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## DEVELOPMENT OF NATIONAL AGRICULTURAL ENGINEERING POLICY AND STRATEGY

September 2020

SDGs:



Countries:

Ghana

Project Code:

TCP/GHA/3603

FAO Contribution

USD 139 000

Duration:

11 November 2017 - 31 December 2019

Contact Info:

FAO Representation in Ghana

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### Implementing Partner

Ministry of Food and Agriculture (MoFA) – Agriculture Engineering Services Directorate; Policy, Planning and Budget Directorate.

### Beneficiaries

Planning and technical personnel from the MoFA; decentralized District Agricultural Units; Ministry of Finance and Economic Planning (MoFEP); Ministry of Local Government Service; district and municipal assemblies; public and private agribusinesses; agricultural researchers; and smallholder farmers.

### Country Programming Framework (CPF) Outputs

Medium and smallholder agricultural productivity is sustainably increased (Outcome 1.1); Improved preparedness and response to emergency, natural disasters and crises in the agricultural sector (Outcome 2.1).



## BACKGROUND

Given that up to 70 percent of Ghana's population is rural, lives under the national poverty line and predominantly depends on agricultural activities as their main source of income, there is a strong linkage between agricultural development and innovation and rural poverty reduction efforts in the Ghanaian context. Despite national trends in the last 20 years pointing to a decreased percentage contribution of agriculture to national Gross Domestic Product (GDP), the current economic transformation trend has not been inclusive enough of historically marginalized communities, especially the rural poor and agricultural workers.

In this context, the Government of Ghana identified the need to make agriculture more productive, profitable, inclusive and innovative moving forward. This vision stemmed from the vision for the agricultural sector to become a main driver of sustainable and inclusive economic growth as Ghana works towards delivering on its commitments under the framework of Africa's Renewed Partnership to End Hunger by 2025 and the Sustainable Development Goals (SDGs).

The project therefore responded to a call by the Ministry of Food and Agriculture (MoFA) to invest in, and develop capacities for, an accelerated transformation of the national economy through a renewed understanding of agriculture that would yield a sectoral modernization process that convened a wide array of stakeholders and beneficiaries and that was evidence-based and results-oriented. With the agricultural sector playing a critical role in the national agricultural transformation agenda, the project responded to the need to strengthen an enabling policy framework for agricultural innovation in Ghana.

In doing so, the project's support to drafting, discussing and validating the Ghana Agricultural Engineering Policy and Strategy (GAEPS) sought to strengthen the investment, institutional and implementing environment for policymakers, investors, researchers, farmers and a host of many other actors. As a result, the GAEPS and its forthcoming implementation, shall provide more favorable incentives and improved capacities through which to contribute to, and benefit from, a revitalization of Ghana's agricultural engineering and mechanization innovation efforts.

To this effect, and as identified by Ghana's National Agricultural Investment Plan (NAIP) – the Medium-Term Agricultural Sector Investment Plan (METASIP II) – the project's technical assistance to capacity assessments, consultations and policy, regulatory and investment framework review processes focused on current and forthcoming policies, strategies, investment incentives and regulatory frameworks that could contribute to the following areas of work, among others.

- Production (irrigation, ploughing, tillage, seeding, planting and harvesting);
- Transformation (processing, packaging, conservation and storage);
- Standardization of food processing plans and of equipment use according to soil types and ecological zones;
- Certification of agricultural machine operations to safeguard against environmental degradation; and
- Assessment of water quality for peri-urban agriculture activities.

As such, the project contributed to the Ghana Shared Growth Development Agenda (GSGDA II) and its focus on accelerating economic growth in a sustainable and inclusive manner through enhanced productivity levels and improved quality of agricultural engineering and mechanization inputs for agriculture. In turn, the project ensured for the completed and validated GAEPS document to be based on inclusion and shared prosperity, driven by innovation and a food systems and integrated value chain approach to agricultural modernization.



