

Preface

Arthur H. Westing has been known to me since the late 1970s or early 1980s when he was working at the *Stockholm International Peace Research Institute (SIPRI)*, first as a Senior Researcher, and subsequently as Director of a project on the environmental impact of war that was later transferred to the *International Peace Research Institute Oslo (PRIO)*. With the many books he authored and edited during this time, Westing became the single most important ‘Pioneer on the environmental impact of war’. His pioneering scientific field work in Southeast Asia since the late 1960s on the use of defoliants by US and South Vietnamese forces during the Second Indochina War of 1961–1975 has influenced not only the scientific research and writing of many younger scholars in both peace research and environmental studies, but at the time also had significant impacts on the internal debate in the USA and increasing public opposition to that Viet Nam conflict.

The scientific work of Westing and several of his colleagues, to whom he refers elsewhere in this book (cf. [Chap. 1](#)), persuaded the US military to stop the use of Agent Orange; and it additionally influenced the US Administration in 1975 to submit, and the US Senate to ratify, the 1925 Geneva Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or other Gases, and of Bacteriological Methods of Warfare (*LNTS*2138). Westing’s work in the early and mid-1970s in the USA and during much of 1976–1990 in Stockholm and Oslo (during the *détente* period of East–West relations) also influenced the debates in the United Nations that contributed to the adoption of several international conventions and treaties, most particularly the 1972 Biological Weapon Convention (*UNTS*14860), the 1977 Environmental Modification Convention (*UNTS*17119), and the 1977 Geneva Protocol [I] on the Protection of Victims of International Armed Conflicts (*UNTS*17512). Indeed, Brauer (2009, p. 45) wrote in his *War and Nature* that the literature on the environmental effects of the Second Indochina War ‘is, to a large extent, written or mediated by a single, formidable researcher, Arthur H. Westing.’ He correctly concluded that, ‘Westing may well be regarded as the father of the modern, continuous interest in the environmental effects of war’.

My own publications on chemical and biological warfare and on disarmament were stimulated by the many extremely innovative and valuable books and articles written by Westing and by the many personal discussions I had with him during the past three decades. As a biologist and forester, Westing has combined in his long and distinguished scientific career, his knowledge in forestry, botany, ecology, and conservation with the social responsibility of a scientist who—together Arthur W. Galston (Yale University), Egbert W. Pfeiffer (University of Montana), and Matthew S. Meselson (Harvard University)—produced the scientific evidence of the misuse of scientific knowledge in warfare. And it was Meselson and Westing who convinced the US Ambassador to Viet Nam, Ellsworth Bunker, to order the cessation of US herbicidal warfare when they informed him about their findings of the massive ecological and agricultural damage and possible human poisonings.

As a postdoctoral fellow myself at Harvard (1978) and as an active member of the Pugwash movement (1976–1992), I had met Meselson and many other natural scientists who contributed their scientific knowledge and concerns as citizens to constrain the misuse of their knowledge in warfare and to work for legally binding international arms control and disarmament treaties. Several scientists I met during the conferences and symposia organized by the Pugwash Movement considered it their patriotic duty during World War II and the subsequent Cold War to contribute their scientific knowledge—e.g., respectively, to the US, British, and Russian nuclear weapon programs—but once those had ended they founded and became involved with, e.g., the *Federation of American Scientists*, the *Union of Concerned Scientists*, and the *Society for Social Responsibility in Science* in order to get involved in the political debate on nuclear, biological, and chemical disarmament.

Westing's career has been different. He had never been involved in the development of weapons of mass destruction. His interest in plants, animals, and nature started when he was a boy scout and studied botany at Columbia University (B.A., 1950), when he interrupted his studies and became a Marine during the Korean War of 1950–1953, and later gained practical experience with the US Forest Service (1954–1955) where he conducted field research on means to kill unwanted hardwood trees through the use of herbicides that were later named Agent Orange by the military. As a Marine in Korea he gained field experience on the environmental disruption of warfare, and as a forester he gained practical experience in the use of herbicides, many years before *Silent Spring*, the seminal book by Carson (1962) was instrumental in initiating a global debate on the negative human interventions into nature, especially through the use of chemicals to optimize the economic output of agricultural, horticultural, and forest crops.

Westing's work as a forest biologist had in 1969 sensitized him to joining wildlife biologist Pfeiffer to verify onsite the increasing rumors of environmental devastation of forest and agricultural areas by aerially applied herbicidal anti-plant chemical warfare agents that was then being kept quite secret by the US government. At the invitation of the Government of Cambodia, Pfeiffer and Westing could visit attacked sites on the ground in December 1969 and January 1970. Based on those and 10 further field investigations to Southeast Asia, Westing and his colleagues (usually

either Pfeiffer or Meselson) also examined and reported on crop destruction and the serious environmental damage from high-explosives. Their impact extended to the scientific community, to the US and other media, and to US Government and other political leaders (among them, Olof Palme) (cf. [Chap. 1](#)).

