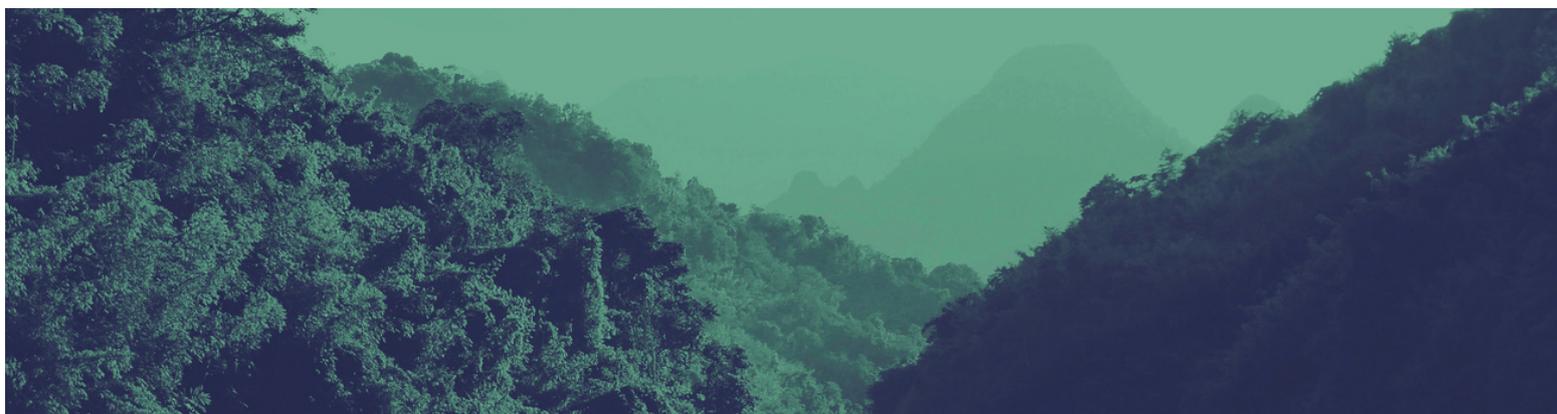


WAR LEGACIES PROJECT

Summary of the 2021 Report on the Laos Agent Orange Survey State of Health and Livelihood



Published by War Legacies Project 2021. This summary seeks to deepen knowledge and raise awareness of key human health issues of wartime use of Agent Orange affecting the people of Laos today. The report advocates for solutions that will improve the lives of all and future generations.

FIELD RESEARCH

Background research for this report was contributed by Susan Hammond, Founder and Executive Director; Jacquelyn Chagnon, Board President; Niphapone Sengthong, Lao Program Coordinator; and the Hatfield Consultants. Research in Lao was made possible through collaboration with the Lao National Regulatory Authority and the Ministry of Labor and Social Welfare.

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Our Board: Jacquelyn Chagnon, President; Thi-Bay Miradoli, Treasurer; Susan Hammond, Secretary; Andrew Wells-Dang, Deputy Director, Advocacy Strategy and Learning at CARE; Ivan Small, associate professor at Central Connecticut State University

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THE PROBLEM

In the Lao People's Democratic Republic a key challenge to poverty alleviation and development is addressing the legacies of the U.S. Secret War in Laos (1961-1975).

While much of the attention of the international community has focused on unexploded ordnance (UXO), little is known about the impacts of the war's herbicide spraying. As in Vietnam, Laos' southeastern border region was subjected to nine years of heavy carpet-bombing and repeated herbicide spraying. But unlike Vietnam, the generational impacts of wartime herbicides on the Lao population and environment have been neither fully surveyed nor accounted for nor mitigated. Little was known about herbicides being used in Laos at the time and this has had devastating consequences in addressing its ongoing legacies today.

The hidden health and environmental dangers of herbicide spraying have compounded many livelihood problems for those living in this southeastern region comprising 15 border districts. Various

socio-economic indices reveal the uneven and slow development of a profoundly impoverished region lagging behind the rest of the country.