## IMPACT

Having reviewed existing agriculture laws and regulations to facilitate additional private sector participation in agricultural modernization efforts, the GAEPS formulation process, as supported by the project, represents a modernized agricultural policy, regulatory and investment roadmap. As such, the GAEPS is well poised to encourage private sector involvement, sector profitability and the creation of an enabling legal and regulatory environment for public-private partnerships for agricultural modernization, under the collective auspices of the GSGDA II and the METASIP for accelerated agricultural modernization in Ghana.

## ACHIEVEMENT OF RESULTS

With the GAEPS document successfully aligned to all three priorities of the 2018-2022 Country Programming Framework (CPF) for Ghana – sustainable agro-industrialization and economic growth, natural resource management for a safe, secure and productive environment, and resilient livelihoods for reduced vulnerability and rural poverty – the project succeeded in producing a policy and strategy document that builds on, and further contributes to, the articulation of national challenges to sustainable agricultural investments.

In doing so, the project complemented ongoing policy and coordination discussions in Ghana aimed at coordinating investment plans for enhanced food and nutrition security and based on a holistic agricultural transformation across all levels of governance. In close coordination with the Agricultural Engineering Services Directorate (AESD) of the MoFA, the project constituted a technical committee to formulate the GAEPS, the working modality of which encouraged meaningful and informed discussions through a series of working sessions, dialogues and interviews with the following stakeholders.

- Ministry of Education;
- Ministry of Environment, Science, Technology and Innovation (MESTI);
- Ministry of Finance and Economic Planning (MoFEP);
- Ministry of Labour and Employment;
- Ministry of Local Government Service;
- Ministry of Trade and Industry (MoTI);
- Council for Scientific and Industrial Research (CSIR) institutions;
- Ghana Regional Appropriate Technology Industrial Service (GRATIS);
- National and community-based farmer and fisher organizations;
- National and decentralized policymakers and implementing technical teams; and
- Private sector organizations investing in and/or selling inputs for agricultural innovation.

The technical inputs and sector-specific insights brought forward served to enrich the GAEPS zero-draft document. In turn, these interactive and participatory consultation processes helped build a strong interest and buy-in from private sector actors in investing and accelerating the policy, regulatory and finance processes pushed forth by the GAEPS.

The technical committee also succeeded in tapping into previous efforts and building on documented best practices on agricultural innovation, including those specific to the Ghanaian context under the framework of its NAIP (the METASIP II), the Comprehensive Africa Agricultural Development Programme (CAADP) and the 2014 Malabo Declaration on Accelerated African Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods (2014 Malabo Declaration).

Following the review of a wide array of policy papers, strategic documents and literature and supporting information on agricultural engineering and mechanization in Ghana, the project, through its support to the technical committee, played a key role in facilitating nationwide consultations with stakeholders in order to assess capacities, document findings specific to key intervention areas and provide solutions that would foster the policy ownership process of local authorities. In this respect, the consultation-based and participatory approach to developing the GAEPS greatly encouraged all stakeholders to remain engaged with all project activities, allowing them to be especially aware of their roles and responsibilities in preparing for the implementation of the GAEPS moving forward.

### IMPLEMENTATION OF WORK PLAN

All project activities were completed within the revised timeline – reflecting an extension to the project's end date from 30 April 2018 to 31 December 2019 – and as per the budgetary allocations agreed upon during the formulation phase. The timely and relevant project deliverables are in great part due to a proactive approach from the formulation phase onwards in convening all key sector representatives and stakeholders in developing, assessing and validating the GAEPS document as part of a technical team coordinated by the project.

Nonetheless, the delayed recruitment of a national consultant charged with leading the consultations, reviews and assessment of institutional capacities forced the initial timelines to be adjusted. Similarly, the incorporation of inputs, comments and suggestions by stakeholders into the GAEPS document was limited by the initial contract end date of the consultant. Towards the end of the project, moreover, another slight delay took place surrounding the printing of the final GAEPS document, given that MoFA review, approval and signing modalities took longer than initially expected, given a particularly heavy workload experienced at the MoFA at the time. In response to these scheduling-related circumstances, the updated and extended workplan allowed for all envisioned activities and deliverables to be successfully completed.

