

**CHRISTIAN ETHICS OF RESPONSIBILITY FOR THE TECHNOLOGICAL AGE:
A CRITICAL LOOK AT THE CONTRIBUTIONS OF HANS JONAS AND
WILLIAM SCHWEIKER
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ABSTRACT

Technology has several advantages, but the growing fear is that the power of human beings over nature through technology is growing in an alarming rate so that, if not checked with a new ethics of responsibility, we may be heading to the destruction of nature and the annihilation of humanity. In response to this fear, Hans Jonas set a whole new debate into motion, both in Germany and America, and ultimately in Europe and South Africa, when he argues (in his book entitled, *The imperative of responsibility: In search of ethics for the technological age*, 1984) that the existing approaches to philosophical ethics, including theological ethics, are inadequate since they do not tackle the serious issues produced by the rapid expansion of modern technology. He then asserts that we must make a concerted effort to develop a theory of responsibility so that humanity may be salvaged from future extinction. In Jonas's view, the first requirement for a theory of responsibility is "the heuristic of fear." The *heuristic of fear* is that fear which encourages us to act ethically for the future wellbeing of mankind.² The second requirement is a "... nonreciprocal responsibility and duty."³ This is a responsibility and duty which enables one to think about the future wellbeing of his/her children without expecting a reward. In order for humanity to exist in the future, there must be an accountability for one's self and the needs of others and the biosphere. Whereas Jonas denies that religion could form the basis of a universal ethics of responsibility for the technological age, Schweiker strives to prove him wrong by producing a Christian version of an ethics of responsibility for the technological age from that of Jonas. The conclusion of this author is that Schweiker was not able to prove Jonas wrong that theological ethics may not be formulated universally.

Key Words - *Heuristic, non-reciprocal, ethics of responsibility, Christian ethics, technological age*

INTRODUCTION

We live in a world in which the rapid expansion of technology is threatening the very basis of life. Technology is everywhere in modern society. Technology is so important for life that we find it in the computers we use, the televisions we watch, the cars we drive, the implements and gadgets in our hospitals, and in our farms, in the aircrafts we travel in across the continents, space crafts, the clothes we wear, the microwaves we use, weapons of our warfare, in our kitchens, in our bathrooms, etc. Quite recently in Ghana,

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² Hans Jonas. *The imperative of responsibility: In search of ethics for the technological age* (trans. of *Das Prinzip Verantwortung*) trans. Jonas, H & Herr, D. (Chicago: University of Chicago Press, 1984), 26

³ Jonas, 1984. *The imperative of responsibility*, 39

there was a fault with our national computer grid for only half a day and it managed to create panic and brought most of the cities in Ghana almost to a standstill. Whenever there is an electricity outage in Accra and Kumasi and the traffic lights go off, there is always chaos on our roads as nobody wants to wait for the other vehicle to go first at our crossroads. In fact, without technology, human beings would have died in their millions from various types of diseases, hunger and accidents. Without technology, we would still be using old and difficult ways of farming - without implements and tractors; rivers and oceans would have been difficult to cross, etc. We live in a technological environment; once technology is taken away from our societies, the human culture may collapse.⁴

But technology has its disadvantages too. Modern terrorist attacks have made it very clear how vulnerable modern culture could be because of its dependence on technology. Some byproducts of technological expansion include “scarce and poisoned water, infertile soil, polluted air and a shattering of the relationships that nurture a sense of belonging and companionship.”⁵ We are able, miraculously, to send human beings to the moon and back; we design computers that are able to do countless things; we build missiles that are able to reach their targets with an amazing accuracy, and create atomic bombs that are capable of wiping out a whole city of its inhabitants. Terrorism is at its best because of the technological instruments that they use. The growing fear is that the power of human beings over nature through technology is growing at such an alarming rate that, if not checked with a new ethics of responsibility, we may be heading to the destruction of nature and the annihilation of humanity. Hans Jonas outlines the problem concisely this way:

