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U.S. Agent Orange/Dioxin Assistance to Vietnam

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Summary

U.S. assistance to Vietnam for the environmental and health damage attributed to a dioxin contained in Agent Orange and other herbicides sprayed over much of the southern portion of the country during the Vietnam War remains a significant bilateral issue. Between fiscal years (FY) 2007 and 2021, Congress appropriated nearly $390 million to address these two issues. This includes $60 million in Department of Defense funds transferred to the Secretary of State, for use by the U.S. Agency for International Development, for the dioxin clean-up at the Bien Hoa airbase.

Most of the appropriated funds have been used by USAID for the environmental remediation of Danang airport, one of the major airbases used for storing and spraying the herbicides between 1961 and 1971. Following completion of the Danang project in 2017, the environmental remediation funds have been obligated for preparatory work on the Bien Hoa airbase. A lesser amount of the appropriated funds have been used by USAID for assistance to Vietnam's persons with disabilities, generally, but not always, in the vicinity of Danang or other dioxin-contaminated areas.

Congressional interest in Agent Orange/dioxin in Vietnam has largely been focused on two issues. The first issue is determining the appropriate amount and type of assistance to provide to address the environmental damage and the health effects of dioxin contamination in Vietnam. The second issue is oversight of how such assistance has been utilized by the State Department and USAID.

In November 2017, the United States and Vietnam completed the environmental remediation of approximately 90,000 cubic meters (118,000 cubic yards) of contaminated soil and 60,000 cubic meters (78,000 cubic yards) of lower risk materials at Danang airport by a process known as in-pile thermal desorption (IPTD). Restoration and project closure operations were completed in November 2018. The project took six years, with an estimated overall cost of $116 million, which was twice as long and three times more expensive than originally projected.

Field studies have identified a number of other areas in Vietnam contaminated with the dioxin associated with Agent Orange, including the airports near Bien Hoa and Phu Cat, as well as sections of the A Luoi Valley. In January 2018, U.S. and Vietnamese governments signed a memorandum of intent (MOI) to begin the cleanup of the Bien Hoa airport. After a one-year joint project planning process, the two governments developed a 10-year remediation plan in 2020 with an estimated cost of up to $450 million. The plan is under review by the Vietnam government.

As of November 2019, USAID had obligated 88% of the $197 million appropriated for FY2011-FY2019 for environmental remediation projects, and 75% of the $66.8 million appropriated for FY2011-FY2019 for health and disability services.

Two additional issues Congress may consider are whether to fund remediation projects at additional "hot spots" and whether to require the provision of health care and support for Vietnamese nationals with medical conditions and disabilities associated with exposure to Agent Orange/dioxin. The Victims of Agent Orange Relief Act of 2019 (H.R. 326) would have required the Secretary of State to provide assistance to individuals in Vietnam with health issues related to exposure to Agent Orange, as well as "to institutions in Vietnam that provide health care for covered individuals." The act would also have required the Secretary of State to provide assistance "to remediate those geographic areas of Vietnam that the Secretary determines contain high levels of Agent Orange."

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Overview

During the Vietnam War,[1] the U.S. military conducted Operation Ranch Hand, a program that sprayed an estimated 18-20 million gallons of herbicides—including approximately 11-12 million gallons of Agent Orange[2]—over about 12,000 square miles of southern Vietnam between 1961 and 1971.[3] A contaminant of the manufacture of Agent Orange (as well as two other herbicides used, Agent Pink and Agent Purple) was 2, 3,7,8-tetrachlorodibenzo-p-dioxin (TCDD), a developmental toxicant and a probable human carcinogen, according to the U.S. Environmental Protection Agency.

Environmental surveys conducted in Vietnam have identified a number of dioxin hot spots, including the airbases at Bien Hoa, Danang,[4] and Phu Cat, that are contaminated with TCDD well above internationally acceptable levels (see **Figure 1**).[5] In addition, the A Luoi (or A Shau) Valley, south of Quang Tri and west of Danang, was considered an important segment of the Ho Chi Minh Trail, a key supply route used by North Vietnamese forces and their allies, and was therefore heavily sprayed. The former U.S. military base in the A Luoi Valley has been identified as another potential hot spot.

During the Obama Administration, U.S. assistance to the environmental damage and health problems caused by Agent Orange and its associated dioxin in Vietnam was viewed as helping to advance bilateral relations between the two nations. After a meeting with President Tran Dai Quang in May 2016, former President Obama stated the following:

> With regard to security, the United States will continue to do our part to address the painful legacy of war.... We'll continue to help remove unexploded landmines and bombs. And now that our joint effort to remove dioxin—Agent Orange—from Danang Airport is nearly complete, the United States will help in the cleanup at Bien Hoa Air Base.[6]

[1] Between 1950 and 1975, the United States was actively involved in a civil war in Vietnam between the Democratic Republic of Vietnam (North Vietnam) and the Republic of Vietnam (South Vietnam), providing initially military assistance and later active combat troops to support the Republic of Vietnam in the conflict. By the time the civil war ended with the victory of North Vietnam on April 30, 1975, over 50,000 U.S. soldiers had died, and an estimated 1 million Vietnamese soldiers and civilians had been killed.

[2] An approximately 50-50 mix of two chemicals—2,4,-D (2,4, dichlorophenoxyacetic acid) and 2,4,5-T (2,4,5 trichlorophenoxyacetic acid)—Agent Orange derived its name from the orange band painted on the side of the 55-gallon drums in which the herbicide was delivered.

[3] For more about the history of Operation Ranch Hand and the use of Agent Orange in Vietnam, see CRS Report RL34761, *Vietnamese Victims of Agent Orange and U.S.-Vietnam Relations*, by Michael F. Martin.

[4] Also sometimes written as "Da Nang."

[5] These studies include Jeanne Mager Stellman, Steven D. Stellman, Richard Christian, Tracey Weber, and Carrie Tomasallo, "The Extent and Patterns of Usage of Agent Orange and Other Herbicides in Vietnam," *Nature*, Vol. 422, April 2003; Michael G. Palmer, "The Legacy of Agent Orange: Empirical Evidence from Central Vietnam," *Social Science and Medicine*, vol. 60 (2005), pp. 1061-1070; and T.G. Boivin, K.S. Le, L.W. Dwernychuk, M.H. Tran, G.S. Bruce, N.H. Minh, N.T. Tran, K.S. Trinh, T.D. Phung, D. Moats, J.A. Allen, L. Borton, and M. Davies, "Agent Orange Dioxin Contamination in the Environment and Human Population in the Vicinity of Da Nang Airbase, Viet Nam," Hatfield Consultants, Ltd.

[6] White House, "Remarks by President Obama and President Quang of Vietnam at Joint Press Conference," press release, May 23, 2016.

Figure 1. Map of Vietnam Showing Agent Orange "Hot Spots"

Source: CRS.

The joint statement issued after that meeting included the following statements:

> Vietnam welcomed cooperation leading to the successful conclusion of the first phase of dioxin remediation at Danang International Airport, with the final phase underway. The United States committed to partnering with Vietnam to make a significant contribution to the clean-up of dioxin contamination at Bien Hoa Air Base.[7]

The Trump Administration continued the U.S. commitment to provide assistance to Vietnam to address the Agent Orange/dioxin issue. Following their meeting in May 2017 in Washington, DC, President Trump and Prime Minister Nguyen Xuan Phuc released a joint statement, which stated:

> The two sides committed to work together to address war legacy issues, including through such joint efforts as dioxin remediation, taking note of the progress that has been made at Da Nang Airport and intent to discuss continued collaboration at Bien Hoa Airport, and the removal of unexploded ordnances.[8]

On November 10, 2017, Under Secretary of State Thomas Shannon and Senior Lieutenant General Nguyen Phuong Nam held a ceremony to celebrate the completion of the environmental remediation of Danang Airport.[9] On January 23, 2018, the two governments signed a Memorandum of Intent (MOI) to begin the process of dioxin decontamination of Bien Hoa.[10] A ribbon-cutting ceremony was held at the Bien Hoa airbase on April 20, 2019, to commemorate the start of the bilateral environmental remediation project.[11] On that same date, a Memorandum of Intent (MOI) regarding support for persons with disabilities in Vietnamese provinces sprayed with Agent Orange was signed by USAID and Vietnam's newly-established National Steering Committee on Overcoming the Post-war Unexploded Ordnance and Toxic Chemical Consequences in Vietnam, also known as Office 701.[12]

From 2007 to the present, Congress has appropriated a total of $381.4 million for the environmental remediation of Agent Orange/dioxin and health and disability programs in areas of Vietnam sprayed with Agent Orange or otherwise contaminated by dioxin. Starting with the 112th Congress, the legislation has appropriated separate amounts for these two purposes, generally with more funds appropriated for environmental remediation than for health and disability programs.[13] All of the amounts appropriated by Congress are subject to the provisions of Section 653(a) (22 U.S.C. §2413(a)) of the Foreign Assistance Act of 1961, as amended (P.L. 87-195; 22 U.S.C. §2151 et seq.). As a consequence, the actual amount of funding available for such

[7] White House, "Joint Statement: Between the United States of America and the Socialist Republic of Vietnam," press release, May 23, 2016.

[8] The White House, "Joint Statement for Enhancing the Comprehensive Partnership between the United States of America and the Socialist Republic of Vietnam," press release, May 31, 2017.

[9] "US, Vietnam Complete Agent Orange Decontamination Campaign at Da Nang Airport," *VN Express*, November 10, 2017.

[10] USAID, "United States and Vietnam Sign Memorandum of Intent to Begin Dioxin Remediation at Bien Hoa," press release, January 23, 2018.

[11] USAID, "United States and Vietnam Launch Dioxin Remediation Project at Largest Hotspot in Vietnam," press release, April 20, 2019.

[12] USAID, "United States and Vietnam Sign Memorandum of Intent for New Partnership on Disabilities Assistance," press release, April 20, 2019.

[13] The **Appendix** contains the relevant text from the public laws and related reports and explanatory statements that appropriated funds for Agent Orange/dioxin environmental remediation and health and disability programs in Vietnam. Laws that were superseded by subsequent legislation are not included in the appendix.

assistance may be less than the amount specified in the various laws and their accompanying reports.[14]

The appropriated funds for environmental remediation generally have been allocated under the State Department's Economic Support Fund account (ESF), while the funds for health and disability programs have been allocated under the Development Assistance account (DA). In general, the funds appropriated under both accounts have been made available for two fiscal years. The State Department has delegated responsibility for the administration and obligation of the appropriated funds to the U.S. Agency for International Development (USAID).

Until 2017, most of the environmental remediation effort was focused on the cleanup of the Danang airport, while the funds appropriated for health and disability programs were used primarily for disability support programs in Danang and other parts of Vietnam. Since 2018, the environmental remediation assistance has been used on the cleanup of Bien Hoa airbase (see "Bien Hoa Airbase").

The programs and projects funded by the appropriated funds have been administered by the State Department and USAID, in cooperation with various ministries and agencies within the Vietnamese government. In 1999, Vietnam's central government created the Office of the National Steering Committee on Overcoming Consequences of Agent Orange/Dioxin in Vietnam (Office 33, or Committee 33), an interministerial body, to oversee and coordinate its government's policy on Agent Orange and dioxin. Office 33 included representatives from Vietnam's Ministry of Natural Resources and Environment (MONRE, where Office 33 is administratively located); Ministry of Finance (MOF); Ministry of Foreign Affairs (MOFA); Ministry of Health (MOH); Ministry of Labour, Invalids, and Social Affairs (MOLISA); Ministry of National Defence (MND); Ministry of Planning and Investment (MOPI); and Vietnam Academy of Science and Technology (VAST).

In March 2018, Vietnam established the Office of the National Steering Committee on the Settlement of Post-war Unexploded Ordnance and Toxic Chemical Consequences (Office 701), which replaced Office 33.[15] Office 701 is chaired by Prime Minister Nguyen Xuan Phuc and includes representatives of various key ministries. In November 2019, Vietnam established the National Action Centre for Toxic Chemicals and Environmental Treatment (NACCET) to coordinate domestic and international efforts to address war legacy issues involving chemical toxins or hazardous substances.[16] NACCET has been designated as the leading agency to work with USAID on disability programs.

Congressional interest has generally focused on two issues. The first issue is determining the amount to allocate for the environmental remediation of dioxin hot spots in Vietnam and health and disability programs in areas of Vietnam sprayed with Agent Orange or otherwise contaminated by dioxin. The second issue is oversight to ascertain if the State Department and USAID are effectively and appropriately obligating and expending the available funds. In

[14] Section 653(a) requires the President, within 30 days of enactment of any law appropriating funds to carry out foreign assistance, to "notify the Congress of each foreign country and international organization to which the United States Government intends to provide any portion of the funds under such law and of the amount of funds under that law, by category of assistance." For more about the provisions of Section 653(a) and its implementation, see CRS General Distribution Memorandum CD099, "Reporting Under Section 653(a) of the Foreign Assistance Act of 1961," by Matthew Weed, February 24, 2009.

[15] USAID, "Vietnam Announces Establishment of New War Legacy Office," press release, March 8, 2018.

[16] "Centre for Toxic Chemicals and Environmental Treatment Established," *Vietnam News*, November 13, 2019.

particular, Congress has paid attention to the rate and manner at which USAID has obligated the funds Congress appropriated for use on health and disability activities.

Congressional Appropriations Since 2007

The appropriation of funds explicitly to address the Agent Orange/dioxin issue in Vietnam started in May 2007, when the 110th Congress passed the U.S. Troop Readiness, Veterans' Care, Katrina Recovery, and Iraq Accountability Appropriations Act, 2007 (P.L. 110-28). That act appropriated $3 million "for the remediation of dioxin contaminated sites in Vietnam, and to support health programs in communities near those sites."[17] After more than a year of internal consultation, the State Department decided that the administration and obligation of the $3 million would be handled by USAID, setting a precedent for the handling of future appropriations for Agent Orange/dioxin assistance to Vietnam.