The timely response to these delays bespeaks of the project's appropriate risk management strategy, which recognized the importance of having participatory processes with as many stakeholders as possible in order to broker the necessary consensus for a GAEPS document that would represent the needs and priorities of all actors and of different national and decentralized authorities.

### FOLLOW-UP FOR GOVERNMENT ATTENTION

Given the policy, regulatory and investment mechanisms identified by the GAEPS to catalyze agricultural engineering and mechanization efforts for agro-industrialization and inclusive economic growth, a number of follow-up actions for government attention were identified.

With the GAEPS providing clearly defined roles for all relevant stakeholders in its implementation, the AESD of the MoFA is reminded of its assigned role in expanding the strategies identified into technical assistance projects for implementation. As such, the MoFA is encouraged to include agricultural engineering and mechanization in the annual action plans of various lines of work of the Ministry. Similarly, the FAO Representation Office in Ghana is encouraged to working closely with the AESD in order to identify and align key initiatives and priorities with FAO's CPF for Ghana, thereby paving the way for the development of future Technical Cooperation Programme (TCP) projects on the priority areas of work identified by the GAEPS.

Moreover, the Government of Ghana, including the pertinent line ministries and decentralized authorities, are invited to work together in identifying funding and ensuring its allocation to their pertinent directorates in order to implement agricultural engineering and mechanization strategies in accordance with the GAEPS.

### SUSTAINABILITY

#### 1. Capacity development

With the GSGDA II identifying agriculture as a sector with an important role to play in the transformation of the country's economy, the project's multi-stakeholder consultations, capacity assessments and policy and strategic roadmaps for agricultural innovation directly contributed to strengthening technical, coordination and resource mobilization capacities in order to operationalize the GAEPS. In doing so, the project also contributed to the Food and Agriculture Sector Development Policy and to the GSGDA II at large. By the same token, the project's consultations and assessments, as well as the GAEPS document per se, represent a compendium of policy prescriptions, coordination mechanisms and investment instruments for Ghana's public, private and research and academic stakeholders to operate under a common vision towards the modernization of the country's agricultural activities.

In terms of key partnerships and alliances developed during the project, several MoFA directorates remained actively engaged during all phases of the project and are therefore more informed about their respective roles in operationalizing the GAEPS. Likewise, research and academic entities, especially under the framework of the project's collaboration with the CSIR, were actively involved in formulating the GAEPS. These efforts helped ensure that a strong capacity development approach to the implementation of the GAEPS would be considered, including, but not limited to, on the improvement of farming practices and inputs, the introduction of innovative machinery and equipment use and the strengthening of information and communication technologies and data and information systems.

## 2. Gender equality

The project sought to contribute to the national and decentralized policy space through which to accelerate the equitable access of men and women to productive resources and inputs, thereby ensuring that all beneficiaries derived equal benefits from the project's activities. Along this line of action, the GAEPS document underscored that many existing agricultural engineering and mechanizations policies and initiatives stand to contribute to gender equality and women's empowerment.

In this respect, the project successfully mainstreamed gender equality and women's empowerment in the final GAEPS document, especially since the ultimate beneficiaries of this project were farmers, of whom 53 percent were women. Therefore, in supporting the equitable participation in decision-making platforms, promoting the access to and control over key policy decisions and enhancing the access to improved livelihoods and decent work, the GAEPS stands to contribute to these and other key priorities, as outlined in the FAO Policy on Gender Equality.

## 3. Environmental sustainability

The project succeeded in mainstreaming the importance of environmental sustainability through its multi-stakeholder assessments and consensus-building efforts on innovative solutions for agricultural development. All discussions stemmed from a shared vision on the importance of environmentally conscious and sustainable policies, fuelled by the active participation of all actors concerned, from grassroots organizations and community groups to ministerial leadership and private sector representatives.

Having said that, the project worked with a wide range of partners already supporting national efforts in support of the agricultural sector, including the MESTI. These efforts, moreover, called for a shared understanding of the nexus between agricultural development and natural resource management, as was assessed and integrated during the formulation of the GAEPS document.