Modern technology, informed by an ever-deeper penetration of nature and propelled by the forces of market and politics, has enhanced human power beyond anything known or even dreamed of before. It is a power over matter, over life on earth, and over man himself; and it keeps growing at an accelerating pace.... The net total of these threats is the overtaking of nature, environmental and (perhaps) human. Thresholds may be reached in one direction or another, points of no return, where processes initiated by us will run away from us on their own momentum – and towards disaster.⁶

Coupled with the relativism and individualism of the West with their concomitant problems, the indications are that the technological advancements are most of the time made without adequate reference to its moral implications. When the ethical implications are not well reflected upon, we will get to a time when technology may bring the whole human race to extinction, as warned by Jonas and others before him. This is the reason why Christians and other religious people, governmental policy makers, scientists, etc. have to make special efforts to let the world know that believing in ourselves is very important if ever we wish to be able to move forward in this world, but at the same time, it is equally important to note that when the activities of the world are taken out of the domain of the Creator, the sustainer of this world, the consequences are fatal. David J. Hawkin points out the challenge this way, “There is surely a need for a radical change of attitude, and Christian theology can help to bring this about by showing that human autonomy is not at all incompatible with a nurturing and conserving attitude towards God’s creation.”⁷ Like Jonas, others also worked on the ethics of responsibility.⁸

It is worth mentioning in this introductory section that William Schweiker has particularly been chosen because he makes a significant contribution to the kind of Christian ethics that we should have in

⁴ Schuurman, E. Responsible ethics for global technology. *Axiomathes*, 2010, 20:109.

⁵ Conway, R. Choices at the Heart of Technology: Christian Perspective (Bloomsbury: A&C Black, 1999), 2-3

⁶ Hans Jonas, Imperative of Responsibility, 1984: ix; cf. Jonas, H. Toward a philosophy of technology, in *Philosophy and technology: The technological condition: An anthology*. Scharff, R C & Dusek, V (eds). (London: Blackwell Publishing, 2003), 200; see Bujo, B. *Foundations of an African ethics: beyond the universal claims of Western morality* (New York: Crossroads Publishers, 2001), xii

⁷ Hawkin, D. J. *Christ and modernity: Christian self-understanding in a technological age* (Waterloo, Ontario: Wilfrid Laurier University Press, 1985), 6; cf. McFadyen, A & Clark D. (eds.). *Christians in public life: Theological challenge. Changing world, unchanging Church?* (London: Mowbray, 1997), 62.

⁸ Dietrich Bonhoeffer, Richard H. Niebuhr 1963; see A. R. Jonsen 1968 and W. Schweiker 1995 for a discussion on Christian ethics of responsibility. Dieter Birnbacher (1988), Karl-Otto Apel (1988), and others also worked on an ethics of responsibility that is future-oriented.

the face of the dangers inherent in the development of technology. Furthermore, whereas Jonas is sure that religion could not form the basis of a universal ethics of responsibility, Schweiker attempts to prove him wrong by producing a Christian version of an ethics of responsibility. As to whether Schweiker indeed proves Jonas wrong about the status of religious ethics to tackle future ethics of responsibility is yet to be seen. This article will end by formulating a Christian ethics of responsibility different from that of Schweiker that will call on the world to emulate the love Christ exhibited towards humanity by dying for their sins.

The challenge of technological advancement

In his book, *The imperative of responsibility*, Jonas set out for himself the task of finding out how life could be an object of responsibility in the face of the fast growing human technology. Jonas warns that the unprecedented technological development in modern times has increased the power and control of humanity over reality such that if care is not taken, humanity will end up annihilating not only itself, but the whole of life on earth. He reveals that “The net total of these threats is the overtaxing of nature, environment and (perhaps) humans as well.”⁹ This means that when care is not taken, humanity may not be able to control what he/she creates, and this will lead to global catastrophe! “The raping of nature and the civilizing of himself go hand in hand,” Jonas observes.¹⁰ According to Jonas, the awareness of the danger of technology for humanity’s continued existence became prominent after the Hiroshima bombings and the nuclear weapons following immediately after it.¹¹ Jonas also is of the view that the threat technology poses to the planet’s ecology became apparent in the second half of the twentieth century. This resulted in philosophers again reflecting on the age-old dualism – the relationship between human being and nature, and between mind and matter – but which took on a totally new form at this stage. As far as Jonas is concerned, this practical new focus is becoming the source of reflection for philosophy and will continue for years to come.¹² Jonas also suggests that apart from ecology, which includes its subdivisions of land, sea and air, demography, economics, bio-medical and behavioral sciences, and even the psychology of mind pollution by television, are some of the areas that need the direction of a new ethics of responsibility.¹³

