

Environmental Mitigation and Monitoring Plan (EMMP) for Liberia FED

Version date: 12 August 2013

Note: *Contains only activities or groups of activities to which conditions are assigned by the*

- **FED IEE (version date 11 April 2012); and**
- **FED IEE Amendment I**
(including exposition of goat value chain interventions; version date 17 June 2013).

Overall implementation. Overall EMMP implementation will be overseen by FED project Environmental Officer Othello Nyenkan (othello_nyenkan@dai.com), who is also the point-of-contact for this EMMP. Such oversight shall include monitoring to assure that the FED workplan remains within the scope of the IEE, and assuring that any private-sector funding of the below-listed activities adheres to the conditions specified by the IEE and reproduced here.

The FED activities or groups of activities to which conditions are assigned by the FED IEE and IEE Amendment I are included in Table 1 (below). The numbering/lettering scheme reflected in Table 1 corresponds with that established in the IEE and IEE Amendment. Table 1 also provides links to that section of the EMMP addressing the specific activities.

Table 1: FED Activities to Which IEE Conditions Are Attached

Intervention Area	Activity Type	Link
Input supply interventions	iii. Input supply interventions to increase productivity and profitability; includes supporting agro-input dealer network; promoting input adoption through ag. extension services; establishment of market connections (e.g., between importers, wholesalers, and retailers); provision of credit; testing and demonstration/ promotion of improved cultivation techniques	Click here
Increase production and profitability of quality rice	v. Activities include: <ul style="list-style-type: none"> ▪ labor efficiency (use previously farmed wetland, cost sharing, power tillers) ▪ agronomic improvements ▪ improved land preparation (field leveling and layout, water control structures) ▪ access to improved seed (linking buyers/sellers, support seed rice production) ▪ better transplanting (correct timing, spacing) ▪ increased capacity for pest and disease management (access to product, training) ▪ appropriate use of fertilizer (demo/trials, streamline supply chain) ▪ access to financing (conventional and micro-loans, training in ag. lending) ▪ improved post-harvest crop management (drying, cleaning, storage) ▪ improved processing for market (QA/QC, packaging, distribution, marketing) ▪ access to transport facilities (focus on key routes) ▪ improved marketing (link buyers and sellers, final product branding) ▪ promote training in and the adoption of integrated aquaculture schemes entailing the simultaneous, co-located cultivation of lowland rice and freshwater fish (e.g., fishpond-paddy systems) ▪ promote enhanced rice cultivation in upland environments 	Click here
Increase production and profitability	vi. Activities include: <ul style="list-style-type: none"> ▪ promote "elite" private-sector cutting supply system (multiply best existing and new varieties, testing of new international varieties [e.g., from India], establish source for new cassava clones) 	Click here

Intervention Area	Activity Type	Link
of quality cassava	<ul style="list-style-type: none"> ▪ build linkages from cutting producers to farmers (aggregate demand and reduce costs, distribute cuttings and other inputs, demonstration plots, promotion, follow-up, QA/QC); ▪ training (students, cutting producers, farmers, associations, processors) ▪ Farmers Field Day and Farmers Exchange Visits (in conjunction with training) ▪ access to financing/capital (for contract growing, processing equipment) ▪ processing and marketing (existing processors and assn. at village level up, link to market) ▪ feasibility analyses (economic, financial, social) ▪ better collaboration (coordination of private and public sectors, NGOs, donors) ▪ promote enhanced cassava cultivation in upland environments 	
Peri-urban vegetable production	<p>vii. Activities include:</p> <ul style="list-style-type: none"> ▪ coordination among urban ag. actors (MOA, local gov't, NGOs, donors) ▪ establish demonstration sites (engage interested farmers, promote irrigation, new techniques/ technologies) ▪ establish data collection mechanism (vegetable price and yield data) ▪ develop market sites around country (MOA lead with NGO and donor support) ▪ on-demand soil testing and technical assistance services from MOA; also supply and provide guidance in use of fertilizers and pesticides to FED farmers ▪ improvements in post-harvest processing/marketing ▪ awareness raising (mass media [including technical information], site visits) ▪ capacity building (farmers and equipment suppliers, seed provision, business training, post-harvest storage and handling, transportation methods, negotiation) ▪ enable commercial linkages (input suppliers to farmers and farmers to markets, input stocks offered on consignment) ▪ introduction of "modern transitional technologies" (e.g., treadle pumps and vegetable dryers, promote local production, establish and train reseller network) ▪ effective use of micro-credit (credit counseling and assistance for borrowers) ▪ promote enhanced vegetable cultivation in upland environments 	Click here
Goat value chain interventions (as enumerated in FED IEE Amendment)	a) improved production through formation and support of producer groups and implementation of goat re-stocking schemes	Click here
	c) purchase and distribution of improved indigenous goat varieties from domestic herds	Click here
	d) on-farm small-scale construction (e.g., fencing, goat shelters, feeders, etc.)	Click here
	e) training of "Animal Health Auxiliaries"	Click here
	g) policy development and promotion, including formulation of a national livestock policy and support for regional interest group(s)	Click here
	h) technical training and capacity building for County-level MOA livestock officers	Click here
	i) capacity building and training for selected households (e.g., lead farmers, new goat farmers under pass-on scheme, etc.)	Click here
	j) goat vaccination activities, including support for national-level campaigns	Click here
	k) improved supply chain for veterinary pharmaceuticals and nutritional supplements, including stocking of rural outlets/stores and capacity development for goat pharmacy technicians	Click here
l) promote expanded delivery of private veterinary services	Click here	

Intervention Area	Activity Type	Link
	m) installation of livestock watering facilities, including establishment of water access points	Click here
Stimulate Private Enterprise	ii. Increase access to credit, business development and financial management services; includes building lenders' institutional capacity and orientation toward agricultural loans; expanding borrowers' business skills and financial literacy; identify capital requirements (e.g., production equipment [tillers, thrashers, etc.], packaging); loan officer training	Click here

FED Component 1: Increase Agricultural Productivity – Input supply interventions

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
<p>iii. Input supply interventions to increase productivity and profitability; includes supporting agro-input dealer network; promoting input adoption through ag. extension services; establishment of market connections (e.g., between importers, wholesalers, and retailers); provision of credit; testing and demonstration/promotion of improved cultivation techniques</p>	<p>The provision/distribution, promotion of, and training in use of fertilizers must conform to best practices outlined in the Africa Bureau Fertilizer Fact Sheet, available here.</p>	<p>Make the Africa Bureau Fertilizer Fact Sheet readily available in hard copy and electronic form to FED technical staff (Home & County Offices) and FED project partners (MOA ext. agents, resellers, distributors, credit entities, etc.)</p> <p>Where necessary adapt (i.e., excerpt and re-brand) the Africa Bureau Fertilizer Fact Sheet for use by individual farmers or farmer groups.</p> <p>The preparation and delivery of fertilizer-related training content must convey—by reference or verbatim—the best practices encompassed by the Africa Bureau Fertilizer Fact Sheet.</p>	<p>Confirm that FED technical staff and relevant partners are familiar with and can easily locate/access the Africa Bureau Fertilizer Fact Sheet for their reference. <u>Indicator:</u> staff and partners can quickly convey at least three (3) key concepts or best practices related to fertilizer use as reflected in the Fact Sheet.</p> <p>Verify fertilizer-related training content/materials for conformance with best practices outlined in the Africa Bureau Fertilizer Fact Sheet; document in TAMIS. <u>Indicator:</u> integration of relevant fertilizer best practices.</p> <p>Field-monitor training delivery; verify conformance with relevant best practices. <u>Indicator:</u> inclusion/conveyance of relevant fertilizer best practices by facilitator/trainer.</p> <p>Survey implementation of best practices by trainees. <u>Indicator:</u> correct application of relevant fertilizer best practices among trainees.</p>	<p>Confirmation will be made in conjunction with regular environmental compliance monitoring as fertilizer-related project activities are implemented, but not less than quarterly.</p> <p>Technical review of fertilizer-related training content/materials to verify conformance with best practices will be completed not less than one week prior to delivery of related training event(s).</p> <p>Field-monitor training delivery on an intermittent basis.</p> <p>Monitoring of trainee implementation of best practices will be conducted not less than semi-annually.</p> <p>Staff and partners will be advised of restriction as part of orientation on FED environmental management, and on an ongoing basis thereafter. Monitoring of adherence to restriction will be made in conjunction with regular</p>	<p>FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document, among other issues, the implementation of fertilizer best practices as derived from the Africa Bureau Fertilizer Fact Sheet and similar resources.</p> <p>In addition to specific field-monitoring report-outs, standard FED training reports/ summaries will integrate an environmental compliance dimension that assesses, among other points, effective conveyance of fertilizer best practices.</p> <p>FED will also integrate environmental compliance reporting as part of semi-annual and annual PMP-based reporting to USAID.</p>	<p>Distribution/promotion of fertilizer fact sheet among FED staff and partners:</p> <ul style="list-style-type: none"> • Input Supply Team Leader (Allan Mansfield) • Environmental Officer (Othello Nyenkan) <p>Technical adaptation of fertilizer fact sheet, as needed:</p> <ul style="list-style-type: none"> • Input Supply Team Leader (Allan Mansfield); • Environmental Officer (Othello Nyenkan) • County managers <p>Technical review of training materials/content:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • COP (Agnes Luz) <p>Field Monitoring:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • County M&E staff <p>Reporting:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • Environmental Compliance Specialist (Patrick Hall) <p>Advocacy of GMO + pesticide-related EMMP requirements:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • All Team Leaders • All County Managers <p>Verification of GMO + pesticide-related EMMP requirements:</p>
	<p>No bio-engineered products (e.g., seeds, cuttings, etc.) may be introduced or supported by FED. The proposed use of any bio-engineered or GMO products by FED will require an amendment to this IEE and, as</p>	<p>No bio-engineered or GMO products may be introduced or supported by FED until implementation/mitigation measures related to their potential future use are specified in the relevant IEE amendment, if any, and accompanying modified EMMP. All FED staff and partners involved in agricultural production will be advised of this restriction.</p>	<p>Overseer of this EMMP will ensure that FED staff and partners involved in agricultural production are aware of this restriction and that no bio-engineered or GMO products are introduced or supported until an IEE amendment and</p>			

FED Component 1: Increase Agricultural Productivity – Input supply interventions

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
	<p>applicable, completion of USAID's bio-safety review process. Additional information on USIAD Bio-safety Procedures is available here.</p>		<p>related documentation is completed and approved. <u>Indicator</u>: verbal or written concurrence from staff and partners regarding restriction; adherence to restriction in project implementation.</p>	<p>environmental compliance monitoring, but not less than quarterly.</p>		<ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • County M&E staff
	<p>The procurement or use by FED, promotion of, or training in use of pesticides, including herbicides and fungicides, is disallowed until such time that a Pesticide Evaluation Report and Safer Use Action Plan (PERSUAP) is completed pursuant to 22CFR Regulation 216.3 (b)—USAID pesticide procedures—and duly approved.</p>	<p>FED may not procure, use, promote, or provide training in the use of pesticides (including herbicides and fungicides) until implementation/ mitigation measures are specified in the PERSUAP and accompanying pesticides EMMP. All FED staff and partners involved in agricultural production will be advised of this restriction.</p>	<p>Overseer of this EMMP will ensure that FED staff and partners involved in agricultural production are aware of this restriction. <u>Indicator</u>: verbal or written concurrence from staff and partners regarding restriction.</p>	<p>Staff and partners will be advised of restriction as part of orientation on FED environmental management, and on an ongoing basis thereafter.</p>		<p>Reporting of GMO + pesticide-related EMMP requirements:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • Environmental Compliance Specialist (Patrick Hall)

FED Component 1: Increase Agricultural Productivity – Increase production and profitability of quality rice