## 4. Human Rights-based Approach (HRBA) – in particular Right to Food and Decent Work

The project ensured that the GAEPS would align to national governmental development plans for agricultural modernization, all of which showcase a rights-based approach to economic growth fuelled by, and leading to, socioeconomic inclusion, decent work and the progressive realization of the Right to Food. This multi-faceted approach to rights-based development is evidenced by the several SDGs to which the project contributed.

In light of the project's contributions to more integrated agricultural policies and strategies spanning different sub-sectors, Ghana is now better suited to target, include and empower communities whose livelihoods overwhelmingly depend on agriculture. In this respect, the project, through the GAEPS document, has contributed to more informed policy making processes and evidence-based decisions in order to reach those most in need.

## 5. Technological sustainability

The development of the GAEPS has been a timely contribution of policy prescriptions and technological innovations for agricultural development. As such, it seeks to strengthen operations in agricultural practices and coordinate inter-ministerial and inter-sectoral decision-making processes. The GAEPS thus represents a new approach to agricultural development and its potential to improve on and off-farm incomes, strengthen rural-urban food system linkages and diversify income-generating opportunities in agriculture-dependent communities. Consequently, farmers, investors, agribusiness representatives, exporters and other business and investment actors stand to benefit from improved agricultural production and employment generation.

The GAEPS has also provided implementation strategies, as well as monitoring and evaluation mechanisms, that shall benefit a wide array of actors, from the national to the decentralized governance levels. In turn, the project invested in the technological and decision-making empowerment at the municipal, district and grassroots level authorities. This decentralization of responsibilities, tools and capacities shall continue developing local knowledge and complementing local capacities moving forward, with the active collaboration of the MoFA and the MESTI.

## 6. Economic sustainability

As part of a long-term strategy and investment plan that draws from the 2014 Malabo Declaration, the SDGs and Ghana's 40-year development plan to transform agriculture, the GAEPS is slated to be integrated into MoFA strategic planning and implementation priorities moving forward. In this regard, the mobilization of additional resources to implement the GAEPS is pending, yet it remains a marked priority of all line ministries concerned.

As for the capacities put in place to ensure that beneficiaries and stakeholders can continue carrying these efforts forward, the GAEPS will contribute to strengthening the enabling environment for private sector representatives, farmer and fisher organizations, public-private investors and all actors along the different agricultural value chains. In turn, more favorable investment, legal and regulatory environments will prove essential, as the incentives to invest, innovate, cooperate and pool expertise and resources between various actors – especially through public-private partnerships – contribute to an economically and environmentally sustainable, inclusive and innovative agricultural sector.

To this end, the project supported resource mobilization efforts, including the identification of new public-private finance streams for agricultural innovation, under the framework of

Africa's Renewed Partnership to End Hunger by 2025 and the 2030 Agenda for Sustainable Development.



## DOCUMENTS AND OUTREACH PRODUCTS

- ❑ Ghana Agricultural Engineering Policy and Strategy. Technical document. Ministry of Food and Agriculture. 2019. 90 pp.