He also notes that with the change in human power over nature with the development of technology, human action has changed, and since ethics is concerned with action, it calls for a new ethics to guide this new form of power that humanity has found.¹⁴ Jonas then expresses the opinion that it will take the same mind, which created the problem in the first place, and the rethinking of the concept of responsibility, to correct the danger posed by technology, and that no god will do this for humanity.¹⁵ But the unknowable future is even more widened in the face of technology, and “will grow bigger as we go on with bigger technology.”¹⁶ We of the present generation can project into the future more than our predecessors, but we still know less, he argues. “This unknown x of permanent innovation haunts every equation,” he stresses.¹⁷ This will affect the whole destiny of humanity, he warns. This, then, should bring about a new focus of ethical theory that will guide the future unknown technological dynamism.

The inadequacy of traditional and religious ethics to tackle the situation

He further suggests that the traditional ethics that we have is not able to guide the future scientific developments, because it works under the assumption that “... given the impossibility of long-term calculation, one should consider what is close at hand only and let the distant future take care of itself.”¹⁸

⁹ Jonas, 1984. *The imperative of responsibility*, ix

¹⁰ Jonas, 1974. *Philosophical essays: From Ancient creed to technological man* (Chicago: University of Chicago Press, 1974), 33

¹¹ Jonas, *The imperative of responsibility*, 825

¹² Jonas, *The imperative of responsibility*, 826, 830

¹³ Jonas, *Toward a philosophy of technology*, in *Philosophy and technology: The technological condition: An anthology*. Scharff, R C & Dusek, V (eds). (London: Blackwell Publishing, 2003), 200

¹⁴ Jonas, *Philosophical essays*, 31

¹⁵ Jonas, *The imperative of responsibility*, 831-832

¹⁶ Jonas, *The imperative of responsibility*, 118

¹⁷ Jonas, *The imperative of responsibility*, 120

¹⁸ Jonas, *The imperative of responsibility*, 34

Traditional ethics works under the assumption that because humanity is not able to foresee what will happen in the future, and therefore human responsibility and power is limited, humanity should not be blamed for any well-intentioned actions that later backfires. In other words, traditional ethics absolves actors of blame for consequences they cannot foresee. But according to Jonas, this assumption of traditional ethics is no longer able to solve the current growing problems posed by the advance of technology because “human ability to act has outstripped the power to predict the consequences of actions.” The reason being that in an effort to advance technology, which is seen by many as a good thing, humanity is gaining a lot of power and control over nature and the environment to the extent that the external environment and human nature are being altered in a disturbing way through genetic engineering, new techniques in medicine, behavior modification and the production of nuclear weapons (which are even detrimental to the survival of the human species).

He argues that the moral injunctions, both in scripture and in tradition, deal with the horizontal (anthropocentric) and vertical (theocentric) relationships of life, and that we need an ethics that will look into the future existence of humanity, and at the same time make humanity responsible for the consequences of the lethal misapplications of technology. He, therefore, recommends that we need to do serious ethical reflections to come out with an ethics of responsibility that will do away with the anthropocentric standpoint of current ethics (where man is the center of ethics), and come out with an ethics of responsibility that is future-oriented¹⁹ and capable of tackling the problems highlighted above. In other words, since the effects of the actions of humanity are not only affecting humanity alone, but also the eco-system and the future existence of humanity, the anthropocentric ethics that has existed since the time of the Sophists, must be done away with, and a new one that tackles the ethical problems of the technological age be formulated.

