



Article 6, Paragraph 2 Initial Report (AIR) Referred to in Decision 2/CMA.3, Annex, Chapter IV.A (Initial Report) in Respect of Authorisation of ITMOs From the Cooperative Approach Between the Republic of Ghana and the Swiss Confederation

## 1. General Information

Name of Party	Republic of Ghana	
Report mandate	Decision 2/CMA.3, Annex, Chapter IV.A (Initial Report)	
Report type	Initial report	<input checked="" type="checkbox"/>
	Updated initial report	<input type="checkbox"/>
NDC submission	2021 updated initial NDC	
NDC implementation period	2021-2030	
AIR Reference No.	110923GHAWD1001AIR1	
Date	11/09/2023	
Name of mitigation activity under cooperative approach included in this initial report.	Promotion of climate-smart agriculture practices for sustainable rice cultivation in Ghana	

## 2. Participation Responsibilities (para. 18(a))

- A. Information on how the Party ensures that it is a Party to the Paris Agreement (para. 18(a), para. 4(a), to be updated by para. 21(a))

Ghana ratified the Paris Agreement in September 2016 and is a Party to the Paris Agreement thereupon.

- B. Information on how the Party ensures that it has prepared, communicated, and is maintaining an NDC in accordance with Article 4, paragraph 2 (para. 18(a), para. 4(b), to be updated by para. 21(a))

Ghana communicated its updated first NDC to the UNFCCC Secretariat in November 2021, which is maintained on the NDC registry<sup>1</sup>. The updated first NDC may be reviewed in 2025. Additionally, the Government has published the “*Ghana’s Framework on International Carbon Market and Non-Market Approaches*” (referred to as the *Framework*) to guide participation in voluntary cooperation, referred to Article 6 Paragraph 1, in implementing its updated first NDC.

- C. Information on how the Party ensures it has arrangements in place for authorizing the use of ITMOs towards achievement of NDCs pursuant to Article 6, paragraph 3 (para. 18(a), para. 4(c), to be updated by para. 21(b))

The Ministry of Environment, Science, Technology, and Innovation (MESTI) is the mandated national entity for authorizing the use of ITMOs acting through the Carbon Market Office (CMO) at the Environmental Protection Agency (EPA). MESTI’s mandate as the authorization entity is included in part 4 of the *Framework* and Article 13 of the Ghana-Switzerland Bilateral Agreement in pursuit of Article 6 Paragraph 1 of the Paris Agreement. The *Framework* and the bilateral agreement also incorporate the authorization procedures for Ghana.

<sup>1</sup> [https://mesti.gov.gh/wp-content/uploads/2021/12/Ghanas-Updated-Nationally-Determined-Contribution-to-the-UNFCCC\\_2021.pdf](https://mesti.gov.gh/wp-content/uploads/2021/12/Ghanas-Updated-Nationally-Determined-Contribution-to-the-UNFCCC_2021.pdf)

- D. Information on how the Party ensures it has arrangements in place that are consistent with Article 6, paragraph 2, guidance, and relevant decisions of the CMA for tracking ITMOs (para. 18(a), para. 4(d), to be updated by para. 21(b))

Ghana has established the “Ghana Carbon Registry (GCR)<sup>2</sup> and its accompanying data management system” as the primary digital platform for tracking ITMOs involved in Ghana’s Article 6.2 cooperative approaches. Additionally, where applicable, Ghana recognises the use of registries managed by international carbon standards for additional tracking of ITMOs to complement the functionality of the GRC. Ghana may explore technical options for connecting the GCR and other operating registries. ITMOs can be issued on the GCR or registries managed by international carbon standards, but all first international transfers of ITMOs shall emanate from the GCR. According to the *Framework*, the GCR can perform onboarding of mitigation activities, holding of issuances, international transfer, information on use cases and cancellation. The GCR will also be the central database system for Ghana’s ITMOs authorization and its cooperating partners.

