TECHNICAL NOTES

for preparing the 2017 African Agriculture Transformation Scorecard on implementing
Commitments of the June 2014 AU Heads of State Malabo Declaration

The 2017 Progress Report on African Agricultural Transformation for implementing the Malabo Declaration is
due at the January 2018 AU Assembly of Heads of State and Government

Draft March 2017, Reviewed July 2017
Introduction
The African Union (AU) Commission is preparing the 1st Report on the implementation of the June 2014 AU Assembly Declaration on the Malabo Commitments for agricultural transformation in Africa; a report which is due for the January 2018 AU Assembly.

The Report is currently being prepared and will be a compilation of data expected from the 55 AU Member States that are being trained to carry out self-assessments and provide their individual progress report for achieving each target set in the Malabo Declaration.

Member states are preparing their report using the Country Reporting Template and Technical Guidelines that are developed in line with the 7 performance themes of the Malabo Declaration, where 23 performance categories and 43 indicators have been prioritized to be tracked and reported on by member states for the 2017 reporting round.

The seven (7) performances themes of the Malabo Declaration include:
Theme 1- Commitment to CAADP process
Theme 2- Investment finance in Agriculture
Theme 3- Ending Hunger
Theme 4- Eradicating Poverty through Agriculture
Theme 5- Intra-African Trade in Agriculture commodities
Theme 6- Resilience to Climate Variability
Theme 7- Mutual Accountability for Actions and Results

Agreement reached by the leadership of the AU Commission is to evaluate the progress made by individual member state in the form of Balanced Scorecard and to come up with the African Agricultural Transformation Scorecard, using appropriate methods to benchmark country performance in achieving targets set in the Malabo Declaration.

Benchmarking methods are metric methods that bring accuracy, rightness and fairness in evaluating progress for achieving a specific goal for which smart targets and corresponding indicators have been designed and agreed upon. The methods can help to get a Balanced Scorecard that enables peer-to-peer metric comparison of performances in order to stimulate continuous improvement of interventions towards the common agreed targets. In this case, the clarity of the benchmarking model seeks mainly to allow Member States to see how their performance is measured, and to search for best practices in order to overcome identified challenges, while reinforcing the culture of continuous improvement and providing sense of urgency in achieving agriculture Sector goals for Africa.

These 2017 Technical Notes, while recalling methods used in the AU's Malabo Biennial Review Technical Guidelines to calculate each performance indicator, provide as well further details on the methods used to calculate the Performance Indices and reference points for performance measurement that permit to set a right score in the Balanced Scorecard, accordingly with the agreed weighting systems.

In line with the performance structure set for the Biennial review exercise, the models in this document, provide: the I-score which is the score attributed to the performance Indicator; the C-score which is the combined score of the performance Category; the T-score which is the combined score of the performance Theme; and the O-score which is the Overall score in achieving the Malabo declaration. The milestone and the Benchmark as appeared in the document, are respectively the current values (minimum) of the indicator and the score, for the country to be on track for achieving the target set for the target year.

These Technical Notes will serve as basis for the design of the database for country data compilation to generate the 2017 Malabo Scorecard.
ADOPTED WEGHTING SYSTEM

for designing the balanced African Agricultural Transformation Scorecard: *The Performance Structure.*
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Adopted by Task Team @ Nairobi, August 2016 Revised after ToT meeting in November 2016 in Nairobi.

The Biennial Reporting to AU Assembly
Technical Notes 1

Performance Evaluation for achieving goals under Theme 1: “COUNTRY COMMITMENT TO CAADP PROCESS”
1.1- CAADP process to be fully completed at the country level: Reach 100% of the completion, CAADPpro, by 2018.
I-score$_{1.1}$ | Estimating progress on completing CAADP Process

- **Existence of Communication on internalizing CAADP, $p_1$**
- **Existence of National CAADP Roadmap for implementing Malabo, $p_2$**
- **Existence of NAIP Appraisal Report, $p_3$**
- **Existence of the New NAIP, $p_4$**
- **NAIP implementation reflected in national budget, $p_5$**
- **Existence of NAIP M&E System, $p_6$**
- **Existence of NAIP implementation progress Report, $p_7$**

2016 Benchmark:

$$B_{1.1} = \frac{2016 \, \mu_{1.1} \times 10}{\tau_{1.1}} = 3.33$$

2016 Milestone:

$$\mu_{1.1} = \frac{(2016 - 2015)}{(2018 - 2015)} \times \tau_{1.1} = 33\%$$

**TARGET**

$T_{1.1} = 100\%$

- **On Track ???**

Baseline Yr | 2015
Target Yr | 2018
1.2- Multi-sectorial coordination body and multi-stakeholder body fully established and operational at national level: Reach 100% for the Quality of multi-sectorial and multi-stakeholder coordination body, Qc, by 2018.
I-score\textsubscript{1.2} \mid \textbf{Estimating progress on establishing multi-sectorial coordination body and multi-stakeholder body}

- Existence of the TORs, \(P_{\text{TOR1}}\)
- Reflection of the key elements, \(P_{\text{TOR2}}\)
- Representation of stakeholders, \(P_{\text{TOR3}}\)
- Relevance of membership, \(P_{\text{TOR4}}\)
- Existence of list of official nominees and affiliation, \(P_{\text{TOR5}}\)
- Performance for meetings held, \(P_{\text{IMP1}}\)
- Level of engagement, \(P_{\text{IMP2}}\)

- Total number of organizations, \(N_{\text{org}}\)
- Total number of meetings organized, \(N_{\text{mO}}\)
- Number of organizations present at each meetings organized, \(N_{\text{orgi}}\)
- Total number of recommendations taken during the evaluation period, \(N_{RT}\)
- Total number of decisions taken with out of the number of recommendations during the evaluation period, \(N_{DI}\)
- Number of decisions implemented, \(N_{DI}\)
- Total expected senior attendance per meeting, \(T_{SA}\)
- Total number of meetings organized, \(N_{\text{mO}}\)
- Observed senior attendance at each meetings organized, \(Q_{SAi}\)

- Existence of quality terms of reference, \(Qc_1\)
- Level of implementation of the coordination actions, \(Qc_2\)
- Level of participation and inclusiveness, \(Qc_3\)
- Level of commitment to decisions, \(Qc_4\)
- Level of representation, \(Qc_5\)

\[ \text{TARGET} \ T_{1.2} = 100\% \]

\[ 2016 \ Benchmark \ B_{1.2} = \frac{2016 \ \mu_{1.2} \times 10}{\tau_{1.2}} = 3.33 \]

\[ 2016 \ Milestone: \ 2016 \ \mu_{1.2} = \frac{(2016 - 2015)}{(2018 - 2015)} \times \tau_{1.2} = 33\% \]
1.3- Evidence-based policies and institutions that support planning and implementation are established and implemented by the country to deliver on Malabo: Reach 100% for the Evidence-based policies, supportive institutions and corresponding human resources, EIP, by 2018.
I-score<sub>1.3</sub> | Estimating progress on establishing evidence based policies and institutions

Baseline Yr 2015

Target Yr 2018

- Total number of policies and strategies in the NAIP, TNP
- Number of policies and strategies that are evidence-based, NEP
- Number of policies and strategies elements in the NAIP that required supportive institutions (laws and regulations), NRI
- Number of institutions (laws and regulations) that exist to support policies and strategies, NIP
- Number of required fulltime staff positions for planning and M&E, FTP
- Number of staffing positions filled, FTS

Evidence-based policies and strategies evidence, \( EPE \)

Supportive institutions - laws and regulations, \( EPI \)

Full-time equivalent staff dedicated to agricultural policy planning, implementation and M&E within the Ministry of agriculture, \( FTE \)

Evidence-based policies, supportive institutions and corresponding human resources, \( EIP \)

\[ 100 \times \frac{NEP}{TNP} \quad (n) \]

\[ 100 \times \frac{NIP}{NRI} \quad (o) \]

\[ \frac{(EPE + EPI + FTE)}{3} \quad (q) \]

\[ \frac{EIP \times 10}{\tau_{1.3}} \quad (r) \]

\[ \frac{100 \times FTS}{FTP} \quad (p) \]

\[ 2016 \text{ Benchmark} \]

\[ 2016 \quad B_{1.3} = \frac{2016 \, \mu_{1.3} \times 10}{\tau_{1.3}} = 3.33 \quad (t) \]

\[ 2016 \text{ Milestone:} \]

\[ 2016 \, \mu_{1.3} = \frac{(2016 - 2015)}{(2018 - 2015)} \times \tau_{1.3} = 33\% \quad (s) \]
Overall progress for Theme 1: “COUNTRY COMMITMENT TO CAADP PROCESS”

\[ I\text{-score}_{1,1} = C\text{-score}_{1,1} \]

\[ I\text{-score}_{1,2} = C\text{-score}_{1,2} \]

\[ I\text{-score}_{1,3} = C\text{-score}_{1,3} \]

\[ T\text{-score}_1 = \text{average}(C\text{-score}_{1,i}) \]

2016 Benchmark

\[ \text{average}(d, m, t) = 3.33 \]

On Track ???
Performance Evaluation for achieving goals under Theme 2: “INVESTMENT FINANCE IN AGRICULTURE”
2.1i- Increase public expenditures to agriculture as part of national expenditures, to at least 10%, from 2015 to 2025.

