



Agent Orange in Vietnam Program

Delivering Services to People with Disabilities Associated with Exposure to Dioxin in Vietnam

Charles R. Bailey

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EXECUTIVE SUMMARY

This paper argues for better delivery of services to people with disabilities in Vietnam, and especially to those whose disabilities are associated with exposure to dioxin. It presents and analyzes new data to help define whom we should be trying to reach with American assistance and how best to serve them. The paper proposes new, operationally feasible, criteria for selecting beneficiaries. A concluding section offers specific advice that should guide future U.S. assistance to these selected beneficiaries.

Key findings:

- Agent Orange victims¹ as a group are aging.
- They are coping primarily with mobility impairments and mental disabilities rather than hearing, vision and speech impairments.
- Their disabilities affect them severely.
- Based on our sample, they constitute about 10% of those identified as persons with disabilities, and less than 1% of all Vietnamese.
- Current programs would benefit from better targeting and service delivery.
- More effective, and cost-effective, models exist than current U.S.-funded programs.

The key take-away: We can identify a subset of Vietnamese who are severely disabled and focus efforts on them. This subset comprises people with severe mobility impairment of the upper or lower body and/or cognitive or developmental disabilities. An American response aimed at this group also reaches a large majority of the people the Vietnamese consider to be Agent Orange victims. The interventions would require relatively modest resources. Some \$11 million in appropriated funds are currently available and could provide a significant start. The needs identified here could be addressed within the next five to six years. Improved services will benefit a population in serious need and help improve U.S.-Vietnam relations by more squarely addressing this long-standing source of resentment.

¹ The Department of State and the U.S. Agency for International Development do not commonly use the term Agent Orange victim. In this paper we employ this term, commonly used in Vietnam to designate those people with disabilities whose condition is likely to be associated with dioxin exposure.

Introduction

This paper argues for better delivery of services to people with disabilities in Vietnam, and especially to those whose disabilities are associated with exposure to dioxin. It draws on newly available information from the Vietnam Association of Victims of Agent Orange (VAVA) in Da Nang. It also distills lessons from work that the Ford and Rockefeller foundations, corporate partners, international NGOs and local governments carried out together in Vietnam from 2007 to 2014. The analysis presented here can help shape the next generation of U.S. official assistance addressing the Agent Orange legacy.

The U.S. government is responding to the legacy of Agent Orange in Vietnam in two ways—through remediation of dioxin hotspots and social services to people with disabilities. The clean-up of hotspots is unfolding rapidly. The problem and solution are relatively easy to define: there are a handful of point sources, readily available technical solutions, and an easily discerned beginning and end. Providing disability services, however, lags because it is harder to define and address. Put simply, many people in many different places need many things. Moreover, there are often no real solutions-- only ways to ameliorate the conditions of those with disabilities. And those interventions may have to continue for a lifetime.

Despite these challenges, assistance is underway in Vietnam with public and private funding. These efforts already bring relatively low tech solutions to some people with disabilities that make them more mobile and self-sufficient. For the more profoundly affected, these efforts bring help to their caregivers. U.S.-funded interventions can do more: reach the target population with help that makes a difference; recruit additional donors; and build partnerships with Vietnamese organizations and leaders who can and will sustain these services after outside assistance ends.

The proposed beneficiaries of these efforts are people who may have been affected by dioxin-contaminated defoliants like Agent Orange. They may have been affected because their parents or grandparents (or possibly even their great grandparents) were directly exposed to the spraying itself. Or a parent may have been living in close proximity to a dioxin hotspot at a former American airbase. This paper focuses on the disabilities that begin with birth defects linked to indirect exposure to dioxin, rather than on the health consequences for those who were directly exposed-- cancers, Hodgkin's disease, chloracne, Parkinson's disease, porphyria cutanea tarda, ischemic heart disease, hypertension, Type II diabetes and others.²

² Michael Martin, *Vietnamese Victims of Agent Orange and U.S. – Vietnam Relations*, Congressional Research Service, August 8, 2012 <http://www.aspeninstitute.org/sites/default/files/content/docs/agent-orange/2012-8-29MMartinCRSVietVictimsofAO-USVietnamRelations.pdf>

Who Are We Trying to Reach?

For decades, little or no progress could be made in dealing with the legacy of Agent Orange largely because of deep disagreements over the science of causality and the actual numbers of Agent Orange victims. To move forward, in February 2007 the U.S.-Vietnam Dialogue Group on Agent Orange/Dioxin began advocating a humanitarian response to those Vietnamese in evident need, an approach now adopted by both governments. Nevertheless, a gap still remains between the two governments' official positions.

