



**EC EXTERNAL SERVICES
EVALUATION UNIT**

**OUTCOME AND IMPACT LEVEL
INDICATORS
AGRICULTURE &
RURAL DEVELOPMENT**

WORKING PAPER:

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This working paper outlines a set of indicators at the outcome and impact level for the agriculture and rural development sector. It does not focus on implementation (e.g. output level indicators such as irrigation of crops), or indicators at the global level (e.g. economic growth and poverty reduction) but aims to improve the development of indicators between these two levels (i.e. the 'missing middle').

It is hoped, by setting out a clear set of indicators, that this work can be used to guide the development and monitoring of programming level tools. These indicators should also increase our understanding of the wider impact of development assistance.

This work builds upon existing international best practices (e.g. GDPRD key indicators).

AGRICULTURE & RURAL DEVELOPMENT: OUTCOME AND IMPACT INDICATORS

Introduction

This short paper outlines a key set of effects and indicators covering expected outcomes and impacts of support to the agriculture and rural development sector. It is designed to assist country teams to develop a set of indicators for the programming level and guide the production of documents such as Country Strategy Papers (CSP). It also aims to fill, as much as possible, the 'missing middle' between implementation indicators (e.g. irrigation of crops) and global impact indicators (e.g. poverty reduction).

EU Food Security Capacity Enhancement Project – Ethiopia



Methodology

This paper is based on intervention logic that outlines a chain of expected effects (outputs, outcomes and impacts) for a successful intervention. For each outcome and specific impact, a set of indicators has been identified that can measure their achievement. A full set of effects is outlined in the intervention logic diagram on page 4 and the indicators are summarised in Annex A.

For full details on the methodology used for this working paper, please see the 'methodological approach' paper.

The focus of the intervention logic is on the agricultural sector. However, the intervention logic also covers the main effects required in the non-farm rural economy for development to take place.

The 2008 World Development Report identified three different types of economies for rural development economies, each requiring different development paths¹:

Agriculture-based economies (e.g. sub-Saharan countries): need to use agriculture as their basis for economic growth by improving smallholder competitiveness in medium and higher potential areas, while simultaneously ensuring livelihoods and food security;

Transforming economies (e.g. South/East Asia, Middle East and North Africa countries): require comprehensive approaches that pursue multiple pathways out of poverty (e.g. by shifting to high-value agriculture and decentralising non-farm economic activities to rural areas); and

Urban-based economies (e.g. Latin America and Central Asia countries): need to focus on linking farmers to modern food markets and booming agricultural sub-sectors, or sustainable provision of environmental services.

The indicators in this working paper cover all three types of rural development economies. However, when developing intervention logics for specific countries the focus will depend on what type of rural economy the country is based on.

¹ As outlined in Tools and Methods Series, Reference Document No.5: Sector Approaches in Agriculture and Rural Development (page.9)

Where possible, indicators have been taken from the Global Donor Platform for Rural Development (GDPRD) priority and core indicator list². The GDPRD is aiming for all countries to be able to at least report on the nineteen indicators outlined in their priority list.

Output Clusters

Support for agriculture and rural development has been arranged into two output cluster areas. It should be noted that development in agriculture and rural development is mostly based on private sector activities. Therefore, the role of the public sector is essentially to ensure provision of key public goods and to create a conducive economic and regulatory environment for private business. Output clusters cover products resulting from development interventions:

Provision of Key Public Goods

This includes six sub-cluster areas:

1. Infrastructure: "building of roads to aid the trade of goods"
2. Water: "irrigation of crops and animal feed"
3. Education: "to build skills of rural population to enable better understanding of agriculture and to gain access to other sectors of the economy"
4. Health Care: "enhanced health for rural population"
5. Animal/Plant Health Control: "improved vaccination, disease monitoring and control for animal and plants"
6. Research & Development "development of improved inputs for agriculture, such as seeds and fertilisers"