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
<p>v. Increase production and profitability of quality rice, including:</p> <ul style="list-style-type: none"> ▪ labor efficiency (use previously farmed wetland, cost sharing, power tillers) ▪ agronomic improvements ▪ improved land preparation (field leveling and layout, water control structures) ▪ access to improved seed (linking buyers/sellers, support seed rice production) ▪ better transplanting (correct timing, spacing) ▪ increased capacity for pest and disease management (access to product, training) ▪ appropriate use of fertilizer (demo/trials, streamline supply chain) 	<p>Prior to commencement of rice value chain interventions in a target community FED will complete a high-level appraisal of local environmental conditions in order to identify and, if needed, address any particularly sensitive or high-risk aspects of project implementation. For example: proximity to protected areas or endangered species' habitat(s); prevalence of significantly degraded landscapes, such as those resulting from mining or large-scale monoculture (e.g., rubber plantations); abutment of existing lowland rice cultivation to undisturbed—"virgin"—or significantly un-degraded wetland; occurrence of seasonal water stress or scarcity.</p> <p>The local environmental appraisal will be completed on a scale not greater than District-wide by qualified FED project staff, consultants or partners (e.g., GOL, NGOs, etc.), as appropriate and prepared in brief memo form (2-3 pgs.). If any of the above-enumerated "high risk" environmental conditions are identified through this process, the memo will be submitted to USAID for review and consideration by the COR and MEO.</p> <p>The appraisal shall be used as a means of promoting ESDM despite broad variation in environmental conditions and risk factors across FED target communities. All appraisals, whether or not forwarded for USAID review, will be retained as part of the project record.</p>	<p>FED will prepare the requisite environmental appraisal no less than one month prior to commencing rice value chain interventions in a given locality. (Previously completed appraisals may be used as a means of assessing env. conditions in neighboring communities within the same admin. District.) See EMMP Attach C for the FED Degraded Landscapes Checklist, which may be used to start the high-level appraisal process.</p> <p>Appraisals identifying a potentially high-risk scenario as described in the column to the left will be submitted to USAID for review and consideration by the COR and MEO. FED in consultation with USAID will weigh potential risks and benefits and reach consensus on mode of intervention, including the collection and analysis of add'l data, which may entail preparation of an Env. Assessment (EA).</p> <p>Appraisal documentation and related correspondence and planning materials will be organized and maintained within TAMIS as part of FED's environmental compliance portfolio at the Home Office and affected County Offices.</p>	<p>Verify existence and recommendations/ outcomes of the high-level environmental appraisals for specific interventions using TAMIS. <u>Indicator:</u> existence of complete TAMIS recordkeeping.</p> <p>Confirm the overall completion, organization and maintenance of appraisal documentation and related correspondence and planning materials within TAMIS (and any other such FED project management tools, resources, applications, etc.). <u>Indicator:</u> records that correspond with reviews conducted to date and that frame activities underway.</p> <p>Verify through field monitoring adherence to the findings of the high-level environmental appraisals. <u>Indicator:</u> field-level intervention reflects appraisal findings/ recommendations.</p>	<p>Verify recordkeeping prior to commencing rice value chain interventions in target communities.</p> <p>Confirm recordkeeping as part of the project environmental compliance portfolio not less than semi-annually.</p> <p>Field monitoring will be conducted in conjunction with regular environmental compliance monitoring, but not less than semi-annually.</p>	<p>FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document, among other issues, the completion of environmental appraisals related to rice value chain interventions.</p> <p>Moreover, an Annual Environmental Compliance report will document the outcomes of this process and cumulative impact(s) on overall project implementation and local environments.</p> <p>FED will also integrate environmental compliance reporting as part of semi-annual and annual PMP-based reporting to USAID.</p>	<p>Preparation of environmental appraisals:</p> <ul style="list-style-type: none"> • Activity Lead (David Benafel) • Environmental Officer (Othello Nyenkan) <p>Review + approval/ disapproval of environmental appraisals:</p> <ul style="list-style-type: none"> • COP (Agnes Luz) • Environmental Officer (Othello Nyenkan) <p>Related engagement with USAID, as needed:</p> <ul style="list-style-type: none"> • COP (Agnes Luz) <p>Monitoring of completion of environmental appraisals:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) <p>Field monitoring of consistency of implementation with appraisal recommendations:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • County M&E staff <p>Reporting:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • Environmental Compliance Specialist (Patrick Hall)

FED Component 1: Increase Agricultural Productivity – Increase production and profitability of quality rice

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
<ul style="list-style-type: none"> ▪ access to financing (conventional and micro-loans, training in ag. lending) ▪ improved post-harvest crop management (drying, cleaning, storage) ▪ improved processing for market (QA/QC, packaging, distribution, marketing) ▪ access to transport facilities (focus on key routes) ▪ improved marketing (link buyers and sellers, final product branding) 	<p>The provision/distribution, promotion of, and training in use of fertilizers must conform to best practices outlined in the Africa Bureau Fertilizer Fact Sheet, available here</p>	<p>Make the Africa Bureau Fertilizer Fact Sheet readily available in hard copy and electronic form to FED technical staff (Home & County Offices) and FED project partners (MOA ext. agents, resellers, distributors, credit entities, etc.)</p> <p>Where necessary adapt (i.e., excerpt and re-brand) the Africa Bureau Fertilizer Fact Sheet for use by individual farmers or farmer groups.</p> <p>The preparation and delivery of fertilizer-related training content must convey—by reference or verbatim—the best practices encompassed by the Africa Bureau Fertilizer Fact Sheet.</p>	<p>Confirm that FED technical staff and relevant partners are familiar with and can easily locate/access the Africa Bureau Fertilizer Fact Sheet for their reference. <u>Indicator:</u> staff and partners can quickly convey at least three (3) key concepts or best practices related to fertilizer use as reflected in the Fact Sheet.</p> <p>Verify fertilizer-related training content/materials for conformance with best practices outlined in the Africa Bureau Fertilizer Fact Sheet; document in TAMIS. <u>Indicator:</u> integration of relevant fertilizer best practices.</p> <p>Field-monitor training delivery; verify conformance with relevant best practices. <u>Indicator:</u> inclusion/conveyance of relevant fertilizer best practices by facilitator/trainer.</p> <p>Survey implementation of best practices by trainees. <u>Indicator:</u> correct application of relevant fertilizer best practices among trainees.</p>	<p>Confirmation will be made in conjunction with regular environmental compliance monitoring as fertilizer-related project activities are implemented, but not less than quarterly.</p> <p>Technical review of fertilizer-related training content/materials to verify conformance with best practices will be completed not less than one week prior to delivery of related training event(s).</p> <p>Field-monitor training delivery on an intermittent basis.</p> <p>Monitoring of trainee implementation of best practices will be conducted not less than semi-annually.</p>	<p>FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document, among other issues, the implementation of fertilizer best practices as derived from the Africa Bureau Fertilizer Fact Sheet and similar resources.</p> <p>In addition to specific field-monitoring report-outs, standard FED training reports/summaries will integrate an environmental compliance dimension that assesses, among other points, effective conveyance of fertilizer best practices.</p>	<p>Distribution/promotion of fertilizer fact sheet among FED staff and partners:</p> <ul style="list-style-type: none"> • Input Supply Team Leader (Allan Mansfield) • Environmental Officer (Othello Nyenkan) <p>Technical adaptation of fertilizer fact sheet, as needed:</p> <ul style="list-style-type: none"> • Input Supply Team Leader (Allan Mansfield); • Environmental Officer (Othello Nyenkan) • County managers <p>Technical review of training materials/content:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • COP (Agnes Luz) <p>Field Monitoring:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • County M&E staff <p>Reporting:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • Environmental Compliance Specialist (Patrick Hall)

FED Component 1: Increase Agricultural Productivity – Increase production and profitability of quality rice

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
<ul style="list-style-type: none"> promote training in and the adoption of integrated aquaculture schemes entailing the simultaneous, co-located cultivation of lowland rice and freshwater fish (e.g., fishpond-paddy systems) 	<p>No bio-engineered products (e.g., seeds, cuttings, etc.) may be introduced or supported by FED. The proposed use of any bio-engineered or GMO products by FED will require an amendment to this IEE and, as applicable, completion of USAID's bio-safety review process. Additional information on USIAD Bio-safety Procedures is available here.</p>	<p>No bio-engineered or GMO products may be introduced or supported by FED until implementation/mitigation measures related to their potential future use are specified in the relevant IEE amendment, if any, and accompanying modified EMMP. All FED staff and partners involved in agricultural production will be advised of this restriction.</p>	<p>Overseer of this EMMP will ensure that FED staff and partners involved in agricultural production are aware of this restriction and that no bio-engineered or GMO products are introduced or supported until an IEE amendment and related documentation is completed and approved. Indicator: verbal or written concurrence from staff and partners regarding restriction; adherence to restriction in project implementation.</p>	<p>Staff and partners will be advised of restriction as part of orientation on FED environmental management, and on an ongoing basis thereafter. Monitoring of adherence to restriction will be made in conjunction with regular environmental compliance monitoring, but not less than quarterly.</p>		<p>Advocacy of GMO + pesticide-related EMMP requirements:</p> <ul style="list-style-type: none"> Environmental Officer (Othello Nyenkan) All Team Leaders All County Managers <p>Verification of GMO + pesticide-related EMMP requirements:</p> <ul style="list-style-type: none"> Environmental Officer (Othello Nyenkan) County M&E staff
<ul style="list-style-type: none"> promote enhanced rice cultivation in upland environments 	<p>The procurement or use by FED, promotion of, or training in use of pesticides, including herbicides and fungicides, is disallowed until such time that a Pesticide Evaluation Report and Safer Use Action Plan (PERSUAP) is completed pursuant to 22CFR Regulation 216.3 (b)—USAID pesticide procedures—and duly approved.</p>	<p>FED may not procure, use, promote, or provide training in the use of pesticides (including herbicides and fungicides) until implementation/mitigation measures are specified in the PERSUAP and accompanying pesticides EMMP. All FED staff and partners involved in agricultural production will be advised of this restriction.</p>	<p>Overseer of this EMMP will ensure that FED staff and partners involved in agricultural production are aware of this restriction. Indicator: verbal or written concurrence from staff and partners regarding restriction.</p>	<p>Staff and partners will be advised of restriction as part of orientation on FED environmental management, and on an ongoing basis thereafter.</p>		<p>Reporting of GMO + pesticide-related EMMP requirements:</p> <ul style="list-style-type: none"> Environmental Officer (Othello Nyenkan) Environmental Compliance Specialist (Patrick Hall)
	<p>The promotion of and/or training in use of power tillers, threshing machines, or other labor-saving farm machinery (motorized or not) shall demonstrate and advocate the wearing of appropriate Personal Protective Equipment (PPE) (e.g., boots, gloves, respirator, safety goggles, etc.)</p>	<p>FED must make available to project staff and partners an adequate supply of PPE for training and demonstration purposes. These materials will be retained at the Home and County offices, or provided to certain staff or partners on a long-term basis as needed (e.g., for remote extension workers).</p> <p>Staff and partner training on the use of various PPE by a qualified professional(s) will be completed by the end of project Year 1. Training will be reinforced through use of posters and instructional fact sheets which will be posted and distributed at County Offices</p>	<p>Create and maintain an inventory in TAMIS of all FED-owned PPE for use in project training and demonstration activities. Indicator: existence of complete and current inventory.</p> <p>Verify the use of posters, fact sheets and any other instructional resources through site visits. Indicator: visual confirmation of instructional materials.</p> <p>Field-monitor training delivery/demonstration activities; verify the demonstration and advocacy of use of appropriate</p>	<p>Confirm and update the inventory quarterly based on monthly updates from affected County Offices, and based on regular field monitoring efforts. This update will encompass all PPE at Home and County offices, as well as that in use in the field.</p> <p>Site visits will be conducted in conjunction with regular environmental compliance monitoring.</p>	<p>FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document in tabular form the results of the quarterly PPE inventory checks and updates.</p>	<p>PPE inventory tracking:</p> <ul style="list-style-type: none"> Environmental Officer (HQ) (Othello Nyenkan) County M&E staff (County Offices) <p>Preparation and distribution of PPE promotional materials:</p> <ul style="list-style-type: none"> Environmental Officer (Othello Nyenkan) <p>Monitoring:</p> <ul style="list-style-type: none"> Environmental Officer (Othello Nyenkan) County M&E staff

FED Component 1: Increase Agricultural Productivity – Increase production and profitability of quality rice

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
		and in conjunction with related training events.	PPE. <u>Indicator</u> : inclusion/demonstration of correct PPE practices by facilitator/trainer.	Field-monitor training delivery on an intermittent basis.	In addition to specific field-monitoring reports, standard FED training reports/ summaries will integrate an environmental compliance dimension that assesses, among other points, effective use and demonstration of PPE.	Reporting: <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • Environmental Compliance Specialist (Patrick Hall) Field verification of consistency of rice activities with exiting environmental appraisals: <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan)
	<p>No undisturbed or substantially un-degraded wetland shall be converted to agricultural use, specifically, lowland rice cultivation; expansion of the land area used to cultivate lowland rice is restricted to rehabilitation of pre-existing agricultural land or otherwise degraded wetland.</p> <p>No undisturbed or substantially un-degraded upland tracts shall be converted to agricultural use, specifically, upland rice cultivation; expansion of the land area used to cultivate upland rice is restricted to rehabilitation of pre-existing agricultural land or otherwise degraded forest or plain.</p>	The encroachment of lowland rice cultivation on undisturbed or substantially un-degraded wetland or upland tracts will be governed by the completion of high-level environmental appraisals (detailed above) that precede commencement of rice value chain interventions in a given locality.				Reporting: <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • Environmental Compliance Specialist (Patrick Hall) Identification and integration of land prep. BMPs: <ul style="list-style-type: none"> • County extension agents • Environmental Officer (Othello Nyenkan) Field monitoring of BMP implementation: <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • County M&E staff
	<p>Land preparation activities shall integrate best management practices reflecting local soil conditions, climate and hydrology in order to reduce erosion (wind and water), limit potentially nutrient-rich agricultural run-off, and, for irrigation, limit farm and conveyance losses.</p> <p>Any demonstration of enhanced rice cultivation techniques in upland environments shall integrate best management practices reflecting area topography and the status (e.g., primary, secondary, plantation, etc.)</p>	<p>FED staff and partners will use the aforementioned high-level environmental appraisals, other documentation, and local knowledge and resources to determine best management practices (BMPs).</p> <p>BMPs will be drawn from the <i>Environmental Guidelines for Small-Scale Activities in Africa</i> (EGSSAA)—available here—and similar technical resources.</p>	<p>Confirm that FED technical staff and relevant partners are familiar with and can easily locate/access the EGSSAA for their reference. <u>Indicator</u>: staff and partners can identify by name at least two chapters as they relate to rice value chain interventions.</p> <p>Field-monitor select rice value chain interventions to ascertain the use of BMPs or similarly appropriate NRM techniques. <u>Indicator</u>: observation of the use by FED beneficiaries of specific best</p>	<p>Confirmation will be made in conjunction with regular environmental compliance monitoring as rice activities are implemented, but not less than quarterly.</p> <p>Field-monitoring will be completed in conjunction with regular environmental compliance monitoring as rice activities are</p>	FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document, among other issues, the implementation of land preparation BMPs.	Reporting: <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • Environmental Compliance Specialist (Patrick Hall)