Since 2008 the U.S. government has allocated small but increasing levels of assistance to benefit people with disabilities "regardless of cause" living near proven dioxin hotspots on airbases, primarily at Da Nang. As of early 2014 these funds totaled \$23.1 million. Because of its inclusiveness, the phrase "regardless of cause," suggests that the U.S. government will fund services for all Vietnamese with disabilities. The 2009 Vietnam Population and Household Census (hereinafter VPHC)³ estimates that there are 6.1 million such people in Vietnam. The Vietnamese, however, are not asking the United States to assist all people with disabilities. They are only asking help for Agent Orange victims, a subset of the total number of Vietnamese with disabilities. The Government of Vietnam does not assert that everyone with disabilities in Vietnam is an "Agent Orange victim." It applies that term to individuals, but only after they have met certain specific criteria.⁴

Who are the Agent Orange victims in Vietnam? Over the last eight years the Vietnam Red Cross and the VAVA have sought to answer this question through surveys of various kinds in districts and provinces around the country. However, for many reasons it has proved challenging to compile these data into a full picture of a particular province. The one exception is Da Nang.

In each of Da Nang's seven districts in 2006 officials assembled personal information and health and disability status on some 7,000 people they considered to be victims of Agent Orange. In 2007, VAVA/ Da Nang, commonly known as "DAVA," sent teams to the homes of each of the 7,000. The teams reviewed personal histories and types of health and disability issues against two criteria: exposure opportunity, and whether the person's condition appeared on the list that the Ministry of Health had released of illnesses and conditions associated with dioxin.⁵ The DAVA teams concluded that 5,077 persons in Da Nang met these two criteria. DAVA is further updating this information.

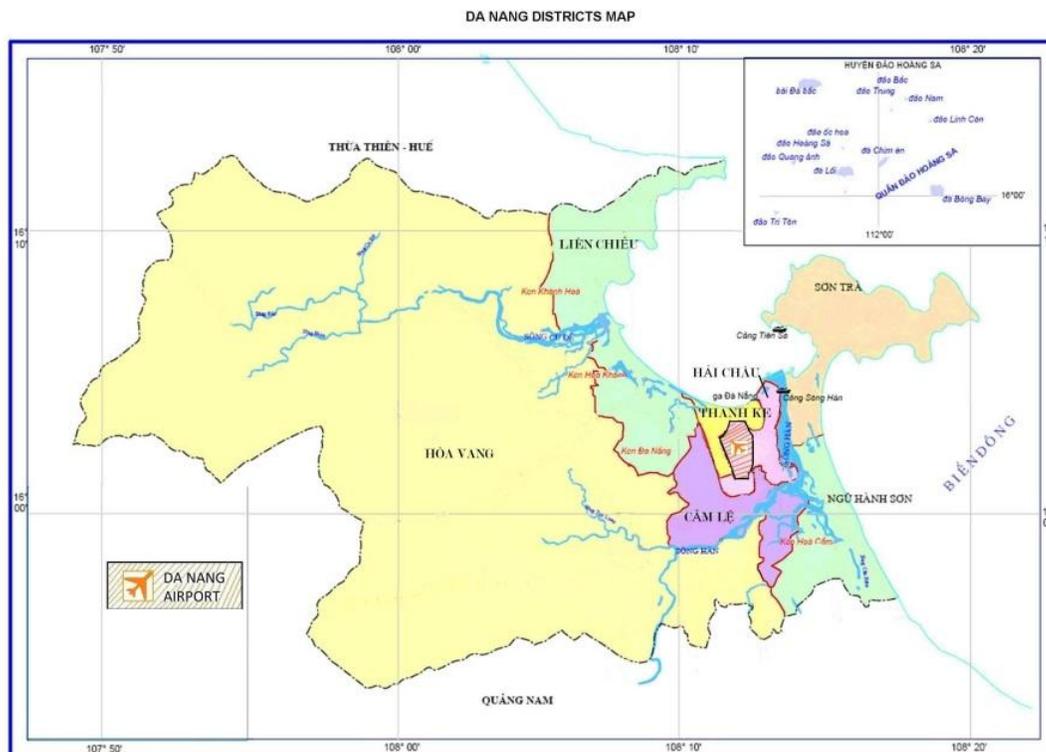
³ General Statistics Office of Vietnam, *Vietnam Population and Household Census 2009*, The General Statistics Office conducted the VPHC in April 2009 with technical assistance from UNFPA.

http://www.gso.gov.vn/default_en.aspx?tabid=515&idmid=5&ItemID=9813

⁴ For the criteria see Government of Vietnam, Ministry of Health / Ministry of Labor, Invalids and Social Affairs, *Thong Tu Lien Tich Huong Dan Kham Gia Dinh Benh, Tat, Di Dang, Di Tat, Co Lien Quan Den Phoi Nhiem Voi Chat Doc Hoa Hoc Doi Voi Ngươi Hoat Dong Khang Chien, Va Con De Cua Ho*, Hanoi, November 18, 2013 and Government of Vietnam, Office of the Government, *Nghi Dinh- Quy Dinh Chi Tiet, Huong Dan Thi Hanh Mot So Dieu Cua Phap Lenh Uu Dai Ngươi Co Cong Voi Cach Mang*, April 9, 2013.