- E. Information on whether the most recent national inventory report required in accordance with decision 18/CMA.1 has been provided (para. 18(a), para. 4(e), to be updated by para. 21(b))

Ghana submitted its most recent national inventory report for 2019 in May 2022 to the UNFCCC in line with decision 18/CMA.1 to satisfy the conditions of section 2(e) of the Annex to Decision 2/CMA.3<sup>3</sup>

- F. Information on how the Party ensures participation contributes to the implementation of its NDC and long-term low-emission development strategy, if it has submitted one, and the long-term goals of the Paris Agreement (para. 18(a), para. 4(f), to be updated by para. 21(b))

Ghana’s first updated NDC (2021-2030) lays the foundation for the transition to a long-term low-carbon development future. The NDC mitigation target is expected to be achieved through domestic and international cooperation. The NDC aims to achieve an absolute 64 MtCO<sub>2e</sub> by 2030, with 24.6 MtCO<sub>2e</sub> being the unconditional target and 39.4 MtCO<sub>2e</sub> as the conditional target. The NDC target covers CO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub>, and HFCs gases, constituting 88% of the total emissions in the Energy, Industrial Processes and Product Use, LULUCF and Waste sectors.

In line with Article 4, paragraph 4 of the Paris Agreement, Ghana will continue to enhance its NDC ambition to move towards economy-wide emission reduction over time. Ghana’s engagement in Article 6 voluntary cooperation aims to achieve a minimum of 24 MtCO<sub>2e</sub> of conditional mitigation target. Additionally, beyond the conditional NDC, Ghana will aim to increase the NDC ambition by transferring ITMOs covering mitigation activities outside the NDC, which amount to 12% of the total national emissions. Ghana’s Article 6 cooperation will aim beyond Ghana’s unconditional commitment and increase its mitigation ambition by implementing activities that would not have happened without international financial support.

### **3. Description of the Party’s nationally determined contribution, as referred to in decision 18/CMA.1, annexe, paragraph 64, where a participating Party has not yet submitted a biennial transparency report (para. 18(b), to be updated by para. 21(b))**

- A. Target(s) and description, including target type(s) (decision 18/CMA.1, annex, para. 64(a))

Ghana’s NDC target is an absolute emission reduction target type. The information on target type is contained in Annex 1 (*Information to facilitate clarity, transparency and understanding of Ghana’s revised and enhanced nationally determined contribution according to the guidance in Annex 1 of Decision 4/CMA.1*) of the updated first NDC in 2021.

<sup>2</sup> <https://gcr.epa.gov.gh/>

<sup>3</sup> [https://unfccc.int/sites/default/files/resource/gh\\_nir5\\_15052022\\_final.pdf](https://unfccc.int/sites/default/files/resource/gh_nir5_15052022_final.pdf)

- B. Target year(s) or period(s), and whether they are single-year or multi-year target(s) (decision 18/CMA.1, annex, para. 64(b))

Ghana has adopted an absolute single-year target approach, with 2019 being the base year and 2030 as the target year. The absolute single-year target is to achieve 64 MtCO<sub>2e</sub> by 2030 by implementing thirty-four mitigation measures.

- C. Reference point(s), level(s), baseline(s), base year(s) or starting point(s), and their respective value(s) (decision 18/CMA.1, annex, para. 64(c))

Base year: 2019

The 2019 base year of 58.8 MtCO<sub>2e</sub> emissions was estimated using the IPCC 2006 Guidelines for National Greenhouse Inventories. There is a possibility of recalculating the 2019 greenhouse gas emission value in 2025 to respond to policy changes and improved data availability.

- D. Time frame(s) and/or periods for implementation (decision 18/CMA.1, annex, para. 64(d))

Period for implementation: 11/09/2021 to 31/12/2030

The absolute quantified emission reduction of 64 MtCO<sub>2e</sub> by 2030 translates into 7.1 MtCO<sub>2e</sub> per year over the implementation period. Of the 64 MtCO<sub>2e</sub> NDC mitigation commitment, 24.6 MtCO<sub>2e</sub> constitutes the unconditional target (an average of 2.7 MtCO<sub>2e</sub> per year over the implementation period) and 39.4 MtCO<sub>2e</sub> conditional target (an average of 4.4 MtCO<sub>2e</sub>)

- E. Scope and coverage, including, as relevant, sectors, categories, activities, sources and sinks, pools and gases (decision 18/CMA.1, annex, para. 64(e))

Gases covered: CO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub>, HFCs (CH<sub>4</sub> and HFCs are Short-Lived Climate Pollutants).