FED Component 1: Increase Agricultural Productivity – Increase production and profitability of quality rice

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
	and extent of adjacent forest or plant cover.		practices or improved NRM techniques.	implemented, but not less than semi-annually		

FED Component 1: Increase Agricultural Productivity – Increase production and profitability of quality cassava

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
<p>vi. Increase production and profitability of quality cassava, including:</p> <ul style="list-style-type: none"> ▪ promote “elite” private-sector cutting supply system (multiply best existing and new varieties, testing of new international varieties [e.g., from India], establish source for new cassava clones) ▪ build linkages from cutting producers to farmers (aggregate demand and reduce costs, distribute cuttings and other inputs, demonstration plots, promotion, follow-up, QA/QC); ▪ training (students, cutting producers, farmers, associations, processors) ▪ Farmers Field Day and Farmers Exchange Visits (in conjunction with training) ▪ access to financing/capital (for contract growing, processing equipment) 	<p>The provision/distribution, promotion of, and training in use of fertilizers must conform to best practices outlined in the Africa Bureau Fertilizer Fact Sheet, available here.</p>	<p>Make the Africa Bureau Fertilizer Fact Sheet readily available in hard copy and electronic form to FED technical staff (Home & County Offices) and FED project partners (MOA ext. agents, resellers, distributors, credit entities, etc.)</p> <p>Where necessary adapt (i.e., excerpt and re-brand) the Africa Bureau Fertilizer Fact Sheet for use by individual farmers or farmer groups.</p> <p>The preparation and delivery of fertilizer-related training content must convey—by reference or verbatim—the best practices encompassed by the Africa Bureau Fertilizer Fact Sheet.</p>	<p>Confirm that FED technical staff and relevant partners are familiar with and can easily locate/access the Africa Bureau Fertilizer Fact Sheet for their reference. <u>Indicator:</u> staff and partners can quickly convey at least three (3) key concepts or best practices related to fertilizer use as reflected in the Fact Sheet.</p> <p>Verify fertilizer-related training content/materials for conformance with best practices outlined in the Africa Bureau Fertilizer Fact Sheet; document in TAMIS. <u>Indicator:</u> integration of relevant fertilizer best practices.</p> <p>Field-monitor training delivery; verify conformance with relevant best practices. <u>Indicator:</u> inclusion/conveyance of relevant fertilizer best practices by facilitator/trainer.</p> <p>Survey implementation of best practices by trainees. <u>Indicator:</u> correct application of relevant fertilizer best practices among trainees.</p>	<p>Confirmation will be made in conjunction with regular environmental compliance monitoring as fertilizer-related project activities are implemented, but not less than quarterly.</p> <p>Technical review of fertilizer-related training content/materials to verify conformance with best practices will be completed not less than one week prior to delivery of related training event(s).</p> <p>Field-monitor training delivery on an intermittent basis.</p> <p>Monitoring of trainee implementation of best practices will be conducted not less than semi-annually.</p>	<p>FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document, among other issues, the implementation of fertilizer best practices as derived from the Africa Bureau Fertilizer Fact Sheet and similar resources.</p> <p>In addition to specific field-monitoring report-outs, standard FED training reports/summaries will integrate an environmental compliance dimension that assesses, among other points, effective conveyance of fertilizer best practices.</p> <p>FED will also integrate environmental compliance reporting as part of semi-annual and annual PMP-based reporting to USAID.</p>	<p>Distribution/promotion of fertilizer fact sheet among FED staff and partners:</p> <ul style="list-style-type: none"> • Input Supply Team Leader (Allan Mansfield) • Cassava Team Leader (David Benafel) • Environmental Officer (Othello Nyenkan) <p>Technical adaptation of fertilizer fact sheet, as needed:</p> <ul style="list-style-type: none"> • Input Supply Team Leader (Allan Mansfield); • Environmental Officer (Othello Nyenkan) • Cassava Team Leader (David Benafel) • County managers <p>Technical review of training materials/content:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • COP (Agnes Luz) <p>Field Monitoring:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • County M&E staff <p>Reporting:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • Environmental Compliance Specialist (Patrick Hall)

FED Component 1: Increase Agricultural Productivity – Increase production and profitability of quality cassava

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
<ul style="list-style-type: none"> ▪ processing and marketing (existing processors and assn. at village level up, link to market) ▪ feasibility analyses (economic, financial, social) ▪ better collaboration (coordination of private and public sectors, NGOs, donors) ▪ promote enhanced cassava cultivation in upland environments 	<p>No bio-engineered products (e.g., seeds, cuttings, etc.) may be introduced or supported by FED. The proposed use of any bio-engineered or GMO products by FED will require an amendment to this IEE and, as applicable, completion of USAID's bio-safety review process. Additional information on USIAD Bio-safety Procedures is available here</p> <p>The procurement or use by FED, promotion of, or training in use of pesticides, including herbicides and fungicides, is disallowed until such time that a Pesticide Evaluation Report and Safer Use Action Plan (PERSUAP) is completed pursuant to 22CFR Regulation 216.3 (b)—USAID pesticide procedures—and duly approved.</p> <p>The demonstration of enhanced cassava cultivation techniques (including the use of improved varieties, as permitted) shall integrate best management practices reflecting local soil conditions, climate and hydrology in order to reduce erosion (wind and water), limit potentially nutrient-rich agricultural run-off, and, for irrigation, limit farm and conveyance losses.</p> <p>Any demonstration of enhanced cassava cultivation techniques in upland environments shall</p>	<p>No bio-engineered or GMO products may be introduced or supported by FED until implementation/mitigation measures related to their potential future use are specified in the relevant IEE amendment, if any, and accompanying modified EMMP. All FED staff and partners involved in agricultural production will be advised of this restriction.</p> <p>FED may not procure, use, promote, or provide training in the use of pesticides (including herbicides and fungicides) until implementation/mitigation measures are specified in the PERSUAP and accompanying pesticides EMMP. All FED staff and partners involved in agricultural production will be advised of this restriction.</p> <p>FED staff and partners will use available documentation (including aforementioned rice-related environmental appraisals, as applicable) and local knowledge and resources to determine BMPs.</p> <p>BMPs will be drawn from the <i>Environmental Guidelines for Small-Scale Activities in Africa</i> (EGSSAA)—available here—and similar technical resources.</p>	<p>Overseer of this EMMP will ensure that FED staff and partners involved in agricultural production are aware of this restriction and that no bio-engineered or GMO products are introduced or supported until an IEE amendment and related documentation is completed and approved. Indicator: verbal or written concurrence from staff and partners regarding restriction; adherence to restriction in project implementation.</p> <p>Overseer of this EMMP will ensure that FED staff and partners involved in agricultural production are aware of this restriction. Indicator: verbal or written concurrence from staff and partners regarding restriction.</p> <p>Confirm that FED technical staff and relevant partners are familiar with and can easily locate/access the EGSSAA for their reference. Indicator: staff and partners can identify by name at least two chapters as they relate to cassava value chain interventions.</p> <p>Field-monitor select cassava value chain interventions to ascertain the use of BMPs or similarly appropriate NRM techniques. Indicator: observation of the use by FED beneficiaries of specific best practices or improved NRM techniques.</p>	<p>Staff and partners will be advised of restriction as part of orientation on FED environmental management, and on an ongoing basis thereafter. Monitoring of adherence to restriction will be made in conjunction with regular environmental compliance monitoring, but not less than quarterly.</p> <p>Staff and partners will be advised of restriction as part of orientation on FED environmental management, and on an ongoing basis thereafter.</p> <p>Confirmation will be made in conjunction with regular environmental compliance monitoring as cassava activities are implemented, but not less than quarterly.</p> <p>Field-monitoring will be completed in conjunction with regular environmental compliance monitoring as cassava activities are implemented, but not less than semi-annually</p>	<p>FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document, among other issues, the implementation of BMPs in enhanced cassava cultivation.</p>	<p>Advocacy of GMO + pesticide-related EMMP requirements:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • All Team Leaders • All County Managers <p>Verification of GMO + pesticide-related EMMP requirements:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • County M&E staff <p>Reporting of GMO + pesticide-related EMMP requirements:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • Environmental Compliance Specialist (Patrick Hall) <p>Identification and integration of cultivation BMPs:</p> <ul style="list-style-type: none"> • Cassava Team Leader (David Benafel) • County extension agents • Environmental Officer (Othello Nyenkan) <p>Field monitoring of BMP implementation:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • County M&E staff <p>Reporting:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • Environmental Compliance Specialist (Patrick Hall)

FED Component 1: Increase Agricultural Productivity – Increase production and profitability of quality cassava

	<p>integrate best management practices reflecting area topography and the status (e.g., primary, secondary, plantation, etc.) and extent of adjacent forest or plant cover.</p> <p>No undisturbed or substantially un-degraded upland tracts shall be converted to agricultural use, specifically, cassava cultivation; expansion of the land area used to cultivate cassava is restricted to rehabilitation of pre-existing agricultural land or otherwise degraded forest or plain.</p>	<p>Prior to commencing project interventions at a given site, FED staff (and partners, as applicable) will complete the FED Degraded Landscapes Checklist to assess the suitability of cultivation sites under consideration. This checklist will be submitted for review and concurrence by the FED Environmental Officer prior to initiating cultivation.</p>				
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FED Component 1: Increase Agricultural Productivity – Peri-Urban Vegetable Production

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/ Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
<p>vii. Peri-Urban Vegetable Production; includes:</p> <ul style="list-style-type: none"> ▪ coordination among urban ag. actors (MOA, local gov't, NGOs, donors) ▪ establish demonstration sites (engage interested farmers, promote irrigation, new techniques/ technologies) ▪ establish data collection mechanism (vegetable price and yield data) ▪ develop market sites around country (MOA lead with NGO and donor support) 	<p>The provision/distribution, promotion of, and training in use of fertilizers must conform to best practices outlined in the Africa Bureau Fertilizer Fact Sheet, available here.</p>	<p>Make the Africa Bureau Fertilizer Fact Sheet readily available in hard copy and electronic form to FED technical staff (Home & County Offices) and FED project partners (MOA ext. agents, resellers, distributors, credit entities, etc.)</p> <p>Where necessary adapt (i.e., excerpt and re-brand) the Africa Bureau Fertilizer Fact Sheet for use by individual farmers or farmer groups.</p> <p>The preparation and delivery of fertilizer-related training content must convey—by reference or verbatim—the best practices encompassed by the Africa Bureau Fertilizer Fact Sheet.</p>	<p>Confirm that FED technical staff and relevant partners are familiar with and can easily locate/access the Africa Bureau Fertilizer Fact Sheet for their reference. <u>Indicator:</u> staff and partners can quickly convey at least three (3) key concepts or best practices related to fertilizer use as reflected in the Fact Sheet</p> <p>Verify fertilizer-related training content/materials for conformance with best practices outlined in the Africa Bureau Fertilizer Fact Sheet; document in TAMIS. <u>Indicator:</u> integration of relevant fertilizer best practices.</p> <p>Field-monitor training delivery; verify conformance with relevant best practices. <u>Indicator:</u> inclusion/conveyance of relevant fertilizer best practices by facilitator/trainer.</p> <p>Survey implementation of best practices by trainees. <u>Indicator:</u> correct application of relevant fertilizer best practices among trainees.</p>	<p>Confirmation will be made in conjunction with regular environmental compliance monitoring as fertilizer-related project activities are implemented, but not less than quarterly.</p> <p>Technical review of fertilizer-related training content/materials to verify conformance with best practices will be completed not less than one week prior to delivery of related training event(s).</p> <p>Field-monitor training delivery on an intermittent basis.</p> <p>Monitoring of trainee implementation of best practices will be conducted not less than semi-annually.</p>	<p>FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document, among other issues, the implementation of fertilizer best practices as derived from the Africa Bureau Fertilizer Fact Sheet and similar resources.</p> <p>In addition to specific field-monitoring report-outs, standard FED training reports/summaries will integrate an environmental compliance dimension that assesses, among other points, effective conveyance of fertilizer best practices.</p> <p>FED will also integrate environmental compliance reporting as part of semi-annual and annual PMP-based reporting to USAID.</p>	<p>Distribution/promotion of fertilizer fact sheet among FED staff and partners:</p> <ul style="list-style-type: none"> • Input Supply Team Leader (Allan Mansfield) • Environmental Officer (Othello Nyenkan) • PUA Team Leader (Noorie Dudley) <p>Technical adaptation of fertilizer fact sheet, as needed:</p> <ul style="list-style-type: none"> • Input Supply Team Leader (Allan Mansfield); • Environmental Officer (Othello Nyenkan) • PUA Team Leader (Noorie Dudley) • County managers <p>Technical review of training materials/content:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • COP (Agnes Luz) <p>Field Monitoring:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • County M&E staff <p>Reporting:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • Environmental Compliance Specialist (Patrick Hall)

