

# **Green Revolution in sub Saharan Africa: How Desirable and Feasible?**

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(presenting work from the IC @ Wye colleagues, notably  
Andrew Dorward and Colin Poulton in addition to present  
speaker)

# Starting points:

agriculture is a highly significant sector in rural development – though not the only one

successful agricultural strategy depends on strengthening:

- institutions (markets; services for the provision of credit, physical inputs, information about technology and prices)
- linkages with other sectors
- technology generation and diffusion appropriate to needs of small farmers

# intellectual fashions in treatment of agriculture in development 1950 - 90:

Passive and source of labour resources for industrialisation:

efficiency of peasant agric suspect

both political left and right wanted large scale, concentrated, industrialised agriculture

1970s + : counter-reaction (Lipton, Mellor, Schultz)

smallholder agriculture efficient in use of resources

capable of rapid growth (Green Revolutions in South & East Asia- i.e. intensification in production of staples)

emphasis on “linkages” (backwards, forwards) as catalysts for growing services sectors and industry

# intellectual fashions in treatment of agriculture in development - 1990s onwards:

1990s + : growing doubts about smallholder agriculture's ability to play a (the?) strategic role in growth and poverty reduction

emphasis on non-farm rural economy (NFRE)

worries that global trends undermining competitiveness of smallholder agriculture

- concentration of supply chains?
- challenge of liberalising markets?
- ability to absorb new technology?
- institutional / governance weaknesses?

# A key problem is 'economic dualism'

- “modern’ (or commercial) sub-sector shares features of agriculture in developed countries: relatively high yield per worker
- “semi-subsistence” sub-sector (subsistence = produce for own consumption)
  - typically produces little surplus
  - often, not be able to meet even families’ food needs, engaging for some or all of the year in part-time wage labour to compensate for the shortfall in food production (espec under land pressure)
  - few farmers are pure subsistence farmers, for cash needs they have to make a sales (in the absence of off-farm income) to access other foods & non-food commodities

## the linkage story: benefits of broad-based growth of farm incomes (e.g. from a small farm Green Revolution)

- ❑ increased direct consumption
- ❑ tighter labour market
- ❑ more demand for non-consumables capable of being supplied locally
- ❑ increased demand for inputs & services
- ❑ stimulation of distribution and processing
- ❑ where there are productivity increases, labour released from direct agriculture

# Take-up of technology in smallholder agriculture

- technological innovation & dissemination key to productivity growth
- technologies used in smallholder agriculture often home-produced, labour-intensive, *partly* independent of outside suppliers (retained seeds, manure from own livestock)
- may seem primitive/irrational, given existence of technology with the potential to raise the productivity of land (biological methods) or labour (mechanisation)

# Arguments on take-up of GR technology in smallholder agriculture in SS Africa where progress is generally slow

How much slower progress technological intensification is due to:

availability of appropriate technologies:

genetic-chemical

Organic?

lack of infrastructure for water and transport?