2.1ii- Ensure adequate intensity of agricultural spending by keeping annual public agriculture expenditure as % of agriculture value added to no less than (or at a minimum of) 19% from 2015 to 2025.

2.1iii- Ensure that Official Development Assistance (ODA) committed to implement the NAIPs is fully disbursed to countries. The target is to have 100% ODA disbursement annually from 2015 to 2025.
I-score\textsubscript{2.1i} | Estimating progress on public expenditures in agriculture

**Baseline Yr**

**Target Yr**

**2015**

**2025**

**Total Public Expenditure in local currency unit (lcu),** \( TPE \)

\[ \text{100} \times \frac{PAE}{TPE}, \text{(%)} \]

**Public Agriculture Expenditure in local currency units (lcu),** \( PAE \)

\[ \text{(} \frac{\text{p}PAE_{2016} + \text{p}PAE_{2015}}{2} \text{) / 2} \]

**Average Public agriculture expenditure as share of total public expenditure,** \( TPAE \)

\[ \text{Max} \left[ \text{Min} \left( 10 \times \frac{\text{p}PAE}{\tau_{2.1i}}, 10 \right), 0 \right] \]

**I-score\textsubscript{2.1i}**

**On Track ???**

**2016 Benchmark**

\[ 2016 \space B_{2.1i} = 2016 \space \frac{\mu_{2.1i} \times 10}{\tau_{2.1i}} = 10 \]

**2016 Milestone:**

\[ 2016 \space \mu_{2.1i} = \tau_{2.1i} = 10\% \]
I-score_{2.1ii} | Estimating progress on intensity of agricultural spending

**Baseline Yr** 2015

**Target Yr** 2025

**On Track ???**

### 2016 Benchmark

\[
B_{2.1ii} = \frac{2016 \mu_{2.1ii} \times 10}{\tau_{2.1ii}} = 10
\]

### 2016 Milestone:

\[
2016 \mu_{2.1ii} = \tau_{2.1ii} = 19\%
\]

**Public Agriculture Expenditure in local currency units (lcu), PAE**

\[
100 \times \frac{PAE}{AgGDP}
\]

### Agriculture Value Added in local currency units (lcu), AgGDP

\[
(PAE_{AgGDP,2016} + \frac{PAE_{AgGDP,2015}}{2})
\]

### Average Public agriculture expenditure as % of agriculture value added, \(PAE_{AgGDP}\)

**TARGET** \(\tau_{2.1ii} = 19\%\)

**I-score_{2.1ii}**

**100 \times \frac{PAE}{AgGDP}**

\[
(PAE_{AgGDP,2016})
\]

**2015**

**2016**
I-score$_{2.1iii}$ | Estimating progress on ODA disbursement to agriculture

**Baseline Yr** | **2015**

**Target Yr** | **2025**

### Official Development Assistance (ODA) for agriculture, livestock, forestry, and fishery, gross disbursements (US$): $agODAC$

100 $\times$ $agODAD / agODAC$

### ODA disbursed to agriculture as % of commitments, $ODA_{2015}$

$100 \times agODAD / agODAC$

2015

### Average ODA disbursed to agriculture as % of commitments, $ODA$

Average ODA disbursed to agriculture as % of commitments, $ODA$

### 2016 Benchmark

$2016 \ B_{2.1iii} = \frac{2016 \ \mu_{2.1iii} \times 10}{\tau_{2.1iii}} = 10$

### 2016 Milestone:

$2016 \ \mu_{2.1iii} = \tau_{2.1iii} = 100\%$

### TARGET

$\tau_{2.1iii} = 100\%$

### On Track ???

$$\max \left[ \min \left( 10 \times \frac{ODA}{\tau_{2.1iii}}, 10 \right), 0 \right]$$

$($ai$)$

100 $\times$ $agODAD / agODAC$

2016

### ODA disbursed to agriculture as % of commitments, $ODA_{2016}$

ODA disbursed to agriculture as % of commitments, $ODA_{2016}$

### (ai)

$$100 \times agODAD / agODAC$$

### (ak)

$$(ODA_{2016} + ODA_{2015}) / 2$$
$C$-score$_{2.1}$ | Combined progress on Public Expenditures to Agriculture

$I$-score$_{2.1i}$

$I$-score$_{2.1ii}$

$I$-score$_{2.1iii}$

average$(I - score_{2.1x})_{x=i \rightarrow iii}$

(ao)

C-score$_{2.1}$

On Track ???

2016 Benchmark

average$(ab, ah, an) = 10$

(ap)
2.2- Ensure that government investment leverage at least $X$ times, domestic private investment in agriculture sector by 2025.
I-score_{2.2} \mid \text{Estimating progress on domestic private investment in agriculture}

**Baseline Yr** 2015

**Target Yr** 2025

- **Total Agricultural Investments**, \( TAI \)
- **Government Agriculture Expenditure**, \( GAE \)
- **Official Development Assistance (ODA) for agriculture, forestry, and fishing, gross disbursements**, \( agODAD \)
- **Foreign Direct Investment**, \( FDI \)

**Ratio of domestic private sector investment to government investment in agriculture (%)**, \( tDPrPb \)

\[
Y = \frac{10 \times \frac{\mu_{2.2}}{\tau_{2.2}} \times 10}{X} = 1.00
\]

**2016 Benchmark**

\[
2016 B_{2.2} = \frac{2016 \mu_{2.2} \times 10}{\tau_{2.2}} = 1.00
\]

**2016 Milestone**

\[
2016 \mu_{2.2} = \tau_{2.2} \times \frac{2016 - 2015}{2025 - 2015} = \frac{X}{10}
\]
2.3- Ensure that government investment leverage at least Y times, foreign private direct investment in agriculture sector by 2025.
I-score\textsubscript{2.3} | Estimating progress on foreign private investment in agriculture

Baseline Yr | 2015

Target Yr | 2025

Government Agriculture Expenditure, GAE

Foreign Direct Investment, FDI

\[ 100 \times \frac{FDI}{GAE} \]

Ratio of foreign private sector investment to government investment in agriculture (\%), \( T\text{FP}r\text{P}b \)

\[ \text{Max} \left[ \text{Min} \left( 10 \times \frac{T\text{FP}r\text{P}b}{\tau_{2.3}}, 10 \right) \right] \]

\( \text{TARGET} \quad \tau_{2.3} = Y \)

2016 Benchmark

\[ 2016 B_{2.3} = \frac{2016 \mu_{2.3} \times 10}{\tau_{2.3}} = 1.00 \]

2016 Milestone:

\[ 2016 \mu_{2.3} = \tau_{2.3} \times \frac{2016 - 2015}{2025 - 2015} = \frac{Y}{10} \]
2.4- Ensure that 100% of men and women engaged in agriculture have access to financial services to be able to transact agriculture business, by 2018.
I-score_{2,4} | Estimating progress on market access

Baseline Yr 2015
Target Yr 2018

\[ \text{TARGET } \tau_{2.4} = 100\% \]

\[ \frac{\text{Proportion of men and women engaged in agriculture with access to financial services, } \tau_{AgFs}} {10} \]

\[ I\text{-score}_{2.4} = \frac{\tau_{AgFs} \times 10}{\tau_{2.4}} \]

\[ \text{On Track ??} \]

\[ \text{2016 Benchmark} \]

\[ \frac{2016 \mu_{2.4} \times 10}{\tau_{2.4}} = 3.33 \]

\[ \text{2016 Milestone:} \]

\[ 2016 \mu_{2.4} = \frac{(2016 - 2015)}{(2018 - 2015)} \times \tau_{2.4} = 33\% \]
Overall progress for Theme 2: “INVESTMENT FINANCE IN AGRICULTURE”

\[ T\text{-score}_2 \]

\[ \text{average}(C - \text{score}_{2,i}) \]

On Track ???

2016 Benchmark

\[ \text{average}(ap, be) = 6.67 \]
PC 3.1 | Access to Agriculture inputs and technologies

3.1i- Ensure minimum use of fertilizer for African agriculture development at level of consumption of at least 50 kilograms/ha of arable land, from 2015 to 2025.

3.1ii- Increase the size of irrigated areas (as per its value observed in the year 2000), by 100% by the year 2025.