The 111th Congress in three separate pieces of legislation appropriated a total of $18 million for dioxin cleanup in Vietnam and related health services (see **Table 1**). In March 2009, the 111th Congress appropriated $3 million for Agent Orange/dioxin remediation and health care assistance in the vicinity of the Danang hot spot in the Omnibus Appropriations Act, 2009 (P.L. 111-8). In December 2009, Congress passed the Consolidated Appropriations Act, 2010 (P.L. 111-117), which included $3 million for dioxin cleanup and related health services in Vietnam. In July 2010, Congress included $12 million "to support the remediation of dioxin contamination at the Danang Airport, which poses extreme risks to human health and welfare, and related health activities" in the Supplemental Appropriations Act, 2010 (P.L. 111-212). In addition, the State Department and USAID allocated $1.9 million in Development Assistance funds for FY2010 for environmental remediation at Danang airport.

In April 2011, the 112th Congress for the first time appropriated separate funds for the remediation of Agent Orange/dioxin in Vietnam and "related health activities" in the Department of Defense and Full-Year Continuing Appropriations Act, 2011 (P.L. 112-10). The separate funding for environmental remediation and "related health/disability activities" continued in the Consolidated Appropriations Act, 2012 (P.L. 112-74). The conference report accompanying P.L. 112-74 also endorsed language in a Senate report associated with an earlier reported to Senate version of the Department of State, Foreign Operations, and Related Programs Appropriations Act, 2012 (S. 1601) directing USAID, in consultation with the Senate Appropriations Committee, the Department of State, the Government of Vietnam, and "other interested parties," to develop a "comprehensive, multiyear plan" for Agent Orange-related activities in Vietnam within 180 days after the enactment of the law.[18]

[17] U.S. Congress, Senate Committee on Appropriations, *Making Emergency Supplemental Appropriations for the Fiscal Year Ending September 30, 2007, and for Other Purposes*, 110th Cong., 1st sess., March 22, 2007, S.Rept. 110-37 (Washington: GPO, 2007).

[18] U.S. Congress, Senate Committee on Appropriations, *Department of State, Foreign Operations, and Related Programs Appropriations Act, 2012*, Report to Accompany S. 1601, 112th Cong., 1st sess., September 22, 2011, S.Rept. 112-85 (Washington: GPO, 2011).

Table 1. Congressional Appropriations for Agent Orange/Dioxin Remediation and Health-Related Activities in Vietnam

(in millions of dollars)

Congress	Public Law	Date Enacted	Fiscal Year	Total Amount	Environmental Remediation	Health-Related Activities
110th	P.L. 110-28	May 2007	2007	3.0		
111th	P.L. 111-8	March 2009	2009	3.0		
	P.L. 111-117	December 2009	2010	3.0		
	P.L. 111-212	July 2010	2010	12.0		
112th	P.L. 112-10	April 2011	2011	18.5	15.5	3.0
	P.L. 112-74	December 2011	2012	20.0	15.0	5.0
113th	P.L. 113-6	March 2013	2013	19.3	14.5	4.8[a]
	P.L. 113-76	January 2014	2014	29.0	22.0	7.0
	P.L. 113-235	December 2014	2015	22.5	15.0	7.5
114th	P.L. 114-113[b]	December 2015	2016	32.0	25.0	7.0
				(16.5)	(10.0)	(6.5)
115th	P.L. 115-31	May 2017	2017	30.0	20.0	10.0
	P.L. 115-141[c]	March 2018	2018	45.0	35.0	10.0
	P.L. 115-232	August 2018	2019	15.0	15.0	
	P.L. 116-6	February 2019	2019	32.5	20.0	12.5
	P.L. 116-92	December 2019	2020	15.0	15.0	
116th	P.L. 116-94	December 2019	2020	33.0	20.0	13.0
	P.L. 116-260	December 2020	2021	33.5	19.0	14.5
	P.L. 116-283	December 2020	2021	15.0	15.0	
TOTAL				**381.4**	**266.0**	**94.4**

Source: CRS research, with the assistance of U.S. Agency for International Development (USAID).

Notes: Table does not include $3.9 million allocated for these purposes by the State Department out of funds appropriated for more general uses, such as the Economic Support Fund (ESF). Table also does not include continuing resolutions that temporarily continued funding. Appropriations made in the 110th and 111th Congress did not allocate amounts between environmental remediation and health-related activities.

a. Amount based on sequestration rate of 3.3%; USAID reported a preliminary figure of $3.0 million.

b. Reflects amounts recommended in S.Rept. 114-79 and those set by the State Department and USAID after consultation with the U.S. embassy in Hanoi (in parentheses).

c. Includes $15 million transferred from Department of Defense under Section 8132.

The 113th Congress continued to appropriate funds for the environmental remediation of Agent Orange/dioxin in Vietnam and related health services. The Consolidated and Further Continuing Appropriations Act, 2013 (P.L. 113-6), which superseded P.L. 112-175, renewed the appropriation levels contained in P.L. 112-74 for FY2013, subject to sequestration requirements. Similarly, P.L. 113-46 and P.L. 113-73 renewed appropriations for FY2014 until being superseded by the Consolidated Appropriations Act, 2014 (P.L. 113-76), which appropriated $22.0 million for environmental remediation and $7.0 million for "health and disability programs in areas sprayed

with Agent Orange or otherwise contaminated by dioxin."[19] Section 7043(h) of the Consolidated and Further Continuing Appropriations Act, 2015 (P.L. 113-235) states the following:

> Funds appropriated by this Act under the heading "Economic Support Fund" shall be made available for remediation of dioxin contaminated sites in Vietnam and may be made available for assistance for the Government of Vietnam, including the military, for such purposes, and funds appropriated under the heading "Development Assistance" shall be made available for health/disability activities in areas sprayed with Agent Orange or otherwise contaminated with dioxin.

The act's accompanying "Explanatory Statement" specifies that $7.5 million is to be provided under "Development Assistance" for "Vietnam health/disability programs" and $15.0 million is to be provided under "Economic Support Fund" for "Vietnam (Environmental remediation of dioxin)."[20]

In Section 7043(g) of P.L. 114-113, the 114th Congress appropriated funds for FY2016 under the Economic Support Fund for "remediation of dioxin contaminated sites in Vietnam" and under Development Assistance for "health and disability programs in areas sprayed with Agent Orange and otherwise contaminated with dioxin, to assist individuals with severe upper or lower body mobility impairment and/or cognitive or developmental disabilities." S.Rept. 114-79, which accompanied P.L. 114-113, recommended "not less than $25 million" for environmental remediation and $7 million for "health/disability programs in areas sprayed with Agent Orange or otherwise contaminated by dioxin, to address the mobility, psycho-social, vocational, and other needs of persons with severe upper and lower body mobility impairment and/or cognitive or developmental disabilities." The report continued with the statement, "In order to minimize administrative costs and maximize impact in the field, the Committee intends that, to the maximum extent practicable, health/disability funds shall be implemented by Vietnamese organizations and entities."[21]

According to USAID's explanation, the U.S. embassy in Hanoi, the State Department, and USAID felt the amounts recommended for FY2016 "overestimated" needs for both environmental remediation and related health and disability services at that time.[22] After some consultations, the amounts were adjusted to $10 million and $6.5 million, respectively.

Funding for FY2017 was included in the Consolidated Appropriations Act, 2017 (P.L. 115-31). Section 7043(h) states:

> (1) DIOXIN REMEDIATION—Notwithstanding any other provision of law, of the funds appropriated by this Act under the heading `Economic Support Fund', not less than $20,000,000 shall be made available for activities related to the remediation of dioxin contaminated sites in Vietnam and may be made available for assistance for the Government of Vietnam, including the military, for such purposes.
>
> (2) HEALTH AND DISABILITY PROGRAMS—Of the funds appropriated by this Act under the heading 'Development Assistance', not less than $10,000,000 shall be made available for health and disability programs in areas sprayed with Agent Orange and

[19] Joint Explanatory Statement: Division K – Department of State, Foreign Operations, and Related Programs Appropriations Act, 2014, p. 27, http://docs.house.gov/billsthisweek/20140113/113-HR3547-JSOM-J-L.pdf.

[20] U.S. Congress, House Committee on Appropriations, Explanatory Statement Submitted by Mr. Rogers of Kentucky, Chairman of the House Committee on Appropriations Regarding the House Amendment to the Senate Amendment on H.R. 83, 113th Cong., 2nd sess., December 11, 2014.

[21] U.S. Congress, Senate Committee on Appropriations, *Department of State, Foreign Operations, and Related Programs Appropriations Bill, 2016*, 114th Cong., 1st sess., July 9, 2015, S.Rept. 114-79.

[22] CRS Correspondence with USAID, February 28, 2020.

> otherwise contaminated with dioxin, to assist individuals with severe upper or lower body mobility impairment and/or cognitive or developmental disabilities.

The act permitted, for the first time since the United States has funded dioxin environmental remediation in Vietnam, the provision of assistance to the Government of Vietnam. It also reiterated that health and disability programs are to be in areas sprayed with Agent Orange or otherwise contaminated with dioxin.

In March 2018, the 115th Congress appropriated in the Consolidated Appropriations Act, 2018 (P.L. 115-141) "not less than $20 million" for "activities related to the remediation of dioxin contaminated sites in Vietnam." The act also provided that the funds "may be made available for assistance for the Government of Vietnam, including the military, for such purposes." In addition, the act appropriated "not less than $10 million" for "health and disability programs in areas sprayed with Agent Orange and otherwise contaminated with dioxin, to assist individuals with severe upper or lower body mobility impairment or cognitive or developmental disabilities." In addition, Section 8132 of the act provided $15 million for environmental remediation in Vietnam from Department of Defense funds that "shall be available for a project in a country designated by the Secretary of Defense." On August 14, 2018, USAID notified Congress that it had entered into an inter-agency agreement with the Department of Defense for the transfer of $15 million of "Operation and Maintenance, Defense-wide" funds to conduct remediation work in and around Bien Hoa airbase.[23]

In Section 1052 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (P.L. 115-232), the 115th Congress authorized the Secretary of Defense to transfer "not more than $15,000,000" in FY2019 to the Secretary of State, for use by USAID, "to be used for the Bien Hoa dioxin cleanup in Vietnam." Any funds transferred were to be taken from the Department of Defense's "Operation and Maintenance, Defense-wide" account.

In February 2019, the 116th Congress appropriated in the Consolidated Appropriations Act, 2019 (P.L. 116-6) "not less than $20,000,000" for "activities related to the remediation of dioxin contaminated sites in Vietnam and may be made available for assistance for the Government of Vietnam, including the military, for such purposes." The act also appropriated "not less than $12,500,000 … for health and disability programs in areas sprayed with Agent Orange and otherwise contaminated with dioxin, to assist individuals with severe upper or lower body mobility impairment or cognitive or developmental disabilities."

In December 2019, the 116th Congress appropriated funds under the provisions of two separate acts. Section 1260H of the National Defense Authorization Act for Fiscal Year 2020 (P.L. 116-92) states, "the Secretary of Defense may transfer to the Secretary of State, for use by the United States Agency for International Development, amounts to be used for the Bien Hoa dioxin cleanup in Vietnam." Subsection 1260H(b) limits the amount to not less than $15 million. The Further Consolidated Appropriations Act, 2020 (P.L. 116-94) stated in Section 7043(i):

> (1) $13,000,000 shall be made available for health and disability programs in areas sprayed with Agent Orange and contaminated with dioxin, to assist individuals with severe upper or lower body mobility impairment or cognitive or developmental disabilities;
>
> (2) $20,000,000 shall be made available, notwithstanding any other provision of law, for activities related to the remediation of dioxin contaminated sites in Vietnam and may be made available for assistance for the Government of Vietnam, including the military, for such purposes; and

[23] USAID, Congressional Notification, CN #181, August 14, 2018.

(3) $1,500,000 shall be made available for a war legacy reconciliation program.

In December 2020, the 116th Congress passed the Consolidated Appropriations Acts, 2021 (P.L. 116-260). Section 7043(i) appropriates

- $14.5 million for "health and disability programs in areas sprayed with Agent Orange and contaminated with dioxin, to assist individuals with severe upper or lower body mobility impairment or cognitive or developmental disabilities";
- $19.0 million for "activities related to the remediation of dioxin contaminated sites in Vietnam and may be made available for assistance for the Government of Vietnam, including the military, for such purposes"; and
- $2.5 million for "a war legacy reconciliation program."

In addition, the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (P.L. 116-283) authorized the Secretary of Defense to transfer up to $15 million to the Secretary of States "for use by the United States Agency for International Development, amounts to be used for the Bien Hoa dioxin cleanup in Vietnam."

Overall, Congress has appropriated $381.4 million for Agent Orange/dioxin environmental remediation and related health and disability programs in Vietnam since FY2007. Of that amount, $266.0 million was designated for environmental remediation and $94.4 million for related health and disability programs.

USAID Obligations

The State Department has designated USAID as the responsible agency for the obligation of the appropriated funds for Agent Orange/dioxin-related activities in Vietnam. **Table 2** lists the amounts USAID has obligated of funds appropriated over FY2007 to FY2019 by type of activity, implementing partner, and fiscal year. As of November 2019, USAID had obligated 88% of the $197 million appropriated for FY2011-FY2019 for environmental remediation projects, and 75% of the $66.8 million appropriated for FY2011-FY2019 for health and disability services.[24]

The manner in which USAID has obligated the appropriated funds has, at times, been an issue with Congress. While the rate of obligations for environmental remediation activities generally has not been a matter of concern, how USAID has obligated appropriations for health and disability activities has drawn some congressional attention. The two main concerns about the health and disability obligations are the seemingly slower pace of utilization (when compared to the environmental remediation funds), and the types of programs being funded.