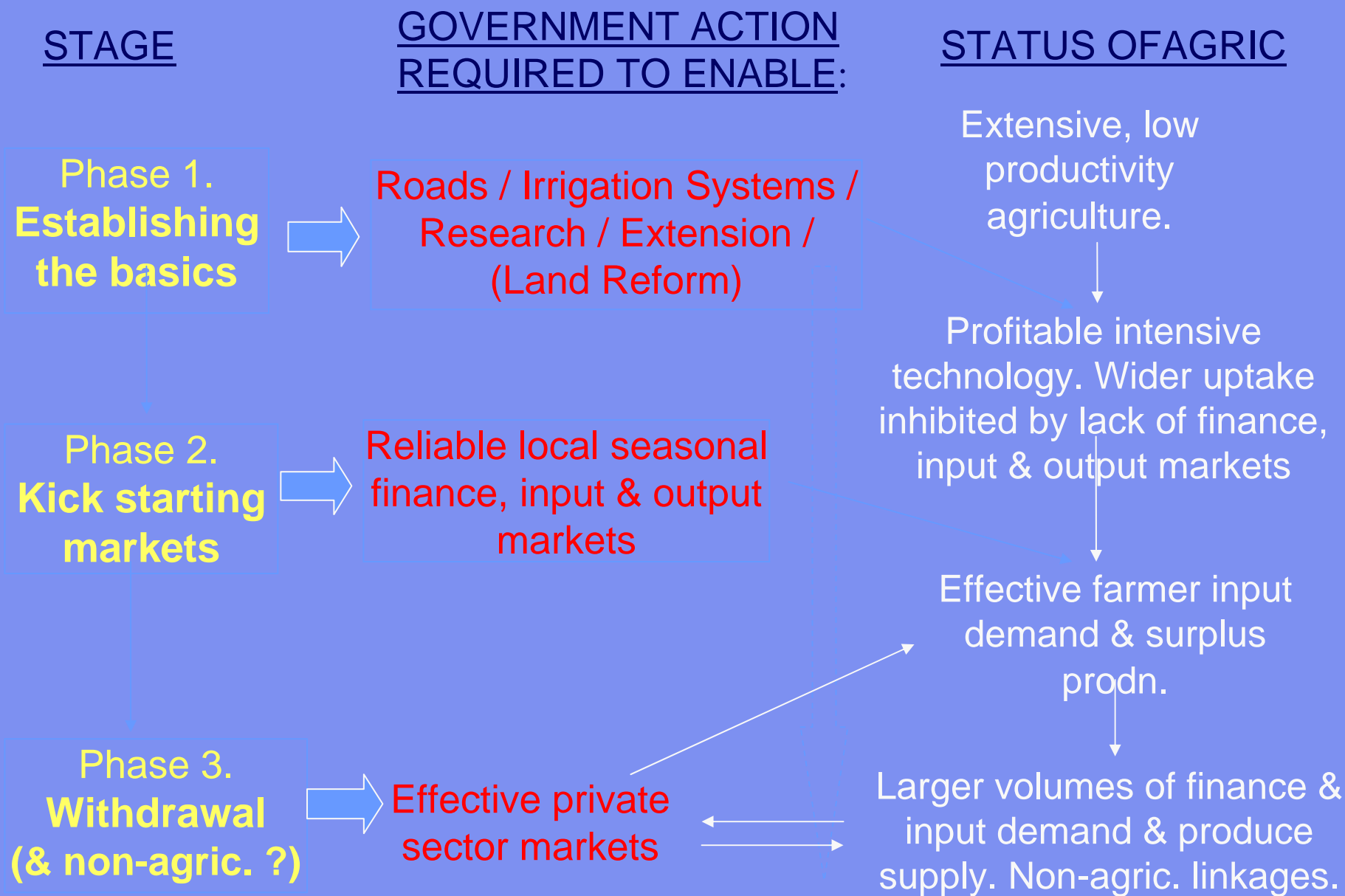
lack of access to capital for the purchase of technology  
& to information about technological innovations

risk-aversion (poorer are more vulnerable to risk)

market failures & market volatility (credit, inputs and produce markets?)



# Processes and conditions for agricultural transformation



# India: cost per poor person lifted above the poverty line (in current UK£s)

	1960s	1970s	1980s	1990s
Roads	58	18	26	28
Education	928	103	80	86
Irrigation Investment	320	107	115	2106
Irrigation Subsidies	235	94	n.a.	548
Fertiliser Subsidies	n.a.	38	274	n.s
Power Subsidies	72	87	395	1847
Credit Subsidies	19	36	168	n.s
HYV Agric. R&D	53	60	301	n.s

Deduced from: Fan S, Thorat S, Rao N (2003) *Investment, Subsidies, and Pro-poor Growth in Rural India. Draft report, Institutions & economic policies for pro poor agricultural growth*

