U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT
VIETNAM MISSION

INITIAL ENVIRONMENTAL EXAMINATION (IEE)

Dioxin Remediation at Bien Hoa Airbase Area Project

Project/Activity Data

Strategic Objective: Economic Growth/Environment/Clean Productive Environment

Project Name: Dioxin Remediation at Bien Hoa Airbase Area Project

Originating Office: USAID/Vietnam

Country/Region: Vietnam/Asia

Start date: April 2019  End date: December 2024

LOP Amount: $183,000,000

IEE Prepared by: Cuong Nguyen and Anthony Kolb, USAID Vietnam

Date: 05/03/2019

IEE Amendment (Y/N): No.

Climate Change:

[ ] GCC/Adaptation  [ ] GCC/Mitigation  [X] Climate Change
Vulnerability Analysis Adaptation / Mitigation Measures: See Attached Climate Risk Management Summary Table

Environmental Action Recommended:

Categorical Exclusion: ☒  Deferral:
Positive Determination: ☒  Negative Determination:
Exemption:  ☐  Neg. Deter. with Conditions:  ☐
I. BACKGROUND AND PROJECT DESCRIPTION

I.1. Background

The Bien Hoa Airbase area is one of three major dioxin contamination hotspots in Vietnam, according to studies completed in the 1990's. Bien Hoa, along with Phu Cat, and Danang Airports, were used by the United States (U.S.) military for the import, storage, and loading of Agent Orange between 1961 and 1971. In 2007, the U.S. Congress began appropriating funds to USAID for dioxin-remediation activities in Vietnam. USAID and the Government of Vietnam (GVN) agreed to use these initial appropriations for dioxin remediation at Danang Airport. Anticipating continued appropriations for dioxin remediation after completion of the Danang Project, USAID collaborated with the GVN to prepare a report titled "Environmental Assessment of Dioxin Contamination at Bien Hoa Airbase" (Bien Hoa EA). USAID prepared the assessment in compliance with the requirements of Title 22 of the U.S. Code of Federal Regulations (CFR), Part 216.

The Bien Hoa EA, approved by the Asia Bureau Environmental Officer (BEO) on January 4, 2017, tracking number Asia 12-182, serves as the primary resource documenting characterization of dioxin contamination in the Bien Hoa Airbase area (airbase area) (https://www.usaid.gov/vietnam/documents/environmental-assessment-dioxin-contamination-bien-hoa-airbase). The Bien Hoe EA summarizes stakeholder engagement discussions and consultations, proposed standards for remediation, the nature and extent of dioxin contamination on and around the airbase, a site conceptual model, several remediation alternatives, cost estimates for alternatives, environmental impacts associated with remedial construction, and environmental mitigation and monitoring measures that must be implemented during remedial construction.

The Bien Hoa EA estimates the volume of dioxin-contaminated soils and sediments at the site between 408,500 (baseline estimated volume) to 495,300 cubic meters ($m^3$) (with contingency). The total is comprised of approximately 315,700 to 377,700 $m^3$ of contaminated soil and 92,800 to 117,600 $m^3$ of contaminated sediment. The majority, approximately 95 percent, of the soil and sediment is located on the Airbase. The remaining five percent of contaminated soil and sediment is located off the Airbase.

USAID used data and information collected during Bien Hoa EA preparation to generate eight potential remedial alternatives including no action, complete containment, complete treatment, and a mixture of containment and treatment. USAID developed the alternatives, using technologies identified from a literature review that could meet screening criteria for maturity, cost competitiveness, and GVN acceptance. USAID developed and evaluated conceptual designs for the alternatives with regard to effectiveness; implementability; cost; and environmental and social impact. There are a range of implementation costs for the alternatives, depending on the approach and volume of material to be treated.