## ACHIEVEMENT OF RESULTS - LOGICAL FRAMEWORK

<b>Expected Impact</b>	<b>A modernized agricultural structure for a sustained food and raw material security and industrialization for increased employment opportunities and poverty reduction</b>		
<b>Outcome</b>	A National Agricultural Engineering Policy and Strategy endorsed by government to guide the availability and accessibility of appropriate forms of farm power and engineering technologies to all categories of farmers and fishermen		
	<b>Indicator</b>	<ul style="list-style-type: none"> <li>– A technical and core team with representation from relevant State and non-State actors is constituted (Output 1).</li> <li>– A national policy is finalized and validated (Output 2).</li> <li>– A National Agricultural Engineering Policy is submitted to cabinet for ratification and Minister’s signature (Output 2).</li> </ul>	
	<b>Baseline</b>	<ul style="list-style-type: none"> <li>– 0</li> <li>– 0</li> <li>– 0</li> </ul>	
	<b>End Target</b>	<ul style="list-style-type: none"> <li>– Technical team constituted at latest by the second month of project inception.</li> <li>– Policy submitted and validated before 31 December 2017.</li> <li>– Policy submitted before 15 January 2018.</li> </ul>	
	<b>Comments and follow-up action to be taken</b>	<p>A national agricultural engineering policy and strategy was developed and endorsed by the pertinent authorities for the modernization and innovation of Ghana’s agricultural activity as a main contributor to an inclusive, sustainable, profitable and efficient economic development growth model.</p> <p>Moreover, the project successfully brokered the buy-in from a wide array of stakeholders during the formulation and implementation phases. This, in turn, allowed the GAEPS document to provide feasible and pertinent policy prescriptions to incentivize resource mobilization and public-private finance allocation to national extension and rural advisory services and research for agricultural innovation.</p>	
<b>Output 1</b>	Approach paper for the development of Agricultural Engineering Policy with a clear work plan presented to stakeholders at an inception workshop and subsequently validated		
	<b>Indicators</b>	<b>Target</b>	<b>Achieved</b>
	A technical and core team with representation from relevant State and non-State actors is constituted.	Technical team constituted at latest by the second month of project inception.	Yes
<b>Baseline</b>	0		
<b>Comments</b>	The approach paper for the development of the National Agricultural Engineering Policy and Strategy document, including the methodology that should be adopted for the formulation process, was presented to the technical committee for review, inputs and finalization.		
<b>Activity 1.1</b>	<b>Review agricultural engineering/mechanization policy papers, strategy documents and literature/information</b>		
	<b>Achieved</b>	Yes	
	<b>Comments</b>	<p>As part of this activity, relevant literature was reviewed, including policy papers, documents on strategic sector initiatives and general research and information on agricultural engineering and mechanization in Ghana. As part of these efforts, there was an emphasis on critically reviewing the existing policy documents in Ghana and other countries. This, in turn, allowed for a thorough analysis of past and present engineering situations in crop, livestock, and fishery mechanization in Ghana.</p> <p>Subsequently, several consultations with key stakeholders were carried out in order to assess the state and performance of the agricultural engineering and mechanization sector, aimed at identifying key policy issues that needed to be addressed moving forward.</p>	

Activity 1.2	Carry out a technical and capacity assessment of institutions supporting agricultural engineering/mechanization	
	Achieved	Yes
Activity 1.2	Comments	<p>Nationwide stakeholder consultations were undertaken to conduct a technical and capacity assessment of those institutions charged with supporting Ghana's agricultural engineering and mechanization efforts. To this end, these assessments, including a one-day technical consultation with the technical committee of major agricultural engineering and mechanization institutions, helped identify knowledge, capacity and knowhow gaps in their respective operating structures and mandates.</p> <p>Having identified their respective limitations and opportunities for improvement and/or innovation, the assessment results actively contributed to the further development of sector strategies, initiatives and policies. As part of these assessments, moreover, the project was able to identify opportunities for agriculture to contribute to national food security, import substitution and agro-industrial raw material production for agro-processing, light manufacturing and export.</p>
	Review the policy/legal/regulatory frameworks	
Activity 1.3	Achieved	Yes
	Comments	<p>As part of this activity, a host of policy, legal and regulatory documents on agricultural engineering and mechanization were reviewed, including the Sustainable Agricultural Mechanization Framework for Africa prepared by FAO and the African Union.</p> <p>In turn, a more detailed understanding of how the national agricultural engineering and mechanization sector operates, remaining mindful of any policy, legal and regulatory limitations and/or untapped opportunities for innovation, was possible. This review process helped provide evidence-based suggestions in order to address any recurring capacity and/or knowledge gaps that are relevant to certain actors or to the agricultural sector at large.</p>
Activity 1.4	Synthesize the findings of the studies/reviews	
	Achieved	Yes
Activity 1.4	Comments	<p>The results of the literature review and capacity assessment carried out led to the synthetization of findings and areas of concern in order for these to feed into the development of the zero-draft of the GAEPS document.</p> <p>This activity proved essential in documenting the implications of each finding, thereby ensuring it could be adequately discussed in the draft document. Likewise, these efforts allowed for a wide array of national stakeholders to be involved and their priorities of concern reflected.</p>
	Constitute a core team of major agricultural engineering/mechanization institutions	
Activity 1.5	Achieved	Yes
	Comments	<p>A technical committee comprised of representatives from major institutions involved in the agricultural engineering and mechanization sector was constituted. Its members represented research centers and academia, private sector enterprises, line ministries, departments and specialized government agencies and development partners.</p> <p>The technical committee aimed at steering the formulation and development of the National Agricultural Engineering Policy and Strategy document, in collaboration with the project's personnel.</p> <p>In order to facilitate this task, a core team was successfully formed, whose members also participated in the broader technical committee, which worked in close coordination with the national consultant who was hired to lead the formulation of this policy and strategy document.</p>