FED Component 1: Increase Agricultural Productivity – Peri-Urban Vegetable Production

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/ Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
<ul style="list-style-type: none"> ▪ on-demand soil testing and technical assistance services from MOA; also supply and provide guidance in use of fertilizers and pesticides to FED farmers ▪ improvements in post-harvest processing/marketing ▪ awareness raising (mass media [including technical information], site visits) ▪ capacity building (farmers and equipment suppliers, seed provision, business training, post-harvest storage and handling, transportation methods, negotiation) 	<p>No bio-engineered products (e.g., seeds, cuttings, etc.) may be introduced or supported by FED. The proposed use of any bio-engineered or GMO products by FED will require an amendment to this IEE and, as applicable, completion of USAID’s bio-safety review process. Additional information on USIAD Bio-safety Procedures is available here.</p> <p>The procurement or use by FED, promotion of, or training in use of pesticides, including herbicides and fungicides, is disallowed until such time that a Pesticide Evaluation Report and Safer Use Action Plan (PERSUAP) is completed pursuant to 22CFR Regulation 216.3 (b)—USAID pesticide procedures—and duly approved.</p>	<p>No bio-engineered or GMO products may be introduced or supported by FED until implementation/mitigation measures related to their potential future use are specified in the relevant IEE amendment, if any, and accompanying modified EMMP. All FED staff and partners involved in agricultural production will be advised of this restriction.</p> <p>FED may not procure, use, promote, or provide training in the use of pesticides (including herbicides and fungicides) until implementation/mitigation measures are specified in the PERSUAP and accompanying pesticides EMMP. All FED staff and partners involved in agricultural production will be advised of this restriction.</p>	<p>Overseer of this EMMP will ensure that FED staff and partners involved in agricultural production are aware of this restriction and that no bio-engineered or GMO products are introduced or supported until an IEE amendment and related documentation is completed and approved. <u>Indicator</u>: verbal or written concurrence from staff and partners regarding restriction; adherence to restriction in project implementation.</p> <p>Overseer of this EMMP will ensure that FED staff and partners involved in agricultural production are aware of this restriction. <u>Indicator</u>: verbal or written concurrence from staff and partners regarding restriction.</p>	<p>Staff and partners will be advised of restriction as part of orientation on FED environmental management, and on an ongoing basis thereafter. Monitoring of adherence to restriction will be made in conjunction with regular environmental compliance monitoring, but not less than quarterly.</p> <p>Staff and partners will be advised of restriction as part of orientation on FED environmental management, and on an ongoing basis thereafter.</p>	<p>FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document, among other issues, the implementation of BMPs in peri-urban vegetable production.</p>	<p>Advocacy of GMO + pesticide-related EMMP requirements:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • All Team Leaders • All County Managers <p>Field Monitoring of GMO + pesticide-related EMMP requirements:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • County M&E staff <p>Reporting of GMO + pesticide-related EMMP requirements:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • Environmental Compliance Specialist (Patrick Hall)
	<p>The demonstration of peri-urban vegetable production techniques (including an emphasis on low-cost irrigation technologies) shall integrate best management practices reflecting local soil conditions, climate and hydrology in order to reduce erosion (wind and water), limit potentially nutrient-rich agricultural runoff, and, for irrigation, limit farm and conveyance losses.</p>	<p>FED staff and partners will use available documentation and local knowledge and resources to determine BMPs.</p> <p>BMPs will be drawn from the <i>Environmental Guidelines for Small-Scale Activities in Africa</i> (EGSSAA)—available here—and similar technical resources.</p>	<p>Confirm that FED technical staff and relevant partners are familiar with and can easily locate/access the EGSSAA for their reference. <u>Indicator</u>: staff and partners can identify by name at least two chapters as they relate to peri-urban vegetable production.</p> <p>Field-monitor select PUA interventions to ascertain the use of BMPs or similarly appropriate NRM techniques. <u>Indicator</u>: observation of the use by FED beneficiaries of specific best</p>	<p>Confirmation will be made in conjunction with regular environmental compliance monitoring as PUA activities are implemented, but not less than quarterly.</p> <p>Field-monitoring will be completed in conjunction with regular environmental compliance monitoring as PUA activities are implemented, but not less than semi-annually.</p>		<p>Identification + integration of BMPs for peri-urban vegetable production:</p> <ul style="list-style-type: none"> • PUA Team Leader (Noorie Dudley) • County extension agents • Environmental Officer (Othello Nyenkan) <p>Field monitoring of BMP implementation:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • County M&E staff <p>Reporting:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • Environmental Compliance Specialist (Patrick Hall)

FED Component 1: Increase Agricultural Productivity – Peri-Urban Vegetable Production

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/ Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
<ul style="list-style-type: none"> ▪ enable commercial linkages (input suppliers to farmers and farmers to markets, input stocks offered on consignment) ▪ introduction of “modern transitional technologies” (e.g., treadle pumps and vegetable dryers, promote local production, establish and train reseller network) ▪ effective use of micro-credit (credit counseling and assistance for borrowers) ▪ promote enhanced vegetable cultivation in upland environments 	<p>Any demonstration of enhanced vegetable cultivation techniques in upland environments shall integrate best management practices reflecting area topography and the status (e.g., primary, secondary, plantation, etc.) and extent of adjacent forest or plant cover.</p> <p>Prior to the introduction and promotion of individual “modern transitional technologies,” a high-level technology review will be completed in order to identify and, if needed, address any worker training or protection issues required to assure safe operation. This technology review process will also identify potential adverse environmental impacts and any necessary mitigating actions. Applicable impacts may include, but are not limited to: fuel and energy efficiency, waste management implications (solid and liquid), and air quality.</p> <p>The technology review will be completed for each proposed installation by qualified FED project staff, consultants or partners (e.g., GOL, NGOs, etc.), as appropriate and prepared in brief memo form (1-2 pgs.). <u>All</u> completed technology reviews will be submitted to USAID for consideration by the COR and</p>	<p>FED will prepare the requisite technology review no less than one month prior to each proposed installation of “modern transitional technologies.” The review will be submitted to the USAID COR and MEO.</p> <p>Specific mitigating actions will be drawn from the <i>Environmental Guidelines for Small-Scale Activities in Africa</i> (EGSSAA)—available here—and similar technical resources and will be implemented consistent with this project-wide EMMP.</p> <p>Technology reviews identifying potentially significant adverse impacts (e.g., related to worker safety, air quality, or energy efficiency) may warrant additional consultation with USAID before/after submission of the technology review document.</p> <p>Technology review documentation and related correspondence and planning materials will be organized and maintained as part of FED’s environmental compliance portfolio at the Home Office.</p>	<p>practices or improved NRM techniques.</p> <p>Verify the existence and recommendations/outcomes—including potential adverse environmental impacts and mitigating actions—of the high-level technology review within TAMIS. <u>Indicator</u>: existence of complete TAMIS recordkeeping.</p> <p>Field monitor to ensure that implementation of any safeguard/mitigation measures conform with this project-wide EMMP and that the EMMP is updated to reflect the mitigation and monitoring requirements associated with “modern transitional technologies” as identified through the technology review process. <u>Indicator</u>: EMMP integrates monitoring and mitigation actions encompassed by any technology review(s); prescribed safeguards /precautions are observed in field-level implementation.</p> <p>Confirm the overall completion, organization and maintenance of review documentation and related correspondence and planning materials within TAMIS (and any other such FED project management tools, resources, applications, etc.) <u>Indicator</u>:</p>	<p>Verification will be made prior to each installation of “modern transitional technologies.”</p> <p>Field-monitoring will be completed in conjunction with regular environmental compliance monitoring, but not less than quarterly.</p> <p>Confirm recordkeeping as part of the project environmental compliance portfolio not less than semi-annually.</p>	<p>FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document, among other issues, the completion of high-level technology reviews related to the use of “modern transitional technologies” in peri-urban vegetable production activities.</p> <p>This reporting will also address installation-specific mitigation and monitoring requirements, as reflected in this and subsequent versions of the FED EMMP.</p> <p>Moreover, an Annual Environmental Compliance report will document the outcomes of this process and cumulative impact(s) on overall project implementation and local environments.</p>	<p>Preparation of technology review:</p> <ul style="list-style-type: none"> • Component 1 Lead (David Benafel) • Environmental Officer (Othello Nyenkan) • Environmental Compliance Specialist (Patrick Hall) <p>FED-internal review + approval/disapproval of technology review:</p> <ul style="list-style-type: none"> • COP (Agnes Luz) <p>Engagement with USAID, as needed:</p> <ul style="list-style-type: none"> • COP (Agnes Luz) <p>Integration of findings into FED EMMP, as needed:</p> <ul style="list-style-type: none"> • Environmental Compliance Specialist (Patrick Hall) <p>Verification of completion of technology reviews:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) <p>Field monitoring:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • County M&E staff <p>Reporting:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • Environmental Compliance Specialist (Patrick Hall)

FED Component 1: Increase Agricultural Productivity – Peri-Urban Vegetable Production

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/ Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
	<p>MEO, who will be provided two weeks to respond with any questions and/or concerns regarding the proposed installation.</p> <p>FED will furthermore ensure implementation of the safeguard/ mitigation measures identified in the technology review through integration with the project EMMP.</p> <p>The technology review shall be used as a means of ensuring farmer/operator safety and promoting ESDM despite broad variation in the types of technologies that might be considered for introduction/ promotion. All review documents will be retained as part of the project record.</p>		<p>records that correspond with reviews conducted to date and that frame activities underway.</p>			
	<p>Independent of completion of the technology review, the use of wood and charcoal fuel for “modern transitional technologies” is prohibited in areas in which deforestation is a known concern or close to protected areas.</p>	<p>Prior to the introduction or promotion of any wood- or charcoal-burning “modern transitional technologies,” FED in consultation with MOA and other partners will delineate within the target counties those areas in which deforestation is a known concern. This process will also identify potential zones of intervention proximate to protected areas.</p> <p>FED will exclude from introduction/promotion in these areas any wood- or charcoal-burning “modern transitional technologies” (e.g., vegetable or fruit dryers). This exclusion will be noted in the preparation of any technology review</p>	<p>Overseer of this EMMP will ensure that FED staff and partners involved in the installation of “modern transitional technologies” are aware of this exclusion and that no wood- or charcoal-fueled technologies will be introduced or promoted in areas in which deforestation is a known concern or close to protected areas. <u>Indicator:</u> verbal or written concurrence from staff and partners regarding this exclusion.</p> <p>Field-monitor implementation of select modern transitional technologies to verify</p>	<p>Staff and partners will be advised of restriction as part of orientation on FED environmental management, and on an ongoing basis thereafter.</p> <p>Field monitoring will be completed in conjunction with regular environmental compliance monitoring, but not less than semi-annually.</p> <p>Confirm data availability as part of the project</p>	<p>FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document, among other issues, delineation within the target counties those areas in which deforestation is a known concern, as well as the identification of potential zones of intervention proximate to protected areas.</p> <p>Annual reporting will also document the effective exclusion of wood- or</p>	<p>Advocacy of EMMP exclusion:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • All Team Leaders • All County Managers <p>Acquisition and dissemination of applicable GIS/mapping data:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • COP (Agnes Luz) • Knowledge Management (Marit Woods) <p>Field Monitoring:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • County M&E staff <p>Reporting:</p>

FED Component 1: Increase Agricultural Productivity – Peri-Urban Vegetable Production

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/ Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
	<p>No undisturbed or substantially un-degraded upland tracts shall be converted to agricultural use, specifically, vegetable production; expansion of the land area used for vegetable cultivation is restricted to rehabilitation of pre-existing agricultural land or otherwise degraded forest or plain.</p>	<p>(detailed above) that assesses the installation of a wood- or charcoal-fueled "modern transitional technology."</p> <p>Prior to commencing project interventions at a given site, FED staff (and partners, as applicable) will complete the FED Degraded Landscapes Checklist to assess the suitability of cultivation sites under consideration. This checklist will be submitted for review and concurrence by the FED Environmental Officer prior to initiating cultivation.</p>	<p>conformance with this exclusion. <u>Indicator:</u> adherence to exclusion on use of wood- or charcoal-fueled technologies in field-level implementation.</p> <p>Overseer of this EMMP will ensure the availability of effective spatial or mapping/GIS data enabling conformance with the requirements of this EMMP (i.e., that FED staff and partners can understand which areas are considered threatened by deforestation and/or close to protected areas). <u>Indicator:</u> access to suitable mapping/GIS data.</p>	<p>environmental compliance portfolio not less than semi-annually.</p>	<p>charcoal-fueled "modern transitional technologies" from these areas.</p>	<ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • Environmental Compliance Specialist (Patrick Hall)