Base year for gases covered: 1990 for all gases.

Sectors covered: The expected emission reduction amount constitutes 88% of emissions in the following sectors: Energy, Industrial Processes and Product Use, LULUCF and Waste, consistent with 2006 IPCC guidelines. All categories and biomass pools in the 2019 LULUCF inventory are covered.

- F. Intention to use cooperative approaches that involve the use of internationally transferred mitigation outcomes under Article 6 towards NDCs under Article 4 of the Paris Agreement (decision 18/CMA.1, annex, para. 64(f))

Ghana's emissions reduction target of 64 MtCO<sub>2e</sub> will be achieved through domestic and international cooperation. The domestic efforts focus on achieving minus 24.6 MtCO<sub>2e</sub> unconditional target of the NDC. International cooperation through Article 6 cooperation will complement the efforts for achieving the conditional target of an additional minus 39.4 MtCO<sub>2e</sub>. The Article 6 cooperation will also enhance the ambition beyond the NDC target.

- G. Any updates or clarifications of previously reported information (e.g., recalculation of previously reported inventory data, or greater detail on methodologies or use of cooperative approaches) (decision 18/CMA.1, annex, para. 64(g))

Not Applicable

#### **4. Information on ITMO metrics, method for applying corresponding adjustments and method for quantification of the NDC (para. 18(c–f))**

- A. ITMO metrics (para. 18(c))

Ghana will apply and report ITMOs only in carbon dioxide equivalent (CO<sub>2e</sub>), whereby one ITMO equals one tonne of CO<sub>2e</sub>(1tCO<sub>2e</sub>). Information on the ITMO metric is provided in Ghana's updated first NDC Framework and the Bilateral Agreement with the Swiss

Confederation. The ITMO metrics and the accounting methodologies applied align with the guidance under Article 4.13 of the Paris Agreement.

B. Method for applying corresponding adjustments as per chapter III.B (Application of corresponding adjustments) (para. 18(c))

- i. Description of the method for applying corresponding adjustment for multi- or single-year NDCs that will be applied consistently throughout the period of NDC implementation, if applicable (para. 18(c))

The latest information on Ghana's method for applying the corresponding adjustment for its single-year NDC target is in the updated first NDC maintained on the NDC registry. Additional information on corresponding adjustment of a single-year NDC target is available in the Bilateral Agreement<sup>4</sup> and the Framework<sup>5</sup>.

According to section 2.6.2.3 of Ghana's Framework, Ghana has a single-year NDC target and, as a result, shall calculate the average annual ITMOs amount first transferred over the mitigation activity crediting period by taking the cumulative amount of ITMOs and dividing by the number of elapsed years in the crediting period and annually applying corresponding indicative adjustments equal to this average amount for each year in the crediting period, and applying corresponding adjustment equal to this average amount in a given year, resulting in an emissions balance as referred to in paragraph 77(d)(ii) of the annexe to decision 18/CMA.1

- ii. Description of the method for applying corresponding adjustments where the method is a multi-year emissions trajectory, trajectories or budget, if applicable (para. 18(c))

Not Applicable

C. Quantification of the Party's mitigation information in its NDC in t CO<sub>2</sub>e, including the sectors, sources, GHGs and time periods covered by the NDC, the reference level of emissions and removals for the relevant year or period, and the target level for its NDC or, where this is not possible, the methodology for the quantification of the NDC in t CO<sub>2</sub>e (para. 18(d))

The latest updates on the quantification of Ghana's mitigation information are provided in Annexe 1 of the updated first NDC published on the UNFCCC NDC registry.

