, Nash, and Pray (2002) used data from 4 countries (Bangladesh, Turkey, India and Zimbabwe) to test the following hypothesis:
  - Regulatory reforms that reduce obstacles to the introduction of new agricultural technology stimulate technology transfer.

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Fertilizer Regulatory Frameworks and the Creation of an Enabling Environment for Fertilizer Markets in SSA: Evidence of Impact (6)

- Between 1980 and 1993, the regulatory reforms in these countries were as follows:
  - Zimbabwe **ended fertilizer price controls** and **relaxed import controls** reducing barriers to firm and product entry.
- The study found that these reforms resulted in market entry, new products and lower margins.
  - Omnia, a major South African company entered Zimbabwe with new fertilizer compositions in 1995 and existing companies responded with their own new compositions.







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### Fertilizer Regulatory Frameworks and the Creation of an Enabling Environment for Fertilizer Markets in SSA: Way Forward

- Recap: presentation has assessed the available evidence on the impact of the enabling environment for fertilizers on the private sector in SSA.
- Findings: **sufficient anecdotal evidence** that the **enabling environment** for fertilizer markets in SSA is **not conducive to private sector entry and investment**
- But: **little empirical evidence** to this effect.
  - Need additional research on this issue, and the following knowledge gaps are proposed as starting points

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### Fertilizer Regulatory Frameworks and the Creation of an Enabling Environment for Fertilizer Markets in SSA: Knowledge Gaps

- What are the **impacts of the current regulatory environment in SSA on private sector participation and investment: measured by** introduction of new fertilizer products, fertilizer prices, and the level of competition in the fertilizer sub-sector?
- How are these **regulations being implemented** and what is the impact on market performance? (since there is often a **vast divide** between regulations on paper and their application in practice).
- What is the **impact of deregulation on technology transfer and innovation** – i.e., to what extent have regulatory reforms that have reduced obstacles to the introduction of new agricultural technology stimulated technology transfer and innovation?
- What is the **impact of overregulation** – i.e., what are the foregone gains due to overregulation of the fertilizer industry in SSA which has blocked the introduction of new technologies which are more suitable for soil and crop nutrient needs?












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## Fertilizer subsidy programs & the creation of an enabling environment for fertilizer value chains in SSA: Empirical evidence and knowledge gaps

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## Objectives

1. **Review the empirical evidence & lessons learned** related to the effects of fertilizer subsidy programs (FSPs) on:
  - a. **Demand** for fertilizers at market prices by smallholders
  - b. **Supply-side effects** (e.g., private sector engagement and investment in fertilizer value chains)
2. Highlight **knowledge gaps**









## Effects on commercial fertilizer demand

- Key question: **does subsidized fertilizer displace what farmers would have otherwise purchased** at market prices?
- Implication: If yes, then 1-kg of subsidized fertilizer raises total fertilizer use by LESS THAN 1-kg
- 10 rigorous studies to date on this topic
  - 8 studies: subsidized fertilizer **displaces or crowds out** commercial demand
  - 2 studies: “ “ **increases or crowds in** “ “

Sources: See crowding  
in/out references

## Where has crowding out been an issue?

- **Kenya**\*\* (85%+ of HHs in high potential areas used fertilizer before FSP)
- **Malawi**
- **Nigeria** (Federal Market Stabilization Program)
- **Zambia**

Sources: See crowding  
in/out references



## What explains crowding out?

- Significant share of FSP fertilizer targeted to farm HHs that **would have purchased fertilizer at market prices even without the subsidy**
- These tend to be:
  - HHs with **more land** or other **assets**
  - **Male-headed** HHs
- Except for Kenya NAAIAP/Kilimo Plus – all FSPs with crowding out only **minimally involved the private sector**

Sources: See crowding  
in/out references

## Where has there been crowding in?

- **Tanzania** (NAIVS)
- **Nigeria** (Kano State voucher pilot (KSVP))

Sources:  
Mather & Minde (2016),  
Liverpool-Tasie (2014)



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## What explains crowding in?

- **Both Tanzania/NAIVS & Nigeria/KSVP:**
  - Utilized **vouchers redeemable at private sector** retailers' shops
- **Tanzania/NAIVS:**
  - Did good job of **targeting HHs that hadn't used fertilizer** on maize or rice in the last 5 years (75% of beneficiaries)
- **Nigeria/KVSP:**
  - Subsidy for 3 X 50-kg bags. **Not enough to meet full demand** → farmers purchase the rest at market price at agrodealer?
  - Input suppliers required to be **physically present** in LGAs
  - Pilot program **closely monitored** by IFDC

Sources:  
Mather & Minde (2016),  
Liverpool-Tasie (2014)



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## Implications for FSP design

- It may be possible to **reduce crowding out by targeting:**
  - HHs that **cannot afford or have not used fertilizer** at the market price
  - HHs with **less land or other assets**
  - **Female-headed** HHs
- Crowding-in appears to be most likely when:
  - The FSP **uses vouchers redeemable at private retailers' shops**
  - **Incentives are provided to retailers** to locate closer to farmers
  - Subsidized fertilizer **quantities are less than full amount needed** by farmers



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## Supply-side effects of FSPs



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## Supply-side effects of FSPs

- **Far less rigorous empirical evidence** than demand-side effects
- Mostly **anecdotal** evidence and **descriptive** studies (correlation, not causation)
- Exception: Study from **Malawi on supply-side crowding in/out** of FISP (Kaiyatsa et al. 2017)



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## How did allowing select large-scale distributors and affiliated retailers in select districts to accept FISP fertilizer vouchers in 2015/16 affect fertilizer sales?