Since Congress began appropriating funds specifically for Agent Orange/dioxin-related activities in Vietnam in FY2007, it generally has designated that the health and disability services are to be provided in locations near Agent Orange/dioxin-contaminated areas. The $3 million appropriated in FY2007 in P.L. 110-28 was "to support health programs in communities near those sites," according to the accompanying Senate report.[25] The joint committee print accompanying P.L. 111-8 stipulated that "$3,000,000 is provided to continue environmental remediation of dioxin contamination at the Danang Airport and related health activities in nearby communities in

[24] These calculations are based on the amounts set or recommended in the appropriation acts; not the adjusted levels set by State Department and USAID. They also do not include appropriations for FY2020, as they had not been determined at the time CRS requested obligation data from USAID.

[25] U.S. Congress, Senate Committee on Appropriations, *Making Emergency Supplemental Appropriations for the Fiscal Year Ending September 30, 2007, and for Other Purposes*, 110th Cong., 1st sess., S.Rept. 110-37.

Vietnam."[26] H.Rept. 112-331, which accompanied P.L. 112-74, stated, "The conferees recommend not less than $5,000,000 under this heading be made available for health/disability activities in areas in Vietnam that were targeted with Agent Orange or remain contaminated with dioxin."[27] It is unclear if the State Department and USAID have in all cases obligated these funds in accordance with this locational guidance.

Based on the information provided by USAID, funds for health and disability services in FY2007-FY2009 were obligated to programs in Danang. However, for FY2010 to FY2013, the appropriated health and disability funds were largely obligated to Development Alternatives, Inc. (DAI), a U.S.-based consulting company, for a disability support program that was designed to "broadly address the needs and improve the lives of persons with disabilities," without explicit reference to Agent Orange/dioxin hot spots.[28] According to USAID, this three-year program ended in January 2016. During this period, it seemed that USAID also narrowed the scope of the programs funded exclusively for disability projects.

Following consultations with the Ministry of Labour, Invalids, and Social Affairs (MOLISA), Congress, and other interested parties, as of FY2014, USAID reportedly returned to directly obligating funds for health and disability services in smaller amounts and increased its outreach to Vietnamese nongovernmental organizations. This shift to smaller direct program funding is reflected in **Table 2**.

On April 20, 2019, USAID and Office 701 signed a memorandum of intent (MOI) on "support to persons with disabilities in Vietnamese provinces sprayed with Agent Orange."[29] The "General Objective" of the MOI is:

> To undertake joint efforts in building capacity for providing healthcare, medical treatment, rehabilitation services, orthopedic services, social services, improving the quality of life and ensuring social inclusion of persons with disabilities in Vietnamese provinces sprayed with Agent Orange.

For more about USAID's disability programs in Vietnam, see "Disability Programs" below.

Starting in FY2017, USAID began shifting its environmental remediation obligations toward projects at the Bien Hoa airbase. Also, for the first time, funds were obligated to Vietnam's Ministry of National Defence, but USAID retained authority to directly obligate those funds to subcontractors after consultation with the Ministry of National Defence. For example, a portion of the funds obligated to the Ministry of National Defence was subcontracted to Trigon, LLC to develop architectural and engineering plans for the Bien Hoa environmental remediation project. For more about the Bien Hoa environmental remediation project, see "Bien Hoa Airbase."

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[26] U.S. Congress, House Committee on Appropriations, *Division H—Department of State, Foreign Operations, and Related Programs Appropriations Act, 2009*, committee print, 111th Cong., 1st sess., January 1, 2010.

[27] U.S. Congress, House Committee on Appropriations, *Military Construction and Veterans Affairs and Related Agencies Appropriations Act, 2012 Conference Report*, 112th Cong., December 15, 2011.

[28] USAID, "Persons with Disabilities Support Program," press release, December 2013, http://www.usaid.gov/vietnam/persons-with-disabilities-support-program.

[29] "Memorandum of Intent between the United States Agency for International Development (USAID) and the Office of the Standing Board for the National Steering Committee on Overcoming the Post-war Unexploded Ordnance and Toxic Chemical Consequences in Vietnam (Office 701) on Support to Persons with Disabilities in Vietnamese Provinces Sprayed with Agent Orange," signed April 20, 2019, at Dong Nai, Vietnam.

Table 2. Obligation of Appropriated Funds for Agent Orange/Dioxin-Related Activities in Vietnam

(by fiscal year and type of activity; in dollars)

Program Component	Implementing Partner	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	TOTAL
HEALTH AND DISABILITY															
Empowering People with Disabilities in Danang	Save the Children	400,000		799,980											1,199,980
Support of People with Disabilities in Danang	East Meets West Foundation	200,000		300,000											500,000
Rehabilitation Services and Support to People with Disabilities in Danang	Vietnam Assistance for the Handicapped	382,344		906,064											1,288,408
Disability and Health Assessment	Chemonics Inc.				103,000										103,000
Integrated Disability Support Program	Development Alternatives Inc.					5,192,582	2,477,342	1,326,954							8,996,878
Disability and Health Support Inter-agency Agreement	Centers for Disease Control					53,169									53,169
Partner Capacity Development	Institute for International Education							683,046		300,000	300,000	350,000			1,633,046
Inclusion of Disability Program	Vietnam Assistance for the Handicapped							750,000							750,000
Advancing Medical Care Rehabilitation Education	Humanity anf Inclusion (HI)								1,014,870	1,661,942	1,300,000	1,250,000	1,515,848		3,976,812

Program Component	Implementing Partner	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	TOTAL
Protecting the Rights of People with Disabilities	Action to the Community Development Center								750,000	210,705	225,240	1,997,809			1,185,945
Disability Rights Enforcement, Coordination and Therapy Program	Vietnam Assistance for the Handicapped								1,547,495	1,400,860	1,249,300	757,000	2,674,309		7,628,964
Disability Integration of Services and Therapies Network	Sustainable Health Development (VietHealth)								345,630		1,542,485	1,100,000	524.169		3,183,754
Accessibility for Inclusion Program	Disability Research and Capacity Development								310,210		999,907		999,839		2,309,956
Moving Without Limit	International Center-Vietnam Veterans of American Foundation								512,795	551,493	597,305	770,000	2,938,931		5,370,524
I-Thrive	Center for Creative Initiatives in Health and Population (CCIHP)												1,999,880		1,999,880
Sustainable and Interdisciplinary Rehabilitation Services for Persons with Severe Disabilities in Binh Dinh and Quang Nam Provinces	PHAD/Institution of Population, Health and Development												1,367,211		1,367,211
Administrative Support and M&E	USAID	17,656	96,102	118,009	100,000	70,907	200,000	240,000	269,000	375,000	285,763	408,100	1,346,904		3,527,441

Program Component	Implementing Partner	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	TOTAL
Subtotal—Health and Disability Obligations		1,000,000	96,102	2,124,053	203,000	5,316,658	2,677,342	3,000,000	4,750,000	4,500,000	6,500,000	10,000,000	10,000,000		50,167,155
Subtotal – Health and Disability Appropriations		*	*	*	*	3,000,000	5,000,000	4,800,000	7,000,000	7,500,000	7,000,000 (6,500,000)	10,000,000	10,000,000	12,500,000	66,800,000
ENVIRONMENTAL ASSESSMENT AND REMEDIATION															
Assessments, Engineering Designs and Plans at Danang Airport	CDM International, Inc.		1,450,000	681,076	2,411,200										4,542,276
Excavation and Construction Services at Danang Airport	Tetra Tech, Inc.				5,429,408	11,566,804			4,971,021	5,205,803	3,728,385				30,901,421
Construction Management Oversight at Danang Airport	CDM International Inc.				6,000,000	2,336,444		1,645,000	1,017,205	2,282,951	3,057,105	3,000,000			19,338,705
In-Pile Thermal Desorption Design at Danang Airport	TerraTherm, Inc.					1,336,486									1,336,486
In-Pile Thermal Desorption at Danang Airport	Tetra Therm, Inc.						16,492,658	11,209,712	5,000,000	5,780,865	2,000,000	6,921,437			47,404,672
Bien Hoa Environment Assessment	CDM International, Inc.						5,200	500,000	2,795,774	410,381		368,139			4,079,494
Partner Capacity Development	Institute for International Education (IEE)							80,000	100,000		250,000				430,000
Bien Hoa Environment Assessment	Ministry of National Defence											8,650,000	33,511,516	15,000,000	57,161,516
Of which: Architect-Engineer Services	Trigon Associates, LLC											6,000,000			6,000,000

Program Component	Implementing Partner	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	TOTAL
USAID Learns	Social Impact, Inc.												500,000		500,000
Administra-tive Support	USAID											368,489	578,664		947,153
Administrative Support and M&E	USAID		453,898	194,871	300,000	463,000	824,800	1,027,000	1,116,000	1,320,000	964,510	702,441	1,488,484		8,873,004
Subtotal—Environmental Remediation Obligations			1,903,898	875,947	14,140,608	15,702,734	17,322,658	14,461,712	15,000,000	15,000,000	10,000,000	20,000,000	35,000,000	15,000,000	174,067,574
Subtotal-Environmental Remediation Appropriated		*	*	*	*	15,500,000	15,000,000	14,500,000	22,000,000	15,000,000	25,000,000 (10,000,000)	20,000,000	35,000,000	35,000,000	197,000,000

Source: USAID, as of November 7, 2019.

Note: *Appropriated funds were not separately allocated to health and disability and environmental remediation; see **Table 1**.

One of the issues identified by USAID as accounting for the delay in obligating appropriated funds is, in its view, the "slow process" for distributing funds to obligate to the U.S. embassy in Hanoi. According to USAID, FY2019 funds for environmental remediation and related health and disability service had not been made available to the U.S. embassy in Hanoi as of the end of February 2020, five months after the fiscal year had ended.[30]

Danang Airport Environmental Remediation Project

One of the main activities financed by congressional appropriations related to Agent Orange/dioxin in Vietnam was the environmental remediation project at Danang Airport. The joint military/civilian airport in Danang was a major operational hub for the U.S. military's Operation Ranch Hand. One study of Danang airbase found soil concentrations of "TCDD toxic equivalents" (TEQ) of up to 365 parts per billion (ppb)—365 times the international maximum level of 1.0 ppb.[31] Seventeen out of the 23 soil samples taken at Danang airbase exceeded the international maximum standard.[32] Since its beginnings in 2008, when the U.S. and Vietnamese governments started plans for the environmental remediation of Danang airport, the remediation project experienced delays in implementation, unexpected increases in the amount of material requiring decontamination, and rising costs. While USAID's initial intent was to complete the project by October 2013, a November 2014 U.S. government audit indicated that the estimated completion date for the project was March 31, 2017.[33] The decontamination was completed in August 2017. During the life of the project, the amount of material to be decontaminated rose from an estimated 61,700 cubic meters (m^3) to approximately 90,000 m^3, plus an additional 60,000 m^3 of "lower risk material."[34] The estimated cost of the project increased from $33.7 million to over $110 million. The Danang airport remediation was officially declared completed on November 9, 2017.[35]

Work on the project began in December 2009, when the State Department and Vietnam's Ministry of Natural Resources and the Environment (MONRE) signed a memorandum of understanding (MOU) setting the framework for implementing environmental health and remediation programs in Danang.[36] The MOU designated USAID and Office 33 as the implementing agencies. According to a State Department press release, the MOU covered $6.0 million in funds appropriated in FY2007 and FY2009.[37] Among the activities included in the MOU was a grant to CDM International, Inc., a Massachusetts-based construction and engineering company, in association with Hatfield Associates, to design an environmentally sound engineering approach to dioxin containment at Danang airport.

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[30] CRS correspondence with USAID, February 28, 2020.

[31] T.G. Boivin, K.S. Le, L.W. Dwernychuk, M.H. Tran, G.S. Bruce, N.H. Minh, N.T. Tran, K.S. Trinh, T.D. Phung, D. Moats, J.A. Allen, L. Borton, and M. Davies, "Agent Orange Dioxin Contamination in the Environment and Human Population in the Vicinity of Danang Airbase, Viet Nam," Hatfield Consultants, Ltd.

[32] Ibid.

[33] Office of Inspector General, USAID, *Audit of USAID/Vietnam's Environmental Assessments and Remediation Project*, No, 5-440-15-001-P, Manila, Philippines, November 12, 2014.

[34] "US, Vietnam Complete Agent Orange Decontamination Campaign at Da Nang Airport," *VN Express*, November 10, 2017.

[35] "US, Vietnam Complete Agent Orange Decontamination Campaign at Da Nang Airport," *VN Express*, November 10, 2017.

[36] U.S. Embassy in Hanoi, "US and Vietnam Sign Agreement on Dioxin Environmental Health and Remediation Programs," press release, December 16, 2009, http://vietnam.usembassy.gov/pr121609.html.

[37] Ibid.

In June 2010, USAID completed an Environmental Assessment (EA) of Danang airport that recommended the use of thermal desorption to decontaminate an estimated 61,700 m^3 of contaminated material in six separate hot spots at the airport.[38] The EA estimated that the decontamination would take two years to complete at a cost of $33.7 million, but noted that implementation would present "challenges" that could increase the cost by 50%.

USAID and Vietnam's Ministry of National Defence (MND) signed a Memorandum of Intent in Hanoi on December 30, 2010, with the goal of starting the remediation project in the summer of 2011 and completing the project by October 2013.[39] The Prime Minister approved the remediation of Danang airport by in-pile thermal desorption (IPTD) in February 2011, and MND approved the project in April 2011.

USAID posted a Request for Proposals (RFP #486-11-028) in May 2011 for bids on the project. In July 2012, USAID awarded two contracts for the environmental remediation of Danang airport by IPTD. CDM Smith, a U.S. firm headquartered in Massachusetts, was granted $8.37 million for project oversight and construction management. Tetra Tech, Inc., headquartered in California, was awarded $17 million for the excavation and construction components of the project.[40] A ceremony to launch the Danang airport environmental remediation project was held at Danang airport on August 9, 2012; onsite work began on August 20, 2012.

In-Pile Thermal Desorption

In-pile thermal desorption is a relatively new technology for dioxin decontamination of soil that has been used in Japan and the United States. The contaminated soil and sediment is enclosed in an above-ground pile in which heating rods and evacuation tubes have been placed. The soil is then raised to a temperature of at least 335°C (635°F), which breaks the molecular bonds holding the dioxin together, causing the dioxin to decompose into other, harmless substances, primarily CO_2, H_2O, and Cl_2. The evacuation tubes capture any vaporized dioxin, and send it to a secondary treatment facility that decomposes the dioxin.