⁵ The criteria that DAVA applied in 2007 were updated in 2012. See Ministry of Health, *loc. cit.*

These data can be used to begin to paint a picture of who the Vietnamese consider to be Agent Orange victims. In the first quarter of 2014 the Aspen Institute’s Agent Orange in Vietnam Program selected four of Da Nang’s districts⁶ and examined the records of everyone deemed an Agent Orange victim.⁷ Three of these districts, Thanh Ke, Hai Chau and Cam Le, surround the Da Nang airport. The airport contains a major dioxin hotspot, the focus of a U.S.-funded remediation project. The fourth district is Da Nang’s rural hinterland: Hoa Vang (see map). Hoa Vang covers the largely mountainous western part of the city and was chosen for its possible similarity to remoter rural districts in other provinces that were heavily sprayed.



The analysis of this paper focuses on people whose disabilities are linked to indirect exposure to dioxin, that is, the offspring of those who were directly exposed. The U.S. military started using Agent Orange in then-South Vietnam in 1962 but nearly all the herbicides (97.3%) that were used in the war were sprayed from 1965 onward.⁸ It is therefore unlikely that effects of dioxin exposure could have been passed from parents to any offspring born before 1965. According to the DAVA criteria, 2,369 Agent Orange victims born between 1965 and 2004 live in

⁶ The four districts contain two thirds of Da Nang’s population of 887,435 (2009).

⁷ The author thanks the Da Nang Association of Victims of Agent Orange (DAVA) and the Da Nang Department of Labor, Invalids & Social Affairs (DOLISA) for their assistance.

⁸ See Stellman, “Liters and percent distribution of herbicides sprayed in the Republic of South Vietnam, 1962-1971,” in the appendix.

Thanh Ke, Cam Le, Hai Chau and Hoa Vang districts. These are people living with disability; their situation is summarized in the following tables.⁹

Table 1.
Population, People with Disabilities & Agent Orange Victims
with Disabilities in Four Districts of Da Nang

District	Total Population	Total Number of People with Disabilities Aged 5+	Total Number of Agent Orange Victims (AOVs) Aged 5+	AOVs as % of Total PWDs	AOVs as % of Total Population
<i>Thanh Khe</i>	174,557	4,808	451	9.4%	0.3%
<i>Cam Le</i>	87,691	4,735	492	10.4%	0.6%
<i>Hai Chau</i>	189,561	7,232	585	7.4%	0.3%
<i>Hoa Vang</i>	116,524	6,542	891	13.6%	0.8%
Total	568,333	23,317	2,369	10.2%	0.4%

Sources: Vietnam Census 2009, Vietnam Population and Housing Census 2009, VAVA / Da Nang Enumeration 2007

Table 1 shows the number of Agent Orange victims by district and compares their numbers with the total population and the total number of people with disabilities identified in that district by the VPHC.¹⁰ **Agent Orange victims are less than one percent of the population and only about ten percent (10%) of all people with disabilities.**