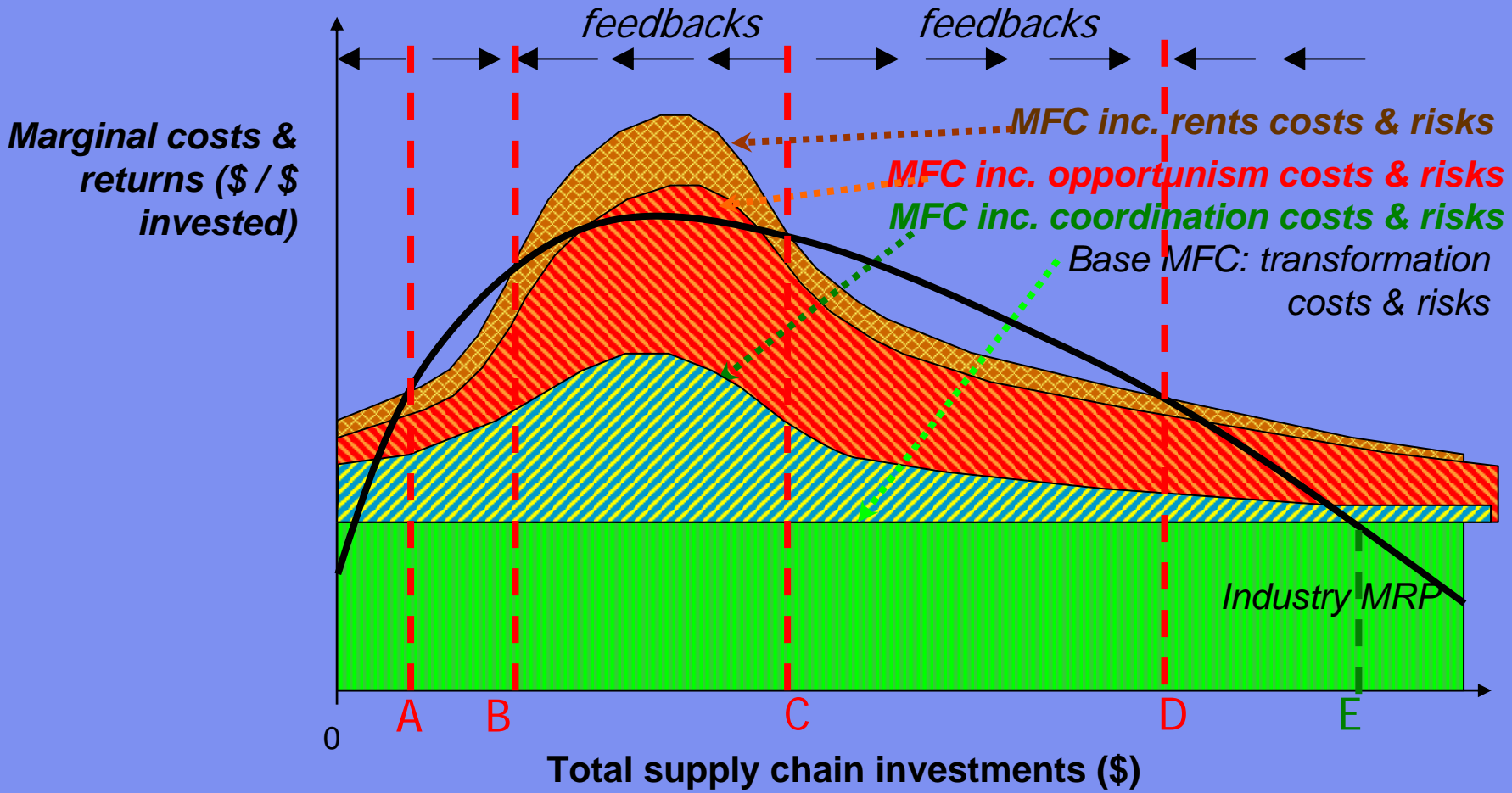
# Conditions challenging SSA agricultural development

- Local conditions
  - Agro-climatic factors (productivity, variability, irrigation, crops), population density, human capital, roads, telephones, gender roles, administration / governance, land-locked
- Global conditions
  - Commodity prices, population structure, urbanisation and non-farm incomes, technology, globalisation, conflict, policy change, small farm advantage?
- Political & policy conditions
  - New, small but heterogeneous & diverse states, changing ideologies & structures, small middle class,
  - Liberalisation & lower agricultural investment