- **No effect** on commercial sales of large-scale distributors/retailers in pilot districts (participants & non-participants)
- **↑ FISP** fertilizer sales of participating firms by 299 MT/retailer
- **↓ Commercial** fertilizer sales of independent agro-dealers in pilot districts (excluded from program) by 28 MT/agro-dealer

➔ **Overall: 1 MT of FISP fertilizer sold ➔ 0.86 MT ↑ in total fertilizer sales**

Source: Kaiyatsa et al. (2017)




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## Recommendations for Malawi FISP (Kaiyatsa et al. 2017)

- Continue to **increase participation of private sector retailers** in FISP (as has been the case since 2016/17)
- **Build the capacity of independent agro-dealers**
  - So that they can continue to serve remote areas that are under-served by large-scale distributors; and
  - So that they can eventually participate in FISP



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## 7 Lessons learned from descriptive studies on the effects of FSPs on private fertilizer markets

**1. FSPs that have the private sector (and not state-owned enterprises) handle importation/procurement, distribution, and retailing of fertilizer for FSPs have the potential to crown-in private sector investment in fertilizer value chains**

EX) **Tanzania/NAIVS** → sustained, predictable ↑ in fertilizer demand  
→ Importers/distributors invest in new storage/distribution warehouses  
→ Agro-dealers shift from renting to purchasing shops  
→ More agro-dealers in operation and more delivery of inputs to villages (Mather et al. 2016)

EX) Similar emerging evidence for **Zambia's FISP e-voucher**  
(Kuteya et al. 2016; Machina et al. 2017)



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## 7 Lessons learned from descriptive studies on the effects of FSPs on private fertilizer markets

**2. Involving the private sector in the handling of fertilizer for FSPs can reduce program costs**

Profit motive of private firm often leads to greater efficiency, less waste, and reduced bureaucracy relative to more government-centric programs  
(SOAS et al. 2008; Chirwa & Dorward 2013; Kuteya et al. 2016; Kuteya & Chapoto 2017)



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## 7 Lessons learned from descriptive studies on the effects of FSPs on private fertilizer markets


**3. Trust between gov't and private sector actors is paramount for sustained involvement of the private sector in FSPs, and to the development of private sector fertilizer markets more broadly.**

*Trust is easily eroded and difficult to rebuild.*

EX) Delayed payments (Ghana, Malawi, Tanzania, Zambia) and last minute decisions to exclude private sector retailers (Malawi)  
(SOAS et al. 2008; Kelly et al. 2010; Chirwa & Dorward 2013; Mather 2016; Musonda 2008)







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## 7 Lessons learned from descriptive studies on the effects of FSPs on private fertilizer markets

**4. Government tendering processes for FSP have been extremely opaque in several countries, and there have been allegations of corruption and politically-motivated awarding of tenders.**

*This also erodes trust b/w gov't & private sector and can ↑ fertilizer prices and FSP costs.*

EX) Nigeria/FMSP and Zambia/traditional FISP  
(Wanzala-Mlobela et al. 2013; Resnick & Mason 2016)







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## 7 Lessons learned from descriptive studies on the effects of FSPs on private fertilizer markets

**5. It is imperative that the awarding of tenders and import quotas  
for FSP fertilizer be announced early. Otherwise, late delivery and  
higher unit costs can result.**

EX) In Ghana, import quotas were announced only 6 weeks before planting  
some years (Mather 2016)



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## 7 Lessons learned from descriptive studies on the effects of FSPs on private fertilizer markets

**6. It is important to involve representatives from all parts of the  
fertilizer value chain in discussions to set marketing margins.**

EX) This was done in Tanzania/NAIVS but not in Ghana, where only government  
and importers were involved. As a result, in Ghana, several distributors and  
retailers decided not to participate in the FSP (Mather 2016).





## 7 Lessons learned from descriptive studies on the effects of FSPs on private fertilizer markets

*7. It is best if importers/distributors decide which retailers/agro-dealers to work with rather than this being decided by gov't, especially given the importance of trust in these relationships.*

EX) In Tanzania/NAIVS, gov't initially made these decisions but after consulting with importers/distributors, shifted the responsibility to them (Mather 2016).



## Knowledge gaps: FSPs & private sector fertilizer markets

1. Effects of FSPs on **smallholder access** to fertilizers?
2. **Supply-side effects** of FSPs? (rigorous evidence needed)
3. Does **shift from government-led to more private sector-led** FSP improve program performance? (e.g., Zambia's shift to e-voucher)
4. Effects of shift from **NAIVS to bulk procurement** in Tanzania?
5. Effects of shift from **GES to Presidential Fertilizer Initiative** in Nigeria?
6. Most effective ways to **build trust** b/w gov't and private sector?
7. Best practices to **ensure transparency and fair play** in tendering process?





## Conclusions

- **Large, growing literature on the effects of FSPs** on smallholder farmers/**demand-side**, but **little rigorous evidence on the supply-side effects**
- **Many elements beyond FSPs critical** for a conducive enabling environment for private sector investment in fertilizer value chains
  - Policies beyond subsidies
  - Laws
  - Regulations
- **Growing recognition** of this but **little empirical evidence** on what works and what doesn't, and impacts of changes to policies/laws/regulations



## Thank you! Questions?

### PEMEFA team

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