While USAID did not recommend a single preferred alternative in the Bien Hoa EA, the assessment suggests a hybrid approach “...that treats the highest risk material and contains all other excavated material is a reasonable option that balances the United States Government (USG) and GVN regulatory preferences for treatment with more practical, lower cost options for management of the lower risk material.” USAID-GVN discussions following completion of the Bien Hoa EA suggest that the lowest-cost remediation alternative that key GVN stakeholders will approve is described in Alternative 4, i.e., treatment of all soil and sediment contaminated with dioxin above 1,200 parts per trillion (ppt) and containment of soil and sediment contaminated above applicable land-use standards.
but below 1,200 ppt. USAID estimates that implementing this alternative would cost $390 million (M) and require ten years to complete.

Following completion of the Bien Hoa EA, USAID signed a Limited Scope Grant Agreement (LSGA) on May 14, 2018 with the GVN for the joint implementation of the Dioxin Remediation at Bien Hoa Airbase Area Project (the Project). The LSGA covers an initial five-year period of collaboration and anticipates a $183M USAID contribution to the Project. Subsequent to signing the LSGA, USAID/Vietnam prepared a Project Appraisal Document (PAD) outlining plans for USAID to implement activities under the LSGA for Mission Director approval. USAID’s GVN project partner, the Air Defense-Air Force Command (ADAFC) prepared a pre-feasibility project summary and environmental impact assessment (Bien Hoa EIA). The Bien Hoa EIA was approved by the Vietnamese Ministry of Environmental Resources and Environment (MONRE) on March 25, 2019. The Vietnamese Prime Minister subsequently issued project policy approval on April 17, 2019.

As part of project policy approval, the Prime Minister assigned responsibility for project implementation to the Ministry of National Defense (MND) and project owner to ADAFC. ADAFC works closely with USAID to develop detailed project appraisal documents for MND approval prior to implementation. USAID anticipates that this subsequent inter-ministerial approval process led by MND will conclude in late 2019.

The Project anticipates MND approval of detailed design documents throughout the project implementation period, including detailed design and construction documents described in the approved Bien Hoa EA and Bien Hoa EIA, and environmental monitoring and mitigation plans (EMMPs) as summarized below.

I.2. Project Purpose

The Project purpose statement is relatively straightforward, “Remediate dioxin contamination at the Bien Hoa Airbase area.” Based on the Bien Hoa EA analyses and lessons from Danang implementation, the Project uses a theory of change summarized as follows: “If USAID can cooperate with project internal and external stakeholders to safely excavate, treat, and sustainably isolate contaminated soil from the airbase area, then dioxin contamination will be remediated.”

I.3. Project Implementation Approach

The Project PAD includes five new activities. USAID will begin two of these activities immediately, i.e., architecture and engineering (A&E) contract (Activity 1) and design-build contract for interim remediation measures (Activity 2). USAID will begin two additional “categories” of activities after completion of a project masterplan, i.e., construction contracts for dioxin treatment (Activity 3) and additional civil works (Activity 4). All construction activities will comply with USAID’s Construction Policy and ADS 201maw – Construction Risk Management. This compliance requirement will be specified in all USAID’s contracts to implement Activities 2, 3 and 4. Additionally, USAID will implement one buy-in activity, i.e., utilization of the Project Development Office (PDO) support mechanism, Learns, for support on stakeholder engagement (Activity 5).

The approved Bien Hoa EIA includes the scope of the above activities with the exception of Activity 5. Note that capacity building and stakeholder engagement is addressed in the project description in the LSGA. Details of the five project Activities follow:
Activity 1: Architect-Engineer Services for Dioxin Remediation at Bien Hoa Airbase Area (A&E Bien Hoa)

The A&E Bien Hoa Activity will support USAID and GVN in coming to agreement on a Project Masterplan that finalizes the remedial approach and selects the preferred treatment technology(ies) for dioxin remediation. The scope of Masterplan is limited to USAID's activities associated, although complementary activities by MND such as approval of detailed design documents will be noted.

As part of Masterplan development, the A&E Bien Hoa Activity contractor will provide detailed engineering design and oversight of remediation activity implementation, i.e., Activities 2, 3, and 4. The A&E Bien Hoa Activity contractor will serve as USAID's strategic and technical advisor throughout the Project implementation period and as USAID's eyes and ears overseeing construction activities on the Project site.