Table 3. Contracts Awarded for Danang Environmental Remediation

As of November 2014

Contractor	Purpose of Award	Amount of Award	Date of Award
CDM International Inc.	Assessment, engineering, and planning design at Danang	$4.54 million	Sept. 29, 2009
Terra Therm Inc.	Design of IPTD at Danang	$1.34 million	Jan. 20, 2012
CDM International Inc.	Construction management and oversight of Danang project	$13.28 million	June 18, 2012
Tetra Tech Inc.	Environmental remediation (excavation and construction) at Danang	$16.99 million	June 28, 2012
Terra Therm Inc.	IPTD services at Danang	$36.78 million	Feb. 7, 2013

Source: Office of the Inspector General, USAID, *Audit of USAID/Vietnam's Environmental Assessments and Remediation Project*, Audit Report No. 5-440-15-001-P, Manila, Philippines, November 12, 2014.

[38] The EA is available online at http://www.agentorangerecord.com/images/uploads/EA%20DNG.pdf.

[39] "Memorandum of Intent between the United States Agency for International Development and the Department of Science, Technology, and Environment, Ministry of National Defense of Vietnam on Environmental Remediation of Dioxin Contamination at Danang Airport Site, Vietnam," December 30, 2010.

[40] U.S. Consulate in Ho Chi Minh City, "U.S. Awards Contracts to Implement Agent Orange/Dioxin Remediation Project in Danang," press release, July 3, 2012, http://hochiminh.usconsulate.gov/pr07032012.html.

An internal USAID audit of the remediation project conducted in November 2014 indicated that five contracts have been awarded for the environmental assessment and remediation project at Danang airport (see **Table 3**). Three of the awarded contracts correspond to the amounts provided by USAID in **Table 2**, but three do not, probably reflecting work beyond FY2013. The audit noted several potential risks that could delay the project and, by extension, raise its overall cost, including the problems associated with inclement weather and cooling the treated soil.[41] The audit particularly noted the lack of a formal risk management plan to address some of the project risks identified by USAID and the project's contractors, and recommended that a formal risk management plan be implemented. The audit also cited CDM for providing inaccurate performance data and not fulfilling its obligations to provide training to Vietnamese officials, and recommended that more training be provided and better data documentation procedures be adopted. USAID agreed with all of the audit's recommendations.

The thermal desorption of the contaminated soil was done in two phases, due to the amount of material involved. The gradual heating of Phase 1, which involved the treatment of approximately 45,000 m^3 of soil contained in an area 70 meters wide and 100 meters long (about the size of a football field) and 8 meters (26 feet) high, began in April 2014. The cooling down of Phase 1 started in April 2015, after soil sampling revealed that more than 95% of the dioxin had been removed. Excavation for Phase 2, which involved the draining of three small lakes and the removal of the exposed lake beds, began in January 2015. The treatment of 45,000 m^3 of Phase 2 soil began in November 2016, and was completed in August 2017. According to USAID, CDM International received $23.9 million for remediation assessments, designs, and construction management oversight; TerraTherm Inc. received $48.7 million for IPTD design and implementation, and TetraTech, Inc. received $30.9 million for excavation and construction services.

Progress on the decontamination of Danang airport was delayed by several factors. Weather during Vietnam's rainy season (September to December) hampered progress on the excavation of soil and the construction of the thermal treatment area. Soil testing following the drainage of the small lakes determined more soil and sediment would require decontamination than previously estimated. The secondary treatment facility was shut down in July 2014 to change the filtering system. It also took more time than anticipated to raise the ambient temperature of the Phase 1 soil to the target 335°C.[42]

On November 7, 2018, the two governments held a ceremony to mark the completion of the Danang Airport environmental remediation project.[43] The completed project took more than twice as long and cost more than three times as much as initially projected by USAID. According to Pham Quang Vu, head of Vietnam's Air Force and Air Defense Military Science Division, the higher cost and greater time was due to underestimating the contamination at the airport, indicating that 162,500 cubic meters of soil—not 72,900 cubic meters—needed to be treated.[44]

[41] Office of the Inspector General, *Audit of USAID/Vietnam's Environmental Assessments and Remediation Project*, U.S. Agency for International Development, Audit Report No. 5-440-15-001-P, Manila, Philippines, November 12, 2014.

[42] Water infiltration during the rainy season is reportedly a contributing factor.

[43] U.S. Agency for International Development, "United States and Vietnam Complete Environmental Remediation at Danang Airport," press release, November 7, 2018.

[44] Nguyen Dong, "Dioxin Contamination if Da Nang More Serious than Expected: Conference," *VN Express*, November 7, 2018.

Anthony Kolb, chief of USAID's environmental remediation unit, stated that the dioxin had percolated three meters deeper than expected.[45]

USAID contracted Integra, LLC to conduct a performance evaluation of the environmental remediation project at Danang airport.[46] The executive summary of the evaluation states, "The Project was successful in achieving its higher-level purpose of treating dioxin and improving relationships between the Governments of the United States and Vietnam." According to the evaluation, 162,567 m^3 of soil and sediments were excavated, 94,593 m^3 were treated, and 67,974 m^3 were placed in containment. This was reportedly done in a cost-effective manner, with an average cost of $669 per ton.[47] The evaluation also noted that in the course of the project, Vietnamese officials were trained in monitoring, sampling, and remediation technologies.

The evaluation did note areas where it argued improvement could be made in future environmental remediation projects. It asserted that the original assessments underestimated the amount of soil and sediment requiring remediation (including the 20% contingency allowance), leading to increased costs and requiring more time to complete the project. This was attributed to soil sampling methods used.[48] In addition, the project did not originally plan for the containment of contaminated material, so the decision to leave nearly 68,000 m^3 untreated was considered an element of the project that did not meet expectations. The evaluation did indicate that most of the Vietnamese entities interviewed said that the remediation treatment exceeded their expectations.

Disability Programs

USAID has, in general, utilized the funds Congress appropriated for health/disability activities in areas sprayed with Agent Orange or otherwise contaminated with dioxin as part of programs USAID describes as providing support for persons with disabilities in Vietnam, regardless of the cause of the disability. Many of those programs have been conducted in proximity to Agent Orange hot spots.

The provision of U.S. assistance for the health effects of Agent Orange and dioxin initially was a source of some tension between the two governments. As Senator Patrick Leahy, one of the early congressional advocates for U.S. Agent Orange/dioxin assistance to Vietnam, explained in a statement to the Senate:

> On the one hand, the Government of Vietnam for years blamed Agent Orange for seemingly any case of birth defect in the country, no matter how farfetched. On the other hand, the U.S. Government consistently denied causation between Agent Orange and birth defects in Vietnam and refused to accept any responsibility for the alleged harm. For years, the issue remained a contentious one for our countries.[49]

Later on in his floor speech, Senator Leahy expressed his views on the importance of U.S. assistance for the health effects of Agent Orange/dioxin:

[45] Ibid.

[46] USAID, *Performance Evaluation of USAID's Environmental Remediation at Danang Airport*, October 2018.

[47] The evaluation notes that similar, but smaller projects have cost $337-$5,205 per ton.

[48] The evaluation states, "Use of grab samples did not give high level of accuracy," and suggests multi-incremental sampling would be preferable.

[49] Sen. Leahy, "Legacy of Agent Orange," Senate Debate, *Congressional Record*, vol. 156 (September 16, 2010), p. S7169.

> I want to emphasize the importance of the health component. While the soil and sediment remediation is critical and has received the most attention, it would be hard to overstate the importance the Vietnamese give to addressing the needs of people who have been harmed.[50]

In addition, some critics in Vietnam express the view that the USAID programs are disassociated from the health effects of Agent Orange/dioxin exposure and that little of the funding goes to direct support for people and families suffering from those health effects, which include, but are not limited to, people with disabilities.[51] The evolving language in the appropriation act's designating funding for health and disability services in Vietnam may indicate that many in Congress share some of the concerns of the Vietnamese critics.

When Congress first began appropriating funds for Agent Orange/dioxin assistance in Vietnam, the legislative language referred to "health activities" or "health programs" near contaminated sites (see **Table 4**). Congress first referred to disability "activities" in the Consolidated Appropriations Act, 2012 (P.L. 112-74). The House Report accompanying that act, H.Rept. 112-331, stated the funds were to "be made available for health/disability activities in areas in Vietnam that were targeted with Agent Orange or remain contaminated with dioxin."

Similar language designating the fund for areas sprayed with Agent Orange or contaminated with dioxin appeared in the next two acts, P.L. 113-76 and P.L. 113-235, that appropriated funds for "related health/disability activities" in Vietnam. Since then, all the appropriation acts have stated the funds:

> shall be made available for health and disability programs in areas sprayed with Agent Orange and otherwise contaminated with dioxin, to assist individuals with severe upper or lower body mobility impairment or cognitive or developmental disabilities.[52]

The legislative language also shows progressively more specificity regarding how funds appropriated for health and disability activities in Vietnam were to be utilized. Initially the funds were for health activities in communities near the contaminated sites; more recently the funds were to be use "in areas sprayed with Agent Orange and otherwise contaminated with dioxin." At first, the funds were designated for "health programs," but in the last five appropriation acts going back to FY2016, the funds are to meet three specific criteria: (1) for "health and disability programs"; (2) "in areas sprayed with Agent Orange and otherwise contaminated with dioxin"; and (3) to "assist individuals with severe upper or lower body mobility impairment and/or cognitive or developmental disabilities."

According to USAID's flyer on its disability programs in Vietnam, starting in 1989 with a program financed by the Leahy War Victims Fund,[53] the U.S. government has provided over $100 million in assistance to disabled Vietnamese, regardless of the cause of the disability.[54] The flyer does not mention Agent Orange, dioxin, or areas sprayed with Agent Orange. However, the assistance referred to in the flyer presumably includes the funds specifically appropriated for

[50] Sen. Leahy, "Legacy of Agent Orange," Senate Debate, *Congressional Record*, vol. 156 (September 16, 2010), p. S7169.

[51] Sonya Schoenberger, "Victims Left Behind in US Agent Orange Cleanup Efforts," *The Diplomat*, September 26, 2019.

[52] P.L. 116-94 is slightly different, stating "… impairment and/or cognitive.…"

[53] For more about the Leahy War Victims Fund, see http://www.usaid.gov/documents/1866/programs-vulnerable-populations-leahy-war-victims-fund.

[54] USAID, "USAID's Disability Programs in Vietnam," press release, March 2019.

health and disability services in areas located near Agent Orange/dioxin-contaminated sites and other sources of developmental or health assistance listed in **Table 4**.

Since FY2007, the locations in which USAID has conducted disability programs have included some of the more highly sprayed areas of Vietnam. Between FY2007 and FY2010, the State Department and USAID used the funds appropriated for health services for grants to various agencies to offer programs to improve the quality of life for persons with disabilities in Danang, which had a seriously dioxin contaminated airport (see "Danang Airport Environmental Remediation Project" above).[55] A December 2010 USAID assessment of these grants noted the "many accomplishments" of these programs, but also noted that the three-year time period was "very short for meeting program objectives."[56]

Table 4. Legislative Language on Agent Orange Related Health and Disability Assistance to Vietnam

Public Law	Relevant Legislative Text
P.L. 110-28	S.Rept. 110-37: The committee recommends $3,200,000 for the remediation of dioxin contaminated sites in Vietnam, and to support health programs in communities near those sites.
P.L. 111-8	Sec. 7071. (h) Vietnam.—Notwithstanding any other provision of law, funds appropriated under the heading "Development Assistance" in this Act may be made available for programs and activities in the central highlands of Vietnam, and shall be made available for environmental remediation and related health activities in Vietnam.
P.L. 111-117	Sec. 7071. (j) Vietnam—Funds appropriated by this Act that are made available for assistance for Vietnam for remediation of dioxin contaminated sites and related health activities may be made available for assistance for the Government of Vietnam, including the military, for such purposes.
P.L. 111-212	S.Rept. 111-188: Vietnam.—The committee recommends $12,000,000 for assistance for Vietnam to support the remediation of dioxin contamination at the Danang Airport, which poses extreme risks to human health and welfare, and related health activities.
P.L. 112-10	Sec. 2120. (c) That not less than $15,500,000 of the funds appropriated under this heading should be made available for remediation activities, and not less than $3,000,000 should be made available for related health activities, referenced in section 7071(j) of this Act.
P.L. 112-74	Sec. 7044. (h) Vietnam.—Funds appropriated under the heading "Economic Support Fund" shall be made available for remediation of dioxin contaminated sites in Vietnam and may be made available for assistance for the Government of Vietnam, including the military, for such purposes, and funds under the heading "Development Assistance" shall be made available for related health/disability activities. H.Rept. 112-331: Vietnam.—The conferees recommend not less than $5,000,000 under this heading be made available for health/disability activities in areas in Vietnam that were targeted with Agent Orange or remain contaminated with dioxin. The conferees endorse Senate report language on consultation and the development of a multi-year plan.

[55] For example, the East Meets West Foundation was awarded grants for medical and social screening for people with disabilities, corrective surgery, physical therapy and rehabilitation services, scholarships for children with disabilities, and community-based rehabilitation. USAID provided funding to Save the Children in 2009 to expand employment and income-generating activities for people with disabilities and their families living in Danang. USAID also granted funds to the Vietnam Assistance for the Handicapped to help people with disabilities and their families living in Danang improve their social and economic status and integration, and help local authorities, health service providers, disabled organizations, and others develop and enforce programs that increase resources for disability. For more information, see CRS Report RL34761, *Vietnamese Victims of Agent Orange and U.S.-Vietnam Relations*, by Michael F. Martin.

[56] USAID, *USAID/Vietnam: Disabilities and Health Assessment*, Report No. 10-01-419-12, December 2010.