Until recently, most of the region's remote villages were inaccessible by road. Some still are only reachable on foot. The lack of a viable transportation infrastructure placed people with physical challenges and disabilities at an even greater disadvantage. As a result, many have been unable to access medical care, rehabilitation services and educational opportunities, all of which lead to increases in poverty.



HISTORY AND GEOGRAPHY OF TOXIC SPRAYING

During the wars in Vietnam, Laos and Cambodia, the Vietnamese and their Lao and Khmer allies built a network of paths that came to be known as the Ho Chi Minh Trail.

It was a military transport route that twisted through the mountainous spine of the Annamite Range, under the cover of dense jungle canopy. The Trail extended into the territories of officially neutral Laos and Cambodia bordering southwest Vietnam. Covert U.S. combat warfare and bombing operations began focusing intensively on bombing and herbicide spraying of the trail in southeastern Laos in 1965.

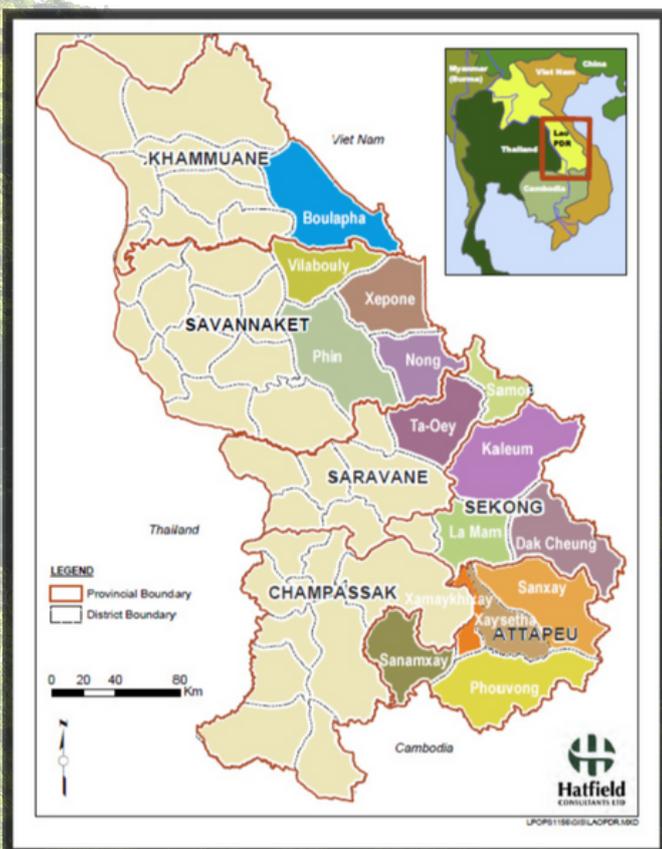
Laos and Vietnam, as well as parts of Cambodia, became primary targets of the U.S. counterinsurgency program code-named “Operation Ranch Hand.” Operation Ranch Hand was the U.S. Air Force defoliation, crop destruction and food deprivation program that deployed nascent airwar techniques in its¹ application of 20 million gallons of toxic “rainbow”² herbicides on Vietnam, Laos and Cambodia.

The objective was to denude the tropical-agricultural landscape that had provided both subsistence and cover for on-ground insurgents.

According to official records over 600,000 gallons of herbicides were sprayed by planes over 165,000 acres along the Lao side of the Ho Chi Minh Trail between December 1965 and October 1970. These records, however, are incomplete, as declassified CIA Documents reference defoliated areas of the trail as early as November 1964.

The sprayings in central and northern Laos, though sparse and isolated, have been confirmed by public official records. The majority of the spraying, however, occurred along and near the southeastern Lao border with Vietnam. Five Lao provinces that were impacted include:

- Khammouane Province
- Savannakhet Province
- Salavan Province
- Xekong Province
- Attapeu Province