FED Component 1: Increase Agricultural Productivity – Peri-Urban Vegetable Production (Water Quality Assurance Plan [WQAP])

Conditions (reproduced verbatim from IEE)	Specific Implementation/Mitigation Measures	Monitoring: Criteria & Frequency	Reporting Measure(s)	FED Responsible Party/Parties
<p>The establishment of new water access points for essentially irrigation demonstration purposes shall regardless be assumed to serve at least occasionally as domestic and drinking water sources, and will therefore be subject to the following conditions for the direct provision of small-scale water supply:</p> <ol style="list-style-type: none"> 1. Exclusion from protected/sensitive areas: water access points or supply facilities will not be constructed within protected areas or environmentally sensitive areas. 2. Good-practice design and operation standards must be implemented for new construction and rehabilitation works, generally consistent with USAID's <i>Environmental Guidelines for Small-Scale Activities in Africa (Water Supply & Sanitation and Small-Scale Construction chapters)</i>, available here. These standards must be specified in the EMMP—see Section 4 of this IEE. They must include: (a) siting of new wells well away from groundwater contamination sources (e.g., latrines, cesspits, dumps, pesticide stores); (b) exclusion of livestock from water points; surrounding boreholes and wells with well-drained concrete pads & in general prevention of standing water at supply points; (c) location of livestock watering points at least 10m and down-grade from supply points for household/potable water; (d) assuring quality of construction materials and design; and (e) community engagement/training in source water protection, system maintenance, and in preventing contamination during transport from point-of-use and during household storage. 3. Water quality assurance plan: FED will develop and implement a Water Quality Assurance Plan that will ensure that all new and rehabilitated USAID-funded water supplies provide safe drinking water, defined as meeting local and WHO water quality standards. <ul style="list-style-type: none"> o This Plan must be approved by the REA prior to initiation of these activities. o The plan must include and assign responsibility to FED for initial water quality testing. When feasible, the program must also set in place capacities and responsibilities to provide reasonable assurance that ongoing water quality monitoring occurs. o The standards for initial and ongoing testing—including types of contaminants for which testing 	<p>The establishment by FED of new water access points for primarily irrigation demonstration purposes will integrate spatial data to prevent construction in protected/sensitive areas.</p> <p>Actual installation and/or construction efforts will be contingent upon adherence to the following design elements, consistent with USAID's <i>Environmental Guidelines for Small-Scale Activities in Africa (Water Supply & Sanitation and Small-Scale Construction chapters)</i>, available here :</p> <ol style="list-style-type: none"> a) siting of new wells well away from groundwater contamination sources (e.g., latrines, cesspits, dumps, pesticide stores); (b) exclusion of livestock from water points; surrounding boreholes and wells with well-drained concrete pads & in general prevention of standing water at supply points; (c) location of livestock watering points at least 10m and down-grade from supply points for household/potable water; (d) assuring quality of construction materials and design; and (e) community engagement/training in source water protection, system maintenance, and in preventing contamination during transport from point-of-use and during household storage. <p>Adherence to these technical design elements will be specified as part of a technical summary of the proposed water access point installation/construction. This technical summary will require FED Home Office review and approval.</p> <p>FED will prepare and submit to USAID for REA approval a Water Quality Assurance Plan (WQAP) reflecting the conditions enumerated in the FED IEE (see column to left). <u>FED project WQAP as submitted to USAID is attached for reference—see Attachment A.</u></p> <p>The approved WQAP will be distributed to all FED staff and partners engaged in the promotion of irrigation-related interventions (demonstration and implementation) and integrated as part of overall</p>	<p>Confirm distribution of WQAP to cognizant FED staff and partners at time of REA approval. Verify current status of WQAP not less than annually thereafter and redistribute as appropriate.</p> <p>Use TAMIS to verify preparation of technical summaries for water access point installation/construction encompassing required design elements (e.g., siting, water quantity assurance, etc.) and receiving necessary Home Office review and approval not less than one week prior to the commencement of installation/construction activities.</p> <p>Field monitoring of water access point installation/construction to verify conformance with Home Office-approved technical specifications will be completed in conjunction with regular field monitoring efforts not less than quarterly.</p> <p>Field monitoring of water access points to verify effective operation and maintenance (O&M) and to fulfill WQAP requirements not less than semi-annually or as required by the WQAP, whichever is more frequent.</p> <p><u>FED project WQAP compliance template is attached for reference—see Attachment B.</u></p> <p>Confirm the completion, organization and maintenance of technical summaries and</p>	<p>FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document, among other issues, the environmentally sound establishment of new water access points and implementation of the FED WQAP, including completion of the WQAP compliance template, as appropriate.</p> <p>Moreover, an Annual Environmental Compliance report will document the outcomes of these activities and cumulative impact(s) on overall project implementation and local environments.</p> <p>FED will also integrate environmental compliance reporting as part of semi-annual and annual PMP-based reporting to USAID.</p>	<p>Preparation and revision of WQAP:</p> <ul style="list-style-type: none"> • Environmental Compliance Specialist (Patrick Hall) <p>Advocacy and distribution of WQAP:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • COP (Agnes Luz) <p>Preparation of technical summaries:</p> <ul style="list-style-type: none"> • Activity Lead • TA manager for water access point construction/installation • Environmental Officer (Othello Nyenkan) <p>FED-internal review + approval/disapproval of technical summaries:</p> <ul style="list-style-type: none"> • COP (Agnes Luz) <p>Engagement with USAID, as needed:</p> <ul style="list-style-type: none"> • COP (Agnes Luz) <p>Verification of completion of approved technology reviews:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) <p>Field monitoring of conformance with technical summaries and WQAP:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • County M&E staff <p>Reporting:</p>

FED Component 1: Increase Agricultural Productivity – Peri-Urban Vegetable Production (Water Quality Assurance Plan [WQAP])

Conditions (reproduced verbatim from IEE)	Specific Implementation/Mitigation Measures	Monitoring: Criteria & Frequency	Reporting Measure(s)	FED Responsible Party/Parties
<p>should be conducted, testing methods, testing frequency, and issues such as public access to results— should follow any applicable USAID guidance, as well as local laws, regulations and policies.</p> <ul style="list-style-type: none"> o The plan must include a response protocol in the event that the water does not meet water quality standards. o The plan must include testing for Arsenic per Guidance Cable State 98 108651. Specifically, the USAID managing team must assure that the standards and testing procedures described in “Guidelines for Determining the Arsenic Content of Ground Water in USAID-Sponsored Well Programs in Sub-Saharan Africa,” available here, are met. (Note that this guidance requires initial testing, and quarterly testing for four quarters. <i>If the program terminates in less than four quarters, remaining testing is the responsibility of the mission. Water violating the 10ppb Arsenic standard may not be supplied for public consumption.</i>) <p>4. Water quantity assurance and management: access points and facilities will be carefully sited to maximize sustainable yields and will be tested to ensure that these yields are not exceeded. Appropriate design consideration will be given to changes in future availability resulting from climate change (e.g., projected drops in water tables might suggest sinking wells or boreholes deeper, or constructing a surface water intake within a sandy riverbed/streambed).</p>	<p>activity management and oversight. Any responsibilities assigned by the WQAP to FED staff and partners will be assumed as a requirement for implementation of related water supply activities.</p> <p>FED will integrate elements of sound water quantity assurance and management in the technical specifications for water access point installation/ construction. These specifications will be included as part of the technical summary (see above) requiring FED Home Office review and approval. Technical summaries and related correspondence and planning materials will be organized and maintained as part of FED’s environmental compliance portfolio at the Home Office.</p>	<p>related correspondence and planning materials within TAMIS (and any other such FED project management tools, resources, applications, etc.) as part of the project environmental compliance portfolio not less than semi-annually.</p>		<ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • Environmental Compliance Specialist (Patrick Hall)

FED Component 1: Increase Agricultural Productivity – Goat Value Chain Interventions

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/ Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
<p>a) improved production through formation and support of producer groups and implementation of goat re-stocking schemes</p>	<ul style="list-style-type: none"> Assistance in the formation or operations of producer groups that entails training, capacity building, and/or instruction in animal husbandry and livestock production must reflect best practices as enumerated in the <i>Environmental Guidelines for Small-Scale Activities in Africa</i> (EGSSAA), available here, and in similar resources. 	<p>FED staff and partners assisting in the formation or operations of producer groups will use available documentation and local knowledge and resources to determine Best Management Practices (BMPs). BMPs will be drawn from the <i>Environmental Guidelines for Small-Scale Activities in Africa</i> (EGSSAA)—available here—and similar technical resources. The preparation and delivery of animal husbandry and livestock production-related training content must convey—by reference or verbatim—the best practices encompassed by the EGSSAA or a similarly qualified technical resource.</p>	<p>Confirm that FED technical staff and relevant partners are familiar with and can easily locate/access the EGSSAA and relevant chapter(s) for their reference. <u>Indicator:</u> staff and partners can identify by name at least two chapters as they relate to animal husbandry and livestock production. Field-monitor select goat interventions to ascertain the use of BMPs. <u>Indicator:</u> observation of the use by FED beneficiaries of specific animal husbandry and livestock production-related best practices. Verify animal husbandry and livestock production-related training content/materials for conformance with best practices outlined in the EGSSAA; document in TAMIS. <u>Indicator:</u> integration of relevant best practices. Field-monitor training delivery; verify conformance with relevant best practices. <u>Indicator:</u> inclusion/ conveyance of relevant animal husbandry and livestock production-related best practices by facilitator/trainer. Survey implementation of best practices by trainees. <u>Indicator:</u> correct application of relevant animal husbandry and livestock production-related best practices among trainees.</p>	<p>Confirmation will be made in conjunction with regular environmental compliance monitoring as goat interventions are implemented, but not less than quarterly. Field-monitoring will be completed in conjunction with regular environmental compliance monitoring as goat interventions are implemented, but not less than quarterly. Technical review of animal husbandry and livestock production-related training content/materials will be completed not less than one week prior to delivery of related training event(s). Field-monitor training delivery on an intermittent basis. Monitoring of trainee implementation of best practices will be conducted not less than semi-annually.</p>	<p>FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document, among other issues, the implementation of animal husbandry and livestock production best practices. In addition to specific field-monitoring report-outs, standard FED training reports/ summaries will integrate an environmental compliance dimension that assesses, among other points, effective conveyance of best practices in animal husbandry and livestock production. FED will also integrate environmental compliance reporting as part of semi-annual and annual PMP-based reporting to USAID.</p>	<p><u>For all goat value chain interventions:</u> Identification + integration of BMPs for all aspects of goat livestock production: <ul style="list-style-type: none"> Activity Manager (Dennis McCarthy) County extension agents Environmental Officer (Othello Nyenkan) Preparation of training content/materials: <ul style="list-style-type: none"> Activity Manager (Dennis McCarthy) County extension agents Environmental Officer (Othello Nyenkan) Review + approval/ disapproval of training content: <ul style="list-style-type: none"> COP (Agnes Luz) Field monitoring of training delivery: <ul style="list-style-type: none"> Environmental Officer (Othello Nyenkan) County M&E staff Monitoring of community/ trainee performance: <ul style="list-style-type: none"> Activity Manager (Dennis McCarthy) M&E Preparation of FED transaction record documenting the purchase and distribution of suitable goats: <ul style="list-style-type: none"> Activity Manager (Dennis McCarthy) </p>

FED Component 1: Increase Agricultural Productivity – Goat Value Chain Interventions

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/ Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
	<ul style="list-style-type: none"> ▪ Assistance to producer groups in the construction of goat shelters or any other small-scale, on-farm structures must conform to best management practices for small-scale construction in Sub-Saharan Africa, available here. ▪ The design and implementation of goat re-stocking schemes must conform to the principles of Environmentally Sound Design and Management (ESDM) and integrate the types of livestock-related best management practices enumerated in the <i>Environmental Guidelines for Small-Scale Activities in Africa</i> (EGSSAA), available here, and in similar resources. 	<p>FED staff and partners will use available documentation and local knowledge and resources to determine BMPs.</p> <p>BMPs will be drawn from the <i>Environmental Guidelines for Small-Scale Activities in Africa</i> (EGSSAA)—available here—and similar technical resources.</p> <p>FED staff and partners will use available documentation and local knowledge and resources to determine BMPs as they pertain to ESDM.</p> <p>BMPs will be drawn from the <i>Environmental Guidelines for Small-Scale Activities in Africa</i> (EGSSAA)—available here—and similar technical resources.</p>	<p>Confirm that FED technical staff and relevant partners are familiar with and can easily locate/access the EGSSAA and relevant chapter(s) for their reference. Indicator: staff and partners can identify by name at least two chapters as they relate to animal husbandry and livestock production.</p> <p>Field-monitor select goat interventions to ascertain the use of BMPs. Indicator: observation of the use by FED beneficiaries of specific animal husbandry and livestock production-related best practices.</p> <p>Confirm that FED technical staff and relevant partners are familiar with and can easily locate/access the EGSSAA and relevant chapter(s) for their reference. Indicator: staff and partners can identify by name at least two chapters as they relate to animal husbandry and livestock production.</p> <p>Field-monitor select goat interventions to ascertain the use of BMPs. Indicator: observation of the use by FED beneficiaries of specific animal husbandry and livestock production-related best practices.</p>	<p>Confirmation will be made in conjunction with regular environmental compliance monitoring as goat interventions are implemented, but not less than quarterly.</p> <p>Field-monitoring will be completed in conjunction with regular environmental compliance monitoring as goat interventions are implemented, but not less than quarterly.</p> <p>Confirmation will be made in conjunction with regular environmental compliance monitoring as goat interventions are implemented, but not less than quarterly.</p> <p>Field-monitoring will be completed in conjunction with regular environmental compliance monitoring as goat interventions are implemented, but not less than quarterly.</p>	<p>FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document, among other issues, the implementation of BMPs in small-scale construction activities.</p> <p>FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document, among other issues, the implementation of animal husbandry and livestock production best practices.</p> <p>In addition to specific field-monitoring report-outs, standard FED training reports/ summaries will integrate an environmental compliance dimension that assesses, among other points, effective conveyance of best practices in animal husbandry and livestock production.</p>	<p>Preparation of healthcare waste management plans:</p> <ul style="list-style-type: none"> • Activity Manager (Dennis McCarthy) • Environmental Officer (Othello Nyenkan) • Med. waste specialist <p>Engagement with USAID, as needed:</p> <ul style="list-style-type: none"> • COP (Agnes Luz) <p>Preparation of household-level determination of ability to support environmentally sound expansion of livestock production:</p> <ul style="list-style-type: none"> • Extension agents <p>Verification of availability of relevant compliance documentation:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) <p>Field monitoring:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • County M&E staff <p>Reporting:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • Environmental Compliance Specialist (Patrick Hall)