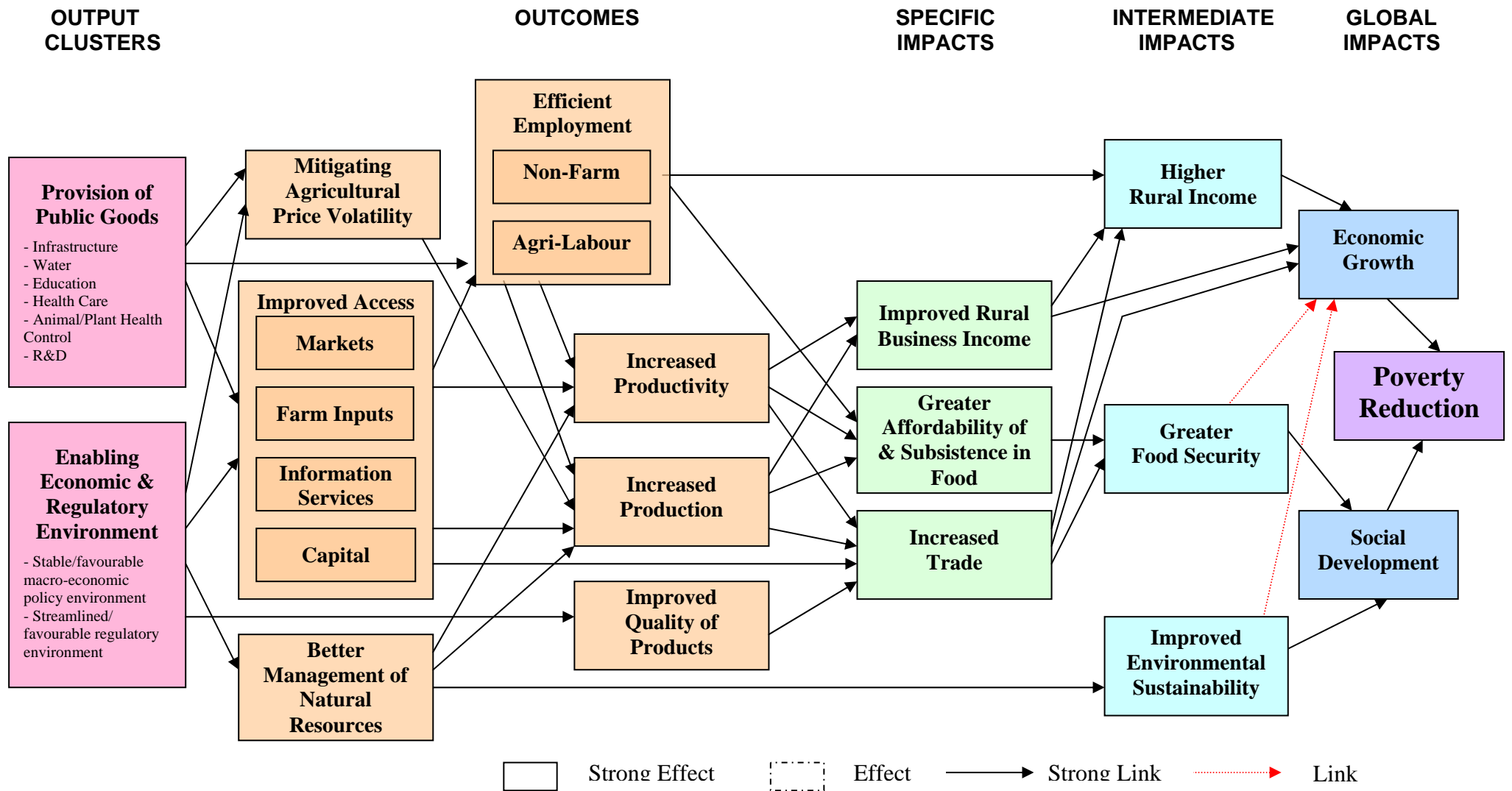
Economic and Regulatory Environment

This includes two sub-cluster areas:

1. Stable/favourable macro-economic policy environment for rural development:
 - tax
 - customs
 - inflation
 - exchange rates
2. Streamlined/favourable regulatory framework environment to encourage rural development:
 - business investment climate
 - property/land rights
 - food quality standards
 - environmental standards

² For full details, see the GDPRD 'Tracking outcomes in agriculture and rural development in less-than-ideal conditions, a sourcebook of indicators for monitoring and evaluation'. Priority indicators are highlighted in the text with italics.