D. Quantification of the Party's NDC, or the portion in the relevant non-GHG indicator, in a non-GHG metric determined by each participating Party, if applicable (para. 18(e))

Not Applicable

E. For a first or first updated NDC consisting of policies and measures that are not quantified, information on the quantification of the Party's emission level resulting from the policies and measures that are relevant to the implementation of the cooperative approach and its mitigation activities for the categories of anthropogenic emissions by sources and removals by sinks, as identified by the first transferring Party pursuant to paragraph 10, and the time periods covered by the NDC (para. 18(f))

Not Applicable

<sup>4</sup> <https://cmo.epa.gov.gh/wp-content/uploads/2023/03/Cooperation-Agreement-CH-Ghana-Implementation-Paris-Agreement.pdf>

<sup>5</sup> [https://cmo.epa.gov.gh/wp-content/uploads/2022/12/Ghana-Carbon-Market-Framework-For-Public-Release\\_15122022.pdf](https://cmo.epa.gov.gh/wp-content/uploads/2022/12/Ghana-Carbon-Market-Framework-For-Public-Release_15122022.pdf)

## 5. Information on each cooperative approach (para. 18(g–i), para. 19)

Name: Promotion of Climate-Smart Agriculture Practices for Sustainable Rice Cultivation in Ghana

### A. Copy of the authorization by the participating Party (para. 18(g))

A copy of the authorization is available on the Ghana carbon market website<sup>6</sup>

### B. Description of the cooperative approach (para. 18(g))

The cooperative approach promotes the adoption of Alternate Wetting and Drying (AWD) for rice cultivation. Under common agricultural practice in Ghana, rice farmers flood their rice fields throughout the cropping season. This practice leads to significant methane emissions. Through the AWD application, rice farmers can reduce these methane emissions while improving water use efficiency. Farmers are compensated financially for adopting the AWD practice and other sustainable rice intensification practices and receive targeted technical training, which provides the necessary incentive to change the current cultural practices. The cooperative approach is expected to reduce 1,125,655 tCO<sub>2</sub>e by 2030. At full implementation, the adoption of AWD technology will cover 78% of rice production areas in Ghana.

### C. Duration of the cooperative approach (para. 18(g))

October 1<sup>st</sup>, 2022 – December 31<sup>st</sup>, 2030.

### D. Expected mitigation for each year of the duration of the cooperative approach (para. 18(g))

Year	Baseline GHG emissions (tCO <sub>2</sub> e)	Project GHG emissions (tCO <sub>2</sub> e)	GHG emission reductions (tCO <sub>2</sub> e)	Conservativeness Factor (until CH <sub>4</sub> <sup>7</sup> measurements can be done)	Net GHG emission reductions (tCO <sub>2</sub> e)
2022	166,562	86,751	79,811	0.89	71,032
2023	333,124	173,502	159,622	0.89	142,063
2024	370,138	192,780	177,358	0.89	157,848
2025	370,138	192,780	177,358	0.89	157,848
2026	474,239	246,999	227,239	0.89	202,243
2027	231,336	120,488	110,849	0.89	98,655
2028	231,336	120,488	110,849	0.89	98,655
2029	231,336	120,488	110,849	0.89	98,655
2030	231,336	120,488	110,849	0.89	98,655
<i>Sum</i>	<i>2,639,544</i>	<i>1,374,762</i>	<i>1,264,781</i>	0.89	<i>1,125,655</i>

### E. Participating Parties involved in the cooperative approach (para. 18(g))

The Republic of Ghana – transferring participating Party<sup>8</sup>

Swiss Confederation – receiving participating Party

### F. Authorized entities (para. 18(g))

Country Office of the United Nations Development Programme (UNDP) in Ghana.

<sup>6</sup> <https://cmo.epa.gov.gh/index.php/ghana-swiss-cooperative-approach-under-article-6-2-of-the-paris-agreement/>

<sup>7</sup> Based on an uncertainty range of 30-50% covering an uncertainty band of 40% (average value) from the technical guidance on methodologies for adjustments under Article 5, paragraph 2, of the Kyoto Protocol

<sup>8</sup> <https://cmo.epa.gov.gh/index.php/ghana-swiss-cooperative-approach-under-article-6-2-of-the-paris-agreement/>

G. Description of how the cooperative approach ensures environmental integrity (para. 18(h), to be updated by para. 22(b))

- i. Description of how the cooperative approach ensures that there is no net increase in global emissions within and between NDC implementation periods (para. 18(h)(i), to be updated by para. 22(b)(i))

The cooperative approach ensures environmental integrity building on the established CDM methodology AMS-III.AU "Methane emission reduction by adjusted water management practice in rice cultivation". Default values are used based on IPCC 2019/refinement values from 2022 until the end of 2025, and a conservativeness factor is applied. From the first cropping season of 2026 onwards, methane measurements will be conducted using the reference field approach. Only verified emission reductions following the monitoring procedure will lead to the recognition of ITMOs. All ITMOs recognized under this programme can only be used towards the NDCs implementation period ending in 2030.