Table 2.
Agent Orange Victims by Age Group

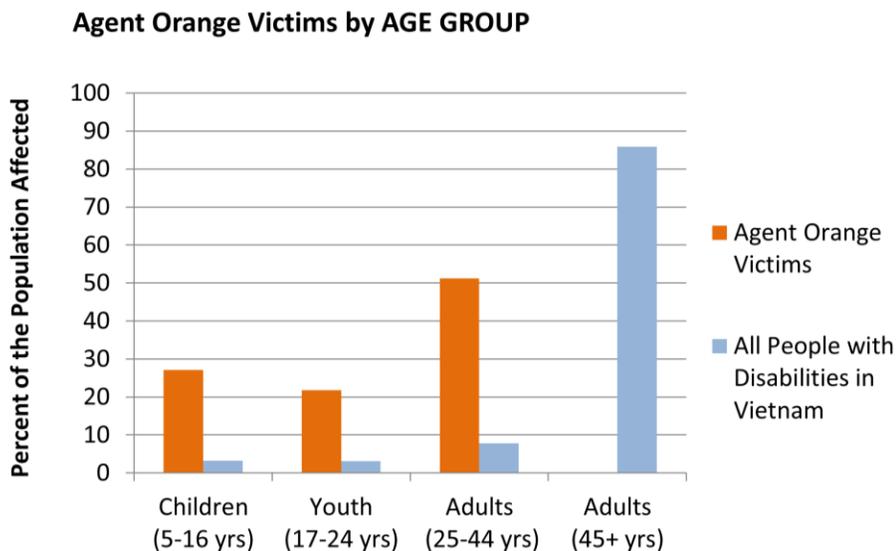
District	Total Number of AOVs (2007 VAVA Da Nang survey)	Ages			
		Children (5-16 years old)	Youth (17-24 years old)	Adults (25-44 years old)	Adults (45+ years old)
<i>Thanh Khe</i>	451	118	96	237	
<i>Cam Le</i>	492	141	101	250	
<i>Hai Chau</i>	535	139	118	278	
<i>Hoa Vang</i>	891	243	201	447	
Total	2,369	641	516	1212	
	AOVs in Da Nang	27.1%	21.8%	51.2%	0.0%
	All PWDs in Vietnam	3.2%	3.1%	7.8%	85.8%

⁹ See the technical note in the appendix on how the data were analyzed.

¹⁰ The Vietnam Population and Household Census counts people with disabilities five and above. The DAVA data were adjusted to this same age frame.

Children and youth are the focus of many of the services offered to Agent Orange victims (as well as to other Vietnamese with disabilities). They are slightly less than one half of the Agent Orange victims enumerated in the four districts. The median age is 23. Other Vietnamese with disabilities are overwhelmingly older as shown in this chart.

Chart 1. Agent Orange Victims by Age Group



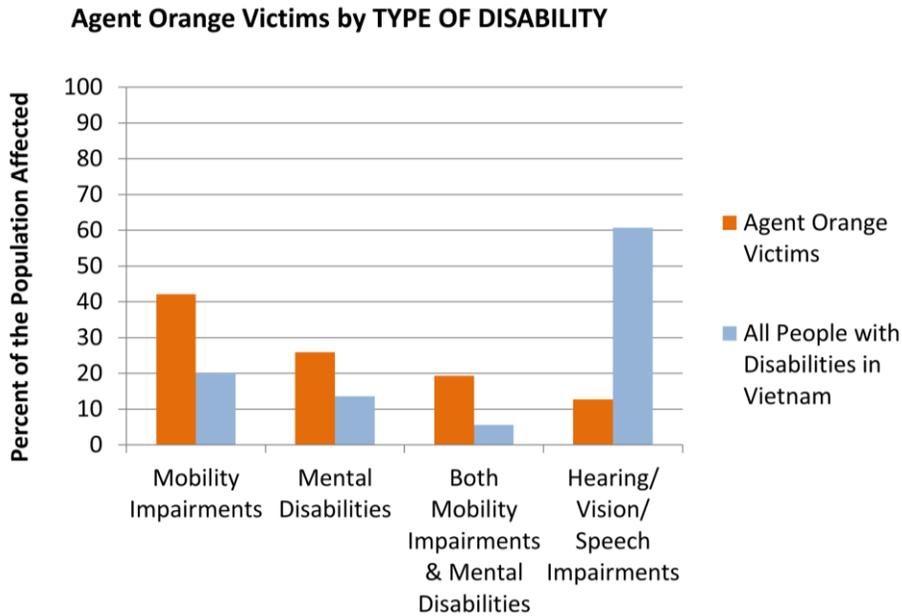
Agent Orange victims as a whole, it can be hypothesized, have lower fertility and higher mortality rates than the general population. The median age would thus increase over time and the number of Agent Orange victims would diminish. **Future services for Agent Orange victims will thus need to shift more and more towards people 25 and older.**

**Table 3.
Agent Orange Victims by Type of Disability**

District	Total Number of AOVs (2007 VAVA Da Nang survey)	Type of Disability			
		Mobility Impairments	Mental Disabilities	Both Mobility Impairments & Mental Disabilities	Hearing/ Vision/ Speech Impairments
<i>Thanh Khe</i>	451	189	138	70	54
<i>Cam Le</i>	492	220	114	88	70
<i>Hai Chau</i>	535	202	156	131	44
<i>Hoa Vang</i>	891	384	205	167	131
Total	2,369	995	613	456	299
	AOVs in Da Nang	42.1%	25.9%	19.3%	12.7%
	All PWDs in Vietnam	20.1%	13.6%	5.6%	60.7%

Mobility impairments and mental disabilities afflict nearly 90 percent (87.3%) of Agent Orange victims whereas these kinds of disability affect just under 40 percent of all Vietnamese with disabilities.