# Policy challenges for states and markets

- ❑ Pro-poor agricultural growth needs supply chain investment in technical change – new methods and/or new activities raising output yields and/or values
- ❑ Technical change must yield attractive returns net of transformation & transaction costs & risks for all players / investors
- ❑ Transaction costs and risks
  - coordination
  - opportunism
  - rent seeking

# High and Low Level Equilibria with Coordination Failure (governance – divided into its components versus technology)



# Historical perspective: Late colonial period

- The depression, WWII, post war commodity boom, pre-independence changes
  - Market weakness & state strength
  - East/ west, Anglophone/ Francophone differences
  - Settler protection, cross subsidies / taxes
  - Marketing boards
  - Export promotion / control / taxation
  - Food self sufficiency (East & Southern)
  - Dualism – large/ small, commercial/ semi-subsistence
  - Increasing welfare/ smallholder food concerns

# Historical perspective: Post independence

- Post colonial inheritance – dualism, state intervention, marketing boards
- Newly independent governments need to promote smallholder agricultural and rural development,
- Private sector was weak (access to capital & human resources, organisational capacity)
- Poor market & infrastructural development in rural areas made risky & unattractive private investments
- Coordination challenges needed simultaneous & coordinated investments in infrastructure, input & output trading, research & extension, & farmers' input purchases & production

# Historical perspective: Post independence (2)

Monopolistic / monopsonistic state intervention could

- coordinate with farmers across range of activities
- access official finance sources,
- both reduce & take on systemic investment risks,
- invest in the organisational & human resource development needed to develop systems.
- address a number of political & patronage motives

Also

- mistrust of private companies
- socialist philosophy suspicious of private markets, stress on state intervention
- confidence in the ability of the state
- economic development theories stressed industrial development & taxation of agriculture



# Historical perspective: Post independence (3)

Some dramatic & major successes – Asian green revolutions, Malawi, Zimbabwe ... BUT many failures

- ❑ Parastatals operationally inefficient: not profit driven, corruption /patronage
- ❑ Allocatively inefficient: pan-territorial pricing distorted the spatial distribution of cropping; tax / price distortions stifled incentives
- ❑ Inhibited system innovation: complacent marketing; drove out private investment; large food security stocks when lower cost use of regional commodity markets?
- ❑ High fiscal costs (inefficiency, patronage, subsidies) & balance of payments deficits (import subsidies, export taxes), compromising macroeconomic stability
- ❑ Local, global and political challenges

# Historical perspective: Agricultural liberalisation

- Adjustment & liberalisation policies
  - devaluation & tight fiscal management
  - withdraw state intervention from 'private good' subsidy, production & marketing – 'public goods' focus
  - deregulate to promote private sector investment & activity in competitive markets
  - open markets to international competition
- Driven by Neo classical theoretical constructs & critique – competitive markets (without distortions from state intervention & monopolies)
  - unlock private sector resources for investment
  - provide incentives & mechanisms for socially efficient & effective coordination of private good provision
  - remove macro-economic distortions & free limited state resources for public good provision
  - reduce rent seeking

# Historical perspective: Agricultural liberalisation

Outcomes? Difficult counter-factuals

- ❑ Variable success in exchange rate devaluations, & in controlling budget deficits & inflation
- ❑ Some success in export crop growth
- ❑ Disappointing impacts on food production – better in West Africa. Increased price variability, stagnant input use, seasonal credit problems, some price gains to net food purchasers
- ❑ Ambiguous poverty impacts

Liberalisation failures due to

- ❑ *Partial implementation*
- ❑ *Weak institutions* supporting markets - poor governance & public goods
- ❑ *Inappropriate institutions* & reliance on market coordination in poor rural economies?

# Conclusions & issues

- ❑ Liberalisation a fundamental part of agricultural policies as it affects coordination in supply chains supporting intensification & technical change
- ❑ Critical questions about conditions under which private sector agents & 'competitive' markets can & cannot provide coordination (commodity production, processing and market characteristics; physical and socio-economic conditions; stages of development & economic activity; institutional development; role of government & other agents)
- ❑ Liberalisation concerns for reducing state *scope* has unwittingly driven reductions in state *strength*