AGRICULTURE & RURAL DEVELOPMENT INTERVENTION LOGIC



Inputs: financial, human and material resources etc. Activities: funding, planning, monitoring, technical assistance, construction etc

Outcomes

Outcomes relate to the likely or achieved short-term and medium-term effects of an intervention's outputs:

Mitigating Agricultural Price Volatility

1. Support for consumers vulnerable to short-term food price changes

Example: Percentage of vulnerable population with access to food aid, cash transfers, or work fare programmes

2. Support for farmers vulnerable to short-term food price changes

Examples: Percentage (total value) of food staples covered by long term fixed price contracts
Percentage of the rural population who are eligible to obtain a business loan³
Percentage of rural businesses (farm/non-farm) that have risk insurance policies⁴
Storage facility capacity in months and key food staples

Improved Access: Markets

3. Access to road transportation

Examples: Change (percentage) in unit cost of transportation of agricultural products⁵

Improved Access: Farm Inputs

4. Access to land

Examples: *Percentage of land area for which there is a legally recognized form of land tenure*⁶

Percentage of agricultural households that have legally recognised rights to land⁷

Alternative development in former poppy growing areas in Myanmar



5. Access to water

Examples: *Irrigated land as percentage of crop land*⁸
Increase (volume) in use of rain harvesting

6. Access to seeds and fertilisers

Examples: Fertiliser consumption (100gms per hectare of arable land)
Production and cost of improved seedlings
Use of improved seedlings

7. Access to improved breeds of animals/fish

Example: Percentage coverage/change in improved breed stock

Improved Access: Information Services

8. Access to extension services

Example: Percentage of farmers that have knowledge, use advice and are satisfied with specific knowledge being disseminated by the extension system⁹

³ Global Donor Platform for Rural Development (GDPRD) core indicator 45. Identical to example provided for indicator 8.

⁴ Identical to example provided for indicator 8.

⁵ GDPRD core indicator 15

⁶ GDPRD priority indicator 19

⁷ GDPRD core indicator 83

⁸ GDPRD priority indicator 13

⁹ GDPRD core indicator 51

9. Access to information on markets

Example: Percentage of farmers aware of key market information

Improved Access: Capital

10. Availability of credit

Examples: *Percentage of the rural population using financial services of formal banking institutions*¹⁰

Percentage of rural population using non-bank financial services¹¹ (e.g. micro-credit)

Percentage of the rural population who are eligible to obtain a business loan¹²

Percentage of rural businesses (farm/non-farm) that have risk insurance policies¹³

11. Investment in rural areas

Examples: Percentage increase in private sector investments in agriculture¹⁴

Percentage increase in private sector investments in rural non-farm activities

12. Establishing a rural business

Example: Average time and cost for registering a rural business

Better Management of Natural Resources

13. Preservation of natural resources

Example: *Proportion (percentage) of land area formally established as protected area*¹⁵

Proportion (percentage) of seas/lakes formally established as protected area

14. Sustainable management practices

Examples: Knowledge/use of sustainable crop production practices, technologies and inputs¹⁶ (e.g. conservation tillage and irrigation management)

Capture fish production as a percentage of fish stock¹⁷

Area of forest under sustainable forest management (hectares)¹⁸

Levels of agro-chemical pollution

Rates of pesticide poisoning illnesses and deaths

15. Environmental services

Examples: Growth/value of rural businesses linked to environmental services (e.g. value of services from forests¹⁹, eco-tourism)

Value of carbon trading schemes

Efficient Employment: Non-Farm

16. Non-farm employment

Examples: Percentage of rural labour force employed in non-farm activities²⁰

Efficient Employment: Agricultural Labour

17. Agriculture labour employment

Examples: Percentage of rural labour force employed in agriculture²¹

Percentage of the labour force underemployed or unemployed²² (in rural areas)

¹⁰ GDPRD priority indicator 11

¹¹ GDPRD core indicator 49

¹² GDPRD core indicator 45. Identical to example provided for indicator 2.

¹³ Identical to example provided for indicator 2.

¹⁴ GDPRD core indicator 68

¹⁵ GDPRD priority indicator 17

¹⁶ GDPRD core indicator 21

¹⁷ GDPRD priority indicator 9

¹⁸ GDPRD core indicator 40

¹⁹ GDPRD core indicator 39

²⁰ GDPRD core indicator 17

²¹ GDPRD core indicator 16

²² GDPRD core indicator 18

Increased Productivity

18. Land productivity

- Examples: *Change (percentage) in yields of major crops of the country*²³
*Annual growth (percentage) in value added in the livestock sector*²⁴
Yield gap between farmers' yields and on-station yields for major crops of the country²⁵
Percentage increase in yield per livestock unit²⁶
Water use per unit of aquaculture production²⁷