FED Component 1: Increase Agricultural Productivity – Goat Value Chain Interventions

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/ Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
<p>c) purchase and distribution of improved indigenous goat varieties from domestic herds</p>	<ul style="list-style-type: none"> ▪ FED efforts to purchase and distribute domestic goat stock must align with livestock production best practices as enumerated in the <i>Environmental Guidelines for Small-Scale Activities in Africa</i> (EGSSAA), available here, and in similar resources. ▪ FED must assure the health and overall suitability (age, vigor, sex, etc.) of goats prior to purchase and distribution. 	<p>FED staff and partners will use available documentation and local knowledge and resources to determine BMPs. BMPs will be drawn from the <i>Environmental Guidelines for Small-Scale Activities in Africa</i> (EGSSAA)—available here—and similar technical resources.</p> <p>FED will engage qualified livestock specialists from among project staff and partners (e.g., MOA, Samaritan’s Purse, etc.) to assess the health and overall suitability of domestic goat herds prior to each purchase and distribution.</p>	<p>Confirm that FED technical staff and relevant partners are familiar with and can easily locate/access the EGSSAA and relevant chapter(s) for their reference. <u>Indicator:</u> staff and partners can identify by name at least two chapters as they relate to animal husbandry and livestock production.</p> <p>Field-monitor select goat interventions to ascertain the use of BMPs. <u>Indicator:</u> observation of the use by FED beneficiaries of specific animal husbandry and livestock production-related best practices.</p> <p>Ensure the participation of a qualified livestock specialist to provide at minimum a verbal opinion/ concurrence regarding the health and overall suitability prior to any transaction. The verbal opinion/concurrence along with any other expert evaluation, as well as the name of the livestock specialist(s), will be referenced in the FED transaction record or other official project documentation and maintained in TAMIS. <u>Indicator:</u> complete record in TAMIS of transaction oversight by qualified specialist.</p>	<p>Confirmation will be made in conjunction with regular environmental compliance monitoring as goat interventions are implemented, but not less than quarterly.</p> <p>Field-monitoring will be completed in conjunction with regular environmental compliance monitoring as goat interventions are implemented, but not less than quarterly.</p> <p>The qualified livestock specialist will be present for each FED negotiation with goat herders. Confirm recordkeeping as part of the project environmental compliance portfolio not less than semi-annually.</p>	<p>FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document, among other issues, the purchase and distribution of improved indigenous goat varieties from domestic herds.</p> <p>FED field-monitoring report-outs will integrate an environmental compliance dimension that assesses, among other points, alignment with best practices in animal husbandry and livestock production, and adherence to quality control efforts related to goat purchase and distribution.</p>	

FED Component 1: Increase Agricultural Productivity – Goat Value Chain Interventions

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/ Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
			<p>Field-monitor select goat interventions to ascertain adherence to quality control efforts related to goat purchase and distribution. <u>Indicator</u>: purchase and distribution by FED of healthy goat stock.</p>	<p>Field-monitoring will be completed in conjunction with regular environmental compliance monitoring as goat interventions are implemented, but not less than quarterly.</p>		
<p>d) on-farm small-scale construction (e.g., fencing, goat shelters, feeders, etc.)</p>	<ul style="list-style-type: none"> The construction of goat shelters or any other structures must conform to best management practices for small-scale construction in Sub-Saharan Africa, available here. 	<p>FED staff and partners will use available documentation and local knowledge and resources to determine BMPs. BMPs will be drawn from the <i>Environmental Guidelines for Small-Scale Activities in Africa</i> (EGSSAA)—available here— and similar technical resources.</p>	<p>Confirm that FED technical staff and relevant partners are familiar with and can easily locate/access the EGSSAA and relevant chapter(s) for their reference. <u>Indicator</u>: staff and partners can identify by name at least two best practices related to small-scale construction.</p> <p>Field-monitor select goat interventions to ascertain the use of BMPs. <u>Indicator</u>: observation of the use by FED beneficiaries of specific small-scale construction-related best practices.</p>	<p>Confirmation will be made in conjunction with regular environmental compliance monitoring as goat interventions are implemented, but not less than quarterly.</p> <p>Field-monitoring will be completed in conjunction with regular environmental compliance monitoring as goat interventions are implemented, but not less than quarterly.</p>	<p>FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document, among other issues, the implementation of BMPs in small-scale construction activities.</p>	
<p>e) training of “Animal Health Auxiliaries”</p>	<ul style="list-style-type: none"> Related training curricula must include a component or module on appropriate environmental management of veterinary health care waste, including handling, treatment, and disposal. Such instruction will be drawn from existing best management practices, as enumerated in the <i>Environmental Guidelines for Small-Scale Activities in Africa</i> (EGSSAA), available here, and similar resources. 	<p>FED will oversee preparation of a training module or component that provides instruction in the handling, treatment, and disposal of veterinary health care waste. The module/component will be 1-2 hrs. in length, will emphasize sound environmental management of FED-supported animal health initiatives, and will incorporate at least one “hands-on” or practical exercise.</p>	<p>Verify the adequacy and accuracy of the veterinary health care waste module for Animal Health Auxiliaries; document technical review and findings/conclusions in TAMIS. <u>Indicator</u>: accurate integration of key themes related to handling, treatment, and disposal of veterinary health care waste.</p> <p>Field-monitor training delivery; verify the accuracy and integrity of the veterinary health care waste module and</p>	<p>A single technical review will be completed not less than one week prior to delivery of the first related training session. (Changes to the approved module will require subsequent technical review.)</p> <p>Field-monitor training delivery on an intermittent basis.</p>	<p>FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document, among other issues, the preparation, integration and delivery of the veterinary health care waste training module.</p> <p>In addition to specific field-monitoring report-outs, standard FED training reports/summaries will integrate an environmental compliance dimension that assesses, among other points,</p>	

FED Component 1: Increase Agricultural Productivity – Goat Value Chain Interventions

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/ Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
		<p>The module/component will be integrated as part of the overall training/capacity building curriculum that is developed for and delivered to Animal Health Auxiliaries.</p>	<p>corresponding instruction. <u>Indicator:</u> inclusion and effective conveyance of relevant technical themes by facilitator/trainer. Survey implementation of best practices by trainees. <u>Indicator:</u> sound environmental management of FED-supported animal health initiatives.</p>	<p>Monitoring of trainee implementation of best practices will be conducted not less than semi-annually.</p>	<p>effective conveyance of the concepts and practices of appropriate environmental management of veterinary health care waste.</p>	
<p>g) policy development and promotion, including formulation of a national livestock policy and support for regional interest group(s)</p>	<ul style="list-style-type: none"> ▪ FED policy development initiatives shall include a stakeholder review process through which a wide range of parties and interests may comment and provide feedback on draft policy guidance. The results of this stakeholder review process shall be synthesized and shared as part of subsequent iterations so as to engender confidence in an inclusive, transparent policymaking effort. ▪ FED policy guidance shall explicitly address the critical linkage between environmental management and livestock production and frame the use of environmental best practices as central to long-term success of goat production efforts. 					
<p>h) technical training and capacity building for County-level MOA livestock officers</p>	<ul style="list-style-type: none"> ▪ Technical training and capacity building curricula must encompass best practices related to livestock production and animal husbandry. Such guidance 	<p>FED technical staff will oversee the development of training- and capacity building-related materials for County-level MOA livestock officers to ensure they</p>	<p>Verify the adequacy and accuracy of the training curriculum and supporting materials; document technical review and findings/ conclusions in TAMIS.</p>	<p>A technical review will be completed not less than two week prior to delivery of the first training event for County-level MOA livestock officers. Subsequent</p>	<p>FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document, among other issues,</p>	

FED Component 1: Increase Agricultural Productivity – Goat Value Chain Interventions

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/ Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
	<p>may be drawn from the <i>Environmental Guidelines for Small-Scale Activities in Africa</i> (EGSSAA) (available here) and similar resources.</p> <ul style="list-style-type: none"> ▪ For MOA livestock officers involved in the construction of goat shelters, fencing, feeders, or other on-farm infrastructure, technical training and capacity building materials/content will encompass best management practices for small-scale construction in Sub-Saharan Africa. Such guidance may be drawn from the <i>Environmental Guidelines for Small-Scale Activities in Africa</i> (EGSSAA) (available here) and similar resources. 	<p>incorporate appropriate best management practices.</p> <p>FED will oversee preparation of a brief module (approx. one (1) hour in length; no more than 15 PowerPoint slides) encompassing best management practices related to the small-scale construction of on-farm facilities.</p> <p>This module will be integrated as part of the overall technical training and capacity building for County-level MOA livestock officers when such training is intended to enhance the</p>	<p><u>Indicator</u>: accurate integration of best practices related to livestock production and animal husbandry.</p> <p>Field-monitor training delivery; verify the accuracy and integrity of best practices related to livestock production and animal husbandry and corresponding instruction.</p> <p><u>Indicator</u>: inclusion and effective conveyance of relevant technical themes and best practices by facilitator/trainer.</p> <p>Survey implementation of relevant best practices by trainees. <u>Indicator</u>: correct application of relevant animal husbandry and livestock production best practices among trained MOA livestock officers</p> <p>Verify the adequacy and accuracy of the small-scale construction module for County-level MOA livestock officers; document technical review and findings/ conclusions in TAMIS.</p> <p><u>Indicator</u>: accurate integration of key themes/best practices related to construction of small-scale on-farm infrastructure.</p> <p>Field-monitor training delivery; verify the accuracy and integrity of the small-scale construction module and corresponding instruction</p>	<p>technical reviews will be completed not less than once annually thereafter.</p> <p>Field-monitor training delivery on an intermittent basis.</p> <p>Monitoring of trainee implementation of best practices will be conducted not less than semi-annually.</p> <p>A single technical review will be completed not less than one week prior to delivery of the first related training event. (Changes to the approved module will require subsequent technical review.)</p> <p>Field-monitor training delivery on an intermittent basis.</p>	<p>technical instruction for County-level MOA livestock officers.</p> <p>In addition to specific field-monitoring report-outs, standard FED training reports/summaries will also integrate an environmental compliance dimension that assesses, among other points, effective conveyance of best practices as related to livestock production and animal husbandry, and as related to on-farm small-scale construction.</p>	

FED Component 1: Increase Agricultural Productivity – Goat Value Chain Interventions

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/ Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
		livestock officers' technical expertise in on-farm infrastructure.	<p><u>Indicator</u>: inclusion and effective conveyance of relevant technical themes by facilitator/trainer.</p> <p>Survey implementation of best practices by trainees.</p> <p><u>Indicator</u>: correct application of relevant small-scale construction best practices among trained MOA livestock officers.</p>	Monitoring of trainee implementation of best practices will be conducted not less than semi-annually.		
i) capacity building and training for selected households (e.g., lead farmers, new goat farmers under pass-on scheme, etc.)	<ul style="list-style-type: none"> ▪ FED will qualify potential recipients of household-level training and capacity building efforts as possessing the means and express desire to expand goat production in an environmentally sound fashion and in conformance with accepted best management practices. ▪ Training and capacity building curricula, content, and/or 	<p>FED technical staff will verbally brief prospective households on the principles of environmentally sound livestock production and animal husbandry and the project's commitment to this development approach.</p> <p>Technical staff will also observe current practices at the household level and assess resources (human + financial) for the implementation of best management practices.</p>	<p>Document as part of the project record that households selected to benefit from capacity building and training activities have met the threshold for participation in terms of possessing the means and express desire to expand goat production in an environmentally sound fashion. <u>Indicator</u>: project records that match household-level training and capacity building efforts to date and that accurately frame activities underway.</p> <p>Field-monitor select goat interventions to ascertain the effectiveness of the qualification process for households participating in capacity building and training activities. <u>Indicator</u>: evidence of environmentally sound livestock production and animal husbandry among selected/ participating households.</p> <p>Verify the adequacy and accuracy of the training</p>	<p>Confirm recordkeeping as part of the project environmental compliance portfolio not less than semi-annually.</p> <p>Monitoring of participating households select will be performed not less than quarterly</p>	<p>FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document, among other issues, capacity building and training for selected households.</p> <p>In addition to specific field-monitoring report-outs, standard FED training reports/summaries will also integrate an environmental compliance dimension that assesses, among other points, effective conveyance of best practices related to livestock production and animal husbandry and the implementation by FED of an effective screening process for participating households.</p>	