Chart 2. Agent Orange Victims by Type of Disability



Only 12.7% of Agent Orange victims experience impaired hearing, vision and speech, whereas nearly two thirds of other Vietnamese with disabilities face these challenges. **Future direct services to Agent Orange victims will need to focus primarily on mobility impairments and mental disability.**

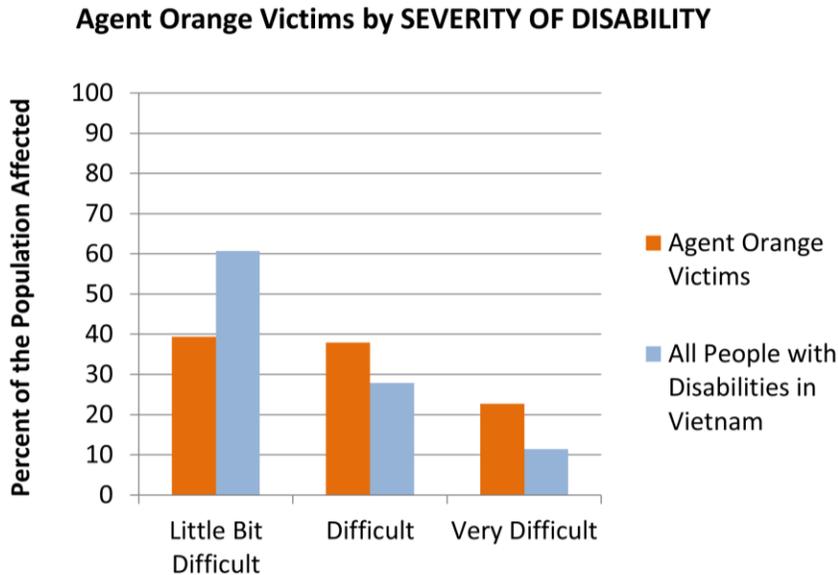
**Table 4.
Agent Orange Victims by Severity of Disability**

District	Total Number of AOVs (2007 VAVA Da Nang survey)	Severity		
		Little bit difficult	Difficult	Very difficult
<i>Thanh Khe</i>	456	133	149	88
<i>Cam Le</i>	508	124	102	91
<i>Hai Chau</i>	550	219	158	105
<i>Hoa Vang</i>	916	233	272	125
Total	2,430	709	681	409
	AOVs in Da Nang	39.4%	37.9%	22.7%

	All PWDs in Vietnam	60.7%	27.9%	11.4%
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Agent Orange victims also experience disability more severely, as shown in Table 4 and the chart below.

Chart 3. Agent Orange Victims by Severity of Disability



Disability makes life difficult to very difficult, suggesting severe and profound disability, for 60 percent of Agent Orange victims, compared with 40 percent of all Vietnamese with disabilities.

The above data quantify for the first time the situation of a well-defined group of Agent Orange victims in Vietnam. However a fuller appreciation of what they face comes from the summary descriptions on the dossiers of the 2,369 people in this study. Here are the direct translations of the disabilities that the DAVA teams recorded in 2007, seven years ago.

Physical disabilities

Deformed face
deformed leg
deformed legs
deformed legs & arms
deformed hands, deformed arms & no legs
no legs & missing two fingers
left hand fingers like duck feet
missing one leg, missing two legs
missing one arm
missing two arms no knee joints

legs & arms weak
one leg paralyzed
paralyzed both legs
two legs under knee
paralyzed legs and arm
totally paralyzed
leg muscle atrophy
one eye damaged
congenital heart disease
cleft palate

narrow chest
crossed arms
infected skin (skin redness, bumps)
inguinal lymph nodes
inguinal hernia
disease of restricted growth
skin looks like snake's skin
deaf & mute
spina bifida
birth defects

deformed
blood tumor in ear
deaf
blind
blind both eyes
visual difficulty
congenital blurred vision
near sighted
conversational difficulty
mobility difficulty

Mental disabilities

Mental deficiency
chronic mental deficiency
congenital mental deficiency
intellectual disability
cognitive difficulties
retardation
cerebral palsy
schizophrenia
neurasthenia

epilepsy
epilepsy- at birth
log head-lying in bed
Down's syndrome
seizures
memory loss
neuropathy
hydrocephalus

The above analysis suggests some broader implications for future program development:

- Data may be limited, but with persistence it is possible to arrive at credible estimates of the overall prevalence of disabilities among people considered to be Agent Orange victims.
- Agent Orange victims as a group are aging. They are coping primarily with mobility impairments and mental disabilities rather than hearing, vision and speech impairments. Their disabilities affect them severely.
- The Government of Vietnam's criteria for identifying Agent Orange victims are reasonably stringent and should allow programs to address individuals whose conditions are associated with dioxin exposure.
- The overall numbers of people profiled here as Agent Orange victims are large but not beyond the reach of well-funded and efficiently managed programs.