This Activity has been awarded as a cost-plus-fixed-fee contract to an A&E firm. The total estimated cost for the contract is $32M.

This Dioxin Remediation at Bien Hoa Airbase Area Project IEE includes entirely the A&E Services for Dioxin Remediation at the Bien Hoa Airbase Area activities, previously assessed in the IEE Asia 17-01 and Amendment 1 Asia 19-007. Therefore, the current IEE environmental determinations and conditions supersede those earlier records.

Activity 2: Interim Remediation Measures at Bien Hoa Airbase Area (Interim Measures)

Given the determination that dioxin contamination has migrated into surrounding residential areas, USAID has worked with both MND, and local, provincial authorities, to develop an interim approach to halt further migration of dioxin from on- to off-base, and to address the immediate threat of human exposure off-base by excavating and isolating contaminated soils off-base. Highly contaminated soils will be excavated and temporarily stored for subsequent treatment later in project implementation. Lower contaminated material will be placed into long-term storage areas.

Interim measures will be completed over the first three years of the Project with an estimated cost of $39.4M. The Mission is proposing to source the work from a qualified U.S. contractor through a full and open competition process. The contract will be a firm-fixed-price, "Design/Build" contract where the successful bidder will first design the interim measures, i.e., excavate and restore contaminated areas, construct temporary storage, construct long-term storage areas, and construct additional runoff controls, and then, upon USAID approval, implement these measures.

Activity 3: Dioxin Treatment Activity(ies)

This category of construction activities includes services to treat highly contaminated soil in the airbase area. Before these activities can be scoped and procured, USAID will need to agree with GVN on the technology or technologies to be used to destroy and/or remove dioxin from these soils and the required removal efficiency. USAID plans to reach agreement on treatment technologies during the first year of project implementation through the Masterplanning process supported by the A&E Bien Hoa Activity contractor. The number, staging, and size of dioxin treatment activities will also be described in the Masterplan.

USAID anticipates that these activities will be awarded as firm-fixed-price, design-build or construction contracts.
USAID estimates that Activity 3 costs will total roughly $77M and be largely implemented in the final three years of this project period.

**Activity 4: Civil Works Activity(ies)**

This category of construction activities includes services to excavate contaminated soils, isolate low dioxin concentration material, and provide other required civil works construction services to facilitate remediation of the airbase area. Activity 4 will have a similar scope to the Interim Measures, Activity 2, but will be designed and implemented following completion of the Masterplan. The number, staging, and size of civil works activities will be described in the Masterplan.

USAID anticipates that these activities will be awarded as firm-fixed-price construction contracts.

USAID estimates that Activity 4 civils works costs will total roughly $15M and be largely implemented in the final four years of this project period.

**Activity 5: Learns Buy-in**

The project will utilize Learns, a USAID/Vietnam PDO-managed mechanism, to support Project stakeholder engagement. Learns will engage external stakeholders to communicate project results and to assess the level and nature their concerns regarding project effectiveness. One might generally understand these contributions as “public relations,” but that might understate the objective of using Learns to help better understand public perceptions related to Agent Orange and the USAID efforts to address this legacy. Learns contributions will be as much about learning as communicating.

A secondary focus of Learns’ contributions will be support to various GVN project stakeholders to help them better execute their institutional mandates regarding dioxin remediation. While the A&E Bien Hoa contractor will provide institutional support/capacity building to these stakeholders on technical issues related to remediation, Learns will provide complementary support on more general organizational challenges, e.g., improved skills in mass media engagement, managing public hearings, facilitating inter-agency agreement on land-use control measures, etc.

Learns is anticipated to be a five-year, cost-plus-fixed-fee contract awarded in mid-2019. Environment and Social Development Office at USAID/Vietnam anticipates requesting up to $2M in contributions from Learns for the Project.