FED Component 1: Increase Agricultural Productivity – Goat Value Chain Interventions

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/ Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
	<p>materials must encompass best practices related to livestock production and animal husbandry. Such guidance may be drawn from the <i>Environmental Guidelines for Small-Scale Activities in Africa</i> (EGSSAA) (available here) and similar resources.</p>	<p>FED technical staff will oversee the development of training- and capacity building-related materials for selected households to ensure they incorporate appropriate best management practices.</p>	<p>curriculum and supporting materials; document technical review and findings/ conclusions in TAMIS. <u>Indicator</u>: accurate integration of best practices related to livestock production and animal husbandry.</p> <p>Field-monitor training delivery; verify the accuracy and integrity of best practices related to livestock production and animal husbandry and corresponding instruction. <u>Indicator</u>: inclusion and effective conveyance of relevant technical themes by facilitator/trainer.</p> <p>Survey implementation of relevant best practices by trainees. <u>Indicator</u>: correct application of relevant animal husbandry and livestock production-related best practices among trained households.</p>	<p>Review will be completed not less than two week prior to delivery of the first training event for selected households. Subsequent technical reviews will be completed not less than once annually thereafter.</p> <p>Field-monitor training delivery on an intermittent basis.</p> <p>Monitoring of trainee implementation of best practices will be conducted not less than semi-annually.</p>		
<p>j) goat vaccination activities, including support for national-level campaigns</p>	<ul style="list-style-type: none"> FED staff and partners directly involved in goat vaccination efforts must receive a formal briefing in the appropriate environmental management of veterinary health care waste, including handling, treatment, and disposal. Such instruction will be drawn from existing best management practices, as enumerated in the <i>Environmental Guidelines for Small-Scale Activities in Africa</i> (EGSSAA), available here, and similar resources. 	<p>FED will oversee preparation of a stand-alone module providing instruction in the handling, treatment, and disposal of veterinary health care waste as it relates to vaccination activities.</p> <p>The module will be 1- 2 hrs. in length, will emphasize sound environmental management of FED-supported animal health initiatives, and will incorporate at least one “hands-on” or practical exercise.</p> <p>The module will be delivered by a technical expert to all FED</p>	<p>Verify the adequacy and accuracy of the veterinary health care waste briefing for staff and partners directly involved in goat vaccination efforts; document technical review and findings/ conclusions in TAMIS. <u>Indicator</u>: accurate integration of best practices related to veterinary health care waste, including handling, treatment, and disposal.</p> <p>Field-monitor vaccination efforts; verify the accuracy and relevance of the veterinary</p>	<p>A technical review will be completed not less than two week prior to commencement of field activities. Changes to the approved briefing module will require subsequent technical review.</p> <p>Field monitoring will be conducted in conjunction with regular environmental</p>	<p>FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document, among other issues, goat vaccination activities.</p> <p>Field-monitoring report-outs will integrate an environmental compliance dimension that assesses, among other points, effective conveyance of the concepts and practices of appropriate environmental management of veterinary health care waste and implementation of</p>	

FED Component 1: Increase Agricultural Productivity – Goat Value Chain Interventions

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/ Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
	<p>The briefing will be delivered by a qualified veterinary or health care professional.</p> <ul style="list-style-type: none"> FED will prepare and ensure implementation of a health care waste management plan for each vaccination-related initiative (i.e., single national campaign, ongoing County effort, etc.) supported with, or using FED resources. The plan will be developed in consultation with partner entities, as appropriate. The plan will conform to existing best management practices and define processes for the handling, treatment, and disposal of vaccination-related veterinary health waste. <p>All individual health care waste management plans will be submitted to USAID for consideration by the COR and MEO, who will be provided two weeks to respond with any questions and/or concerns regarding the proposed management approach and supporting processes.</p>	<p>staff and partners prior to direct involvement in goat vaccination efforts.</p> <p>FED will prepare the subject health care waste management plan following consultation with partner entities, if appropriate, and ensure the integration of best management practices for the handling, treatment, and disposal of vaccination-related veterinary health waste.</p> <p>A copy of the subject health care waste management plan will be made available to all FED staff and partners directly involved in goat vaccination efforts and the plan will be referenced in the team briefing exercise (see above).</p>	<p>health care waste module and corresponding instruction. <u>Indicator</u> application of relevant best practices.</p> <p>Confirm preparation of the subject health care waste management plan; proceed with internal review/ approval by the FED goat value chain technical manager and FED Environmental Officer prior to submission to USAID. <u>Indicator</u>: existence of internally approved health waste management plan suitable for submission to USAID.</p> <p>Monitor vaccination efforts; verify implementation and effectiveness of the health care waste management plan(s). <u>Indicator</u>: environmentally sound handling, treatment, and disposal of vaccination-related veterinary health waste.</p>	<p>compliance monitoring, but not less than quarterly.</p> <p>Confirm plan preparation not less than one month prior to the commencement of field activities. Changes to the approved plan will require subsequent technical review and resubmission to USAID.</p> <p>Monitor vaccination efforts not less than quarterly.</p>	<p>individual health care waste management plans.</p>	
<p>k) improved supply chain for veterinary pharmaceuticals and nutritional supplements, including stocking of rural outlets/stores and capacity</p>	<ul style="list-style-type: none"> Technical training and capacity building curricula, materials, and/or content for goat pharmacy technicians must include a section on environmental management of veterinary health care waste, including handling, 	<p>FED will oversee preparation of a training module that provides instruction in the handling, treatment, and disposal of veterinary health care waste.</p> <p>The module will be 1-2 hrs. in length, will emphasize sound environmental management of</p>	<p>Verify the adequacy and accuracy of the veterinary health care waste module for goat pharmacy technicians; document technical review and findings/conclusions in TAMIS. <u>Indicator</u>: accurate integration of best practices related to</p>	<p>A technical review will be completed not less than one week prior to commencement of the first related capacity building activity. Changes to the approved module will</p>	<p>FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document, among other issues, efforts to improve the supply chain for veterinary pharmaceuticals.</p>	

FED Component 1: Increase Agricultural Productivity – Goat Value Chain Interventions

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/ Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
development for goat pharmacy technicians	<p>treatment, and disposal. Such instruction will be drawn from existing best management practices, as enumerated in the <i>Environmental Guidelines for Small-Scale Activities in Africa</i> (EGSSAA), available here, and similar resources. Further, training on this topic will emphasize the communication and/or conveyance of key principles to farmers and other potential “customers” of technicians’ pharmaceutical-derived services/advice.</p> <ul style="list-style-type: none"> ▪ FED will prepare and ensure implementation of a health care waste management plan for each stocking initiative (e.g., single store/outlet, or groups of stores/outlets under a combined effort). Each plan will be developed in consultation with partner entities/individuals (e.g., local co-operative, store owner, etc.). The plan will conform to existing best management practices and define processes for the handling, treatment, and disposal of related veterinary health waste, including unused pharmaceuticals and 	<p>FED-supported animal health initiatives, and will incorporate at least one “hands-on” or practical exercise. The module will be integrated as part of the overall training/capacity building curriculum that is developed for and delivered to goat pharmacy technicians.</p> <p>FED will prepare the subject health care waste management plan following consultation with partner entities, if appropriate, and ensure the integration of: a) best management practices for the handling, treatment, and disposal of veterinary health waste, including unused pharmaceuticals and nutritional supplements; and (b) appropriate and accurate themes/messages for the community information component.</p> <p>A copy of the subject health care waste management plan will be made available to all FED staff and partners directly</p>	<p>veterinary health care waste management.</p> <p>Field-monitor training and capacity building efforts; verify the accuracy and integrity of the veterinary health care waste module and corresponding instruction. <u>Indicator</u> inclusion and effective conveyance of relevant technical themes by facilitator/trainer.</p> <p>Survey implementation of relevant best practices by trainees. <u>Indicator</u>: effective environmental management of veterinary health care waste, including handling, treatment, and disposal among trained goat pharmacy technicians.</p> <p>Confirm preparation of the subject health care waste management plan; proceed with internal review/ approval by the FED goat value chain technical manager and FED Environmental Officer prior to submission to USAID. <u>Indicator</u>: existence of internally approved health waste management plan suitable for submission to USAID.</p> <p>Monitor supply chain efforts; verify implementation and effectiveness of the health care waste management plan(s). <u>Indicator</u>: environmentally sound</p>	<p>require subsequent technical review.</p> <p>Field-monitor training delivery on an intermittent basis.</p> <p>Monitoring of trainee implementation of best practices will be conducted not less than semi-annually.</p> <p>Confirm plan preparation not less than one month prior to the commencement of field activities. Changes to the approved plan will require subsequent technical review and resubmission to USAID.</p> <p>Monitor supply chain efforts not less than quarterly.</p>	<p>In addition to specific field-monitoring report-outs, standard FED training reports/summaries will integrate an environmental compliance dimension that assesses, among other points, effective conveyance of the concepts and practices of appropriate environmental management of veterinary health care waste. Field report outs will also address the implementation of individual health care waste management plans.</p>	

FED Component 1: Increase Agricultural Productivity – Goat Value Chain Interventions

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/ Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
	<p>nutritional supplements. Each plan will also specify manner in which key principles will be communicated or otherwise conveyed to consumers of such products.</p> <p><u>All</u> individual health care waste management plans will be submitted to USAID for consideration by the COR and MEO, who will be provided two weeks to respond with any questions and/or concerns regarding the proposed management approach and supporting processes.</p>	<p>involved in veterinary supply chain efforts and will be referenced in related technical training and capacity building for goat pharmacy technicians (see above).</p>	<p>handling, treatment, and disposal of vaccination-related veterinary health waste and communication of key principles to consumers.</p>			
<p>l) promote expanded delivery of private veterinary services</p>	<ul style="list-style-type: none"> ▪ Technical assistance and guidance made available to individual private-sector providers (veterinarians, paravets, etc.) for the purpose of expanding the overall availability of veterinary services shall integrate training in environmental management of veterinary health care waste, including handling, treatment, and disposal, as well as guidance on the safe use of veterinary pharmaceuticals in general over the full product lifecycle, including transport, storage, mixing and disposal. Such instruction will be drawn from existing best management practices, as enumerated in the Environmental Guidelines for Small-Scale Activities in Africa (EGSSAA), available here, and similar resources. 					

FED Component 1: Increase Agricultural Productivity – Goat Value Chain Interventions

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/ Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
m) installation of livestock watering facilities, including establishment of water access points	<ul style="list-style-type: none"> ▪ The construction of watering facilities or any other structures must conform to best management practices for small-scale construction in Sub-Saharan Africa, available here. 1. Adherence to requirements and protocols established in the FED Water Quality Assurance Plan (WOAP). 2. Exclusion from protected/sensitive areas— water access points or supply facilities will not be constructed within protected areas or environmentally sensitive areas. 3. Good-practice design and operation standards must be implemented for new construction and rehabilitation works, generally consistent with USAID’s Environmental Guidelines for Small-Scale Activities in Africa (Water Supply & Sanitation and Small-Scale Construction chapters). These standards must be specified in the FED EMMP, and must include: <ul style="list-style-type: none"> a) siting of new wells well away from groundwater contamination sources (e.g. latrines, cesspits, dumps, pesticide stores); b) surrounding boreholes and wells with well-drained concrete pads & in general prevention of 					

FED Component 1: Increase Agricultural Productivity – Goat Value Chain Interventions

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/ Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
	<p>standing water at supply points;</p> <p>c) location of livestock watering points down-grade from supply points;</p> <p>d) assuring quality of construction materials and design; and</p> <p>e) stakeholder engagement/training in source water protection, system maintenance, and in preventing contamination.</p> <ul style="list-style-type: none"> ▪ Water quantity assurance and management—access points and facilities will be carefully sited to maximize sustainable yields. Appropriate design consideration will be given to changes in future availability resulting from climate change (e.g., projected drops in water tables might suggest sinking wells or boreholes deeper, or constructing a surface water intake within a sandy riverbed/streambed). 					