3.1iii- Double (100% increase) the current levels of quality agricultural inputs for crops (seed), livestock (breed), and fisheries (fingerlings) by 2025, from 2015.
PC 3.1 | Access to Agriculture inputs and technologies

3.1iv- All farmers have access to quality agricultural advisory services that provide locally relevant knowledge, information and other services by 2018.

3.1v- Increase the level of Investments in Agricultural Research and Development to at least 1% of the Agricultural GDP, from 2015 to 2025.

3.1vi- Ensure that 100% of farmers and agribusiness interested in agriculture have rights to access the required land, by 2018.
I-score$_{3.1i}$ | Estimating progress on fertilizer use (organic and/or inorganic)

Baseline Yr | 2015
---|---
Target Yr | 2025

### 2015
- **Total fertilizers consumption (N+P, N+P+K) in Kg, $F_c$**
- **Fertilizer consumption (kilogram of nutrients per hectare of arable land), $Fz_{2015}$**
- **Arable Land and Permanent Crops in hectare, $L$**

### 2016
- **Total fertilizers consumption (N+P, N+P+K) in Kg, $F_c$**
- **Fertilizer consumption (kilogram of nutrients per hectare of arable land), $Fz_{2016}$**
- **Arable Land and Permanent Crops in hectare, $L$**

### 2016 Benchmark
- **TARGET**
  - $T_{3.1i} = 50$ kg/ha
- **2016 Milestone:**
  - $2016 \frac{\mu_{3.1i}}{\tau_{3.1i}} = 10$

### Calculation
- **Average Fertilizer consumption (kilogram of nutrients per hectare of arable land), $Fz$**
  - $Max \left[ Min \left( 10 \times \frac{Fz}{\tau_{2.1i}}, 10 \right) \right]$

---

**On Track ???**
Estimating progress on the size of irrigated areas

**Multi-targets commitment on the size of irrigated areas in the African Water Vision 2025, used in this performance category.**

<table>
<thead>
<tr>
<th>Targets</th>
<th>Baseline</th>
<th>25% increase</th>
<th>50% increase</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years</td>
<td>2000</td>
<td>2005</td>
<td>2015</td>
<td>2025</td>
</tr>
</tbody>
</table>

The milestone 2005 of 25% and the milestone 2015 of 50% in the same commitment, are to be considered in the scoring method. It is called the multi-targets situation in the Easy-Theory. (***)

**Growth rate of the size of irrigated area (in %),**

$$R_{IA}$$

$$100 \times \left( \frac{IA_{2016} - IA_{2000}}{IA_{2000}} \right)$$

**TARGET**

$$T_{3.1ii} = 100\%$$

2016 **Milestone:**

$$2016 \mu_{3.1ii} = 2015 \mu_{3.1ii} + \frac{(2016 - 2015)(25\%)}{(2025 - 2015)(50\%)} = 55\%$$

2016 **Benchmark:**

$$2016 B_{3.1ii} = \frac{2016 \mu_{3.1ii} \times 10}{\tau_{3.1ii}} = 5.50$$

**On Track???**

**I-score**

$$I_{3.1ii}$$
I-score\textsubscript{3.1iii} | Estimating progress on quality agricultural inputs for crops (seed), livestock (breed), and fisheries (fingerlings)

Total national quality agriculture inputs requirement for the considered commodity \( i \), \( \text{AgIR}_i \)

Supplied quality agriculture inputs for the commodity \( i \), \( \text{AgIS}_i \)

Ratio of supplied quality agriculture inputs to the total national inputs requirements for the commodity \( i \), \( R_i \)

Growth rate of the ratio of supplied quality agriculture inputs to the total national inputs requirements for the commodity \( i \), \( \tau \text{AI}_i \)

Average Growth rate of the ratio of supplied quality agriculture inputs to the total national inputs requirements, \( \tau \text{AI} \)

\[
\text{Average Growth rate} = \frac{\text{Max} \left[ \text{Min} \left( 10 \times \frac{\tau \text{AI}_i}{\tau_{3.1iii}}, 10 \right) \right]}{10}
\]

Commodity \( i \), \( \tau \text{AI}_i \)

Commodity \( j \), \( \tau \text{AI}_j \)

TARGET \( \tau_{3.1iii} = 100\% \)

2016 Benchmark

2016 \( B_{3.1iii} = \frac{2016 \mu_{3.1iii} \times 10}{\tau_{3.1iii}} = 1.00 \)

2016 Milestone:

2016 \( \mu_{3.1iii} = \frac{(2016 - 2015)}{(2025 - 2015)} \times \tau_{3.1iii} = 10\% \)

Baseline Yr 2015

Target Yr 2025
Estimating progress on access to quality agricultural advisory services

**I-score$_{3.1iv}$**

**Baseline Yr** 2015  
**Target Yr** 2018

**Number of farmers having access to Agricultural Advisory Services, $NFAgAS$**

\[ 100 \times \frac{NFAgAS}{NF} \quad \text{(by)} \]

**Proportion of farmers having access to Agricultural Advisory Services ($\%$), $AFAgAS$**

\[ \frac{AFAgAS \times 10}{\tau_{3.1iv}} \]

**TARGET**

\[ \tau_{3.1iv} = 100\% \]

**2016 Benchmark**

\[ 2016 B_{3.1iv} = \frac{2016 \mu_{3.1iv} \times 10}{\tau_{3.1iv}} = 3.33 \quad \text{(cb)} \]

**2016 Milestone:**

\[ 2016 \mu_{3.1iv} = \frac{(2016 - 2015)}{(2018 - 2015)} \times \tau_{3.1iv} = 33\% \quad \text{(ca)} \]

**On Track??**
**I-score**$_{3.1v}$ | Estimating progress on investment in agriculture research and development

- **Baseline Yr**: 2015
- **Target Yr**: 2025

**Total Agricultural Research Spending, TARS**

\[ 100 \times \frac{TARS}{AgGDP} \]  

**Agriculture, value added, AgGDP**

**Total Agricultural Research Spending, TARS**

\[ 100 \times \frac{TARS}{AgGDP} \]  

**Average of Total Agricultural Research Spending as a share of AgGDP, $\tilde{TARS}$**

\[ \frac{(\tilde{TARS}_{2016} + \tilde{TARS}_{2015})}{2} \]  

**Max** \[ \text{Min} \left( 10 \times \frac{\tilde{TARS}}{\tau_{3.1v}}, 10 \right), 0 \]  

**TARGET**

\[ \tau_{3.1v} = 1\% \]

**2016 Benchmark**

\[ 2016 \ B_{3.1v} = \frac{2016 \ \mu_{3.1v} \times 10}{\tau_{3.1v}} = 10 \]

**2016 Milestone:**

\[ 2016 \ \mu_{3.1v} = \tau_{3.1v} = 1\% \]
I-score$_{3.1vi}$ | Estimating progress on access to land

### Baseline Yr: 2015

### Target Yr: 2018

**Total number of farm households in the country, $NTFHh$**

**Number of farm HHs with secured land rights, $NFHhSL$**

**Proportion of farm households with ownership or secure land rights, $\tau HhSL$**

$$100 \times \frac{NFHhSL}{NTFHh}$$

**TARGET**

$\tau_{3.1vi} = 100\%$

**2016 Benchmark**

$$2016 \quad B_{3.1vi} = \frac{2016 \mu_{3.1vi} \times 10}{\tau_{3.1vi}} = 3.33$$

**2016 Milestone:**

$$2016 \mu_{3.1vi} = \frac{(2016 - 2015)}{(2018 - 2015)} \times \tau_{3.1vi} = 33\%$$

**On Track??**
Combined progress on Access to Agriculture inputs and technologies

\[ C\text{-score}_{3.1} \equiv \text{average}(I - \text{score}_{3.1x})_{x=i \rightarrow vi} \] (cm)

2016 Benchmark

\[ \text{average}(bm, bq, bx, cb, ch, cl) = 5.53 \] (cn)
3.2i- Double (100% increase) the current agricultural labor productivity levels by the from 2015 to 2025.

3.2ii- Double (increase by 100%) the current agricultural land productivity levels, by 2025 from 2015.