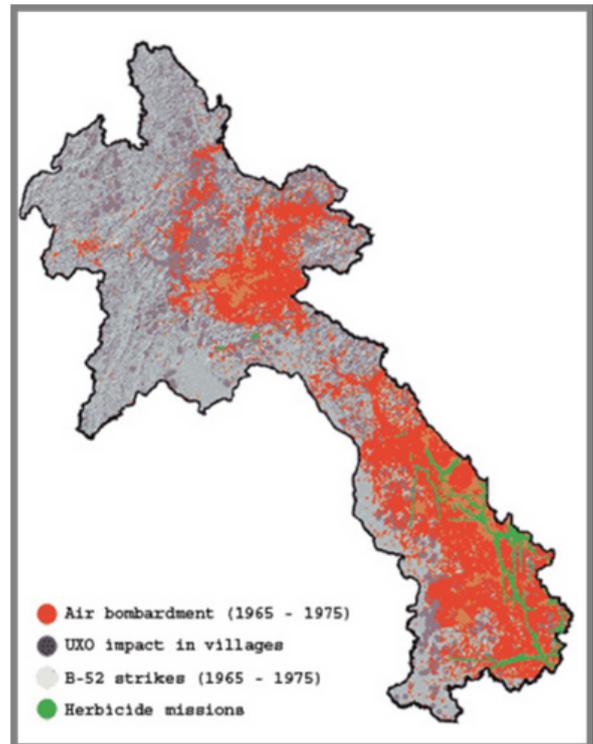
Some of the most intense sprayings in Laos occurred in 1966 when nearly 400,000 gallons of the herbicides rained down over 2,000 miles³ of the tangled paths that comprised the Ho Chi Minh Trail.⁴ During the war, over 500 villages were located within 6 miles of the spray paths.⁵

Many villages in the districts of Xepon, Nong, Ta-Oey, Samoi, Dak Cheung, La Mam, Kaleum and Phouvong were sprayed multiple times.

In recent years, efforts have been made to redress the severe economic disparities between this heavily sprayed southern region and the rest of Laos. But today, this particular southern region still remains comparatively underdeveloped. There are an estimated 500,000 people living in 800 villages. In the 2015 census, about 75 percent of these residents lived in rural areas, 15 percent had no road and only rough access tracks during the rainy season, and over 50 percent, excluding those residing in Attapeu province, suffered extreme poverty. They are primarily subsistence upland rice farmers with limited access to the cash economy.⁶

Agent Orange and Human Health Impacts

Agent Orange, specifically the 2,4,5-T component, was contaminated with 2,3,7,8-Tetrachlorodibenzo-p-dioxin



TCDD), also known as Dioxin. Dioxin belongs to a family of more than 70 isomers of highly toxic, man-made organic compounds created during industrial processes and waste incineration. The term “Dioxin” is commonly used to refer to the TCDD specifically found in Agent Orange—and also in Agents Pink, Purple, and Green—the most toxic of all Dioxin-like substances.

Dioxin is now recognized as a known human carcinogen and has been shown to be teratogenic (birth defect-inducing) in all species of animals that have been studied.

Dioxin Hotspots

Unlike in Vietnam, there are no known major Dioxin hotspots—that is, Dioxin-contaminated areas—in Laos.

The bases of operations for most of the aerial spraying missions in Laos were in Vietnam and Thailand. There were over 400 former landing strips, airports or spotter bases of operation in Laos that were part of the U.S. war effort. As in Vietnam, it is possible that herbicide barrels may have been stored at some of these bases for perimeter spraying or to be loaded onto planes. As a result some may be potential Dioxin hotspots.

The Laos Agent Orange Survey

Since 2015, War Legacies Project has been conducting a systematic recording and collection of statistical data on the potential impacts of Agent Orange in 126 villages in 5 of the 15 districts impacted in southeastern Laos.

These initial efforts have been part of the Laos Agent Orange Survey, which was launched to determine the extent of herbicide contamination and its human health consequences—to find the prevalence of congenital malformations and/or disabilities in previously sprayed regions. During this first phase of the survey WLP focused on selected villages in the five heavily sprayed districts of Samoi and Ta-Oey in Salavan Province and Nong, Xepone and Vilabouly districts in Savannakhet Province.

A majority of the villages had at the very least one person with a congenital malformation. The average was four cases per village. The most common birth defect found was hip dysplasia, followed by paralysis and then cleft-lip and/or cleft palate.