According to Jonas, in traditional ethics, one refrains from participating in a certain way of life because one wants to live a happy life with God in the life hereafter. In order to achieve this objective, one has to lead a life that is pleasing to God such as “justice, charity, purity of heart, etc. ...”²⁰ He further asserts that it is a life in which one makes conscious effort to daily progress “... from impurity to purity, from sinfulness to sanctity, from bondage to freedom, from selfhood to self-transcendence”²¹ He argues that this kind of life is an individualistic way of life in which one lives his/her ethics in the here and now for a future reward. Such ethics, he further argues, fails to look into the future life sustenance of humanity, let alone worry over the dangers of technological developments for the continued existence of humanity on earth. He notes in his own words that “... in the ‘moderate’ version of the belief in the soul’s salvation (of which, if I am not mistaken, Judaism is an example) we still deal, after all, with an ethics of contemporaneity and immediacy, notwithstanding the transcendent goals; ...”²² As far as traditional and religious ethics are concerned, Jonas is of the opinion that a completely new approach is needed as all traditional ethics, including religious ethics, is inadequate. He surmises that the theory of responsibility which he is about to formulate is lacking so far.

Jonas’s solution to the problem

1. The heuristic of fear

In Jonas’s view, the first foundational requirement for the ethics of responsibility is “the heuristic of fear.” The *heuristic of fear*, according to Jonas, is that fear which encourages us to act ethically for the future wellbeing of mankind.²³ He asserts that in order for us to really appreciate what we cherish in every moral philosophy, the negatives should evoke the positives. For instance, sickness should enable us to appreciate health; war’s misery should enable us to appreciate peace, etc. This means that for ethics to function well, it must have fear as its basis, and so *the heuristic of fear* should be the foundational principle for the new ethics.²⁴

¹⁹ Jonas, The imperative of responsibility, 12

²⁰ Jonas, The imperative of responsibility, 13

²¹ Jonas, The imperative of responsibility, 14

²² Jonas, The imperative of responsibility, 13

²³ Jonas, The imperative of responsibility, 26

²⁴ Jonas, The imperative of responsibility, 26, 27

He further notes that coupled with fear should be the ability to visualize “the long-range effects of technological enterprise”²⁵ In other words, the one who chooses to engage with the formulation of the new future ethics should be visionary. He argues that such a person should not only be visionary, but one who is also able to bring about a feeling of fear that enables one to visualize the future safety of the planet. Such fear, according to him, should be a “spiritual sort of fear which is, in a sense, the work of our own deliberate attitude”²⁶ It should be an *altruistic fear* that enables one to act with a clear understanding that neither he/she, nor anyone connected with him/her, is going to enjoy the benefits of the safety that they are fighting for to preserve the continued existence of posterity. Such an attitude, Jonas observes, must be cultivated to the extent that it moves our inner being to be part of that visionary process.

2. Unconditional responsibility and duty

He further indicates that the idea of reciprocity, whereby one pays another in his/her own coin or insists on his/her right does not fit into the new future ethics that he is envisaging. What the new ethics requires is a “... nonreciprocal responsibility and duty”²⁷ This is a responsibility and duty which enables one to think about the future wellbeing of his/her children without expecting a reward. In other words, the responsibility is unconditional and one-sided.²⁸ It is also a responsibility which makes sure that future existence is secured and their quality of life assured, even when it has nothing to do with our own descendants. When we do this, he argues, we are respecting their humanity, and it enables the future generation to live the way they ought to live.

3. The use of power with the aim of preserving the future existence of mankind

Another requirement for the imperative of responsibility is the idea of the on-going existence of mankind²⁹ He describes this as the “ontological idea” or the “ontological imperative” of man, the idea that there should be humanity in the future that we are envisioning.³⁰

According to Jonas, the first condition of responsibility is “causal power”, i.e. the ability to act. He notes that “power” is that which binds “will and obligation together,” and therefore, “moves responsibility into the center of morality”³¹ The ability to act, he accentuates, is that which makes an impact in the world. But if one should act responsibly, the action should be under the person’s control, and he/she must also see, to some extent, the consequences of his/her actions, and be accountable for his/her actions³² But added to this is the responsibility “for” another agent. So whereas one is accountable for one’s own actions, one is also responsible for the needs of others.