3.2iii- Double (100% increase) the current agricultural yield levels, by 2025 from 2015.
I-score$_{3.2i}$ | Estimating progress on labor productivity

2011 to 2015

- Agricultural value added in constant US dollars, \(AgGDP_t/W_t\)
- Agricultural worker, \(W_t\)
- Average Agricultural value added per agricultural worker (constant 2010 USD), \(AgW_t\)

\[\text{average}(AgW_t)_{t=2011 \rightarrow 2015}\]

\[100 \times \frac{(AgW_{2016} - AgW_{av})}{AgW_{av}}\]

2016

- Agricultural value added in constant US dollars, \(AgGDP_{2016}/W_{2016}\)
- Agricultural worker, \(W_{2016}\)
- Average Agricultural value added per agricultural worker (constant 2010 USD), \(AgW_{2016}\)

Growth rate of Agriculture value added per agricultural worker, \(\tau_{AgW}\)

\[\text{Max} \left[ \text{Min} \left( 10 \times \frac{\tau_{AgW}}{\tau_{3.2i}}, 10 \right) , 0 \right]\]

TARGET
\[\tau_{3.2i} = 100\%\]

2016 Benchmark
\[2016 \text{ Benchmark } B_{3.2i} = \frac{2016 \mu_{3.2i} \times 10}{\tau_{3.2i}} = 1.00\]

2016 Milestone:
\[2016 \mu_{3.2i} = \frac{(2016 - 2015)}{(2025 - 2015)} \times \tau_{3.2i} = 10\%\]

Baseline Yr | 2015
Target Yr | 2025

On Track ???
I-score\textsubscript{3.2ii} | Estimating progress on land productivity

2011 to 2015

Agriculture value added in constant US dollars, \( \text{AgGDP}_t \)

Average \( (\text{AgL}_t)_{t=2011 \to 2015} \)

Agricultural arable land in hectare, \( L_t \)

\[
\text{average}(\text{AgL}_t)_{t=2011 \to 2015} = \frac{100 \times (\text{AgL}_{2016} - \text{AgL}_{\text{Min}})}{\text{AgL}_{\text{Avg}}} \]

\( \text{AgGDP}_t / L_t \) (cv)

\( \text{AgGDP}_{2016} / L_{2016} \) (cw)

Agricultural arable land in hectare, \( L_{2016} \)

Agriculture value added in constant US dollars per hectare of agricultural arable land, \( \text{AgL}_t \)

Agriculture value added in constant US dollars per hectare of agricultural arable land, \( \text{AgL}_{2016} \)

Average Agriculture value added in constant US dollars per hectare of agricultural arable land, \( \text{AgL}_{\text{Avg}} \)

Growth rate of agriculture value added, at constant US dollars, per hectare of agricultural arable land, \( \mu \text{AgL} \)

\[
\begin{align*}
\text{Max} & \left[ \text{Min} \left( 10 \times \frac{\text{\mu \text{AgL}}}{\tau_{3.2ii}}, 10 \right), 0 \right] \\
\end{align*}
\]

\( \text{Max} \left[ \text{Min} \left( 10 \times \frac{\text{\mu \text{AgL}}}{\tau_{3.2ii}}, 10 \right), 0 \right] \) (cz)

TARGET \( \tau_{3.2ii} = 100\% \)

2016 Benchmark

\[
2016 \, B_{3.2ii} = \frac{2016 \, \mu_{3.2ii} \times 10}{\tau_{3.2ii}} = 1.00
\]

2016 Milestone:

\[
2016 \, \mu_{3.2ii} = \frac{(2016 - 2015)}{(2025 - 2015)} \times \tau_{3.2ii} = 10\%
\]

On Track ???

Baseline Yr

2015

Target Yr

2025
I-score\textsubscript{3.2iii} | Estimating progress on agricultural yield

Total production of commodity \textit{i} at year \textit{t}, \( Pd_{i,t} \)

\( \frac{Pd_{i,t}}{L_{i,t}} \) \( (dc) \)

Yield of commodity \textit{i}, \( Y_{i,t} \)

\( \text{average}(Y_{i-t})_{t=2011\rightarrow2015} \) \( (de) \)

Average value of the Yield of the commodity \textit{i}, \( Y_{i-av} \)

\( \text{average}(\tau Y_{i})_{\text{commodities}} \) \( (dg) \)

Growth rate of the yield of the commodity \textit{i}, \( \tau Y_{i} \)

Average of observed growth rates of agricultural yields for all the commodities, \( \tau Y \)

\[ \text{Max} \left[ \text{Min} \left( 10 \times \frac{\tau Y}{\tau_{3.2iii}} - 10 \right) , 0 \right] \] \( (dh) \)

\( I\text{-score}_{3.2iii} \)

Baseline Yr | 2015
---
Target Yr | 2025

Commodity \textit{i}, \( \tau Y_{i} \)

Commodity \textit{j}, \( \tau Y_{j} \)

TOTAL SIZE OF THE PRODUCTION UNIT OF THE COMMODITY \textit{i} AT YEAR \textit{t}, \( L_{i,t} \)

\( \frac{L_{i,t}}{Pd_{i,t}} \) \( (dd) \)

TOTAL SIZE OF THE PRODUCTION UNIT OF THE COMMODITY \textit{i} IN 2016, \( L_{i-2016} \)

\( \frac{L_{i-2016}}{Pd_{i-2016}} \) \( (df) \)

Yield of commodity \textit{i} in 2016, \( Y_{i-2016} \)

\( \tau_{3.2iii} \times 100 \) \% \( (di) \)

TARGET \( \tau_{3.2iii} = 100\% \)

2016 Benchmark

\( B_{3.2iii} = \frac{2016 \mu_{3.2iii} \times 10}{\tau_{3.2iii}} = 1.00 \) \( (dj) \)

2016 Milestone:

\( \mu_{3.2iii} = \frac{(2016 - 2015)}{(2025 - 2015)} \times \tau_{3.2iii} = 10\% \)

For at least the 5 priority commodities of the country and the 11 African Union priority commodities that include: -Rice, -Maize, -Legumes, -Cotton, -Oil palm, -Beef, -Dairy, -Poultry and fisheries, -Cassava, -Sorghum and -Millet.
C-score$_{3.2}$ | Combined progress on Agriculture Productivity

\[
average(I - score_{3.1x})_{x=i\rightarrow vi}^{(dk)}
\]

I-score$_{3.2i}$

I-score$_{3.2ii}$

I-score$_{3.2iii}$

C-score$_{3.2}$

On Track ???

2016 Benchmark

\[
average(cu, db, dj) = 1.00
\]
PC 3.3 | **Post-Harvest Loss**

3.3- Halve (decrease by 50%) the current levels of Post-Harvest Losses (PHL), by the 2025 from 2015.
I-score\textsubscript{3.3} \ Estimating progress on Post-Harvest Loss

\textbf{Baseline Yr} \hspace{5cm} \textbf{Target Yr}

\begin{align*}
\text{2015} & \quad \text{2025} \\
\text{Total production of commodity } i \text{ at year } t, \ P_d_{it} & \quad \text{Total production of commodity } i \text{ in } 2016, \ P_d_{2016} \\
\text{Post harvest Loss of the commodity } i, \ PHL_{i,t} & \quad \text{Post harvest Loss of commodity } i \text{ in } 2016, \ Y_{2016} \\
\text{Total loss of the commodity } i \text{ at year } t, \ L_{i,t} & \quad \text{Total loss of the commodity } i \text{ in } 2016, \ L_{i,2016} \\
\text{Average value of the Post harvest Loss of commodity } i, \ PHL_{i,av} & \quad \text{Reduction rate of the post-harvest loss of the commodity } i, \ \tau_{PHL_{i}} \\
\text{Average of observed reduction rates of post-harvest loss for all the commodities, } \tau_{PHL} & \quad \text{Max} \left[ \text{Min} \left( 10 \times \frac{\tau_{PHL}}{3.3}, 1.0 \right) \right] \\
\end{align*}

\text{Average of observed reduction rates of post-harvest loss for all the commodities, } \tau_{PHL}

\begin{align*}
\text{2016 Benchmark} & \quad \text{2016 Milestone:}
\\
2016 \ B_{3.3} & = \frac{2016 \ \mu_{3.3} \times 10}{3.3} = 1.00 \\
2016 \ \mu_{3.3} & = \frac{(2016 - 2015) \times \tau_{3.3}}{(2025 - 2015)} = 5% \\
\end{align*}

\text{TARGET } T_{3.3} = 50\% 

For at least the 5 priority commodities of the country and the 11 African Union priority commodities that include: -Rice, -Maize, -Legumes, -Cotton, -Oil palm, -Beef, -Dairy, -Poultry and fisheries, -Cassava, -Sorghum and -Millet.
3.4- Commit within national budgets, budget lines that amount to 100% of the total resource requirements for coverage of the vulnerable social groups, from 2015 to 2025, for use to support social protection initiatives, and to address any eventual disasters and emergencies with food and nutrition security implications.
3.5i- Bring down child stunting to 10% or less, by 2025.

3.5ii- Bring down underweight to 5% or less, by 2025.

3.5iii- Bring down wasting to 5% or less, by 2025.
3.5iv- Bring down undernourishment to 5% or less, by 2025.

3.5v- Increase the proportion of women at reproductive age that attain the minimum dietary diversity by 50%, by 2025.