**II. COUNTRY PROFILE**

**II.1. Vietnam Socio-Economic & Environmental Situation**

Over the past 30 years, Vietnam has had a remarkable development record. Economic and political reforms have spurred rapid economic growth and development and transformed Vietnam from one of the world’s poorest nations to a lower middle-income country.

Vietnam’s economy continues to show fundamental strength, supported by robust domestic demand and export-oriented manufacturing. Following 6.8 percent growth in 2017, GDP growth accelerated to 7.1 percent in 2018, underpinned by a broad-based pickup in economic activity. Vietnam’s growth
is projected to moderate to 6.6 percent in 2019, driven by credit tightening, slower private consumption and weaker external demand.

Vietnam is experiencing rapid demographic and social change. Its population reached about 97 million in 2018 (up from about 60 million in 1986) and is expected to expand to 120 million before moderating around 2050. Currently, 70 percent of the population is under 35 years of age, with a life expectancy of nearly 73 years. There is an emerging middle class-currently accounting for thirteen percent of the population but expected to reach 26 percent by 2026.

While many positive socioeconomic changes have been achieved, development has come with environmental costs, including degradation of natural resources, pollution and illegal trade in wildlife. In addition to domestic challenges, Vietnam is also one of the most vulnerable countries in the world to the effects of climate change. Large population centers and key agricultural sectors are located in Vietnam’s more than 2,000 miles of coastline, which is vulnerable to changing weather patterns.

II.2. Vietnam Environmental Institutional Framework

Vietnam’s Law on Environmental Protection 2014 (LEP 2014) requires preparation and approval of an EIA before project policy approval by Prime Minister.

The Decree No 18/2015/ND-CP on Environmental Protection Planning, Strategic Environmental Assessment, Environmental Impact Assessment and Environmental Protection Plan provides the list of project categories requiring strategic environmental assessment (SEA) or EIA. The Project falls within the category of projects requiring Prime Minister and/or National Assembly approval, and as such requires EIA preparation and approval.

LEP 2014, Article 25 also makes clear that other investment licenses and construction and operation permits may be granted only after EIA reports have been approved. LEP 2014, Article 27 sets out the responsibilities of the project proponent to implement the environmental protection requirements in the EIA report.

MONRE, established by GVN in August 2002, is in charge of environmental issues in Vietnam. People’s Committees (at city/provincial levels) implement environmental management activities under the direction of MONRE and other relating ministries, with the support of Department of Natural Resources and Environment (DONRE). Under Dong Nai DONRE, Environmental Protection Agency is charged for environmental monitoring and protection activities.

Per the EIA Approval Decision 702/QD-BTNMT, MONRE authorizes the Vietnam Environmental Administration (VEA) to coordinate with the Dong Nai DONRE to inspect the environmental protection plans and measures as specified in the approved Bien Hoa EIA. MONRE considers the Bien Hoa EIA as a living document; any significant changes to the approved scope of the current Bien Hoa EIA must be re-evaluated for environmental impacts and re-approved.

III. DISCUSSION OF ENVIRONMENTAL IMPACTS

Categorical Exclusion: Funding for Project Activities 1 and 5 will be dedicated to technical assistance, trainings and consultations, workshops and conferences, and information sharing and
dissemination, and therefore, qualify for the following Categorical Exclusions pursuant to USAID authority under 22 CFR 216(c)(2):

(i) Education, technical assistance, or training programs except to the extent such programs include activities directly affecting the environment (such as construction of facilities, etc.);
(iii) Analyses, studies, academic or research workshops and meetings;
(v) Document and information transfers;
(xiv) Studies, projects or programs intended to develop the capability of recipient countries to engage in development planning, except to the extent designed to result in activities directly affecting the environment (such as construction of facilities, etc.).

Positive Determination: Positive determination pursuant to 22 CFR 216.3(a) (2) (iii) is made for Project Activities 2, 3 and 4 which have a significant impact on the environment through their linkage to remediation activities.