The Laos Agent Orange Survey first focused on identifying people with external birth defects and/or congenital disabilities born after 1966. Their conditions, in order to be included in the Survey, must be categorized according to what is recognized by the VA and/or the Vietnamese government.



WLP conducted the survey whenever possible with the assistance of local medical staff from district hospitals. Importantly, few local medical staff are not trained to identify congenital birth defects and are usually newly newly graduated in-training medical students.⁷

Support Provided by War Legacies Project

Of the 517 people identified in the survey, about 25 percent have been sent or accompanied by WLP to provincial and national level hospitals for further examinations and/or treatment.



Priority was given to those for whom life-saving or life-changing surgeries or medical intervention could be performed within Laos. Hence children with cleft lip and/or cleft palate, club foot, severe scoliosis and arthrogryposis were prioritized. Others with more complicated cases were referred to specialists from outside of Laos who were visiting on medical missions.

In order to facilitate direct support for persons with disabilities, WLP identified and worked with local partners—the District Department of Labor and Social Welfare, the District Women’s Union, district hospitals and Nai Bans (village heads). These partnerships, however, have been limited to cases of medical interventions that could be performed by

visiting medical teams, or in a few exceptions across the border at the Hue School of Medicine Hospital.

There are other challenges. For example, several young adults and children with cases of hip dysplasia traveled to the provincial rehabilitation center to receive orthotic lifts to level out the length of the legs, control abnormal motion and provide heel correction.⁸ Later it was discovered that many of the orthotics had not been used adequately, if at all.⁹

Nonetheless, providing services in conjunction with the surveying work has helped WLP staff to build trust among many of our beneficiaries and their families, especially children.

Priority was also given to children in order to ensure early intervention through various WLP programs. Children receive the most assistance in the form of rehabilitation services and medical interventions in order to mitigate complications and ensure



integration into their peer group as the child matures.

Some of the children who were previously unable to walk due to severe clubfoot are now able to run and play with their peers and attend school. Children who had cleft lips or palates no longer faced the stigma attached to their conditions after WLP-provided services.¹⁰

Persons with disabilities unable to walk on their own now have wheelchairs and/or home renovations to build accessible home amenities. The costs to bring a child from remote areas to Vientiane and to other larger cities to access health facilities for care or surgeries can total up to \$400 or more. The biggest expense is the travel

costs for the child and one or two caregivers and living expenses while away from home. WLP usually provides financial assistance to help offset logistical costs such as transportation that are out of reach for most families.

WLP has also supported persons with disabilities by sending them to Vientiane to receive training. Most have been teens and young women. Seventeen youths enrolled in vocational training programs while women received training in sewing, weaving and other handicrafts at the Women's Disabled Development Center or at the SiKeurt Vocational center.



Ban from Pasia Village was unable to walk when WLP met him in 2014. After nearly six months of casting and rehabilitation in Vientiane Ban, now eight, runs freely around the village with his friends.

Existing support for PWD in this region and in Lao PDR

Lao Government

With limited resources, the Lao authorities have made great strides in improving and providing access to medical care, vocational training, inclusive education and social integration for people with disabilities. In 2014 they passed the Decree on the Rights of Persons with Disabilities. Medical care is free or deeply subsidized by the Lao government for people with disabilities and the poor up to the provincial level of care. But in the southeastern region of Laos the quality of health care at the district hospitals is rudimentary. For more specialized care one needs to travel to the provincial capital or national capital in Vientiane.

Children's Food Programs

Most of the schools in Laos including those in the southeastern border region have a school-based program to provide meals to students to combat child malnutrition and stunting. But unless the child with a disability attends school, they do not benefit from this program.

Provincial and National Hospitals

Some procedures to address congenital malformations such as cleft-lip and club foot can be addressed at the provincial hospitals in Savannakhet and Salavan. But more advanced procedures such as to address cleft-palate, spinal malformations, complex facial surgery, stents for hydrocephalus, and most orthopedic conditions must be conducted at one of the national hospitals in Vientiane. Visiting teams of specialists also travel to Laos to train Lao doctors in early detection of birth defects and intervention treatments. These medical missions, for the most, do not ever reach the southeastern districts.