Based on this early scientific and field experience, Westing was invited by SIPRI to write a major report on his wartime findings that was published as *Ecological Consequences of the Second Indochina War* (Westing 1976) and subsequently to head a UNEP project on ‘Peace, Security, and the Environment’. As a result of this long-term project at SIPRI and PRIO, Westing authored and edited a series of major monographs (cf. [Chap. 3](#), #97; #108; #143; #145; #157; #163; #181; #193; #206; #218) in addition to various book chapters and articles (cf. [Chap. 3](#), *passim*).

Westing’s scientific work influenced the work of various intergovernmental agencies (e.g., UN, UNEP, UNIDIR, UNESCO); and it also raised the awareness of major nongovernmental organizations (e.g., the *International Committee of the Red Cross* [ICRC], the *International Union for Conservation of Nature* [IUCN], and the *International Campaign to Ban Landmines* [ICBL]).

As a professor of forestry, botany, ecology, and conservation at Purdue University (1959–1964), University of Massachusetts (1964–1965), Windham College (1966–1976), Hampshire College (1978–1983), and the European University Centre for Peace Studies (1989–2002) he introduced and inspired hundreds of students in several disciplines. When he was working at SIPRI and PRIO, Westing was a conceptual innovator in a number of scientific debates, especially on environmental, social, and comprehensive security, on the development of legal norms to stop the hostile use of herbicides, of hostile environment modification techniques, and of anti-personnel land mines and cluster bombs.

I have known Westing for more than 30 years as a highly respected, innovative, and critical natural scientist, environmentalist, and peace researcher who had a deep influence on my own work as a political scientist on weapon technologies, on the misuse of scientific knowledge for warfare, and on arms control and disarmament initiatives and policies.

As a scholar and concerned citizen, Westing through his scientific work and policy consultancy has lived what social responsibility of science stands for: i.e., to care about human beings and nature; to constrain military interference and damage to nature with herbicides having long-term effects on the food chain and thus not only on generations of children in the affected countries, but also on those of exposed soldiers. The affected individuals and their families have fought in vain for years to obtain medical assistance and financial compensation for their long-term health effects. One of the great successes of Westing and his colleagues was that they could convince Ambassador Bunker to stop the use of defoliants in the war in Southeast Asia. Nonetheless, when the USA in 1975 finally acceded to the 1925 Geneva Protocol, it did so with a reservation that would permit its military forces to use herbicides under certain conditions.

To summarize Westing’s main environmental achievements during his professional life:

- (a) As a *natural scientist* he has since the mid-1950s studied the use of defoliants in forestry, and through his 11 field trips to Southeast Asia between 1969 and 1993, he and his colleagues Pfeiffer and Meselson developed the first scientific evidence on the negative impact of the massive spraying of Agent Orange and other herbicidal anti-plant chemical warfare agents;
- (b) As a *professor* and *educator* he has conveyed not only scientific knowledge, but also a sense of social responsibility to his students and colleagues, both nationally and internationally;
- (c) As a *concerned US citizen* he and his colleagues had the courage to raise awareness both of the scientific community and the public at large about an essentially secret military operation of the USA and South Viet Nam during the Second Indochina War;
- (d) As an *ecologist* and *environmentalist* he created awareness of the human interference into nature through the uncritical use of scientific knowledge as applied to warfare;
- (e) As a *peace researcher* he put the environmental impacts of war on the research agenda of both critical peace and environmental studies and thus created a new field of multidisciplinary scientific endeavor;
- (f) As a *policy consultant* he succeeded in putting the environmental impacts of warfare on the agenda of many intergovernmental agencies and nongovernmental organizations; and
- (g) As a *politically active scientist and citizen* he became a *Vorbild* (model or example) not only for many young scientists, but also for policy makers, to take the courage not to remain silent on the misuse of scientific knowledge in warfare or for increasing short-term economic benefits while ignoring the longer term effects on the life of present and future generations.

In following Westing's work for more than three decades now, he has impressed me deeply though his modesty, his personal integrity, his social responsibility as a scientist, and his creating of public awareness. Westing has had an impact on the policies of his country, on the evolution of international legal norms, and on sensitizing future generations of scholars. For all these reasons I am both pleased and proud that, together with Westing, I could develop this new series on *Pioneers in Science and Practice*.

Hans Günter Brauch

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