<b>Output 2</b>	A working National Agricultural Engineering Policy and Strategy ready for government approval processes		
	Indicators	Target	Achieved
	<ul style="list-style-type: none"> <li>– A national policy finalized and validated.</li> <li>– A National Agricultural Engineering Policy is submitted to cabinet for ratification and Minister’s signature.</li> </ul>	<ul style="list-style-type: none"> <li>– Policy is submitted and validated before 31 December 2017.</li> <li>– Policy is submitted before 15 January 2018.</li> </ul>	Yes
<b>Baseline</b>	<ul style="list-style-type: none"> <li>– 0</li> <li>– 0</li> </ul>		
<b>Comments</b>	<p>The working document for a national agricultural engineering policy and strategy for Ghana – the GAEPS – was successfully developed, reviewed and finalized, and a final draft has been prepared for submission to the relevant governmental authorities for final approval.</p> <p>The consensus and buy-in from different actors that led to the formulation and validation of the GAEPS are poised to encourage further private sector participation and investment, improved infrastructure support and focused research in order to remove sectoral bottlenecks. In addition, the GAEPS shall holistically contribute to the four dimensions of food and nutrition security through prescriptions and guidance on mechanisms, tools and instruments for public-private partnerships and investment streams.</p>		
<b>Activity 2.1</b>	Develop a zero-draft policy and strategy recommendations		
	Achieved	Yes	
	Comments	<p>The zero-draft policy and strategy document was duly developed after completing the literature review and stakeholder consultations, as per Output 1 activities. As a result, a number of strategic recommendations were identified and provided to the pertinent stakeholders in preparation for the implementation of the GAEPS.</p> <p>As part of this activity, the national consultant, national project coordinator and other FAO experts worked in close coordination with stakeholders and, basing their activities on the approach paper and accompanying consultations carried out before, carried out a three-day working retreat with the core team and key government policy makers.</p>	
<b>Activity 2.2</b>	Hold a national stakeholder workshop		
	Achieved	Yes	
	Comments	<p>This activity was modified by stakeholders during the project inception workshop, resulting in the zero-draft policy and strategy document being shared with all identified stakeholders for their review and inputs at the institutional and individual levels.</p> <p>This activity helped broker the necessary consensus on key policy issues and measures that would need to be addressed in the future by the proposed GAEPS, the details of which were revisited and finalized at the final validation workshop, as per Activity 2.3.</p>	
<b>Activity 2.3</b>	Organize a final validation workshop		
	Achieved	Yes	
	Comments	<p>A national validation workshop was organized, affording stakeholders the opportunity to review and provide inputs to the draft policy and strategy document; all inputs and contributions were incorporated accordingly.</p> <p>Shortly thereafter, the working draft of the Ghana Agricultural Engineering Policy and Strategy (GAEPS) document was validated by the relevant stakeholders, and a final draft version was prepared for submission to the relevant governmental authorities for its final approval.</p>	

**Partnerships and Outreach**

For more information, please contact: [Reporting@fao.org](mailto:Reporting@fao.org)

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