Public Law	Relevant Legislative Text
P.L. 113-76	Sec. 7043. (g) Vietnam.—Funds appropriated by this Act under the heading "Economic Support Fund" shall be made available for remediation of dioxin contaminated sites in Vietnam and may be made available for assistance for the Government of Vietnam, including the military, for such purposes, and funds appropriated under the heading "Development Assistance" shall be made available for health/disability activities in areas sprayed with Agent Orange or otherwise contaminated with dioxin.
P.L. 113-235	Sec. 7043. (h) Vietnam.—Funds appropriated by this Act under the heading "Economic Support Fund" shall be made available for remediation of dioxin contaminated sites in Vietnam and may be made available for assistance for the Government of Vietnam, including the military, for such purposes, and funds appropriated under the heading "Development Assistance" shall be made available for health/disability activities in areas sprayed with Agent Orange or otherwise contaminated with dioxin.
P.L. 114-113	Sec. 7043. (g) Vietnam.—(2) HEALTH AND DISABILITY PROGRAMS—Funds appropriated by this Act under the heading "Development Assistance" shall be made available for health and disability programs in areas sprayed with Agent Orange and otherwise contaminated with dioxin, to assist individuals with severe upper or lower body mobility impairment and/or cognitive or developmental disabilities.
P.L. 115-31	Sec. 7043. (h) Vietnam.—(2) HEALTH AND DISABILITY PROGRAMS—Of the funds appropriated by this Act under the heading 'Development Assistance', not less than $10,000,000 shall be made available for health and disability programs in areas sprayed with Agent Orange and otherwise contaminated with dioxin, to assist individuals with severe upper or lower body mobility impairment and/or cognitive or developmental disabilities.
P.L. 115-141	Sec. 7043. (g) Vietnam.—(2) HEALTH AND DISABILITY PROGRAMS—Of the funds appropriated by this Act under the heading 'Development Assistance', not less than $10,000,000 shall be made available for health and disability programs in areas sprayed with Agent Orange and otherwise contaminated with dioxin, to assist individuals with severe upper or lower body mobility impairment or cognitive or developmental disabilities.
P.L. 116-6	Sec. 7043. (h) Vietnam.—(2) HEALTH AND DISABILITY PROGRAMS—Of the funds appropriated by this Act under the heading "Development Assistance," not less than $12,500,000 shall be made available for health and disability programs in areas sprayed with Agent Orange and otherwise contaminated with dioxin, to assist individuals with severe upper or lower body mobility impairment or cognitive or developmental disabilities.
P.L. 116-94	Sec. 7043. (i) Vietnam.—(2) HEALTH AND DISABILITY PROGRAMS—Of the funds appropriated by this Act under the heading 'Development Assistance', not less than $10,000,000 shall be made available for health and disability programs in areas sprayed with Agent Orange and otherwise contaminated with dioxin, to assist individuals with severe upper or lower body mobility impairment and/or cognitive or developmental disabilities.
P.L. 116-260	Sec. 7043. (i) Vietnam.—(1) $14,500,000 shall be made available for health and disability programs in areas sprayed with Agent Orange and contaminated with dioxin, to assist individuals with severe upper or lower body mobility impairment or cognitive or developmental disabilities.

Source: CRS.

In 2012, USAID approved a three-year, nationwide Persons with Disability Support Program (PDSP) to be jointly implemented with Development Alternatives, Inc. (DAI) and Vietnam Assistance for the Handicapped (VNAH). The project's request for applications (RFA) indicated that the program was intended to "build on the accomplishments of the previous USAID assistance to people with disabilities (PWD) living in communities in Danang, as well as include additional relevant public health activities."[57] The project's geographic focus was to be primarily in Danang, and "to some extent other areas, proposed by the Recipient, where there is a high

[57] U.S. Agency for International Development, *Program for Comprehensive and Integrated Support for People with Disabilities*, USAID-Vietnam-RFA-486-12-007, December 30, 2011.

disability burden, the need is the greatest, and in regions where dioxin hot spots are located." The RFA specifically calls for a needs assessment to be conducted in Bien Hoa and Phu Cat, two of the other major dioxin hot spots. Funding for PDSP was initially set at $9 million.

As part of PDSP's cooperative agreement, DAI was to award grants to approximately local partners and organizations providing assistance to persons with disabilities, including health services, rehabilitation therapy, vocational training, and community awareness. In addition, USAID provided assistance to VNAH to work on disability policy and legal framework needs of the Government of Vietnam.

The PDSP program was headquartered in Danang, and initially operated in the provinces of Binh Dinh, Danang, and Dong Nai—where the three dioxin hot spots of Phu Cat, Danang, and Bien Hoa (respectively) are located. According to a June 2015 USAID update, the PDSP program has been extended to the provinces of Quang Nam, Tay Ninh, and Thua Thien-Hue.[58] According to the Aspen Institute, all three provinces were heavily sprayed with Agent Orange during the Vietnam War, but have not been identified as hot spots.[59] A USAID summary of the program after two years reported that "nearly US$900,000 in grants to 14 local partners and organizations" had been awarded.[60] In its 2015 self-evaluation of the Vietnam Disability Programming, USAID reported that the PDSP program provided 9,482 people with disabilities with services and 3,264 health and social service providers with training.

In June 2014, USAID adopted a new approach to the provision of assistance to persons with disabilities in Vietnam.[61] According to the USAID statement, one of the key objectives of USAID assistance to Vietnam was to foster expanded opportunities to vulnerable populations, such as persons with disabilities. To that end, USAID aimed "to address key challenges for persons with disabilities through provision of direct assistance to improve health, independence, and participation in economic and social life."

In addition to continuing to support changes in Vietnam's disability policies, USAID would finance the provision of physical, occupational, and speech therapies to persons with disabilities, as well as provide training to Vietnamese practitioners and technicians in the delivery of such services. Target areas for these programs were to be locations "where disability prevalence and poverty rates are high"; no mention was made of Agent Orange or dioxin. Among the identified locations were the provinces of Binh Dinh, Binh Phuoc, Dong Nai, Quang Nam, Tay Ninh, Thai Binh, and Thua Thien-Hue. All these provinces have been identified by the Aspen Institute as heavily sprayed areas, except Thai Binh.[62] USAID, in consultation with various Vietnamese agencies, directly administered the new approach.

[58] U.S. Agency for International Development, "Persons with Disabilities Support Program," press release, June 2015.

[59] Aspen Institute, "Visit Maps of Heavily Sprayed Areas and Dioxin Hot Spots," http://www.aspeninstitute.org/policy-work/agent-orange/what-agent-orange/map-dioxin.

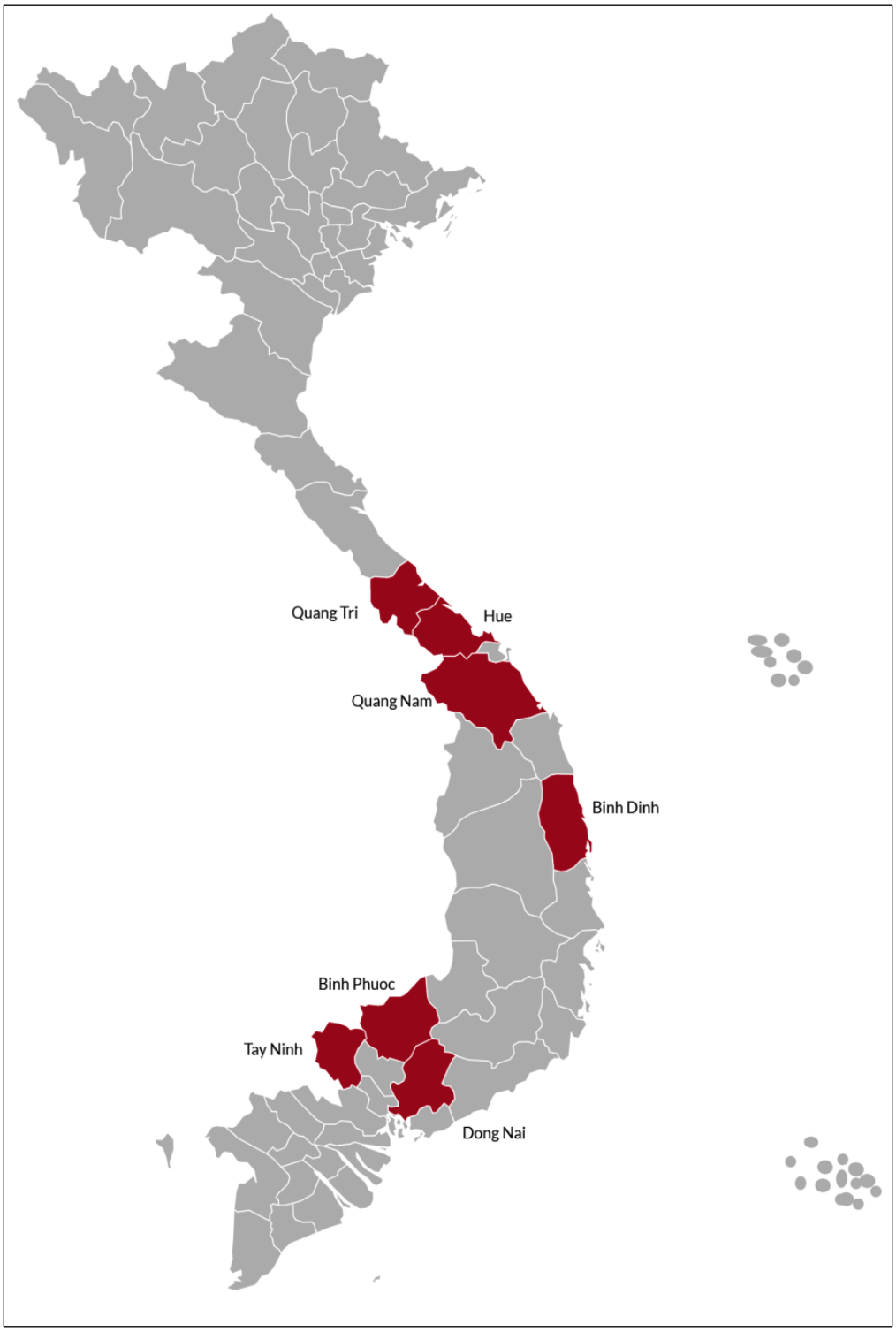
[60] U.S. Agency for International Development, "Persons with Disabilities Support Program (PDSP): Project Year Two Brief," press release, December 2014.

[61] U.S. Agency for International Development, "New Forward-Thinking Disabilities Assistance Approach," press release, June 4, 2014.

[62] Aspen Institute, "Visit Maps of Heavily Sprayed Areas and Dioxin Hot Spots," http://www.aspeninstitute.org/policy-work/agent-orange/what-agent-orange/map-dioxin.

Figure 2. Provinces Receiving USAID Disability Assistance

for calendar years 2015-2023



Source: USAID, "2015-2023 Disability Projects in Vietnam," press release, December 2019.

As shown in **Table 2**, starting in FY2014 and continuing through FY2018, disability assistance to Vietnam was distributed to eight different nongovernmental organizations, five of which were Vietnamese NGOs. USAID's web page provides overviews of the eight programs, which address issues of disability rights enforcement, accessibility to public buildings, and improvement of medical care and therapies for people with disabilities.[63] At least three of the eight programs—Hold My Hand, I-Thrive, and Moving without Limits—focus on providing direct medical care to people with disabilities. USAID's map of the provinces involved in one or more of the programs (**Figure 2**) does correspond with areas of Vietnam sprayed with Agent Orange.

USAID conducted a mid-term evaluation of its disability programs in Vietnam in July 2018.[64] Among the report's recommendations were closer cooperation with the relevant Vietnamese ministries and departments, refinement of project goals, and reduction of duplicative program content by implementing partners.

On April 20, 2019, Office 701 and USAID signed a memorandum of intent (MOI) confirming "their mutual desire to cooperate on overcoming health consequences of war by supporting persons with disabilities in provinces sprayed with Agent Orange in Vietnam." The MOI lists four areas for cooperation: (1) expanding access to health care, medical treatment, and rehabilitation and orthopedic services; (2) greater support for social inclusion and quality of life programs for persons with disabilities; (3) improving public attitudes and public policy about persons with disabilities; and (4) strengthening local capacity to provide support services for persons with disabilities. The two governments committed to consult with each other on disability assistance provided in Vietnam, and designated Office 701 and USAID as the representative agencies for the two governments on disability issues. On December 5, 2019, USAID and Vietnam's National Action Centre for Toxic Chemicals and Environmental Treatment (NACCET) signed a "limited scope agreement" for $65 million in assistance for people with severe disabilities in eight heavily sprayed provinces over the next five years.[65]

Bien Hoa Airbase

With the environmental cleanup of Danang airport completed, the two governments have begun work on a similar cleanup of the dioxin hot spot located at Bien Hoa airbase. Bien Hoa airbase was the airport used for the most Agent Orange spraying missions during the war, and is where the most herbicide was stored and used by the U.S. military. One study of soil samples from the Bien Hoa airbase found a sample with a TEQ concentration at over 1,000 ppb—higher than typical samples at the Danang airbase, and 1,000 times higher than the international limit.[66] Estimates of the amount of contaminated soil at the Bien Hoa airbase indicate that this project will be several times the size of the Danang project. The size of the project has also contributed to extensive discussion between the two governments about the most appropriate soil remediation method to use because of the time and cost implications.

[63] https://www.usaid.gov/vietnam/documents/2015-2023-disability-projects-vietnam.

[64] USAID, *Mid-term Whole-of-Project Evaluation: Vietnam Intervention Project to Assist Persons with Disabilities*, July 2018.

[65] USAID, "The United States and Vietnam Strengthen Partnership to Address War Legacies," press release, December 5, 2019.

[66] By comparison, the maximum concentration of TCDD found at Love Canal, NY, was 17,200 ppb; at Times Beach, MO, the maximum concentration was 1,750 ppb. Both U.S. communities were evacuated after evidence of dioxin contamination was found.