4. Responsibility should be total, continuous and futuristic

Jonas names “totality,” “continuity,” and “future” as characteristics of the kind of responsibility that is to be exercised.³³ In terms of “totality,” he affirms that this type of responsibility could be akin to parental responsibility since a parent has “total” care towards his ward. Parental responsibility, he affirms, is the origin and paradigm of all responsibilities. He notes: “The concept of responsibility implies that of an ought – first of an ought-to-be of something, then of an ought-to-be of someone in response to the first”³⁴ The *ought-to-be of something* will, in this instance, refer to the child, and the *ought-to-be of someone* will refer to the parent. He observes that “total responsibility” involves “continuity,” since the sole aim of the subject

²⁵ Jonas, The imperative of responsibility, 27

²⁶ Jonas, The imperative of responsibility, 28

²⁷ Jonas, The imperative of responsibility, 39

²⁸ Jonas, The imperative of responsibility, 41

²⁹ Jonas, The imperative of responsibility, 43

³⁰ Jonas, The imperative of responsibility, 43

³¹ Jonas, The imperative of responsibility, 130

³² Jonas, The imperative of responsibility, 90

³³ Jonas, The imperative of responsibility, 101

³⁴ Jonas, The imperative of responsibility, 130

should be the caring of the object in its historicity and in its future.³⁵ “Total responsibility” should look at the history of the person, and from there take the person into the future, even though that future may not be known. So there is to be continuity into the future as far as “total responsibility” is concerned. The fact that one may not know what will happen in the future or how the object may behave in the future is a paradox. He further surmises that the freedom of the future person is paramount, if true responsibility is to take place. Jonas then turns his attention to the work of Friedrich Nietzsche on the future plight of mankind. According to Nietzsche, man, developing from the animal world, is always getting better, and he anticipates a tomorrow in which man will grow into a “superman.” This “superman” will also develop beyond itself into something else, and the process will continue endlessly. Even though Nietzsche did not teach about a future state in which there will be quality or future happiness, Jonas agrees that the fact that he expected a great thing to come in the future puts him in contention with what he is anticipating.³⁶ Jonas, however, faults Nietzsche in that, according to him, he fails to outline how this superman could be realized.

5. Responsibility should be the collective work of all humanity

Jonas further suggests that the responsibility for the care of the future of mankind should be the collective work of all humanity. He notes that this responsibility has become even more acute considering the rapid growth of “scientific-technological-industrial civilization.”³⁷ The result is that humanity has become not only dangerous to himself/herself, but also to the biosphere since the interests of nature and humanity coincide. This, responsibility, he suggests, should be beyond self-interest.³⁸ Because this new ethics of responsibility is borne out of danger, it must have an element of survival, preservation and prevention, he argues.³⁹

He argues that nuclear weapons can be abolished without affecting human existence.⁴⁰ His main worry is about the apocalypse of the “too much,” with the resultant exhaustion, pollution, and despondency of the earth. In order for this gloomy picture to be averted, a complete change of life-style and habits will have to be made by the industrialized world. This, he observes, will be much more difficult than the prevention of nuclear destruction looming ahead. “Therefore, with all respect for the threat of sudden destruction by the atomic bomb, I put the threat of the slow incremental opposite, overpopulation and all the other “too much,” in the forefront of my fears,” he stressed.⁴¹ He went on to state that the apocalyptic destruction that he envisages is one that is even more than the threat of the atomic bomb; it is one in which all human society is included in the process of gradual destruction of the earth. And unfortunately, it may be our grandchildren who may have to suffer for it. For Jonas, the imperative of responsibility is: *Act so that the effects of your action are compatible with the permanence of genuine human life*; or expressed negatively: *Act so that the effects of your action are not destructive of the future possibility of such life*.⁴² Responsibility, as far as he is concerned should be collective.