3.5vi- Reach at least 50% of children 6-23 months that have the minimum acceptable diet by 2025.
**I-score$_{3.5i}$** Estimating progress on prevalence of stunting

<table>
<thead>
<tr>
<th>Baseline Yr</th>
<th>Target Yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>2025</td>
</tr>
</tbody>
</table>

Prevalence of stunting (% of children under 5 years old), $St_0$

Prevalence of stunting (% of children under 5 years old), $St$

\[
\left\{ \begin{array}{l}
\max \left( \min \left( \frac{(St_0 - St)}{(St_0 - \tau_{3.5i})} \times 10, 10 \right), 0 \right) \\
\left[ 10 \right]_{St_0 \leq \tau_{3.5i}} (and) \ St \leq \tau_{3.5i} \\
\left[ 0 \right]_{St_0 \leq \tau_{3.5i}} (and) \ St > \tau_{3.5i}
\end{array} \right. 
\]

**TARGET** $T_{3.5i} = 10\%$

**2016 Milestone:**

\[
\left\{ \begin{array}{l}
2016 \mu_{3.5i} = St_0 - \frac{(2016 - 2015)}{(2025 - 2015)} \times (St_0 - \tau_{3.5i}) \\
\left[ \tau_{3.5i} \right]_{St_0 \leq \tau_{3.5i}}
\end{array} \right. 
\]

2016 $B_{3.5i} = \frac{St_0 - 2016 \mu_{3.5i}}{St_0 - \tau_{3.5i}} \times 10 = 1.00$

This is a relative milestone which is specific to each country as it depends on where the country is coming from: the 2015 baseline value ...

On Track ???

(ee)

(ed)
I-score$_{3.5ii}$ Estimating progress on prevalence of underweight

Prevalence of underweight (% of children under 5 years old), $U_{w0}$

Prevalence of underweight (% of children under 5 years old), $U_{w}$

\[
\left\{ \begin{array}{c}
\text{max}\left( \min\left( \frac{(U_{w0} - U_{w})}{(U_{w0} - \tau_{3.5ii})} \times 10, 10 \right), 0 \right) \text{, } U_{w0} > \tau_{3.5ii} \\
[10] \text{, } U_{w0} \leq \tau_{3.5ii} \text{ (and) } U_{w} \leq \tau_{3.5ii} \\
[0] \text{, } U_{w0} \leq \tau_{3.5ii} \text{ (and) } U_{w} > \tau_{3.5ii}
\end{array} \right. 
\]

**2016 Benchmark**

\[
2016 \ B_{3.5ii} = \frac{U_{w0} - 2016 \ \mu_{3.5ii}}{U_{w0} - \tau_{3.5ii}} \times 10 = 1.00
\]

**TARGET** $\mu_{3.5ii} = 5\%$

**2016 Milestone:**

\[
2016 \ \mu_{3.5ii} = U_{w0} - \frac{(2016 - 2015)(2025 - 2015)}{(2025 - 2015)} \times (U_{w0} - \tau_{3.5ii}) \text{, } U_{w0} > \tau_{3.5ii}
\]

This is a relative milestone which is specific to each country as it depends on where the country is coming from: the 2015 baseline value ...
Estimating progress on prevalence of wasting

**Baseline Yr** 2015

**Target Yr** 2025

**Prevalence of wasting (% of children under 5 old), $W_0$**

**Prevalence of wasting (% of children under 5 old), $W$**

\[
\begin{align*}
\max \left( \min \left( \frac{(W_0 - W)}{(W_0 - \tau_{3.5iii}} \right) \times 10, 10 \right), 0 \right) \right)_{W_0 \geq \tau_{3.5iii}}
\end{align*}
\]

\[
\begin{cases}
[10]_{W_0 \leq \tau_{3.5iii} (and) W \leq \tau_{3.5iii}} \\
[0]_{W_0 \leq \tau_{3.5iii} (and) W > \tau_{3.5iii}}
\end{cases}
\]

**TARGET**

$\tau_{3.5iii} = 5\%$

**2016 Milestone:**

\[
\begin{cases}
2016 \mu_{3.5iii} = W_0 - \frac{(2016 - 2015)}{(2025 - 2015)} \times (W_0 - \tau_{3.5iii}) \quad \text{if } W_0 > \tau_{3.5iii} \\
\tau_{3.5iii} \quad \text{if } W_0 \leq \tau_{3.5iii}
\end{cases}
\]

**2016 Benchmark**

\[
2016 B_{3.5iii} = \frac{W_0 - 2016 \mu_{3.5iii}}{W_0 - \tau_{3.5iii}} \times 10 = 1.00
\]

This is a relative milestone which is specific to each country as it depends on where the country is coming from: the 2015 baseline value ...
### Estimating progress on prevalence of undernourishment

**I-score$_{3.5iv}$**

**Baseline Yr**: 2015

**Target Yr**: 2025

<table>
<thead>
<tr>
<th>Year</th>
<th>Proportion of the population that is undernourished (% of the country's population), $U_0$</th>
<th>Proportion of the population that is undernourished (% of the country's population), $U$</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>$U_0 &gt; \tau_{3.5iv}$</td>
<td>$[0]<em>{U_0 \leq \tau</em>{3.5iv}} (and) \ U &gt; \tau_{3.5iv}$</td>
</tr>
<tr>
<td>2016</td>
<td>$[10]<em>{U_0 \leq \tau</em>{3.5iv}} (and) \ U \leq \tau_{3.5iv}$</td>
<td>$\max \left( \min \left( \frac{U_0 - U}{U_0 - \tau_{3.5iv}} \times 10, 10 \right), 0 \right)$</td>
</tr>
</tbody>
</table>

**TARGET**

$\tau_{3.5iv} = 5\%$

**2016 Benchmark**

$$2016 \ B_{3.5iv} = \frac{U_0 - 2016 \ \mu_{3.5iv}}{U_0 - \tau_{3.5iv}} \times 10 = 1.00$$

**2016 Milestone:**

$\mu_{3.5iv} = \frac{(2016 - 2015)}{(2025 - 2015)} \times (U_0 - \tau_{3.5iv})$ $U_0 > \tau_{3.5iv}$

$\left[ \tau_{3.5iv} \right]_{U_0 \leq \tau_{3.5iv}}$

This is a relative milestone which is specific to each country as it depends on where the country is coming from: the 2015 baseline value...
\[ \text{I-score}_{3.5v} \quad \text{Estimating progress on Minimum Dietary Diversity-Women} \]

**Baseline Yr** 2015

**Target Yr** 2025

Proportion of minimum Dietary Diversity-Women, \( MDDW_{2015} \)

Increase rate of the proportion of Minimum Dietary Diversity-Women (in %), \( \tau_{3.5v} \)

Max \( \left[ \text{Min} \left( 10 \times \frac{\tau_{MDDW}}{\tau_{3.5v}}, 10 \right), 0 \right] \)

TARGET \( \tau_{3.5v} = 50\% \)

2016 Benchmark:

\[ 2016 \text{ } B_{3.5v} = \frac{2016 \mu_{3.5v} \times 10}{\tau_{3.5v}} = 1.00 \]

2016 Milestone:

\[ 2016 \mu_{3.5v} = \frac{(2016 - 2015)}{(2025 - 2015)} \times \tau_{3.5v} = 5\% \]
**I-score\textsubscript{3.5vi}** | Estimating progress on child Minimum Acceptable Diet

![Diagram](image)

**Baseline Yr** | **Target Yr**
---|---
2015 | 2025

**Proposition of 6-23 months old children who meet the Minimum Acceptable Diet, \(MAD_0\)**

\[
I\text{-score}_{3.5vi} = \frac{\max\left(\min\left(\frac{MAD - MAD_0}{(\tau_{3.5vi} - MAD_0)} \times 10, 10\right), 0\right)}{10} \begin{cases} 10 & \text{if } MAD_0 \geq \tau_{3.5vi} \text{ and } MAD < \tau_{3.5vi} \\ 0 & \text{if } MAD_0 \geq \tau_{3.5vi} \text{ and } MAD \geq \tau_{3.5vi} \end{cases}
\]

**TARGET** \(\tau_{3.5vi} = 50\%\)

**2016 Benchmark**

\[
2016 \quad B_{3.5vi} = \frac{\frac{\mu_{3.5vi}}{\tau_{3.5vi}} - \frac{MAD_0}{\tau_{3.5vi}}}{10} \times \frac{(2016 - 2015)}{(2025 - 2015)} \times (\tau_{3.5vi} - MAD_0) \begin{cases} \mu_{3.5vi} & \text{if } MAD_0 \geq \tau_{3.5vi} \\ \tau_{3.5vi} & \text{if } MAD_0 < \tau_{3.5vi} \end{cases}
\]

**This is a relative milestone which is specific to each country as it depends on where the country is coming from: the 2015 baseline value...**
Combined progress on Food security and Nutrition

\[ C\text{-score}_{3.5} \]

\[ I\text{-score}_{3.5i} \]
\[ I\text{-score}_{3.5ii} \]
\[ I\text{-score}_{3.5iii} \]
\[ I\text{-score}_{3.5iv} \]
\[ I\text{-score}_{3.5v} \]
\[ I\text{-score}_{3.5vi} \]

\[ C\text{-score}_{3.5} \]

\[ \text{On Track ??} \]

\[ 2016 \text{ Benchmark} \]

\[ \text{average}(ee, eh, en, er, eu) = 1.00 \]

\[ \text{(ew)} \]

\[ \text{average}(I - \text{score}_{3.5})_{x=i→vi} \]

\[ \text{(ev)} \]
$T$-score$_3$ | Overall progress for Theme 3: “ENDING HUNGER”

$C$-score$_{3,1}$

$C$-score$_{3,2}$

$C$-score$_{3,3}$

$C$-score$_{3,4}$

$C$-score$_{3,5}$

$T$-score$_3$

average($C$–score$_{3,i}$)

(ex)

On Track ???