The Vietnamese government has already conducted some mitigation measures to contain the dioxin contamination at Bien Hoa. A passive landfill (in which the contaminated soil is left untreated) containing 43,000 m^3 of contaminated soil excavated from the herbicide storage area was completed in 2009. However, the airbase has several other distinct dioxin hot spots that have not been addressed, according to a study conducted by a private consulting firm, Hatfield Consultants, hired by Office 33.[67] The study also determined that contaminated soil had spread from the hot spots into nearby lakes, ponds, creeks, drainage ditches, and surrounding residential areas, increasing the amount of soil and sediment that would require treatment.

Contamination Assessments

The United Nations Development Programme (UNDP) worked with Office 33 and MONRE for five years to map out the dioxin contamination of Bien Hoa, Danang, and Phu Cat airbases, and develop master plans for their dioxin remediation.[68] According to information provided by the U.S. Department of Defense, the U.S. military stored and used 98,000 barrels of Agent Orange, 45,000 barrels of Agent White and 16,000 barrels of Agent Blue at Bien Hoa airbase; Agent Orange and Agent White were contaminated with dioxin; Agent Blue was not, but contained arsenic. The joint study determined that approximately 250,000 m^3 of soil at Bien Hoa airbase would require decontamination with an estimated cost of at least $250 million.

Table 5. Bien Hoa Remediation Alternatives Considered by USAID Environmental Assessment

Estimated Cost

Alternative	Description	Estimated Cost: Base and Range
1	No action	none
2A	Containment in active or passive landfill	$126 million; $75 million-$221 million
2B	Containment using solidification/stabilization	$202 million; $121 million-$354 million
3	Treat all soil and sediment above 2,500 ppt; contain all soil and sediment above MND-approved dioxin limits and below 2,500 ppt	$226 million; $135 million-$395 million
4	Treat all soil and sediment above 1,200 ppt; contain all soil and sediment above MND-approved dioxin limits and below 1,200 ppt	$377 million; $226 million-$660 million
5A	Treat all soil and sediment above MND-approved dioxin limits using incineration/ex situ thermal treatment	$666 million; $400 million-$1.2 billion
5B	Treat all soil and sediment above MND-approved dioxin limits using ex situ thermal conductive heating	$539 million; $323 million-$943 million
5C	Treat all soil and sediment above MND-approved dioxin limits using mechano-chemical destruction	$600 million; $360 million-$1.1 billion

[67] The study was conducted in 2011 with funding provided by the Ford Foundation. Data on Bien Hoa airbase in this section largely come from Hatfield's report, *Environmental and Human Health Assessment of Dioxin Contamination at Bien Hoa Airbase, Viet Nam: Final Report*, August 2011.

[68] Ministry of Natural Resources and Environment, Office 33, and UNDP, *Comprehensive Report: Agent Orange/Dioxin Contamination at Three Hotspots: Bien Hoa, Da Nang and Phu Cat Airbases*, November 2013.

Source: USAID, *Environmental Assessment of Dioxin Contamination at Bien Hoa Airbase*, May 6, 2016, Table D1.

Notes: Estimate cost range provides for variance of 40% below to 75% above based estimated cost; MND—Ministry of National Defence.

The report determined that an estimated 408,500 to 495,300 m^3 of contaminated soils and sediments are located on or nearby the airbase, or about 2.5-3.0 times as much as was treated at Danang airport. Five different treatment methods were considered, ranging from containment to in-pile thermal desorption (the method that was used in Danang). The estimated costs of the five methods ranged from $126 million (for containment in a landfill) to $666 million (using incineration and ex situ thermal treatment). The report noted, however, that these estimated costs may vary from 40% less to 75% more than the stated amounts, expanding the possible range to between $75 million and $1.1 billion.

In September 2013, USAID contracted CDM International Inc. to conduct an environmental assessment of the Bien Hoa airbase to examine a number of dioxin remediation alternatives. CDM International Inc. partnered with Hatfield Consulting on the project. In May 2016, USAID released the final environmental assessment report.[69]

Remediation Project

In September 2017, Vietnam's Ministry of National Defence (MND) announced work on infrastructure construction for the dioxin decontamination of Bien Hoa airport.[70] The construction, with a reported budget of $11.8 million, included demining operations, road construction, and removing facilities from contaminated areas. According to spokesperson for the MND, more than 500,000 m^3 need to be treated, a greater amount than identified in the USAID environmental assessment.[71]

On January 23, 2018, USAID and Vietnam's Ministry of National Defence signed a memorandum of intent (MOI) to begin the decontamination of Bien Hoa airport.[72] U.S. Ambassador to Vietnam Daniel J. Kritenbrink reportedly said at the MOI signing ceremony, "The United States looks forward to working with the Ministry of National Defence on this important initiative, deepening our partnership further, and building a prosperous future for both our countries."[73] The MOI committed the two nations to work together to design a remediation program for the Bien Hoa airport.

USAID and the Ministry of National Defence signed a five-year, $183 million nonrefundable aid agreement on May 11, 2018, for the decontamination of Bien Hoa airport.[74] At the time of the signing of the agreement, the project was projected to take 10 years at an estimated cost of $390 million. Approximately 500,000 cubic meters of soil, or nearly 50 hectares (123 acres) of land, are to be decontaminated.

[69] USAID, *Environmental Assessment of Dioxin Contamination at Bien Hoa Airbase*, May 3, 2016.

[70] "Infrastructure Built to Tackle Dioxin Contamination at Bien Hoa Airport," *Vietnamnet*, September 17, 2017.

[71] Phuoc Tuan, "Vietnam to Spend $12m in Preparing Former US Air Base for Dioxin Cleanup Campaign," *VN Express*, September 18, 2017.

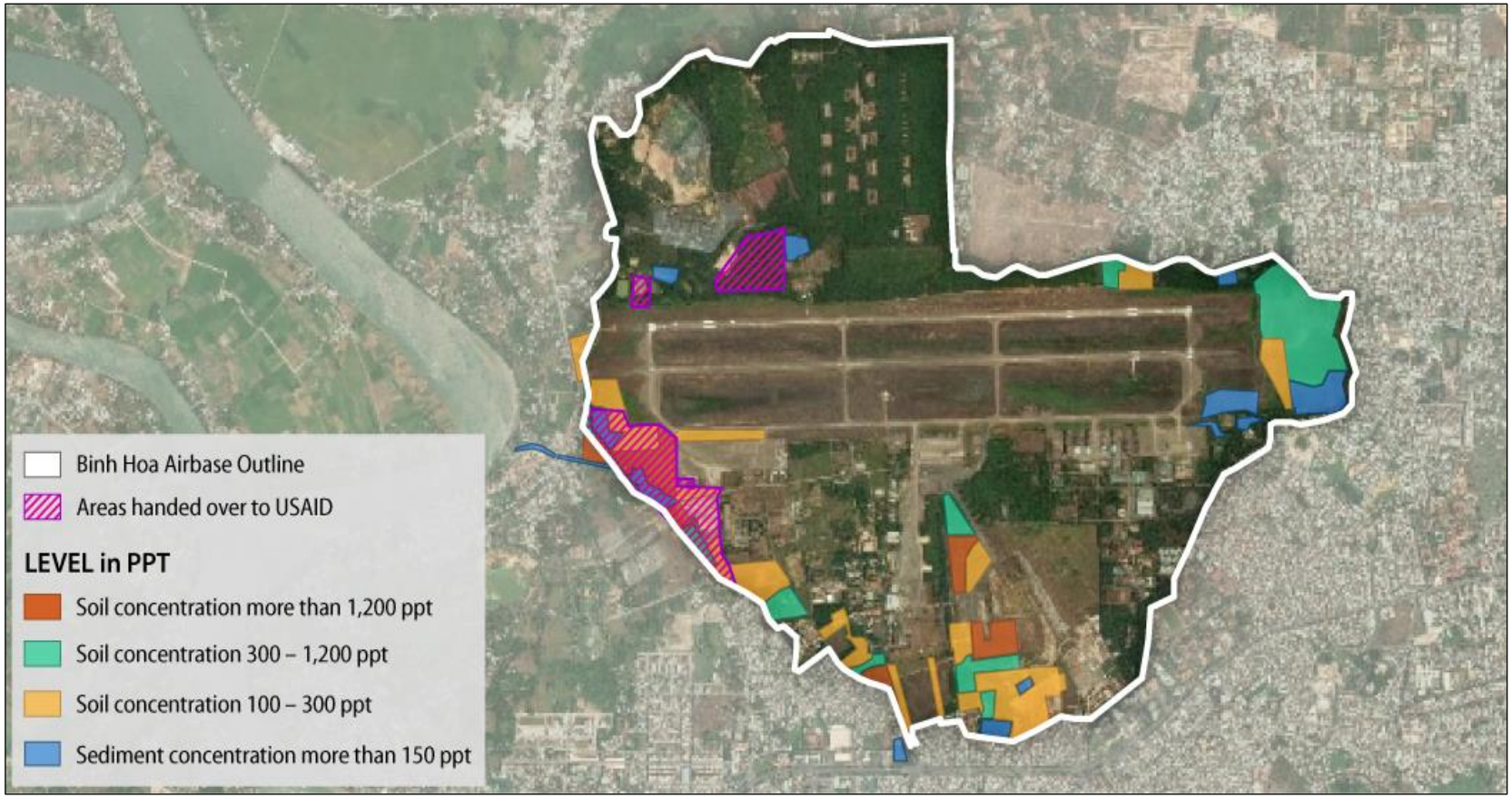
[72] USAID, "United States and Vietnam Sign Memorandum of Intent to Begin Dioxin Remediation at Bien Hoa," press release, January 23, 2018.

[73] "Vietnam, US Begin Agent Orange Cleanup at Former Wartime Air Base," *VN Express*, January 24, 2018.

[74] Mai An, "Dioxin Cleanup Project Kicked Off in Bien Hoa Airport," *Saigon Online*, May 12, 2018.

Figure 3. Bien Hoa Airbase

Known areas requiring remediation and handed over to USAID



Source: CRS, based on information provided by USAID.

In September 2018, the Ministry of National Defence signed a memorandum of understanding (MOU) with the Japanese general contractor, Shimizu Corporation, to construct a decontamination factory at Bien Hoa airbase.[75] The factory reportedly will decontaminate the soil by a filtered sponge technique (more generally known as "soil washing") and be capable of decontaminating up to 40 tons of soil per hour. This technique is designed to separate over 90% of the dioxin in contaminated soil into a highly concentrate filter cake and would be less harmful to the environment than thermally treating the entire soil mass. The new technique was expected to cost about half as much as the in-pile thermal desorption used at Danang airport. According to USAID, test results provided by Shimizu did not achieve the expected level of separation or estimated cost savings.[76] USAID says Shimizu Corporation is conducting another test, this time along with thermal conductive heating, seeking better results.

A news report of the MOU with Shimizu also stated that there were 28 potential dioxin hot spots in Vietnam, including Danang airport and the Bien Hoa airbase.[77] According to the article, the Bien Hoa airbase is the most contaminated hot spot, with 850,000 tons of contaminated soil.

Then-U.S. Secretary of Defense Jim Mattis visited Bien Hoa airport on October 17, 2018. During his tour of the former Agent Orange storage site, Secretary Mattis reportedly said, "We had promised to help … so this is America keeping her promise to remediate some of the past."[78] He also reportedly stated prior to the visit, "I just want to get eyes on [the site] so when I go back and talk to Congress, I can tell them my impression with actually having seen the site."[79]

In March 2019, USAID awarded a $33 million, 3.5 year contract to Trigon Associates, a woman-owned company based in New Orleans, to create a "Project Masterplan" for the cleanup of the Bien Hoa airbase.[80] Trigon is to provide architectural and engineering services, including recommending which of the alternative remediation techniques to use. According to Trigon, the company will also serve as a strategic and technical advisor during the implementation of the cleanup project.[81]

On April 20, 2019, USAID and Office 701 cohosted a ribbon-cutting ceremony at Bien Hoa airbase to officially launch the cleanup project. Attending the ceremony on behalf of the U.S. government were Ambassador Kritenbrink and nine Senators.[82] Vietnam's government was represented by Deputy Prime Minister Truong Hoa Binh, Deputy Minister of Defense Nguyen Chi Vinh, and Vice Chief of Air Defense Major General Major General Major General Bui Anh

[75] Phuong Nguyen, "Vietnam to Try Safer Way to Clean Up Agent Orange Hotspots," *VN Express*, September 5, 2018.

[76] CRS correspondence with USAID, April 7, 2020.

[77] Phuong Nguyen, "Vietnam to Try Safer Way to Clean Up Agent Orange Hotspots," VN Express, September 5, 2018. The 28 potential hot spots mentioned in the article are likely based on the 2006 study by Hatfield (Hatfield Consultants, *Identification of New Agent Orange /Dioxin*, January 2006). In that study, Hatfield identified the following 28 former U.S. military installations as potential dioxin hot spots. See shaded text box, "Potential Agent Orange/Dioxin Hot Spots in Vietnam," for a list of the 28 locations.

[78] "Mattis Visits Agent Orange Cleanup Site at Bien Hoa," *Asia Times*, October 17, 2018.

[79] Ibid.

[80] USAID, "Louisiana-Based, Woman-Owned Small Business to Lead Design of Clean-Up of Largest Remaining Dioxin Hotspot in Vietnam," press release, March 29, 2019.

[81] Trigon Associates, "Trigon Associates Awarded $33 Million USAID Vietnam Dioxin Remediation Project at Bien Hoa Airbase," press release, March 11, 2019.

[82] The nine Senators were Tammy Baldwin (D-WI), Mazie Hirono (D-HI), Tim Kaine (D-VA), Patrick Leahy (D-VT), Lisa Murkowski (R-AK), Rob Portman (R-OH), Debbie Stabenow (D-MI), Tom Udall (D-NM), and Sheldon Whitehouse (D-RI).