A Fresh Approach for USAID/ Vietnam

USAID has been assisting Vietnam with direct services and capacity building related to disability for many years. IrishAid, UNICEF, the Ford and Rockefeller foundations, American companies and many individual donors have also provided aid. Since 2007 U.S. government funds for disability assistance have increased significantly and have been designated more explicitly for disabilities as a legacy of Agent Orange. As of this writing, the appropriations process has provided \$5.0 million in FY2013 and \$7.0 million in FY2014. From this \$12 million \$1 million

would need to be deducted to complete the funding package for the current USAID/ DAI Disability Support Project. **This leaves \$11 million in uncommitted funds for a new and expanded USAID effort in disability. To maximize the permanent impact of U.S. assistance to Vietnam disability and Agent Orange, future American assistance should have these objectives and features.**

- 1) Create opportunities for people with disabilities to live more independently, or if this is not possible, support them through investments in their families.
- 2) Aim for permanent improvements both in people's lives and in local government social services which benefit them.
- 3) Operate in an open and accountable way to both improve outcomes and inform the Vietnamese public about progress.

Tighten the beneficiary focus: For many Americans, including veterans of the war, the legacy of Agent Orange use in Vietnam remains a source of shame and moral outrage. And it remains an impediment to better U. S.-Vietnam relations. For both reasons the United States should seek to reach those whom the Vietnamese public and leadership consider Agent Orange victims. The analysis of the Da Nang data points to several criteria for selecting future program beneficiaries. The criteria are operationally feasible. Applied consistently, these criteria will identify a beneficiary population significantly smaller than all people with disabilities, but which includes most Agent Orange victims. The criteria are:

- (1) The person was born between 1965, when spraying with Agent Orange began, and the present.
AND
- (2) The person's disability is the result of a birth defect or a defect that emerged spontaneously within the first 15 years of his or her life.
AND EITHER
- (3) The person has mobility impairment, a mental disability or both.
OR
- (4) The person's disabilities are severe or very severe.

These selection criteria would encompass **most** of those whom the Vietnamese consider Agent Orange victims with disabilities. It would not include anyone born before 1965; they largely have health issues rather than disability issues. It would not include anyone born in 1965 or later with disabilities from accidents or other health conditions; these people are not regarded as Agent Orange victims. The one 'hole' in this schema is apparently persons born after 1965 who may have been exposed to dioxin at a hotspot and subsequently contracted a disease. In 2014 such people would be a maximum of 49 years old. Experience with war veterans in the United States suggests that some of these Vietnamese would not yet have manifested illnesses that US law now regards as associated with dioxin exposure.

The larger issue is whether the U. S. government and/or the Vietnamese public and policymakers would regard this schema as too complicated and therefore hard to implement (U.S. government); or as possibly excluding some legitimate claimants (Government of Vietnam).

One alternative is to apply this framework not to *select individuals* for services, but rather as a way to *sort data* about people with disabilities from the 2009 Vietnam Population and Household Census.¹¹ This approach would allow us to predict where the highest concentrations of Agent Orange victims are likely to be living. The U. S. government (and perhaps other donors) would then work with the Government of Vietnam to provide 100% coverage to all people with disabilities in those districts.

Move to high impact but underserved provinces. USAID and Vietnamese authorities can use the profile of Agent Orange victims revealed in the Da Nang data to prioritize districts within these provinces, reach everyone meeting the criteria, and leave permanent improvement.

Consider how small sums can change lives. In Vietnam several hundred dollars' worth of help can totally transform the life of a person living with a disability and their family, especially if he or she is in an underserved rural area. USAID can aspire to reach and create new opportunity for tens of thousands of Vietnamese with disabilities. The challenge for the Agency is to take Congressional appropriations for health and disability services, control intermediate costs and channel the funds through organizations with a strong local structure and presence. This will maximize the impact on beneficiaries.

Adopt the lessons of the Public Private Partnership in Da Nang.

In 2007 Hai Chau district in Da Nang introduced a case management system for its children living with disabilities. Known as the Hope System of Care, and assisted by an American NGO, Children of Vietnam, the initiative spread to other districts in the city. In 2010 American foundations, companies and the Aspen Institute¹² -- in collaboration with the People's Committee of Cam Le District--created the Public Private Partnership to introduce the Hope System of Care to the district. This experience produced the following lessons.