2016 Benchmark

average(cn, dl, dt, eb, ew) = 3.71

(ey)
Technical Notes 4

Performance Evaluation for achieving goals under Theme 4 : “ERADICATING POVERTY THROUGH AGRICULTURE”
**PC 4.1 | Agricultural GDP and Poverty Reduction**

4.1i- Sustain annual agricultural GDP growth of at least 6%, from 2015 to 2025.

4.1ii- Ensure that agriculture growth contribute to at least 50% to the overall poverty reduction target, from 2015 to 2025.

4.1iii- Reduce poverty level by at least 50%, at national poverty line, from 2015 to 2025.
4.1iv- Reduce poverty level by at least 50%, at international poverty line, from 2015 to 2025.

4.1v- Contribute to poverty reduction by reducing the gap between the wholesale price and farm-gate price, by 50%, by 2025, from 2015.
**I-score$_{4,1i}$ Estimating progress on agricultural GDP growth**

**2011 to 2015**

- Agriculture value added in constant US dollars, $AgGDP_{2015}$

**Average**

$$\text{average}(AgGDP_{t=2011\rightarrow2015})$$

**Agriculture value added in constant US dollars, $AgGDP_{2015}$**

$$100 \times (AgGDP_{2016} - AgGDP_{2015}) / AgGDP_{2015}$$

**Annual growth rate of Agriculture value added, in constant US dollars, $tAgGDP_{2016}$**

**Growth rate of agriculture value added, at constant US dollars, $aAgGDP$**

**On Track ???**

**Baseline Yr**

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
</tr>
</thead>
</table>

**Target Yr**

<table>
<thead>
<tr>
<th></th>
<th>2025</th>
</tr>
</thead>
</table>

**TARGET**

$T_{4,1i} = 6\%$

**2016 Benchmark**

$$B_{4.1i} = 10 \times \frac{4.1i}{\tau_{4.1i}} = 10$$

**2016 Milestone:**

$$\mu_{4.1i} = \tau_{4.1i} = 6\%$$

**2016**

- Agriculture value added in constant US dollars, $AgGDP_{2016}$
<table>
<thead>
<tr>
<th>I-score 4.1ii</th>
<th>Estimating progress on agriculture growth contribution to the overall poverty reduction target</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baseline Yr</strong></td>
<td>2015</td>
</tr>
<tr>
<td><strong>Target Yr</strong></td>
<td>2025</td>
</tr>
</tbody>
</table>

*Stand-by for more research*
**I-score**

**Estimating progress on poverty reduction at national poverty line**

**Baseline Yr**: 2015

**Target Yr**: 2025

**Poverty headcount ratio at national poverty line, \( phr_N \)**

**Reduction rate of poverty headcount ratio, at national poverty line, \( d_{pov} N \)**

**Max\left[\min\left(10 \times \frac{d_{pov} N}{\tau_{4.1iii}}, 10\right), 0\right]**

**TARGET**

\( \tau_{4.1iii} = 50\% \)

**2016 Benchmark**

\[
2016 = \frac{2016 \ \mu_{4.1iii} \times 10}{\tau_{4.1iii}} = 1.00
\]

**2016 Milestone:**

\[
2016 \ \mu_{4.1iii} = \frac{2016 - 2015}{2025 - 2015} \times \tau_{4.1iii} = 5\%
\]
I-score$_{4,1iv}$ | Estimating progress on poverty reduction at international poverty line

**Baseline Yr**: 2015

**Target Yr**: 2025

---

**Reduction rate of poverty headcount ratio, at international poverty line, $d_{povI}$**

\[
\text{Max} \left[ \text{Min} \left( 10 \times \frac{d_{povI}}{\tau_{4,1iv}}, 10 \right), 0 \right]
\]

**TARGET**

$\tau_{4,1iv} = 50\%$

**2016 Benchmark**

\[
2016 \ B_{4,1iv} = \frac{2016 \ \mu_{4,1iv} \times 10}{\tau_{4,1iv}} = 1.00
\]

**2016 Milestone**

\[
2016 \ \mu_{4,1iv} = \frac{(2016 - 2015)}{(2025 - 2015)} \times \tau_{4,1iv} = 5\%
\]

---

**Poverty headcount ratio at international poverty lines (\% of population), $phr_{2015}$**

$100 \times \left( phr_{2015} - phr_{2016} \right) / phr_{2015}$

**On Track??**
Estimating progress on wholesale-farmgate price gap

**Baseline Yr** 2015

**Target Yr** 2025

**I-score** \( I\)-score\(_{4.1v} \)

- **Average weighted farm gate price,** \( FgP \)
  - \( 100 \times (WsP - FgP) / WsP \) \( (fp) \)

- **Average weighted Wholesale/Market Price,** \( WsP \)
  - \( 100 \times (Gfgws_{2015} - Gfgws_{2015}) / Gfgws_{2015} \) \( (fr) \)

- **Average weighted farm gate price,** \( FgP \)
  - \( 100 \times (WsP - FgP) / WsP \) \( (fq) \)

- **Gap between the wholesale price and farmgate price,** \( Gfgws \)

- **Reduction rate of the gap between the wholesale price and farmgate price (in %),** \( tfgws \)

- **TARGET** \( T_{4.1v} = 50\% \)

- **2016 Benchmark**
  - \( 2016 \) \( B_{4.1v} = \frac{2016 \mu_{4.1v} \times 10}{\tau_{4.1v}} = 1.00 \)

- **2016 Milestone:**
  - \( 2016 \mu_{4.1v} = \frac{2016 - 2015}{2025 - 2015} \times \tau_{4.1v} = 5\% \)

- **On Track ???**
**C-score\(_{4.1}\) | Combined progress on Agricultural GDP and Poverty Reduction**

- \(I\)-score\(_{4.1i}\)
- \(I\)-score\(_{4.1iii}\)
- \(I\)-score\(_{4.1iv}\)
- \(I\)-score\(_{4.1v}\)

\[
\text{average}(I - \text{score}_{4.1x})_{x=i\rightarrow v, x\neq ii} (fv)
\]

---

**2016 Benchmark**

\[
\text{average}(fe, fj, fo, fu) = 3.25
\]  

**On Track ???**
4.2- Establish and/or strengthen inclusive public-private partnerships (PPP) for at least five (5) priority agricultural commodity value chains with strong linkage to smallholder agriculture, by 2025.
I-score$_{4.2}$ | Estimating progress on priority agricultural commodity value chains that involve smallholder agriculture

Baseline Yr | 2015

Target Yr | 2025

- **I-score$_{4.2}$**

2016 Benchmark

- **TARGET** $T_{4.2} = 5$

2016 Milestone:

- $2016 B_{4.2} = \frac{2016 \mu_{4.2} \times 10}{\tau_{4.2}} = 1.0$

### Calculations

- **Number of priority agricultural commodity value chains for which a PPP is established with strong linkage to smallholder agriculture, $N_c$**

- **Volume of trade between smallholders and target buyers of the priority commodity $i$, $V_{smhi}$**

- **Total suppliers that are supplying the market of the value chain of the priority commodity $i$, $N_{Ti}$**

- **Percentage of smallholders as part of the total suppliers, supplying that market of the priority commodity $i$, $\eta_{smhi}$**

- **Total volume of trade for the priority commodity $i$, $V_{T_i}$**

- **Priority commodity value chains for which a PPP is established with strong linkage to smallholder agriculture, $PC_{smh_i}$**

- **Percent of volume of trade between smallholders and target buyers of the priority commodity $i$, $\frac{V_{smhi}}{V_{T_i}}$**

- **Number of smallholders integrated into the value chain of the priority commodity $i$, $N_{smhi}$**

### Formulas

- **$I-score_{4.2}$**

- **On Track ???**
4.3- Create job opportunities for at least 30% of the youth in agricultural value chains, by 2025.
I-score\textsubscript{4.3} | Estimating progress on Youth job in agriculture

Cumulative number of new jobs for youth, counted from the year 2015.