UXO Victims Program

The UXO Victims Program is focused on providing orthotic and prosthetic devices and rehabilitation for people who have been injured when unexploded ordnance (UXO) is set off. Their care is provided free of charge by the UXO victim's support program, funded in part by the U.S. government. But children with congenital malformations who could use the same types of assistance often must pay for these services. Fortunately, the training that is provided to support people impacted by UXOs is also benefiting those who have missing limbs due to birth abnormalities.

Okard

The U.S. is currently funding the five-year Okard project in Vientiane, Xieng Khoang, and Savannakhet that provides training in health and rehabilitation services for persons with disabilities, supports vocational training programs and livelihood opportunities and helps coordinate government and non-government organizations that support persons with disabilities to advance their rights. But it does not reach the rural populations in the border regions that were heavily sprayed with herbicides. Nonetheless, the training that is provided for rehabilitation specialists and medical professionals in Savannakhet and Vientiane will benefit those PWDs from the rural regions who need to travel for more specialized care.

Center for National Rehabilitation

The CNR does have satellite branches in Pakse and Savannakhet provincial capitals. They are best trained to address missing limbs from unexploded ordnance. They are ill-prepared to handle conditions of physical disabilities where paralysis and/or muscle wasting is present. Moreover, they are ill-prepared to address cognitive impairments. For most rehabilitation programs it is necessary to travel to Vientiane to the CNR which often requires a long stay.

Inclusive Education

Programs

Catholic Relief has worked to ensure that children with disabilities are integrated into the education system and the community including in Nong, Xepone and Villabouly districts. ChildFund Laos, Plan International, World Vision and Save the Children have in the past conducted inclusive education and medical screening in Xaybouathong, Khammouane Province through the BEQUAL Program funded by AusAID, the European Union and the Lao Government.

But these programs have not reached most of the border districts in southeastern Laos which were heavily sprayed by herbicides. Still, the lessons learned from these programs can be useful in developing programs in the more remote districts of southeastern Laos.

Programs could provide PWDs and their caregivers regular medical check ups, non-formal education classes, vocational training and teams of social assistants trained in basic care of PWDs who speak the local languages and can assist families when traveling to large medical facilities.

Challenges in Providing Medical Care

- Most persons with disabilities have never visited a doctor so very little trust in the medical profession has been established. Villagers more often rely on traditional medicine and healers.
- There is little awareness that medical intervention at the early stages may be possible for addressing some of the birth defects or illnesses such as arthrogryposis, club foot and hip dysplasia.
- Health professionals in district hospitals have limited training in how to identify unusual disabilities and medical conditions. In addition, they have not been trained on how to work with people with disabilities and their families to address their unique concerns.
- Most medical professionals at the district and provincial levels are unable to communicate in the local ethnic languages hindering communication with PWDs and their care-givers. Many living in border areas are ethnic minorities who have very rudimentary Lao language skills and very low literacy levels and therefore need constant guidance.
- There is no formal system of trained medical social workers in these areas to assist children and adults who have physical and/or cognitive challenges in navigating the complex medical and rehabilitation system in Laos.
- The local village medical clinic staff are often unaware of which health facilities to suggest to patients and most are just beginning to learn how the Lao medical referral system works. They are often unaware of specialized assistance available at higher levels of health care. As a result they will send the family home if medical care is not available at the local level instead of referring them to the provincial or national level facility.
- Most affected persons are poor upland rice farmers who do not have access to the cash economy to support even bus travel to provincial or national level medical facilities. Travel to a major hospital even at the province level is often financially prohibitive.
- Traveling to the district capital for medical care or to reach transportation to the provincial capital is daunting. Many villages are accessible only by foot, motorbike or four-wheel drive vehicles and only during the dry season. Even then it can take several hours as modes of transportation are very limited. Many of the villages are still inaccessible in the rainy season.
- Travel for medical care must be scheduled around the family's agricultural work schedule and the dry season.