(1) Collaborate with and strengthen district-level government; providing social services in Vietnam is their responsibility.

(2) Enter a multi-year partnership with the district government to expand capacity and deliver better services. The People's Committee (local government) must seriously commit to take full

¹¹ This would work, except for the "born with birth defects" criterion, which was not asked in the VPHC.

¹² In addition to the Aspen Institute the partners include Hyatt Hotels, HSBC Bank, Rockefeller Foundation, Henry E. Niles Foundation, Landon Carter Schmitt Memorial Fund, the Cam Le District Peoples Committee and Children of Vietnam. The Partners have furnished \$420,000 to introduce the Hope System of Care in Cam Le district.

budgetary responsibility for the enhanced services at the end of the defined period. Otherwise, there's no deal.¹³

(3) The partnership should adopt a case management approach and set up teams of case managers in each ward/commune. The case manager teams work with the individual and his or her family to create and update a care plan and then represent the individual in obtaining the required services. The partnership should also create interdisciplinary teams of service providers to provide expert recommendations for the individual care plans. The chair or vice chair of the people's committee in each ward/commune needs to be involved with the leadership and oversight of both kinds of teams.

(4) The partnership should deliver all the services to a disabled person which are called for in their care plan. In 2012-13 the Public Private Partnership in Da Nang funded between three and nine services for children and young adults with disabilities in Cam Le district. Fully implementing the service plan for each individual with disabilities creates a constituency of the recipient, his/her family and their neighbors. All of them will pressure the peoples committee to continue the same standard of service after the end of the partnership with the donor.

(5) The partnership should create parent support groups for children with disabilities and strengthens disabled peoples organizations (DPOs). Each can share experiences, resources and learning among members so they have the skills to advocate for their children and for themselves after the partnership with the donor ends.

(6) The partnership should enroll and map the locations of all the people with disabilities who meet the above criteria and live in the district. Each year it should survey the district, update enrollment, revise maps and update its database with newly arriving beneficiaries. This sets a precedent for inclusive and ongoing enrollment.

(7) It works best to select districts in high impact provinces and close to districts which have already graduated from such a partnership, where possible, so that officials in both districts can regularly share experience.

(8) Capacities vary from place to place so the partnership should consider adding other locally strong actors such as the Vietnam Red Cross, VAVA, parent support groups, disabled peoples organizations (DPOs) and others.

Deliver services and increase capacity simultaneously. Both need to be done at the same time to elevate services and sustain them after the inevitable end of outside assistance. "Capacity" is defined here as both human (a trained social worker who can forcefully advocate for her

¹³ This 'tough love' approach to sustainability has worked in Da Nang and could work in Bien Hoa; both cities have human and financial resources well above the average. This standard may need to be relaxed or redefined in provinces which are both resource poor and face higher costs to deliver social services to dispersed rural populations.

clients, for example) and institutional (robust management and accounting systems that ensure the right services get to the right people at the right time). Services should include an array of opportunities among which the recipient has some freedom to choose. The services should continue over time as needed; and they should enable the person with a disability to live more independently.

Follow the Vietnamese policy framework purposefully: Take the fullest advantage of the 2010 National Law on Disability and its implementing regulations, which apply to all provinces in Vietnam. These regulations now offer operational definitions of ‘case management,’ ‘individual care plan,’ and other key concepts and tools. They define what disability is for purposes of providing public services and monthly allowances, and set performance standards. USAID and Vietnam Assistance for the Handicapped (VNAH) can use the solid relationships which their support has built with MOLISA at the national level to reach agreement on a multi-year plan for USAID assistance for disability services in the provinces. The goal of these efforts: when U.S. and other international assistance come to an end, Vietnamese providers will have the capacity to meet the social, health and livelihood needs of Agent Orange victims and other people with disabilities.

In sum, the U.S. can demonstrate to the Vietnamese that we aim to help those whose lives have been damaged by Agent Orange. And we can eliminate this significant irritant to U.S.-Vietnam relations.