Both the Bien Hoa EA and Bien Hoa EIA evaluated the potential environmental effects of construction activities included in Activities 2, 3 and 4. The Bien Hoa EA and Bien Hoa EIA include mitigation measures that will be implemented during the work. Under Activity 1, The A&E contractor will prepare a site-wide EMMP to comply with both the Bien Hoa EA and EIA, and to address, monitor and mitigate the positive environmental effects associated with remediation. Additionally, contractors under Activities 2, 3 and 4 will be required to prepare activity-specific EMMPs in conformance with the site-wide EMMP to address activity-specific environmental risks.

IV. CLIMATE RISK MANAGEMENT

As per USAID’s ADS Reference 201mal (https://www.usaid.gov/sites/default/files/documents/1868/201mal) and the executive order on “Climate-Resilient International Development,” USAID should factor climate resilience into international development programs and investments. Therefore, the design team and/or Implementing Partner will identify expected climate change impacts over the life of the Project’s expected benefits and (if appropriate) demonstrate how those risks will be reduced in order to ensure sustainability of the Project’s objectives.

Vietnam’s climate is broadly characterized as tropical, with rainy seasons corresponding to monsoon circulations. In the northern part of the country, annual temperatures range from 22°–27.5°C in the summer and 15°–20°C in the winter, while temperatures in the south hover between 26°–29°C year-round. Annual rainfall ranges from 700–5,000 millimeters, with northern and windward mountain areas receiving more than the south. Monsoons bring heavy rainfall in the north and south from May–October. Vietnam experiences high inter-annual rainfall variability, and both floods and droughts can occur in the span of a single year (ADB 20181 and USAID 20172). Most recent research and assessments have projected the following climatic changes:

- By 2050, increases in mean annual temperature (1 – 2°C), mean annual precipitation (2 – 7 percent), weather variability and intensity of extreme weathers are projected for all regions in Vietnam (USAID 20172).
- By 2050, among satellite cities around Ho Chi Minh City, Bien Hoa City is unlikely to be affected by inundation from sea level rise occurring as a result of climate change (ADB 20103).
• The elevation information provided in Dekonta 2014\(^4\), states that much of the Airbase is at greater than 2.25 m above sea level, which suggests that inundation from sea level rise of 28 – 33 centimeters\(^1\) by 2050 is unlikely to be an issue for remedial alternatives.
• Shorter-term impacts may include higher-intensity typhoons and extreme weather events occurring more frequently (USAID 2017\(^2\) and MONRE 2009\(^5\)).

Project activities 1, 2, 3 and 4 include design and/or remedial construction that may be subject to potential risk from climate change. However, this risk is mitigable and ranked low, considering all these Project activities may be completed in a climate-resilient manner with proper planning, design, implementation, and maintenance. Please see the assessment in the attached Climate Risk Management Summary Table.

After the award, the Implementing Partners shall review, evaluate and update the climate risk screening during work plan preparation and annual review.

V. RECOMMENDED ENVIRONMENT ACTION

It is recommended that Project Activities 1 and 5 be granted a Categorical Exclusion pursuant to the requirements of 22 CFR 216.2(c) (2).

It is recommended that a threshold finding of a significant impact on the environment be made for Project activities 2, 3, and 4 pursuant to 22 CFR 216.3(a)(2)(iii). These actions will be contractually required to follow ADS 201 maw and subject to following oversight measures:

1) **BEO concurrence on Activity-specific Environmental Mitigation and Management Plans (EMMPs).** The Activity 1 contractor or the individual Activity contractors themselves will draft EMMP’s for review by the Activity’s Contracting Officer’s Representative (COR), Mission Environmental Officer (MEO), Climate Integration Lead (CIL), and the Regional Environment Adviser (REA) before BEO concurrence is sought. No remediation efforts under Activity 2, 3, or 4 will proceed without BEO concurrence on the relevant EMMP.