Total number of youth at working age in the country, $TN_{yth}$

Number of youth who do any agriculture related work as paid employees for any agriculture enterprise or SME, $AgN_{ythE}$

Number of youth who work as self-employed in their own business or profession or on their own farm, $AgN_{ythSE}$

Number of youth that is engaged in new jobs in agricultural value chains, $AgN_{yth}$

Percentage of youth that is engaged in new job opportunities in agriculture value chains, $TY_{th}$

Cumulative number of new jobs for youth, counted from the year 2015.

$100 \times AgN_{yth} / TN_{yth}$

Min\left(10 \times \frac{TY_{th}}{\tau_{4.3}}, 10\right)$

I-score\textsubscript{4.3}$

$2016$ Benchmark

$2016$ Milestone:

$2016 B_{4.3} = \frac{2016 \mu_{4.3} \times 10}{\tau_{4.3}} = 1.00$

$2016 \mu_{4.3} = \frac{(2016 - 2015)}{(2025 - 2015)} \times \tau_{4.3} = 3\%$

Baseline Yr

2015

Target Yr

2025

On Track ???
4.4- Ensure that 20% of rural women have access to productive assets, including land, credit, inputs and financial services and information (empowered) by 2023.
I-score\(_{4.4}\) | Estimating progress on Women Empowerment in agriculture

Baseline Yr | 2013

Target Yr | 2023

Total number of women engaged in agriculture, \(N_{tw}\), forming a set \(W\)

Number of women that have: a) **Input in productive decisions and** b) **Autonomy in production**, \(N_{DE_1}\), forming a set \(DE_1\)

Number of women that have: a) **Ownership of assets**, b) **Purchase, sale or transfer of assets**, c) **Access to and decisions about credit**, \(N_{DE_2}\), forming a set \(DE_2\)

Number of women that have Control over use of income, \(N_{DE_3}\), forming a set \(DE_3\)

Number of women that have: a) **Group member** and b) **Speaking in public**, \(N_{DE_4}\), forming a set \(DE_4\)

Number of women that have control over: a) **Workload** and b) **Leisure**, \(N_{DE_5}\), forming a set \(DE_5\)

Proportion of rural women that are empowered in agriculture, \(\tau_{WE}\)

Min \(\frac{\tau_{WE} \times 10}{\tau_{4.4}} ; 10\)

\(100 \times \frac{N_{wE}}{N_{tw}}\)

\(2016\) Benchmark

\(2016 \quad B_{4.4} = \frac{2016 \mu_{4.4} \times 10}{\tau_{4.4}} = 3.00\)

\(2016\) Milestone:

\(2016 \mu_{4.4} = \frac{2016 - 2013}{2023 - 2013} \times \tau_{4.4} = 6\%\)

\(I\)-score\(_{4.4}\) = \(C\)-score\(_{4.4}\)

On Track ???

\(C_{4} = \frac{5!}{4!(5-4)!} = 5\) sets in total

\[\sum \left[ n \left( DE_i \cap DE_j \cap DE_k \cap DE_l \right) \right] + n \left( \bigcap_{\{i,j,k,l \}} DE_i \right) \]

\[\tau_{4.4} = 20\%\]

\(2016\) Target

\(\tau_{4.4} = 20\%\)
T-score \(_4\) | Overall progress for Theme 4: “ERADICATING POVERTY THROUGH AGRICULTURE”

\[ \text{average}(C - \text{score}_{4,i}) \]

\[ \text{On Track ???} \]

2016 Benchmark

\[ \text{average}(fw, gd, gi, gn) = 2.06 \]
Technical Notes 5

Performance Evaluation for achieving goals under Theme 5:
“INTRA-AFRICAN TRADE IN AGRICULTURE COMMODITIES”
5.1- Triple intra-African trade in agricultural commodities and services, by 2025 from 2015.
Estimating progress on Intra-African Trade for agriculture commodities and services

Target Year: 2025

Baseline Year: 2015

Value of intra-African imports for agriculture goods, $IAMg$

Value of intra-African imports for agriculture services, $IAMS$

Value of intra-African exports for agriculture goods, $IAXg$

Value of intra-African exports for agriculture services, $IAXs$

Value of intra-African trade (imports and exports) for agriculture goods and services, in constant US dollars 2010, $IAT_{2015}$

Value of intra-African trade (imports and exports) for agriculture goods and services, in constant US dollars 2010, $IAT_{2016}$

Growth rate of the value of trade of agricultural commodities and services within Africa, in constant US dollars (in %), $\tau IAT$

Max $\left[ Min \left( 10 \times \frac{IAT}{\tau_{5.1}}, .10 \right), 0 \right]$ (gt)

$\tau_{5.1} = 200\%$

$2016 \text{ Benchmark: } B_{5.1} = \frac{2016 \cdot \mu_{5.1} \times 10}{\tau_{5.1}} = 1.00$ (gv)

$2016 \text{ Milestone: } \mu_{5.1} = \frac{(2016 - 2015)}{(2025 - 2015)} \times \tau_{5.1} = 20\%$ (gu)

$\text{On Track ???}$

$\text{C-score}_{5.1}$

$\text{I-score}_{5.1}$
5.2i- Fully establish trade facilitation measures by reaching 100% of Trade Facilitation Index by 2025.

5.2ii- Reduce the Domestic Food Price Volatility Index to less than 7.5% by 2025.
Estimating progress on Trade Facilitation

\[ I\text{-score}_{5.2i} = \frac{(PI + ICT + BA + ATA + IM)}{5} \times 10^{100} \]

**Baseline Yr**: 2015

**Target Yr**: 2025

**2016 Benchmark**:

\[ B_{5.2i} = \frac{1}{\tau_{5.2i}} \times \mu_{5.2i} \times 10 = 1.00 \]

**2016 Milestone**:

\[ \mu_{5.2i} = \frac{(2016 - 2015)}{(2025 - 2015)} \times \tau_{5.2i} = 10\% \]

**On Track??**

- Physical infrastructure, *PI*
- Information and communication technology, *ICT*
- Border administration, *BA*
- Bilateral Agricultural trade related agreements, *ATA*
- Immigration, *IM*

**Number of countries with bilateral agricultural trade related agreements, *NTA***

\[ \frac{NTA}{54} \times 100 \]

**Number of countries with visa free entry, *NVF***

\[ \frac{(NVF + VA)}{54} \times 100 \]

**Number of countries with visa on arrival, *VA***

\[ \frac{(NVF + VA)}{54} \times 100 \]
I-score$_{5.2ii}$ | Estimating progress on Domestic Food Price Volatility

**Domestic Food Price Volatility Index,** $CV_0$

**Domestic Food Price Volatility Index,** $CV$

\[
\left\{ \begin{array}{l}
\max \left( \min \left( \frac{(CV_0 - CV)}{(CV_0 - \tau_{5.2ii})} \times 10, 10 \right), 0 \right) \\
[10]_{CV_0 \leq \tau_{5.2ii} (and) CV \leq \tau_{5.2ii}} \\
[0]_{CV_0 \leq \tau_{5.2ii} (and) CV > \tau_{5.2ii}}
\end{array} \right\}_{CV_0 > \tau_{5.2ii}}
\]

**TARGET**

$\tau_{5.2ii} = 7.5\%$

**2016 Milestone:**

This is a relative milestone which is specific to each country as it depends on where the country is coming from: the 2015 baseline value ...

**2016 Benchmark**

\[
2016 \ B_{5.2ii} = \frac{CV_0 - CV_{0, 2015} - \mu_{5.2ii}}{CV_0 - \tau_{5.2ii}} \times 10 = 1.00
\]

**Baseline Yr** 2015

**Target Yr** 2025

**On Track ???**

(hc)

(he)

(hd)
Combined progress on Intra-African Trade Policies and institutional conditions

\[ \text{average}(I - \text{score}_{5.2x})_{x=i \rightarrow ii} \]  

On Track ??

\[ \text{average}(hb, he) = 1.00 \]
**T-score**

**Overall progress for Theme 5: “INTRA-AFRICAN TRADE IN AGRICULTURE COMMODITIES”**

- **C-score**
  - **C-score**$_{5.1}$
  - **C-score**$_{5.2}$

- **average**($C - score_{5,i}$)

- **T-score**

- **On Track??**

- **2016 Benchmark**
  - **average**($gv, hg$) = 1.00
Technical Notes 6

Performance Evaluation for achieving goals under Theme 6: “RESILIENCE TO CLIMATE VARIABILITY”
6.1i- Ensure that at least 30% of farm, pastoral, and fisher households are resilient to climate and weather related risks, by 2025.

