

# The Critical Role of Agriculture in Industrialization: Some Conceptual and Practical Experiences

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# Outline of the Presentation

- Introduction: what and why
- How to make successful industrialization happen: some conceptual issues
- Practical experiences elsewhere
- Some policy recommendation for Tanzania.

# Introduction



- Tanzania is currently emphasizing the development of industry as a way to radically reduce poverty and achieve middle income status by 2025.
  - In general (in national accounts) the industrial sector refers to three subsectors of mining, manufacturing and construction.
  - But the process of industrialization refers to the development of the manufacturing sector.
  - It is the process in which a country transforms itself from a primarily agricultural society into one based on the manufacturing of goods and services (structural transformation).

# Introduction cont...



- Industrialization is a right strategy given the role the manufacturing sector plays in a national economy:
- First, it ensures sustainable growth of the country ( a necessary condition for poverty alleviation).
  - A reason it is now part of the SDGs
  - The price of manufactured goods tends to be higher and more stable than that of commodities, and therefore stable and sustainable growth.
  - Bulk of world export (about 70% in 2010) is on manufactured goods



## Introduction Cont...

- Second, is employment generation:
  - It is income which has the greatest implications for poverty than all other aspects; especially if it is inclusive.
  - According to (World Bank, 2001), other indicators of well-being, such as average levels of education and health, also tend to improve along with income poverty.
- Third, it enhances skills and knowledge in a society.
  - Poverty eradication is a process of capability building, especially innovation capabilities.



# How to make successful industrialization happen: some conceptual issues

- Enabling industrialization requires a carefully thought out strategy.
  - There are number of issues that need to be considered
  - This presentation largely refers to the role that agriculture plays.
    - Experience from history indicates that there is a very close connection between development in the agricultural sector and the process of industrialization.
    - Experience elsewhere indicate rapid increase in agricultural productivity during the onset of industrialization is crucial.

# How to make successful industrialization happen: some conceptual issues cont...



- On set of industrialization (structural transformation) is triggered when agriculture realizes enough surplus in the form of food, materials, income and savings;
  - Availability of all these incentivize s the investments in the manufacturing sector, especially when policy environment is right.
  - Capital and workers begin to move out of agriculture to meet the demands of a growing industrial sector.
- Falling prices of the agricultural produce as a result of productivity increase, and increased prices for the manufactured goods further facilitate the process.

# How to make successful industrialization happen: some conceptual issues cont...



- The example of Japan between 1885 and 1915 is telling:
  - Adoption of policies to boost agricultural productivity, including investments in S&T led to rapid increase in agricultural productivity.
  - Savings for industrial development were mobilized through taxation of agricultural produce.
  - And as a result of attractive investment environment put in place, some landowners invested largely in rural-based industry such as textiles and food processing (Johnston 1951; Tsakok, 2011).



# How to make successful industrialization happen: some conceptual issues cont...

- As allocation of resources to the industrial sector continued, domestic agriculture continued to decline in terms of share in output and employment.
- Policies of this type have been implemented in many of the countries that have recently industrialized (Sonobe and Otsuka 2001, Acemoglu and Guerrieri, 2008)
- However, looking into the details, there are two schools of thoughts and practical evidence on how agriculture exactly plays part in industrialization: **Pre-requisite thesis** and **concurrency thesis**

# How to make successful industrialization happen: some conceptual issues cont...



- Pre-requisite: agriculture grows first, and then industrial development follows – a short time lag.
- Concurrence: the growth of the two sectors happens concurrently, benefiting from each other through backward and forward linkages.
- Many studies on structural transformation indicate that pre-requisite was used by most of the now developed countries of the West.
- But newly industrialized indicate use of concurrence ; and it is also what is being proposed for poor countries that are currently embarking on the path towards industrialization.
- **Going forward from the experience; it is neither agriculture nor industry, but concurrently.**

## Practical issues and experiences

- The concept of agro-industrial complexes used by many countries could be useful here:
- A complex consists of farming units and industrial firms specializing in agro-processing and storage, as well as the ones supplying agriculture and processing industry with the means of production and inputs.
  - To be useful for poverty alleviation, the complexes needs to be set up close to agricultural production in the rural areas



## Practical issues and experiences cont..

- Through focusing on agro-industrial complex development, Denmark was able to develop international competitiveness of its milk and meat processing.
- This Danish agro-industrial complexes also led into vast innovations in machinery and equipment for milk and meat processing (Edquist & Hommen, 2008).
  - which has fostered Danish strongholds within these technological fields internationally.

## Practical issues and experiences cont..

- The Danish industrial policy was to a large extent on the complex, rather than on milk and meat, and manufacturing industry as separate sectors.
- In general it seems structural transformation has to start with the development of the agro-industry:
  - Basically focusing on the agro-processing
  - Studies shows that the contribution of agro-industry to total manufacturing is 61 percent in agriculture based countries, 42 percent in countries in transformation and 37 percent in urbanized developing countries (GAIF, 2008).

## Practical issues and experiences cont..

- The demand pull created by an agro-industrial complex stimulates businesses well beyond the closest link between the two sectors, but a whole range of ancillary services and supporting activities in the secondary and tertiary sectors of the economy.
- Because of perish ability and bulky characteristics of agricultural products, many agro-processing plants tend to be located close to their major sources of raw materials.
- Consequently, their immediate socio-economic impacts tend to be exerted in rural areas, radically alleviating rural poverty.

# Some concluding remarks



- Given the presented theoretical and empirical evidence, we argue that the direct connection between the agricultural and industrial sectors (in the form of agro-industrial complexes) is inevitable for successful industrialization, structural transformation and poverty alleviation.
  - Following the concurrence thesis, the focus should neither be on agriculture nor industry, but on agro-industrial complexes.

# Recommendations

- Tanzania can kick start the process of industrialization by starting with development of agro-industrial complexes.
  - Something like SAGCOT, but to what extent it is an agro – industrial complex?
- Use the concept of agro-industrial innovation systems, rather than that of the individual sectors to build innovation capability and increase productivity in both sectors.
- The concept of innovation systems rests on the premise that innovation can best be spurred by the interactive linkage and learning among important systems actors.
- For the concept of agro-industrial innovation system focus is on the complex, rather than on individual sectors.



## Recommendations cont..

- Identify a number of commodities to develop a agro-industrial complexes that Tanzania has a comparative advantage (market potential, both local and export).
- The trick is to look at the trade balance. For instance the case of edible oil for Tanzania where the local demand is big, and about 75% of it being imported.
- Another is meat, milk and leather products.
  - Learn from own market before exporting
- Create effective linkage between farmers and processors
- Make sure that small holder farmers and SMEs become part of the complex - for effective poverty alleviation

## Recommendations cont..

- Deepen knowledge economy around the chosen agro industrial complexes, including R&D system, input supply for farmers, and machinery for the agro-processors, finance for both farms and firms, and related services.

-Inputs (fertilizers, pesticides) to be locally made – take advantage of the emerging gas industry.

-R&D for agriculture to be connected with agro-processors as well to enhance learning between farmers and agro-processors .

research indicate that farmers get best advice from their buyers than from R&D organizations (various STIPRO research).

## Recommendations cont..

- Markets for the processed goods needs to be ensured- both local and export.
  - Promote export for the agro-industry, e.g. through EPZ.
  - Indirectly also ensuring markets for the farm produce.
- Find a way to protect local industry from cheap imports.
- Ensure periodic review of innovative activities and productivity increase in the complexes, and continuously adjust policies and measures.

Thank you very much for your kind  
attention

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