Additionally, all the verified ITMOs under the cooperative approach would arise from the national emissions reported under the 3C.7 sub-category of Ghana's 2019 national greenhouse inventory total of 58.8 MtCO<sub>2</sub>e, which forms the base year of the NDC. The verified, transferred and recognised ITMOs for use toward NDC will count against net emission reductions of 1.1 MtCO<sub>2</sub>e above the overall NDC target of 64 MtCO<sub>2</sub>e.

- ii. Description of how the cooperative approach ensures environmental integrity through robust, transparent governance and the quality of mitigation outcomes, including through conservative reference levels and baselines set in a conservative way and below 'business as usual emission projections (including by considering all existing policies and addressing uncertainties in quantification and potential leakage) (para. 18(h)(ii), to be updated by para. 22(b)(ii))

The programme follows the monitoring approach of the CDM methodology and applies the IPCC default values for the baseline and programme emission factor plus an uncertainty factor of 0.89, meaning that 11 per cent of calculated emission reductions will be further discounted, thereby ensuring conservativeness of estimations.

AWD compliance will be monitored through a WebApp to quantify GHG emission reductions. The WebApp will allow farmers to document the adoption and application of AWD as well as verify the eligibility criteria for participation in the program.

Awareness raising and technical training, in addition to providing water level measuring tubes for farmers, will be the core of the programme implementation to promote adopting climate-smart agriculture, particularly SRI techniques. As the programme aims at changing an established cultural practice, in addition to the economic incentives, continuous training and guidance for farmers are crucial for the programme's success and reaching its targets.

Towards the end of the programme implementation, the targeted farmers are expected to adopt SRI and AWD as their standard irrigation practices. By that time, Ghana will have an increasingly resilient rice production sector capable of withstanding many of the challenges climate change presents, thus guaranteeing a stable supply of staple food for Ghana's population.

Transparent governance of the cooperative approach is ensured through close coordination of UNDP (project coordinator) with relevant government agencies of Ghana and Switzerland. The modalities for monitoring and verification are defined in the relevant national legislation of both countries. The Bilateral Agreement between Ghana and Switzerland sets the cooperation framework for the transparent transfer of ITMOs.

- iii. Description of how the cooperative approach is minimizing the risk of non-permanence of mitigation across several NDC periods and how, when reversals of emission reductions or removals occur, the cooperative approach will ensure that these are addressed in full (para. 18(h)(iii), to be updated by para. 22(b)(iii))

The methane emission reduction achieved through the adoption of intermittent irrigation practices of AWD will be monitored in the rice fields. The decrease in methane emission levels from the AWD represents a permanent emission reduction without risk of reversals.

H. Additional description of the cooperative approach (para. 18(i))

- i. Description of how the cooperative approach minimizes and, where possible, avoids negative environmental, economic and social impacts (para. 18(i)(i), to be updated by para. 22(f))

The cooperative approach was carefully designed to avoid negative environmental, economic, and social impacts. Instead, its positive environmental, economic, and social impacts are detailed in the section on sustainable development (paragraph i, (iii)). The design and implementation of the cooperative approach are consistent with the regulatory requirements of the Environmental Impact Assessment Regulation (LI, 1652). Furthermore, as part of the Bilateral Agreement, at the examination stage, Ghana shall evaluate all sustainable development criteria of the programme. A positive examination outcome will be achieved only when the sustainable development criteria are met.

Any stakeholder can report and seek redress for any social and environmental concerns arising from implementing the cooperative approach. All open or confidential complaints must be sent to the Carbon Market Office at the Environmental Protection Agency via email: [cmo@epa.gov.gh](mailto:cmo@epa.gov.gh).