Chung. At the time, it was estimated that the project would take 10 years at a cost of $390 million.[83]

On November 1, 2019, the Ministry of National Defence (MND) released 37 hectares (91 acres) of land at Bien Hoa airbase to USAID as part of the joint cleanup project, and on December 5, 2019, MND and USAID held a formal ground breaking ceremony to initiate operations.[84] The initial work on the project will focus on the elimination of further dioxin contamination to areas outside the airbase. The United States has committed $300 million to cleanup Bien Hoa airbase. The first phase of the environmental remediation is targeted to cleanse 150,000 m^3 of the estimated 500,000 m^3 of contaminated soil and sediment by 2025.

Unresolved Issues

Although preliminary work on the environmental remediation of Bien Hoa airbase is underway, several critical issues for the project remain unresolved. Several assessments of the level of contamination have estimated a similar amount of soil and sediment requiring remediation, approximately 500,000 m^3. If the experience at Danang airport is any indication, that amount may increase as excavation and contamination testing proceeds.[85]

In addition, no final decision has been made on what remediation technique or techniques is/are to be used. Trigon Associates was expected to make its recommendations before the end of 2020, but it is up to USAID, Office 701, MND, MONRE, and Ministry of Science and Technology (MOST) to decide what remediation methods will be used. In previous meetings, USAID and the Vietnamese authorities tentatively agreed that thermal desorption is most likely the best treatment approach to satisfy the agreed project selection criteria. USAID has indicated that a final Master Plan is nearing completion, "including the selection of treatment technology and standards applied to contaminated soil that will be stored vs. treated."[86]

Once the remediation method(s) have been chosen, the estimated overall cost of the project will be determined to a certain extent. Various factors, such as weather, unknown issues with the removal and transportation of contaminated soil and sediment, and implementation problems could increase the remediation costs above the preliminary estimates.

USAID has pledged $300 million over 10 years for the remediation of Bien Hoa airbase. Since FY2017, Congress has appropriated up to $125 million for the Bien Hoa project, and USAID has obligated at least $61 million for the cleanup of the airbase. To meet USAID's commitments, Congress would need to appropriate at least $175 million over the next six fiscal years for the environmental remediation of Bien Hoa airbase. If the overall cost of the project were to increase, however, USAID and Congress may face pressure to provide additional funding.

Issues Before Congress

Congressional interest in Agent Orange/dioxin in Vietnam has largely been focused on two issues. The first issue is determining the appropriate amount and type of assistance to provide to address

[83] USAID, "United States and Vietnam Agree on the Roadmap for Dioxin Remediation at Largest Hotspot in Vietnam," press release, September 13, 2019.

[84] Nguyen Quy, "Vietnam, US Commence Dioxin Remediation at Bien Hoa Airbase," *VN Express*, December 5, 2019.

[85] In its 2016 environmental assessment, USAID used more robust soil sampling and modeling techniques than were used at Danang Airport, which USAID expects will reduce the variation in the final amount of soil and sediment that will require decontamination.

[86] CRS communications with USAID, December 23, 2020.

the environmental damage and the health effects of dioxin contamination in Vietnam. The second issue is oversight of how such assistance has been utilized by the State Department and USAID.

Funding Assistance

Congress and previous Administrations have demonstrated a common interest in providing assistance to address the environmental remediation of Agent Orange and dioxin in Vietnam; the Trump Administration has indicated its support for the Agent Orange projects in Vietnam. The State Department regularly has requested funding for decontamination of dioxin hot spots in Vietnam in its budget request to Congress. This commitment has continued with the remediation of Bien Hoa airbase, although its overall cost remains uncertain.

As described above, Congress has generally appropriated funds for health and disability services for persons residing in areas sprayed by Agent Orange and otherwise contaminated with dioxin. The State Department and USAID have utilized those funds for various programs for persons with disabilities regardless of the cause. In many, but not all, cases, those programs were conducted in locations near known Agent Orange hot spots.

The Consolidated Appropriations Act, 2021 (P.L. 116-260) continued the past practice of designating funds for health and disability services for places contaminated with Agent Orange/dioxin, as well as for dioxin remediation.

Based on the record for previous appropriations, these funds are unlikely to be obligated by USAID before the end of FY2021, and possibly not until the latter half of FY2022.

No Vietnam-related legislation has been introduced in the 117th Congress as of the writing of this report. A bill was introduced in the 116th Congress that would have stipulated U.S. policy regarding the funding of health care assistance to Vietnamese nationals exposed to Agent Orange and dioxin. Similar legislation could be introduced in the 117th Congress.

The Victims of Agent Orange Relief Act of 2019 (H.R. 326, 116th Congress) would have directed "the Secretary of State, the Secretary of Health and Human Services, and the Secretary of Veterans Affairs to provide assistance for individuals affected by exposure to Agent Orange, and for other purposes." Section 3 would have required the Secretary of State to "provide assistance to address the health care needs of covered individuals. Such assistance shall include the provision of medical and chronic care services, nursing services, vocational employment training, and medical equipment." "Covered individuals" is defined as Vietnamese residents affected by health issues related to their exposure to Agent Orange between January 1, 1961, and May 7, 1975, or is "the child or descendant of an individual" who was exposed to Agent Orange during the designated time period.

Under Section 3, the Secretary of State would also have been required to provide assistance "to repair and rebuild substandard homes in Vietnam for covered individuals and the families of covered individuals." Section 4 would require the Secretary of State and the Secretary of Veterans Affairs to "identify and provide assistance to support research relating to health issues of individuals affected by Agent Orange."

Section 3 also would have required the Secretary of State to provide assistance to "institutions in Vietnam that provide health care for covered individuals," and to "remediate those geographic areas of Vietnam that the Secretary determines contain high levels of Agent Orange." The section further states, "the Secretary of State shall give priority to heavily sprayed areas, particularly areas that served as military bases where Agent Orange was handled, and areas where heavy spraying and air crashes resulted in harmful deposits of Agent Orange."

Section 8 stated, "Not later than 30 days after the last day of each fiscal quarter beginning on or after 18 months after the date of the enactment of this Act, the Secretary of State, the Secretary of Health and Human Services, and the Secretary of Veterans Affairs shall each submit to Congress a report on the implementation of the provisions of this Act applicable to such Secretary during the immediately preceding fiscal quarter."

Oversight of Assistance

Beyond determining the level of funding for environmental remediation and the provision of health services to Agent Orange/dioxin-contaminated locations in Vietnam, Congress has overseen the utilization of appropriated funds. With regard to environmental remediation, congressional oversight has focused on the rising cost of the cleanup effort at Danang airport, and the potential implications for funding for the proposed cleanup of Bien Hoa. With regard to USAID's provision of related health services, congressional oversight has focused on what some Members perceive to be a slow pace at which available funds are being obligated and changes in USAID's approach to administering those funds.

As noted above, the estimated total cost of the environmental remediation of Danang airport rose from $33.7 million in 2010 to $116 million. Members could point to cost overruns at Danang airport when Congress looks ahead to possibly funding a similar environmental remediation project at Bien Hoa airport, where a USAID study indicated that approximately 500,000 m^3 of soil—about four to five times the amount at Danang—is contaminated.

Although the Danang airport cleanup experienced rising costs and delays, USAID was able to keep the project going with the additional funding provided by Congress. USAID has not been as successful in utilizing the funds provided for health services to areas contaminated with Agent Orange/dioxin. According to information provided by USAID, 63.5% of the funds appropriated in FY2011 to FY2017 have been obligated. In addition, USAID's approach to utilizing health services funds has shifted from direct obligation by USAID, to establishing a cooperative agreement with a contractor to administer the funds, and back again to direct obligation by USAID. Some also question whether the health services funds are being used effectively, and in accordance with congressional priorities. The specific language in Section 7043(h)(2) of Consolidated Appropriations Act, 2019 (P.L. 116-6) and H.R. 326 regarding health and/or disability assistance to Vietnam may in part reflect congressional dissatisfaction with State Department and USAID management of previously appropriated funds.

Scope of Future Assistance

The governments of the United States and Vietnam agree that there are three major Agent Orange/dioxin hot spots in Vietnam—Bien Hoa airbase, Danang airport, and Phu Cat airbase. Danang airport has been successfully remediated and the cleanup of Bien Hoa airbase in underway. Vietnam's Ministry of National Defence has previously indicated that it had completed the cleanup of Phu Cat airbase. There is, however, the possibility of more, smaller contaminated former U.S. airbases that could require environmental remediation.

The 2006 report by Hatfield Consulting identified 28 potential dioxin hot spots from among 2,735 former U.S. or Army of the Republic of Vietnam (ARVN) military installations that may have been used during Operation Ranch Hand and other herbicide programs during the Vietnam War (see shaded box).[87] This list included Bien Hoa, Danang, and Phu Cat. An official in Vietnam's Ministry of Foreign Affairs has indicated that the government of Vietnam would like U.S. assistance in conducting investigations of each of the remaining 25 potential hot spots to determine if any environmental remediation is required.[88]

In addition to possible additional environmental remediation projects, there is also the issue of providing health care and support for Vietnamese nationals with medical conditions and disabilities associated with exposure to Agent Orange/dioxin. The government of Vietnam estimate that 3-4 million people in Vietnam have medical conditions or disabilities attributable to Agent Orange/dioxin exposure. The U.S. government has made it clear that it does not intend to finance the medical treatment and care for all of these alleged victims, but has demonstrated a willingness to provide some assistance for support for the disabled and their families in Vietnam. How long and to what degree the United States may continue to provide such assistance is an issue that Congress may address in the future.

Potential Agent Orange/Dioxin Hot Spots in Vietnam

As identified by Hatfield Consultants

- A Shau Airfield
- Bac Lieu Airfield
- Bien Hoa Airfield
- Bien Hoa (Spartan) Heliport/ Bien Hoa Heliport/ Long Binh Ammo Supply Heliport
- Can Tho Airfield
- Chu Lai Airfield
- Da Nang Army Depot
- Da Nang Harbour
- Da Nang/Marble Mountain Airfield / Da Nang Airfield / Da Nang Heliport
- Khe Loi Lake dump site
- Long Binh Depot Heliport
- Long My Depot
- Nha Trang Navy Base/ Nha Trang Naval Facilities
- Nhon Co Airfield
- Nui Ba Ra Airfield
- Phan Rang Airfield
- Phu Bai Army Airfield/ Phu Bai/ Hue Airfield
- Phu Cat 2 Airfield
- Pleiku Area Airfield/ Pleiku Airfield
- Pleiku POL Depot/ Pleiku Storage Depot
- Qui Nhon Army Depot
- Song Be/Nui Ba Ra Airfield
- Ta Con Airfield
- Tan Canh Airfield/ Dak To
- Tan Son Nhut Airbase
- Tuy Hoa North Airfield
- Tuy Hoa South Airfield
- Xuan Loc City Airfield/ Xuan Loc Airfield

[87] Hatfield Consultants, *Identification of New Agent Orange / Dioxin Contamination Hot Spots in Southern Viet Nam*, January 2006.

[88] CRS communication with Ministry of Foreign Affairs, March 6, 2020.

Appendix. Text of Public Laws Appropriating Funds for Environmental Remediation and Health and Disability Services in Vietnam

Congress has included language in legislation indicating that it is appropriating funds for environmental remediation and health and disability services in Vietnam. In most cases, the precise amounts appropriated have been stipulated in either an accompanying report or explanatory statement. The table below provides the relevant text in the public law, as well as the associated language in the accompanying report or explanatory statement.

Table A-1. Public Law and Relevant Text of Appropriations for Agent Orange/Dioxin-Related Activities in Vietnam

Public Law Number	Text in Legislation	Explanatory Text in Accompanying Report or Explanatory Statement
P.L. 110-28	Sec. 3807. (a) Funds provided in this Act for the following accounts shall be made available for countries, programs and activities in the amounts contained in the respective tables and should be expended consistent with the reporting requirements and directives included in the joint explanatory statement accompanying the conference report on H.R. 1591 of the 110th Congress (H.Rept. 110-107).	H.Rept. 110-107: The conference agreement includes $3,000,000 for environmental remediation and health activities in Vietnam, instead of $3,200,000 as proposed by the Senate. The House did not include a similar provision. The conferees endorse language in the Senate report [S.Rept. 110-37; see also CRS Report RL34761, *Vietnamese Victims of Agent Orange and U.S.-Vietnam Relations*, by Michael F. Martin] regarding this matter, and stipulate that prior to the obligation of these funds the Committees on Appropriations be consulted on the planned use of the funds. The conferees recommend that these funds be matched, to the maximum extent possible, with contributions from other public and private sources. S.Rept. 110-37: The committee recommends $3,200,000 for the remediation of dioxin contaminated sites in Vietnam, and to support health programs in communities near those sites.
P.L. 111-8	Sec. 7071. (h) Vietnam.—Notwithstanding any other provision of law, funds appropriated under the heading "Development Assistance" in this Act may be made available for programs and activities in the central highlands of Vietnam, and shall be made available for environmental remediation and related health activities in Vietnam.	Joint Committee Print (Division H): Vietnam.—The bill provides $15,000,000 for assistance for Vietnam, which should focus on judicial and economic reform programs to strengthen the rule of law, protect human rights, and expand economic opportunities. Of this amount, $3,000,000 is provided to continue environmental remediation of dioxin contamination at the Danang Airport and related health activities in nearby communities in Vietnam.
P.L. 111-117	Sec. 7071. (j) Vietnam—Funds appropriated by this Act that are made available for assistance for Vietnam for remediation of dioxin contaminated sites and related health activities may be made available for assistance for the	H.Rept. 111-366: Vietnam.—The conference agreement provides not less than $3,000,000 for environmental remediation of dioxin contaminated sites and related health activities in Vietnam, including through Vietnamese institutions and organizations. The conferees

Public Law Number	Text in Legislation	Explanatory Text in Accompanying Report or Explanatory Statement
	Government of Vietnam, including the military, for such purposes.	direct the USAID Administrator to consult with the Committees on Appropriations prior to the obligation of funds for these purposes.
P.L. 111-212	Sec. 1002. (a) Funds appropriated in this chapter for the following accounts shall be made available for programs and countries in the amounts contained in the respective tables included in the report accompanying this Act: (1) "Diplomatic and Consular Programs". (2) "Economic Support Fund." (3) "International Narcotics Control and Law Enforcement." (b) <<NOTE: Notification.>> For the purposes of implementing this section, and only with respect to the tables included in the report [S.Rept. 111-188] accompanying this Act, the Secretary of State and the Administrator of the United States Agency for International Development, as appropriate, may propose deviations to the amounts referred in subsection (a), subject to the regular notification procedures of the Committees on Appropriations and section 634A of the Foreign Assistance Act of 1961.	S.Rept. 111-188: Vietnam.—The committee recommends $12,000,000 for assistance for Vietnam to support the remediation of dioxin contamination at the Danang Airport, which poses extreme risks to human health and welfare, and related health activities.
P.L. 112-10	Sec. 2120.(c) Division F of Public Law 111-117 shall be applied to funds appropriated by this division under the heading "Bilateral Economic Assistance, Funds Appropriated to the President, Economic Support Fund"— 2) by adding at the end before the period the following: "Provided further, That funds appropriated under this heading may be made available for activities to support the economic and social development and reconciliation goals of Public Law 99-415, and should not be made available for a contribution: Provided further, That not less than $15,500,000 of the funds appropriated under this heading should be made available for remediation activities, and not less than $3,000,000 should be made available for related health activities, referenced in section 7071(j) of this Act."	
P.L. 112-74	Sec. 7044. (h) Vietnam.—Funds appropriated under the heading "Economic Support Fund" shall be made available for remediation of dioxin contaminated sites in Vietnam and may be made available for assistance for the Government of Vietnam, including the military, for such purposes, and funds under the heading "Development Assistance" shall be made available for related health/disability activities.	H.Rept. 112-331: Vietnam.—The conferees recommend not less than $5,000,000 under this heading be made available for health/disability activities in areas in Vietnam that were targeted with Agent Orange or remain contaminated with dioxin. The conferees endorse Senate report language on consultation and the development of a multi-year plan.