2) **BEO concurrence on new USAID inputs to approved GVN project EIA revisions.** While the GVN will manage the process of Vietnamese EIA approval for the Project, USAID/Vietnam will seek to provide official input to drafting of submissions and managing responses during the GVN EIA approval process. The Activity’s COR will seek comments, inputs, guidance and/or concurrence from MEO, REA and BEO on all official USAID/Vietnam’s input to this GVN led process. On an ad hoc basis, the Activity’s COR will confer with BEO annually on development of Work Plan.

The Bien Hoa EA, approved in 2016, evaluated the potential environmental impacts of these activities. Using that as a reference, each individual activity will be implemented according to an EMMP, specific to that Activity, and each of these EMMPs will receive BEO concurrence prior to Activity implementation.

USAID/Vietnam, led by the designated COR for each Activity, assumes responsibility for actively monitoring the implementation of EMMP measures for all Project Activities.
VI. LIMITATION OF THE IEE

6.1. All chemicals, registered by the U.S. EPA, as pesticides shall be procured, used or recommended for use only in accordance with BEO approved or amended PERSUAP

6.2 No procurement or use of Asbestos, Lead and Mercury Containing Materials (ALMCM) (i.e. piping, roofing, batteries, etc.), Polychlorinated Biphenyls (PCBs) or other toxic/hazardous materials prohibited by US EPA as provided at: http://www.epa.gov/asbestos and/or under international environmental agreements and conventions, e.g. Stockholm Convention on Persistent Organic Pollutants as provided at: http://chm.pops.int.

6.3 GDA and DCA - note ADS 204 requirement for GDA and ADS 249 for DCA

6.4 Assistance, procurement and/or use of genetically engineered organisms (GEOs) which require preparation of biosafety assessment (review) in accordance with ADS 211 in an amendment to the IEE approved by BFS Biosafety Adviser and BEO

6.5 Procurement and use of non-native, potentially invasive species.

Any of these actions would require a BEO-approved amendment to the IEE.

VII. REVISITONS

If during implementation, project activities are considered outside of those described in this document, an amendment shall be submitted. Pursuant to 22CFR216.3(a)(9), if new activities are added and/or information becomes available which indicates that activities to be funded by the project might be “major” and the project’s effect “significant,” this determination will be reviewed and revised by the COR of the project, and submitted to the MEO and BEO for approval and, if appropriate, an environmental assessment will be prepared. It is the responsibility of the COR to keep the MEO and the BEO informed of any new information or changes in the activity that might require revision of the IEE.

REFERENCES

2 USAID 2017. Fact Sheet on Vietnam Climate Change Risk Profile
3 ADB 2010. Summary report on Ho Chi Minh City adaptation to Climate Change
APPROVAL OF INITIAL ENVIRONMENTAL EXAMINATION

ESDO Office Director, Clearance

Mission Climate Integration Lead, Clearance

Mission Environmental Officer Clearance

Program Development Officer Clearance

Regional Legal Officer Clearance

Regional Environmental Advisor Clearance

APPROVAL:

Acting Mission Director

CONCURRENCE:

Bureau Environmental Officer

DISTRIBUTION:

Mission Environmental Officer
IEE File
OAA
RLO
APPROVAL OF INITIAL ENVIRONMENTAL EXAMINATION

ESDO Office Director,
Clearance__________________________email__________________________05/03/2019__
Christopher Abrams
Date

Mission Climate Integration Lead,
Clearance__________________________email__________________________05/03/2019__
Christopher Abrams
Date

Mission Environmental Officer
Clearance__________________________email__________________________05/03/2019__
Tran Chinh Khuong
Date

Program Development Officer
Clearance__________________________05/20/19
Jeremiah Carew
Date

Regional Legal Advisor
Clearance__________________________Date
Chris Kelly

Regional Environmental Advisor
Clearance__________________________email__________________________05/14/2019__
Andrei Barannik
Date

APPROVAL:
Mission Director

__________________________Date
Michael Greene

CONCURRENCE:
Bureau Environmental Officer

__________________________Date
William Gibson