- ii. Description of how the cooperative approach reflects the eleventh preambular paragraph of the Paris Agreement, acknowledging that climate change is a common concern of humankind, Parties should when taking action to address climate change, respect, promote and consider their respective obligations to human rights, the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity (para. 18(i)(ii), to be updated by para. 22(g))

Per the "Agreement", ITMOs will not be recognized in case of evidence for violation of human rights during the implementation of this cooperative approach. Thereby, the eleventh preambular paragraph of the Paris Agreement is operationalized in a robust manner in the "Cooperation Agreement Ghana Switzerland".

Additionally, the activities involved in the cooperative approach have no risk in relation to the listed elements. Furthermore, the proposed ITMO programme will undergo a UNDP's SDG Impact Assessment through the Climate Action Impact Tool (CAIT)<sup>9</sup>. The assessment under the CAIT Tool requires a thorough screening for potential negative impacts before assessing the programme's positive impacts. During this screening, risks are identified, and commensurate management approaches are defined. The section "Social and Environmental Risk Screening" is compliant with UNDP's social and environmental screening procedures. The impact and probability of an event occurring will need to be graded from 1 to 5, with 1 being low (e.g., low level of impact or low probability of event occurring) and with the level of significance automatically calculated. Those indicators that are defined as significantly high will need to be provided with additional information on a proposed risk mitigation approach.

<sup>9</sup> <https://sdgintegration.undp.org/climate-action-impact-tool>

- iii. Description of how the cooperative approach is consistent with the sustainable development objectives of the Party, noting national prerogatives (para. 18(i)(iii), to be updated by para. 22(h))

The "Agreement" requires both participating countries to review a mitigation activity against its consistency with sustainable development and the country's relevant strategies, where applicable. Switzerland considers the mitigation activity to contribute to sustainable development in the following manner: The programme has significant co-benefits related to sustainable land management and will be directly covering at least 10 Sustainable Development Goals (see MADD, Chapter 4).

The programme ensures environmental sustainability through improved soil quality and contributes to eradicating extreme poverty and hunger by supporting farming communities in increasing rice yield through better management of nutrients and pests and improved water management. The programme also widens the income source base through diversification of agricultural production enabled by higher water availability for other crops. The ITMO programme supports technology and know-how transfer, which can contribute to sustainable growth in the agricultural sector. Finally, the programme creates new opportunities for farmers to generate income and trainers and qualified personnel involved in programme implementation.

- iv. Description of how the cooperative approach applies any safeguards and limits set out in further guidance from the CMA pursuant to chapter III.D (para. 18(i)(iv), to be updated by para. 22(i))

Not Applicable

- v. Description of how the cooperative approach contributes resources for adaptation pursuant to chapter VII (Ambition in mitigation and adaptation actions), if applicable (para. 18(i)(v), to be updated by para. 22(j))

Ghana is NOT receiving direct financial adaptation contribution as a transferring participating Party in the cooperative approach. The Swiss Confederation has announced voluntary contributions to the Adaptation Fund of CHF 15 million in 2019 and CHF 10 million in 2021.

- vi. Description of how the cooperative approach delivers overall mitigation in global emissions pursuant to chapter VII (Ambition in mitigation and adaptation actions), if applicable (para. 18(i)(vi), to be updated by para. 22(k))

Ghana is committed to authorizing ITMOs for use towards NDC, other international mitigation purposes and other purposes, including voluntary offsetting. As per the Agreement, at the examination stage, Ghana shall confirm the use case of the ITMOs when ready for issuance, transfer and recognition. The receiving participating Party (Swiss Confederation) under this cooperative approach will determine the contribution of the transferred and recognised ITMO for delivering overall mitigation of global emissions without recourse.

In addition, Ghana shall use 1% of issued ITMOs in the national buffer account to shore up the risk of overselling against the NDC target or contribute overall mitigation of global emissions. Ghana will issue an annual public notification on the use of total reserve units. The proceeds from the corresponding fee will be used to finance additional mitigation outcomes outside Ghana's first updated NDC.

*Submitted on behalf of the Republic of Ghana by:*  
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Contact the Ghana Carbon Market Office (CMO) via [cmo@epa.gov.gh](mailto:cmo@epa.gov.gh) for further information.

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