6.1ii- Ensure that at least 30% of agricultural land is placed under sustainable land management practice by 2023 from 2013.
I-score_{6.1i} | Estimating progress on households resilience to climate and weather related risks

Baseline Yr | 2015
Target Yr | 2025

Total number of farm, pastoral, and fisher households, \(N_{agHh}\)

100 \times \frac{N_{RagHh}}{N_{agHh}} (hj)

Number of farm, pastoral, and fisher households that are resilient to climate variability and related risks, \(N_{RagHh}\)

Percentage of farm, pastoral, and fisher households that are resilient to climate and weather related shocks (in %), \(\%_{RagHh}\)

\[
\text{Percentage} = \frac{\%_{RagHh} \times 10}{\%_{6.1i}}
\]

\(I-score_{6.1i}\)

\(2016\) Benchmark

\[
2016 B_{6.1i} = \frac{2016 \mu_{6.1i} \times 10}{\%_{6.1i}} = 1.00
\]

\(2016\) Milestone:

\[
2016 \mu_{6.1i} = \frac{(2016 - 2015)}{(2025 - 2015)} \times \%_{6.1i} = 3\%
\]

\(On\ Track\ ???\)
Estimating progress on sustainable land management

**I-score**

**Share of agriculture land under SLM practices (in %), SSLM**

\[
\text{I-score}_{6.1ii} = \frac{\text{SSLM} \times 10}{\tau_{6.1ii}}
\]

**Baseline Yr** 2013

**Target Yr** 2023

**2016 Benchmark**

\[
2016 B_{6.1ii} = \frac{2016 \mu_{6.1ii} \times 10}{\tau_{6.1ii}} = 3.00
\]

**2016 Milestone**

\[
2016 \mu_{6.1ii} = \frac{(2016 - 2013) \times \tau_{6.1ii}}{(2023 - 2013)} = 9\%
\]

**On Track??**
\[ \text{average}(I - \text{score}_{6.1x})_{x=i \rightarrow ii} \]
6.2- Create permanent investment budget-lines to respond to spending needs on resilience building initiatives, especially for disaster preparedness plans, functioning early warning and response systems, social safety nets, and weather-based index insurance, from 2015 to 2025.
I-score\textsubscript{6.2} | Estimating progress on availability of budget lines on resilience building

<table>
<thead>
<tr>
<th>Baseline Yr</th>
<th>Target Yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>2025</td>
</tr>
</tbody>
</table>

- **Existence of government budget lines on disaster preparedness policy and strategy, \( E_{RB1} \)**
- **Existence of government budget lines to respond to spending needs on resilience building initiatives (in %), \( E_{RB} \)**
- **Existence of government budget lines on Early warning and response systems and social safety nets, \( E_{RB2} \)**
- **Number of households covered by index insurance, \( E_{RB3} \)**
- **Total number of households, \( Z \)**
- **Number of households covered by weather based index insurance schemes, \( z \)**

### 2015 Benchmark

**Total number of households:**

\[ Z = 100 \times \frac{z}{Z} \]

**Average:**

\[ \text{average}(E_{RBi})_{i=1,2,3} \]

\[ (hu) \]

**On Track??**

**TARGET**

\[ T_{6.2} = 100\% \]

**2016 Benchmark**

\[ 2016 \quad B_{6.2} = \frac{2016 \quad \mu_{6.2} \times 10}{\tau_{6.2}} = 10 \]

\[ (hx) \]
T-score_6 | Overall progress for Theme 6: “RESILIENCE TO CLIMATE VARIABILITY”

\[
\text{average}(C - \text{score}_{6,i}) \quad (hy)
\]

\[
\text{average}(hs, hx) = 6.00 \quad (hz)
\]

On Track ???

2016 Benchmark
Technical Notes 7

Performance Evaluation for achieving goals under Theme 7: “MUTUAL ACCOUNTABILITY FOR ACTIONS AND RESULTS”
7.1- Reach at least 63 for the Index of capacity to generate and use agriculture statistical data and information (ASCI), by 2025. 2015.
Estimating progress on the country capacity to generate and use agriculture statistical data

**I-score**

\[ I-score_{7.1} = \begin{cases} \max \left( \min \left( \frac{(ASCI - ASCI_0)}{(\tau_{7.1} - ASCI_0)} \times 10, 10 \right), 0 \right) & \text{if } ASCI_0 < \tau_{7.1} \\ 10 & \text{if } ASCI_0 \geq \tau_{7.1} \text{ and } ASCI \geq \tau_{7.1} \\ 0 & \text{if } ASCI_0 \geq \tau_{7.1} \text{ and } ASCI < \tau_{7.1} \end{cases} \]

**Target Yr**

<table>
<thead>
<tr>
<th>Baseline Yr</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target Yr</td>
<td>2025</td>
</tr>
</tbody>
</table>

**2016 Milestone:**

\[ \tau_{7.1} = 63 \]

This is a relative milestone which is specific to each country as it depends on where the country is coming from: the 2015 baseline value...

**2016 Benchmark:**

\[ B_{7.1} = \frac{2016 \mu_{7.1} - ASCI_0}{\tau_{7.1} - ASCI_0} \times 10 = 1.00 \]
7.2- Foster alignment, harmonization and coordination among multi-sectorial efforts and multi-institutional platforms for peer review, mutual learning and mutual accountability, (reach 100% for the Existence of inclusive institutionalized mechanisms and platforms for mutual accountability and peer review, ECI) by 2018.
I-score$_{7.2}$ | Estimating progress on Peer Review and Mutual Accountability

Number of mutual accountability principles satisfied by the country, $MAPS$

$100 \times MAPS / 6$ (id)

Adherence to mutual accountability principles (%), $AMAP$

$(EMAP + AMAP + CARR) / 3$ (ig)

Existence of mutual accountability mechanism and platform (%), $EMAP$

Number of best practices satisfied by the country, $BPS$

$100 \times BPS / 12$ (ie)

Coverage of agricultural review report, $CARR$

Number of key areas covered by the country’s review report, $NKAA$

$100 \times NKAA / 6$ (if)

Existence of inclusive institutionalized mechanisms for mutual accountability and peer review $ECI$

$\frac{ECI \times 10}{\tau_{7.2}}$ (ih)

TARGET $\tau_{7.2} = 100$

2016 Benchmark:

$B_{7.2} = \frac{2016 \mu_{7.2} \times 10}{\tau_{7.2}} = 3.33$ (ij)

2016 Milestone:

$2016 \mu_{7.2} = \frac{(2016 - 2015)}{(2018 - 2015)} \times \tau_{7.2} = 33\%$ (ii)

Baseline Yr 2015

Target Yr 2018

On Track ???
PC 7.3 Biennial Agriculture Review Process

7.3- Conduct a biennial Agriculture Review Process that involves tracking, monitoring and reporting progress made in implementing the Malabo Declaration, by availing the regular country Biennial Report to the AU Assembly.
- Number of parameters reported by the country, $n$
- Total number of parameters reflected in the country reporting format, $N$

\[
I\text{-score}_{7.3} = \frac{\sum_i (BR_i \times w_i)}{100}
\]

\[
I\text{-score}_{7.3} = \frac{\sum_i (BR_i \times w_i)}{100}
\]

\[
I\text{-score}_{7.3} = \frac{\sum_i (BR_i \times w_i)}{100}
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\]

\[
I\text{-score}_{7.3} = \frac{\sum_i (BR_i \times w_i)}{100}
\]

\[
I\text{-score}_{7.3} = \frac{\sum_i (BR_i \times w_i)}{100}
\]
Overall progress for Theme 7: “MUTUAL ACCOUNTABILITY FOR ACTIONS AND RESULTS”

\[ T\text{-score}_7 \]

- \[ C\text{-score}_{7,1} \]
- \[ C\text{-score}_{7,2} \]
- \[ C\text{-score}_{7,3} \]

\[ \text{average}(C\text{-score}_{7,i}) \]

\[ T\text{-score}_7 \]

On Track ???

2016 Benchmark

\[ \text{average}(ic, ij, io) = 4.78 \]
OVERALL PROGRESS FOR IMPLEMENTING THE JUNE 2014 MALABO DECLARATION ON AFRICAN AGRICULTURE TRANSFORMATION

\[ O-score = \text{average}(T-score_i) \]

2016 Benchmark
\[ \text{average}(v, bg, ey, gp, hi, hz, iq) = 3.94 \]
The 2017 Benchmark Scorecard on Country performances in implementing Malabo Declaration for agricultural transformation in Africa...

...minimum scores to be on track in 2017 for meeting targets set for each of the 7 commitments of the Malabo Declaration.

Temporary Structure of the Country Scorecard proposed @ the Experts Group Reflection Meeting on Scorecard held on 3rd-5th August 2016 in Nairobi, Kenya.
African Union Commission, Headquarters, Addis Ababa, Ethiopia
Department of Rural Economy and Agriculture (DREA),
Comprehensive African Agriculture Development Programme (CAADP)

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