19. Labour productivity

- Example: Agriculture value added per worker

20. Capital productivity

- Example: Tractors per 100sq km of arable land
*Percentage of farmers who are members of community/producer organisations*²⁸

Increased Production

21. Production

- Examples: *Food production index*²⁹
Percentage of total land area under permanent crops³⁰
Annual change (percentage) in production from aquaculture farms³¹
Annual change (percentage) in timber production

22. Type of production/diversification

- Example: Increase in production of high-value agricultural products

Improved quality of products

23. International marketing standards

- Examples: Value/number of agricultural products that meet minimum international marketing standards

Specific Impact

Specific impacts cover positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended:

Improved Rural Business Income

24. Agricultural prices

- Examples: Producer Price Index for food items³²
Value at farm-gate



²³ GDPRD priority indicator 7

²⁴ GDPRD priority indicator 8

²⁵ GDPRD core indicator 23. This is sometimes referred to as the 'yield gap', which looks at the difference between actual productivity and potential productivity.

²⁶ GDPRD core indicator 28

²⁷ GDPRD core indicator 31

²⁸ GDPRD priority indicator 15

²⁹ GDPRD priority indicator 4

³⁰ GDPRD core indicator 24

³¹ GDPRD core indicator 35

³² GDPRD core indicator 13

25. Growth in agricultural businesses

Examples: Gap between value/number of agricultural businesses starting up and going bankrupt
Change (percentage) in sales/turnovers of agro-enterprises³³ and community/producer organisations
Annual growth (percentage) in agricultural added value³⁴

26. Growth in rural non-farm businesses

Examples: Gap between value/number of rural non-farm businesses starting up and going bankrupt
Change (percentage) in sales/turnovers of rural non-farm businesses

Greater Affordability of and Subsistence in Food

27. Affordability of food

Examples: Consumer Price Index for food items³⁵
Percentage of average household income spent on food items

28. Subsistence in food

Example: Percentage of (annual/monthly) household foods needs covered by subsistence farming

Increased Trade

29. Agricultural trade

Examples: Change in agricultural trade balance
Agricultural exports as a percentage of total value added in agriculture sector³⁶
Change in value of agricultural trade
Change in volume of agricultural trade

30. Rural non-farm trade

Examples: Change rural non-farm trade balance
Change in value of rural non-farm trade
Change in volume of rural non-farm trade

Intermediate Impacts

Intermediate impacts are similar to specific impact but are longer-term in nature and are the last cause and effect chain level that can be monitored effectively and at the same time demonstrative sufficient attribution to the output clusters:

Higher Rural Income

31. Rural income

Examples: Percentage change in proportion of rural population below \$1 (purchasing power parity) per day or below national poverty line³⁷
Rural poor as a proportion of the total poor population³⁸
Annual growth rate (percentage) of household income in rural areas from non-agricultural activity³⁹

Greater Food Security

32. Undernourishment

³³ GDPRD priority indicator 14

³⁴ GDPRD priority indicator 5

³⁵ GDPRD core indicator 10

³⁶ GDPRD core indicator 11

³⁷ GDPRD core indicator 8

³⁸ GDPRD priority indicator 6

³⁹ GDPRD core indicator 20

Examples: *Prevalence (percentage) of underweight children under five years of age in rural areas*⁴⁰
*Proportion of under-nourished rural population*⁴¹

Improved Environmental Sustainability

33. Land sustainability

Example: *Change (percentage) in soil loss from watersheds*⁴²
*Proportion (percentage) of land area covered by forest*⁴³
*Rate of deforestation (percentage)*⁴⁴

34. Sustainable extraction of water

Example: Annual extraction from surface and ground water in relation to its minimum annual recharge (i.e. water balance sheet)
*Withdrawal of water for agricultural as a percentage of total freshwater withdrawal*⁴⁵

35. Adapting to climate change

Example: Change (percentage) of farms under risk of flood/drought⁴⁶

Global Impacts

Finally, the effects of support for agriculture and rural development should contribute to the longer term global impacts of social development, economic growth and poverty reduction. However, due to the complexity of their achievement and the numerous factors influencing them, it is not possible to draw a direct cause and effect link between them and agriculture and rural development. As a outcome, no agriculture and rural development related indicators have been identified for this level.