APPENDIX

Stellman: Liters and per cent distribution of herbicides sprayed in the Republic of South Vietnam, 1962-1971, by agent² and year of spraying.¹

Year	Purple	Pink	Orange	White	Blue	Unstated	Total	Cumulative Percentage
1962	142,085				10,031		152,117	0.2%
1963	340,433						340,433	0.7%
1964	831,162				15,619		846,781	1.8%
1965	579,092	50,312	1,868,194			18,927	2,516,525	5.2%
1966			7,602,390	2,179,450	59,809	126,474	9,968,124	18.7%
1967			12,528,833	5,141,117	1,518,029	86,288	19,274,267	44.9%
1968			8,747,064	8,353,143	1,289,144	249,750	18,639,101	70.1%
1969			12,679,579	3,987,100	1,035,385	274,291	17,976,356	94.5%
1970			2,251,876	845,464	762,665	96,509	3,956,514	99.9%
1971				50,251	50,698	9,085	110,034	100.0%
TOTALS	1,892,773	50,312	45,677,937	20,556,525	4,741,381	861,325	73,780,253	
Percent	2.6%	0.1%	61.9%	27.9%	6.4%	1.2%	100.0%	

1. Data are taken from corrected HERBS file. 2. Data do not include 947 I Dinoxol and 548 I Trinoxol sprayed during tests in 1961.

TECHNICAL NOTES

Vietnam Population and Household Survey (VPHC) 2009

The General Statistics Office conducted the VPHC in April 2009 with technical assistance from UNFPA. The VPHC is a 15 percent sample, covering 3,692,042 households and 14,177,590 individuals ages five and above. It is designed to be representative at the district level. The VPHC was chosen because data from it can provide a definition and measure of 'disability' which is applicable countrywide at the district level.

The definition of 'disability' used in this paper is the one that Daniel Mont and Cuong Nguyen employ in their research report *Spatial Variation in the Disability-Poverty Correlation: Evidence from Vietnam*, (Working Paper Series: No. 20, University College London, August 2013). They write (p. 11):

"Construction of an uncontroversial definition of disability is difficult. According to a measurement method suggested by the Washington Group, which was established by United Nations Statistical Division with the participation of over 100 National Statistical Offices and international agencies (Madans et al., 2010), disability is measured in household surveys by asking respondents about their difficulties in basic functional domains such as seeing, hearing, walking, self-care, cognition, and communication. (Schneider, 2009; Madans et al., 2010).

"The 2009 VPHC relies on a similar method suggested by the Washington Group on Disability Statistics to measure the disability. More specifically, interviewees are asked about their difficulties in the four basic functions including seeing, hearing, walking, and remembering. There are four multiple exclusive responses: (i) no difficulty, (ii) some difficulty, (iii) a lot of difficulty and (iv) unable to do (cannot do at all).¹⁴ Based on the availability of the 2009 VPHC data and following Loeb, Eide, and Mont (2008) and Mont and Nguyen (2011), we will define a person to be disabled if she or he has a little difficulty in at least two of the functional domains (seeing, hearing, walking, and remembering), or a lot of difficulty or unable to do at least one of the domains.

"The above measure of disability includes people with mild and moderate, as well as severe disabilities.

¹⁴ The Washington Group recommended six census questions, but set the minimum useful set as four questions, recognizing that space on censuses is often tight and some countries were resistant to including all six questions. Vietnam was one such country that only used four questions, and as such there is probably an underestimation of the rate of disability.

This selection criterion is displayed in the following table.

Table 5. Criterion Used in Vietnam Population and Household Survey (VPHC)

Function	No difficulty	Some difficulty	Much difficulty	Can't do
<i>Seeing</i>				
<i>Hearing</i>				
<i>Walking</i>				
<i>Remembering</i>				

A census respondents who ticked at least 2 blue cells above OR at least 1 yellow cell above is in the group of ***all PWD***

This criterion generated estimates for the population of Vietnamese with disabilities at the district level, including the four Da Nang districts in this study. It has very few false positives.

This criterion was also used to produce national estimates for numbers of people with disabilities by age, type of disability and severity of disability for comparison with the Da Nang data. The age and severity comparisons from the two datasets are straightforward. To make the comparison on type of disability these variables were constructed and applied to the VPHC dataset.

Table 6. Survey Variables within the DAVA Dataset

VPHC Variable	DAVA Dataset Categories
%ONLY difficulty walking- no other difficulties	Mobility impairment
%ONLY difficulty remembering or concentrating- no other difficulties	Mental disability
%walking AND remembering and concentrating—but nothing else	Both Mobility impairments & mental disabilities
%ONLY hearing, vision and/or communication- not walking or remembering and concentrating	Hearing, vision & speech impairments

DAVA Dataset on Agent Orange Victims in Da Nang

The method DAVA used to identify Agent Orange victims and gather information about them is described on page 3 of the text and accompanying footnotes. This information was transferred to spreadsheets, checked and then analyzed for this study.

Base Year

The VPHC was conducted in April 2009 and set the above questions on disability to persons aged five and above. To ensure comparability, 2009 was set as the base year for both datasets. The DAVA dataset includes persons born 1965-2004 and the VPHC dataset includes all persons born up to and including 2004.