- Children who require surgery often need to stay weeks or months in hospitals far from home. Most hospitals have no facilities yet for specialized playrooms, books and other learning tools for children and young adults. Thus, patients become bored very quickly and are anxious to go home before treatment is even started or finished. Accompanying caregivers need financial support to cover living expenses while away from home.
- A young child with a disability often needs to have two caregivers travel with them. Consequently scheduling child care at the home village can be difficult for families with young children.
- Medical expenses are covered by national insurance only if the person follows the referral procedure and only for medical care up to the provincial level. If the child needs to travel for care at a Vientiane facility the cost is not covered by government insurance.
- Many young children with disabilities have other underlying medical issues and malnutrition. Children with severe disabilities that are unable to go to school are then deprived of the school feeding programs established to combat malnutrition in this region.
- Communications with families to coordinate travel for medical care is difficult as most can not afford a cell phone. Communications with the families often must be coordinated through the district level government staff and the Nai Ban (village head).
- When patients and caregivers are able to travel for medical services they find themselves confused navigating the medical system and adjusting to the urban environment. A system of young volunteers as guides would be helpful to give patients and caregivers assurance and proper information.
- If complex surgery is required, caregivers will often want to travel back to their village to confer with elders as well as perform rituals to be certain their village spirits support proceeding with surgery.
- Lao doctors and surgeons even at the national level do not yet have sufficient training to address complex birth defects. Many conditions require the care of a visiting team of specialists and their surgery schedule books up very quickly. Some children, such as those with arthrogyriposis, often require multiple years of surgeries in the most complex cases.
- Children with paralysis, cerebral palsy and other movement disorders have no access to rehabilitation services at the district level. Even if they are able to travel to the provincial capital for extended rehabilitation there are very few trained rehabilitation staff and even fewer that have specialized training to address their needs.

Recommendations

The above and other programs for persons with disabilities in Laos provide a good foundation to build upon for future programs targeted at those with congenital malformations and disabilities in the heavily sprayed regions of Laos. Listed here is some of the work that remains to be done:

- Focus more of existing U.S. government and other international assistance on the Lao PDR in the districts where Dioxin-contaminated herbicides were used by the U.S. government during the war. This should start with the 15 most severely impacted districts along the former Ho Chi Minh Trail of southeastern Laos.
- Release the locations of all covert sites where the CIA and covert military operations may have conducted herbicide spraying by hand and by helicopter or covert aerial spraying. This is necessary to prioritize where environmental testing needs to be conducted.
- Conduct limited testing of soils and sediments, fish and animals, and human breast milk in select villages with high rates of people with disabilities. Conduct similar testing in areas where there is a possibility of the storage of herbicides or frequent perimeter spraying during the war.
- Train medical professionals at the district, provincial and national levels in early detection and early intervention for birth defects.
- Continue to train medical specialists in orthopedic surgery, neurology, plastic surgery, cardiology, spinal surgery and pediatric surgery.
- Grant persons with disabilities travel and food stipends to enable them to travel with a caregiver to hospitals at the national or provincial levels for specialized services.



- Assist the Lao government in establishing a medical social work system. This would greatly help families of children and adults with disabilities to navigate through the complex medical referral system in Laos and communicate with medical professionals.
- Support the provincial and district hospitals to develop village-based medical screening programs with specialists from the national and provincial hospitals that can travel with a four-wheel drive to remote villages to conduct medical examinations and refer people for services.
- Establish non-formal education programs for children and young adults with disabilities and special learning needs who were or are unable to attend school in their villages.
- Establish rehabilitation centers and vocational training programs at the district level to assist persons with disabilities from the heavily sprayed districts. Improvement of the road network would allow a single center to service several districts.
- Foster more communication between the programs for people with disabilities to make it clear which costs are covered by medical insurance and which costs are covered by international programs supporting people with disabilities.
- Develop livelihood support programs to enable youths and young adults with disabilities to have an alternative to upland rice farming in rural villages of southeastern Laos.
- To combat child nutritional deficits, expand the school feeding program to include homebound children with disabilities.