FED Component 2: Stimulate Private Enterprise

Activity	Conditions (reproduced verbatim from IEE)	Specific Implementation/ Mitigation Measures	Monitoring: Mode + Indicators	Monitoring: Timing/Frequency	Reporting Measure(s)	FED Responsible Party/Parties
<p>ii. Increase access to credit, business development and financial management services; includes building lenders' institutional capacity and orientation toward agricultural loans; expanding borrowers' business skills and financial literacy; identify capital requirements (e.g., production equipment [tillers, thrashers, etc.], packaging); loan officer training</p>	<p>Capacity building and training activities for financial institutions and lenders serving the agricultural market must include instruction in environmental due diligence to be applied in the assessment of loan applications and provision of financing.</p>	<p>FED technical staff will develop a brief module (approx. one (1) hour in length; no more than 15 PowerPoint slides) providing instruction in environmental due diligence. This module will be integrated as part of the overall training/capacity building curriculum that is developed for and delivered to financial institutions and lenders serving the agricultural market.</p>	<p>Verify the adequacy and accuracy of the environmental due diligence module for financial institutions and lenders; document technical review and findings/ conclusions in TAMIS. <u>Indicator</u>: accurate integration of environmentally sound design and management themes for the ag. sector.</p> <p>Field-monitor training delivery; verify the accuracy and integrity of the environmental due diligence module and corresponding instruction.. <u>Indicator</u>: inclusion and effective conveyance of relevant technical themes and best practices by facilitator/trainer.</p> <p>Survey implementation of key aspects of environmental due diligence among trainees. <u>Indicator</u>: application of basic environmental screening criteria among participating financial institutions and lenders.</p>	<p>A technical review of the environmental due diligence module will be completed not less than one week prior to delivery of the first related training event. Changes to the approved module will require subsequent technical review.</p> <p>Field-monitor training delivery on an intermittent basis.</p> <p>Monitoring of trainee implementation of best practices will be conducted not less than semi-annually.</p>	<p>FED will prepare and submit to USAID a stand-alone quarterly Environmental Compliance report. This report will be easily cross-referenced with the EMMP and will document, among other issues, the preparation, integration and delivery of the environmental due diligence training module.</p> <p>In addition to specific field-monitoring report-outs, standard FED training reports/summaries will integrate an environmental compliance dimension that assesses, among other points, effective conveyance of the concepts and practices of environmental due diligence as they relate in an agricultural financing/lending scenario.</p> <p>FED will also integrate environmental compliance reporting as part of semi-annual and annual PMP-based reporting to USAID.</p>	<p>Preparation of training module:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • Environmental Compliance Specialist (Patrick Hall) <p>Review + approval/ disapproval of training module:</p> <ul style="list-style-type: none"> • Component 2 Lead (Melanie Bittle) • Chief of Party (Agnes Luz) <p>Field monitoring of training delivery:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • County M&E staff <p>Monitoring of lender performance:</p> <ul style="list-style-type: none"> • Component 2 Lead (Melanie Bittle) • M&E <p>Reporting:</p> <ul style="list-style-type: none"> • Environmental Officer (Othello Nyenkan) • Environmental Compliance Specialist (Patrick Hall)
<p>General implementation conditions (Section 4 of the IEE) are addressed within each activity & thus are not treated in a separate section</p>						

EMMP Attachment A: FED Project Water Quality Assurance Plan (WQAP)

Revision: 26 April 2012

This Water Quality Assurance Plan (WQAP) is prepared in conformance with the Liberia FED project Initial Environmental Examination (IEE) (version date: 11 April 2012), which specifies that such a plan will be developed as a condition for the establishment of new water access points. The WQAP condition—one of four IEE conditions governing this type of activity—states:

The establishment of new water access points for essentially irrigation demonstration purposes shall regardless be assumed to serve at least occasionally as domestic and drinking water sources, and will therefore be subject to the following **conditions** for the **direct provision of small-scale water supply**:

- Water quality assurance plan: FED will develop and implement a Water Quality Assurance Plan that will ensure that all new and rehabilitated USAID-funded water supplies provide safe drinking water, defined as meeting local and WHO water quality standards.
 - This Plan must be approved by the REA prior to initiation of these activities.
 - The plan must include and assign responsibility to FED for initial water quality testing. When feasible, the program must also set in place capacities and responsibilities to provide reasonable assurance that ongoing water quality monitoring occurs.
 - The standards for initial and ongoing testing— including types of contaminants for which testing should be conducted, testing methods, testing frequency, and issues such as public access to results— should follow any applicable USAID guidance, as well as local laws, regulations and policies.
 - The plan must include a response protocol in the event that the water does not meet water quality standards.
 - The plan must include testing for Arsenic per Guidance Cable State 98 108651. Specifically, the USAID managing team must assure that the standards and testing procedures described in “Guidelines for Determining the Arsenic Content of Ground Water in USAID-Sponsored Well Programs in Sub-Saharan Africa,” available [here](#), are met. (Note that this guidance requires initial testing, and quarterly testing for four quarters. *If the program terminates in less than four quarters, remaining testing is the responsibility of the mission. Water violating the 10ppb Arsenic standard may not be supplied for public consumption.*)¹

In order to implement the conditions prescribed here, FED will undertake the following activities in conjunction with the establishment of all new water access points, or the rehabilitation of existing water access points:

¹ All contractors, grantees or cooperative agreement groups must test for arsenic to assure that the beneficiaries of USAID-sponsored well drilling programs are supplied with water that meets U.S. Environmental Protection Agency (USEPA) Arsenic Rule criteria. Additional information on the USEPA Arsenic Rule is available [here](#).

1. **Initial Water Quality Testing.** At the time of the installation/establishment and/or rehabilitation of the water access point, FED will complete the following water quality tests:
 - a. **Arsenic.** In compliance with Guidance Cable State 98 108651, FED will test groundwater-sourced water access points for inorganic arsenic at a level not to exceed 10 ppb (10 micrograms/liter [.01 mg/l]). Following completion of the well installation/construction phase, the new or rehabilitated well will be pumped and tested, with samples taken once water that is representative of the aquifer is found (i.e., once equilibrium conditions have been established rather than stagnant water around the well, or water that has been affected by installation or drilling). Initial arsenic testing will be completed using low-cost field test kit technology, which FED will obtain from an overseas vendor.²
 - b. **Total Coliform.** FED will test all new or rehabilitated water access points (groundwater- *and* surface water-sourced) for no detectable fecal coliform in any 100 ml sample. Initial coliform testing will be completed using either:
 - i. Low-cost field test kits, which FED will obtain from an overseas vendor; or
 - ii. Laboratory analysis, pending confirmation of adequate and available facilities.
2. **Water Quality Monitoring.** FED will monitor water quality at water access points established or rehabilitated by the project, testing for the following contaminants at stated intervals:
 - a. **Arsenic.** In compliance with Guidance Cable State 98 108651, FED will monitor groundwater-sourced water access points for inorganic arsenic at a level not to exceed 10 ppb (10 micrograms/liter [.01 mg/l]). Following the initial water quality test, FED will sample groundwater for inorganic arsenic not less than once per quarter for a minimum of four (4) quarters. Arsenic monitoring will be completed using the same technology and sampling method as the initial water quality test.
 - b. **Total Coliform.** FED will monitor all new or rehabilitated water access points (groundwater- *and* surface water-sourced) for no detectable fecal coliform in any 100 ml sample using a comparable technology and sampling method as the initial water quality test. Total coliform monitoring will be completed at least once every six months as long as the water point remains accessible as a source of drinking water or for domestic purposes.
3. **Response Protocol.** If the initial water quality testing or at any time the water quality monitoring indicate that contaminant levels exceed the thresholds established in this WQAP, FED will take the following actions:
 - a. **If arsenic levels are exceeded.** If field test results indicate inorganic arsenic levels greater than 10 ppb (10 micrograms/liter [.01 mg/l]), and FED wishes to continue use of the groundwater-sourced access point being sampled, FED will submit a sample to a qualified laboratory for analysis. The laboratory selected must be one approved either the USAID/West Africa Regional Environmental Advisor (REA) or USAID/Liberia Mission Environmental Officer (MEO). If the selected laboratory confirms the presence of inorganic arsenic in excess of 10 ppb, FED shall disassemble the water access point or otherwise prevent groundwater withdrawal. FED may

² At current prices, FED can complete arsenic water quality field testing for approximately \$1 USD per sample. Field test kits from Hach (available [here](#)) are approved by USAID to meet arsenic water quality testing requirements. Other examples of low-cost arsenic field test kits include the QUANTOFIX® Arsenic 10 kit (available [here](#)). FED will verify with USAID any non-Hach products/kits to meet arsenic testing/monitoring requirements prior to use.

alternatively opt to bypass laboratory analysis, in which case the project will disassemble the water access point or otherwise prevent groundwater withdrawal based solely on the indicative field test results.

- b. **If fecal coliform is detected.** If test results indicate the presence of fecal coliform, and FED wishes to continue use of the water access point being sampled, FED will submit a sample for (re) testing by a qualified laboratory. The laboratory selected must be one approved either the USAID/West Africa Regional Environmental Advisor (REA) or USAID/Liberia Mission Environmental Officer (MEO). If the presence of fecal coliform is confirmed through laboratory (re) testing, FED will ensure that the sampled water access point is restricted to non-potable, non-domestic uses only (i.e., that water is used for irrigation purposes only).
- 4. **FED Responsible Parties.** The following individuals/named positions are responsible for overseeing implementation the FED project WQAP.
 - a. Agnes Luz/FED Chief of Party (COP)—The COP has overall responsibility for ensuring that the project implements the WQAP and that FED complies with all IEE conditions and environmental mitigation and monitoring requirements.
 - b. FED Team Leaders—Individual Team Leaders (e.g., Rice, Vegetable, Goats, etc.) will have primary responsibility for ensuring that this WQAP is implemented as it relates to project activities under their direct supervision. Team Leaders may delegate certain WQAP-related tasks (e.g., monitoring), but will retain responsibility for their completion.
 - c. FED Environmental Officer—The Environmental Officer will support—but not supplant—project staff in the day-to-day fulfillment of environmental management activities, including compliance efforts such as implementation of the WQAP. This position also supports project reporting and facilitates coordination of environment-related duties.
 - d. Patrick Hall/FED Environmental Compliance Specialist—The Environmental Compliance Specialist provides guidance on USAID Environmental Procedures and assists with the design of specific FED interventions, helping to identify environmentally sound alternatives and recommending specific mitigation and risk management approaches.
- 5. **Reporting and Recordkeeping.** Reporting on implementation of the WQAP will be completed as part of overall FED environmental compliance reporting to USAID, as specified in the project PMP. All documentation generated in support of this WQAP will be retained as part of the FED project record, and provided to USAID at its request. This includes technical specifications for the establishment, installation or rehabilitation of water access points, as well as monitoring logs and similar compliance records.

EMMP Attachment B: Water Quality Assurance Plan (WQAP) Compliance Template

Revision: 26 April 2012

General Information on Water Access Point

Type: _____
(describe system)

Location: _____
(village/community; include GPS coordinates)

In-Service Date: _____
(date construction/installation/rehabilitation completed)

Using the Compliance Template

- Complete and retain this document as a record of water quality testing and monitoring
- Ensure template remains current with ongoing results.
- Additional instructions tying this to TAMIS or other internal processes/controls.

Initial Water Quality Testing:

Arsenic (as applicable)

Sample Date	Reading	Test Method	Initials	Notes / Action Taken

Total Coliform

Sample Date	Reading	Test Method	Initials	Notes / Action Taken

Water Quality Monitoring

Arsenic (as applicable)

Scheduled Tests	Sample Date	Reading	Test Method	Initials	Notes / Action Taken
3-month/1 st Quarterly					
6-month/2 nd Quarterly					
9-month/3 rd Quarterly					
12-month/4 th Quarterly					

Total Coliform

Scheduled Tests	Sample Date	Reading	Test Method	Initials	Notes / Action Taken
6-month					
12-month					
18-month					
24-month					
32-month					

(attach additional monitoring record if needed)

Record of Response Actions (per WQAP Response Protocol)

Action date	Response Trigger	FED Responsible Party Notified (see WQAP)	Initials	Pending Action

(attach additional records if needed)

EMMP Attachment C: FED Environmental Management Checklist – Degraded Landscapes

Instructions: Use this checklist to help identify if a particular area of land can be classified as ‘degraded.’ Degraded means that the land is **not** in an untouched natural condition—there is evidence of regular human activity on the land, currently or in the past.

Please complete this checklist to determine if the area of land in question is degraded or non-degraded. This information will allow FED to implement activities that are environmentally sustainable and that comply with certain project requirements.

Location Evaluated (Community + GPS coordinates): _____

Date of Evaluation: _____

Prepared by: _____

Information Sources (circle all that apply): direct observation / individual interview(s) /
community or group interview /
second-hand information

Checklist Question	Yes	No	Un- certain	Notes/Explanation
	(Select One)			
Is the land currently being farmed or used to raise livestock?				
If not currently being cultivated, has the land been farmed or used to raise livestock in the past? If yes, how long ago?				
Is the land used regularly for any other purpose? If yes, what is it used for?				
Is the land used for hunting or fishing?				
Is there a road, trail or footpath that passes through the land? If yes, is it used all year or seasonally?				
Is the land used to collect firewood or other products?				
Are there any structures or buildings on the land?				
Was the land used in the past for any other purpose? If yes, what purpose?				
Has the land ever been cleared or burned?				
Has the terrain been altered through leveling or any type of earthworks?				

- Please direct questions on this checklist to a FED County Manager or the FED Environmental Officer
- Please submit the completed checklist to the FED Environmental Officer for review and concurrence.