Public Law Number	Text in Legislation	Explanatory Text in Accompanying Report or Explanatory Statement
		Vietnam.—The conferees recommend not less than $15,000,000 for environmental remediation of dioxin contamination at the Danang and Bien Hoa airports and other severely contaminated sites.
P.L. 113-6	Division F—The following sums are hereby appropriated, out of any money in the Treasury not otherwise appropriated, and out of applicable corporate or other revenues, receipts, and funds, for the several departments, agencies, corporations, and other organizational units of Government for fiscal year 2013, and for other purposes, namely: TITLE I. GENERAL PROVISIONS Sec. 1101. (a) Such amounts as may be necessary, at the level specified in subsection (c) and under the authority and conditions provided in applicable appropriations Acts for fiscal year 2012, for projects or activities (including the costs of direct loans and loan guarantees) that are not otherwise specifically provided for, and for which appropriations, funds, or other authority were made available in the following appropriations Acts: (b) The Department of State, Foreign Operations, and Related Programs Appropriations Act, 2012 (division I of Public Law 112–74). (c) The level referred to in subsection (a) shall be the amounts appropriated in the appropriations Acts referred to in such subsection, including transfers and obligation limitations, except that such level shall be calculated without regard to any rescission or cancellation of funds or contract authority….	
P.L. 113-76	Sec. 7043. (g) Vietnam.—Funds appropriated by this Act under the heading "Economic Support Fund" shall be made available for remediation of dioxin contaminated sites in Vietnam and may be made available for assistance for the Government of Vietnam, including the military, for such purposes, and funds appropriated under the heading "Development Assistance" shall be made available for health/disability activities in areas sprayed with Agent Orange or otherwise contaminated with dioxin.	Explanatory Statement: The agreement includes $22,000,000 under Economic Support Fund for environmental remediation of dioxin contamination in Vietnam and an additional $7,000,000 under this heading for health and disability programs in areas sprayed with Agent Orange or otherwise contaminated by dioxin.
P.L. 113-235	Sec. 7043. (h) Vietnam.—Funds appropriated by this Act under the heading "Economic Support Fund" shall be made available for remediation of dioxin contaminated sites in Vietnam and may be made available for assistance for the Government of Vietnam, including the military, for such purposes, and funds appropriated under the heading "Development Assistance" shall be made available for health/disability	Explanatory Statement: [In table listing allocation of Economic Support Fund (in thousands of dollars)] Vietnam (Environmental Remediation of dioxin) - $15,000 The agreement provides $2,507,001,000 for Development Assistance. Vietnam.—Funds made available under this heading for assistance for Vietnam for health/disability activities should prioritize

Public Law Number	Text in Legislation	Explanatory Text in Accompanying Report or Explanatory Statement
	activities in areas sprayed with Agent Orange or otherwise contaminated with dioxin.	assistance for individuals with severe upper or lower body mobility impairment and/or cognitive or developmental disabilities. [In table listing allocation of Development Assistance (in thousands of dollars)] Vietnam health/disability programs - $7,500
P.L. 114-113	Sec. 7043. (g) VIETNAM.— (1) DIOXIN REMEDIATION.—Funds appropriated by this Act under the heading "Economic Support Fund" shall be made available for remediation of dioxin contaminated sites in Vietnam and may be made available for assistance for the Government of Vietnam, including the military, for such purposes. (2) HEALTH AND DISABILITY PROGRAMS.—Funds appropriated by this Act under the heading "Development Assistance" shall be made available for health and disability programs in areas sprayed with Agent Orange and otherwise contaminated with dioxin, to assist individuals with severe upper or lower body mobility impairment and/or cognitive or developmental disabilities.	Explanatory Statement: In implementing this agreement, Federal departments, agencies, commissions, and other entities are directed to comply with the directives, reporting requirements, and instructions contained in H.Rept. 114-154 (House report) accompanying H.R. 2772 (House bill) and S.Rept. 114-79 (Senate report) accompanying S. 1725 (Senate bill) as though stated in this explanatory statement, unless specifically directed to the contrary. Vietnam.—The agreement supports funds under Economic Support Fund to continue the DNA forensic technology program to identify Vietnamese persons missing-in-action. The agreement provides funds under Economic Support Fund to support the environmental remediation of dioxin contamination at the Bien Hoa Airport. The Department of Defense is strongly encouraged to contribute funds for this project, which is expected to further United States-Vietnam relations. S.Rept. 114-79: Vietnam—The committee recommends $7,000,000 for assistance for Vietnam under this heading for health/disability programs in areas sprayed with Agent Orange or otherwise contaminated by dioxin, to address the mobility, psycho-social, vocational, and other needs of persons with severe upper and lower body mobility impairment and/or cognitive or developmental disabilities. In order to minimize administrative costs and maximize impact in the field, the committee intends that, to the maximum extent practicable, health/disability funds shall be implemented by Vietnamese organizations and entities. Vietnam—The committee recommends not less than $25,000,000 under this heading for environmental remediation of dioxin contamination at the Da Nang and Bien Hoa Airports.
P.L. 115-31	Section 7043(h) Vietnam— (1) DIOXIN REMEDIATION—Notwithstanding any other provision of law, of the funds appropriated by this Act under the heading 'Economic Support Fund', not less than $20,000,000 shall be made available for activities related to the remediation of dioxin contaminated sites in Vietnam and may be made available for assistance for the	

Public Law Number	Text in Legislation	Explanatory Text in Accompanying Report or Explanatory Statement
	Government of Vietnam, including the military, for such purposes. (2) HEALTH AND DISABILITY PROGRAMS—Of the funds appropriated by this Act under the heading 'Development Assistance', not less than $10,000,000 shall be made available for health and disability programs in areas sprayed with Agent Orange and otherwise contaminated with dioxin, to assist individuals with severe upper or lower body mobility impairment and/or cognitive or developmental disabilities.	
P.L. 115-141	Section 7043(g) Vietnam— (1) DIOXIN REMEDIATION- Notwithstanding any other provision of law, of the funds appropriated by this Act under the heading 'Economic Support Fund', not less than $20,000,000 shall be made available for activities related to the remediation of dioxin contaminated sites in Vietnam and may be made available for assistance for the Government of Vietnam, including the military, for such purposes. (2) HEALTH AND DISABILITY PROGRAMS-Of the funds appropriated by this Act under the heading 'Development Assistance', not less than $10,000,000 shall be made available for health and disability programs in areas sprayed with Agent Orange and otherwise contaminated with dioxin, to assist individuals with severe upper or lower body mobility impairment or cognitive or developmental disabilities. Sec. 8132. Notwithstanding any other provision of law, from funds made available to the Department of Defense in title II of this Act under the heading "Operation and Maintenance, Defense-Wide," $15,000,000 shall be available for a project in a country designated by the Secretary of Defense: Provided, That in furtherance of the project the Department of Defense is authorized to acquire services, including services performed pursuant to a grant agreement, from another Federal agency, on an advance of funds or reimbursable basis: Provided further, That an order for services placed under this section is deemed to be an obligation in the same manner that a similar order placed under a contract with a private contractor is an obligation.	
P.L. 115-232	SEC. 1052. AUTHORITY TO TRANSFER FUNDS FOR BIEN HOA DIOXIN CLEANUP. (a) TRANSFER AUTHORITY.—Notwithstanding section 2215 of title 10, United States Code, the Secretary of Defense may transfer to the Secretary of State, for use	

Public Law Number	Text in Legislation	Explanatory Text in Accompanying Report or Explanatory Statement
	by the United States Agency for International Development, amounts to be used for the Bien Hoa dioxin cleanup in Vietnam. (b) LIMITATION ON AMOUNTS.—Not more than $15,000,000 may be transferred in fiscal year 2019 under the authority in subsection (a). (c) SOURCE OF FUNDS.—The Secretary of Defense may transfer funds appropriated to the Department of Defense for "Operation and Maintenance, Defense-wide" under the authority in subsection(a). (d) ADDITIONAL TRANSFER AUTHORITY.—The transfer authority provided under subsection (a) is in addition to any other transfer authority available to the Department of Defense.	
P.L. 116-6	Section 7043(h) Vietnam— (1) DIOXIN REMEDIATION.—Notwithstanding any other provision of law, of the funds appropriated by this Act under the heading "Economic Support Fund," not less than $20,000,000 shall be made available for activities related to the remediation of dioxin contaminated sites in Vietnam and may be made available for assistance for the Government of Vietnam, including the military, for such purposes. (2) HEALTH AND DISABILITY PROGRAMS.—Of the funds appropriated by this Act under the heading "Development Assistance," not less than $12,500,000 shall be made available for health and disability programs in areas sprayed with Agent Orange and otherwise contaminated with dioxin, to assist individuals with severe upper or lower body mobility impairment or cognitive or developmental disabilities. (3) RECONCILIATION PROGRAMS.—Funds appropriated by this Act under the heading "Economic Support Fund" that are made available for assistance for Vietnam shall be made available for reconciliation programs to address war legacy issues.	
P.L. 116-92	SEC. 1260H. AUTHORITY TO TRANSFER FUNDS FOR BIEN HOA DIOXIN CLEANUP. (a) TRANSFER AUTHORITY.—Notwithstanding section 2215 of title 10, United States Code, the Secretary of Defense may transfer to the Secretary of State, for use by the United States Agency for International Development, amounts to be used for the Bien Hoa dioxin cleanup in Vietnam. (b) LIMITATION ON AMOUNT.—Not more than $15,000,000 may be transferred in fiscal	

Public Law Number	Text in Legislation	Explanatory Text in Accompanying Report or Explanatory Statement
	year 2020 under the transfer authority in subsection (a). (c) ADDITIONAL TRANSFER AUTHORITY.—The transfer authority in subsection (a) is in addition to any other transfer authority available to the Department of Defense. (d) NOTICE ON EXERCISE OF AUTHORITY.—If the Secretary of Defense determines to use the transfer authority in subsection (a), the Secretary shall notify the congressional defense committees of that determination not later than 30 days before the Secretary uses the transfer authority.	
P.L. 116-94	SEC. 7043. (i) VIETNAM.—Of the funds appropriated under titles III and IV of this Act, not less than $159,634,000 shall be made available for assistance for Vietnam, of which not less than—(1) $13,000,000 shall be made available for health and disability programs in areas sprayed with Agent Orange and contaminated with dioxin, to assist individuals with severe upper or lower body mobility impairment or cognitive or developmental disabilities; (2) $20,000,000 shall be made available, notwithstanding any other provision of law, for activities related to the remediation of dioxin contaminated sites in Vietnam and may be made available for assistance for the Government of Vietnam, including the military, for such purposes; and (3) $1,500,000 shall be made available for a war legacy reconciliation program.	
P.L. 116-260	Sec. 7043. (i) Vietnam.—Of the funds appropriated under titles III and IV of this Act, not less than $169,739,000 shall be made available for assistance for Vietnam, of which not less than— (1) $14,500,000 shall be made available for health and disability programs in areas sprayed with Agent Orange and contaminated with dioxin, to assist individuals with severe upper or lower body mobility impairment or cognitive or developmental disabilities; (2) $19,000,000 shall be made available, notwithstanding any other provision of law, for activities related to the remediation of dioxin contaminated sites in Vietnam and may be made available for assistance for the Government of Vietnam, including the military, for such purposes; and (3) $2,500,000 shall be made available for a war legacy reconciliation program.	

P.L. 116-283	SEC. 1253. AUTHORITY TO TRANSFER FUNDS FOR BIEN HOA DIOXIN CLEANUP. (a) Transfer Authority.—Notwithstanding section 2215 of title 10, United States Code, the Secretary of Defense may transfer to the Secretary of State, for use by the United States Agency for International Development, amounts to be used for the Bien Hoa dioxin cleanup in Vietnam. (b) Limitation on Amount.—Not more than $15,000,000 may be transferred in fiscal year 2021 under the transfer authority in subsection (a). (c) Additional Transfer Authority.—The transfer authority in subsection (a) is in addition to any other transfer authority available to the Department of Defense. (d) Notice on Exercise of Authority.—If the Secretary of Defense determines to use the transfer authority in subsection (a), the Secretary shall notify the congressional defense committee of that determination not later than 30 days before the Secretary uses the transfer authority.

Source: CRS research.

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