Conclusion

The amount of funding needed to address the potential ongoing impacts of Agent Orange in Laos would be a small fraction of the \$230 million that has been allocated by the U.S. since 1993 to address explosives in Laos.¹¹

It would be a fraction of the \$390 million already allocated to Vietnam for the health and environmental impacts of Agent Orange there.¹² While environmental testing may possibly reveal minimal Dioxin hotspots in Laos, none will compare to the hotspots at the Da Nang and Bien Hoa Airbases. Mitigation measures would most likely require at most the relocation of populations who are living or farming on contaminated soils until the soil can be remediated as was done at the former A So special forces base in A Luoi, Vietnam.

While there are hundreds of thousands and potentially millions of people with disabilities and health issues associated with exposure to Dioxin-contaminated herbicides across at least 10 provinces in Vietnam, those most impacted in Laos are restricted to the 15 districts in the 5 Lao provinces along the border with Vietnam.

Medical screening and educational assessments would need to be completed in the 800 villages that were heavily sprayed. A mobile screening program should be developed to help identify other health and educational needs facing these small ethnic communities.

Lessons learned from OKARD, BEQUAL and programs in other regions of Laos will help in the development of necessary programs with district-level government agencies and ensure capacity building of local Lao agencies and organizations. The aim will be to address the particular educational and medical needs of those in the underserved southeastern region of the country.

With an average of four people with congenital birth defects and/or disabilities per village in the heavily sprayed regions in Laos, WLP estimates that between 3,200 and 5,000 will require specialized programming. This is a very manageable number. In a matter of a few years the U.S. government could fund programs that will alleviate this forgotten and long neglected legacy of the war in Laos.

END NOTES

- 1** The Army Chemical Corps responsible for overseeing the distribution of the herbicides cannot account for approximately 14 percent of the herbicides procured for the war effort. Some of these herbicides may have been used in unrecorded spray missions, including missions in Laos in the early 1960's.
- 2** The tactical "rainbow" herbicides used included: Agents Orange and Purple made up of Dioxin contaminated 2,4,5-T combined with 2,4-D; Agents Pink and Green consisting of Dioxin contaminated 2,4,5-T; Agent Blue - the arsenical compound cacodylic acid and Agent White - picloram.
- 3** Enabling Activities to Facilitate Early Action on the Implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs) in Lao PDR. Hatfield Consultants. March 2005. Annex 2A Summary of Herbicide Applications in Lao PDR, 1965-1971 from US Embassy data.
- 4** As part of the Operation Ranch Hand effort in Laos, mainly Agent Orange as well as Agent Purple were used; anticrop Agents Blue and White were also used but to a lesser extent.
- 5** Most villages surveyed were within three miles of the spray paths. However, WLP also selected villages within six miles from the spraying for several reasons: 1) Villages often moved within a one-to-two mile radius over the course of the war 2) Upland farming occurred in the surrounding hills therefore a villagers range of activity exceeded the village boundaries 3) villagers often had to flee several miles to the surrounding hills during the bombing and spraying 4) Planes sprayed a path approximately 1/2 mile wide and spray drift could have reached several more miles from the recorded path due to high winds in the mountain regions and 5) to account for discrepancies between the recorded and actual spray paths.
- 6** https://lao.unfpa.org/sites/default/files/pub-pdf/PHC-ENG-FNAL-WEB_0.pdf
- 7** These trained medical staff are the equivalent of a medic. Also, many of them do not speak local ethnic languages.
- 8** Early detection of hip dysplasia is essential so that treatment can begin before it becomes debilitating.
- 9** Once home, people reverted to walking barefoot or with sandals.
- 10** Children with cleft lips are usually youths who never had their cleft lips surgically corrected are now able to smile and are no longer called by the nickname "Heuy," meaning cleft lip, and use their name giving to them by their parents at birth.
- 11** <https://www.google.com/url?q=https://www.state.gov/reports/to-walk-the-earth-in-safety-2020/&sa=D&source=editors&ust=1615680599373000&usg=AOvVawoh34hVsQiBnZvIooMgADK4>
- 12** U.S. Agent Orange/Dioxin Assistance to Vietnam. Congressional Research Service. Updated January 15, 2021. <https://fas.org/sgp/crs/row/R44268.pdf>