⁴⁰ GDPRD priority indicator 3

⁴¹ GDPRD core indicator 12

⁴² GDPRD priority indicator 18

⁴³ GDPRD priority indicator 10

⁴⁴ GDPRD core indicator 44

⁴⁵ GDPRD priority indicator 16

⁴⁶ GDPRD core indicator 79

Annex A: List of Key Indicators for Agriculture and Rural Development

<p>Price Volatility Outcomes</p> <p>1. Consumer vulnerability to short-term price changes - Availability to food aid, cash transfers, or work fare programmes</p> <p>2. Farmer vulnerability to short-term price changes - Food staples covered by long-term fixed price contracts; eligibility to business loan and risk insurance coverage; storage facility capacity in months and key food staples</p> <p>Improved Access Outcomes</p> <p>3. Access to road transportation - Unit cost for transportation of agricultural products</p> <p>4. Access to land - Land area/agricultural households where there is legally recognised land tenure</p> <p>5. Access to water - Irrigated land; use of rain harvesting</p> <p>6. Access to seeds and fertilisers - Fertiliser consumption; production, cost & use of seeds</p> <p>7. Access to improved breeds of animals/fish - Percentage coverage/change in improved breed stock</p> <p>8. Access to extension services - Farmers that have knowledge, use advice & are satisfied with extension services</p> <p>9. Access to information on markets - Percentage of farmers aware of key market information</p> <p>10. Availability of credit - Rural population using financial services (formal & non-formal); are eligible for a business loan; that have risk insurance policies</p> <p>11. Investment in rural areas - Increase in private sector investments (agriculture & non-farm)</p> <p>12. Establishing a rural business - Average time/cost in setting up a rural business</p> <p>Natural Resources Outcomes</p> <p>13. Preservation of natural resources - Land/sea/lake area established as a protected area</p> <p>14. Sustainable management practices - Knowledge/use of sustainable crop practices, technologies and inputs; capture fish production as % of stock; area of sustainable forest management; levels of agro-chemical pollution; rates of pesticide poisoning</p> <p>15. Environmental services - Growth/value of rural environmental services; value of carbon trading schemes</p> <p>Employment Outcomes</p> <p>16. Non-farm employment - Non-farm labour force</p> <p>17. Agricultural Labour - Agricultural labour force; rural labour force underemployed or unemployed</p> <p>Productivity Outcomes</p> <p>18. Land productivity - Yields of major crops/livestock; yield gap; yield per livestock unit; water use per unit of aquaculture production</p> <p>19. Labour productivity - Agricultural added value per worker</p> <p>20. Capital productivity - Tractors per 100sq of arable land; Farmers who are members of collective organisations</p>	<p>Production Outcomes</p> <p>21. Production - Food production index; land area under permanent crops; aquaculture/timber production</p> <p>22. Type of Production/diversification - Increase in production of high-value agriculture products</p> <p>Quality Outcomes</p> <p>23. International marketing standards - Value/number of agricultural products that meet minimum international marketing standards</p>
<p>Profitability Specific Impacts</p> <p>24. Agricultural prices - Producer price index for food items; value at farm-gate</p> <p>25. Growth in agricultural businesses - Gap between start ups and bankruptcy; sales/turnovers; growth in agricultural added value</p> <p>26. Growth in rural non-farm businesses - Gap between start ups and bankruptcy; sales/turnovers</p> <p>Affordability/Subsistence Specific Impacts</p> <p>27. Affordability of food - Consumer price index for food; % of household income spent on food</p> <p>28. Subsistence in food - Household food needs covered by subsistence farming</p>	<p>Trade Specific Impacts</p> <p>29. Agricultural trade - Trade balance; exports as a % of total value added; value and volume of trade</p> <p>30. Rural non-farm trade - Trade balance; value and volume of trade</p>
<p>Rural Income Intermediate Impacts</p> <p>31. Rural income - Rural population living below \$1 day, or below national poverty line; rural poor as a % of total poor; growth in household from non-agricultural activity</p>	<p>Food Security Intermediate Impacts</p> <p>32. Undernourishment - Prevalence of underweight children under 5 years old; under-nourished rural population</p>
<p>Environmental Sustainability Intermediate Impacts</p> <p>33. Land sustainability - Soil loss from watersheds; land area covered by forest; deforestation</p> <p>34. Sustainable extraction of water - Water balance sheet; water withdrawal for agriculture as a % of total freshwater withdrawal</p> <p>35. Adapting to climate change - Farm under risk of flood/drought</p>	