Critique of Jonas’s solution to the problem

Now, what are the weaknesses of Jonas’s ethics of responsibility for the technological age? The first weakness that we will like to discuss here is what Schuurman describes as the *cosmological deficiency* in the philosophy of technology.⁴³ This is the situation where the world or reality is not addressed in its entirety, but only part of it is addressed to suit a particular agenda or propaganda. This *cosmological deficiency* results from the work of Francis Bacon (who advocates that nature must be enslaved and made to serve humanity), then later René Descartes (who argues that nature is like a machine and can be manipulated to human advantage), and reached its peak during the Enlightenment in the eighteenth

³⁵ Jonas, The imperative of responsibility, 106

³⁶ Jonas, The imperative of responsibility, 157

³⁷ Jonas, The imperative of responsibility, 140

³⁸ Jonas, The imperative of responsibility, 136

³⁹ Jonas, The imperative of responsibility, 139

⁴⁰ Jonas, The imperative of responsibility, 202

⁴¹ Jonas, The imperative of responsibility, 202

⁴² Jonas, The imperative of responsibility, 11

⁴³ Schuurman, E 2010. Responsible ethics for global technology. *Axiomathe* 20:117

century,⁴⁴ culminating in the nihilism of the West, which is the philosophical belief that “nothing has any value, especially that religious and moral principles have no value.”⁴⁵ Technology, the application of science to human advantage, is seen as a “saviour” and that which brings authenticity and fulfillment to humanity. Humanity is seen as having arrived, and that the world can be controlled and manipulated by using science and technology as tools for the advancement of the goal of humanity, which, as we mentioned earlier, is to attain authenticity and fulfillment in this world. With the help of Friedrich Nietzsche, God was declared “dead” together with His moral norms, and hence any relationship with a god. Immanuel Kant describes the motto of the Enlightenment as: “Have the courage to use your own understanding.” Human reason was seen as the sole arbiter of truth. Henceforth, humanity fully has control over reality, and with the new found power (technology as a tool to control the cosmos), technology can be used to manipulate the cosmos to foster his/her agenda on earth. It is important to reiterate here that technology in itself is not bad. In fact, when used properly, it is supposed to serve and better the life of humanity and the biosphere. The world-view that technology, and not any religious revelation, can be used to manipulate reality to humanity’s advantage has affected Western scholarship, and seems also to have affected Hans Jonas’s work on the ethics of responsibility for the technological world. This is because in an attempt to formulate a future-oriented ethics of responsibility for the technological world, Jonas satisfies the nihilism of the West by formulating an ethics of technology that is objective in nature, but which excludes reference to God, and thus fails to look at reality holistically. By trying to satisfy the West, Jonas also falls in the trap of Schuurman’s *cosmological deficiency*.

It is not surprising that Jonas produced an ethics of responsibility that is not theologically inclined because Jonas did not believe in the theistic concept of God that emphasizes the immanence of God - the fact that God is active in the day-to-day activities of the world. In an attempt to explain the problem of evil in the world, especially in the face of the brutal annihilation of Jews (including his own mother) at Auschwitz, he created his own *myth of creation*, which rhythms with the deistic concept of God that God created the world, put all the laws of nature in place and took a risk by living the running of the world in the hands of human beings. Thus, Jonas managed to turn Nietzsche’s “dead God” into an “absentee God.” According to Him, the evil in the world may not be attributed to God since human beings are in control of the world. The implication is that because God is “absent” from this world, no one has the right to impose his/her God or morality on anyone. It is no wonder, therefore, that Jonas produced an imperative of responsibility that is universally inclined and not theologically oriented. His imperative of responsibility, which states: *Act so that the effects of your action are compatible with the permanence of genuine human life*, or expressed negatively: *Act so that the effects of your action are not destructive of the future possibility of such life*,⁴⁶ shies away from an ethics of responsibility that aims at tackling holistically the nature of reality from the context of the God of creation.

If, indeed, Jonas believes that God created the world and took a risk by leaving the running of the world in the hands of humanity, then it is equally true that he should have emphasized the stewardship of humanity over God’s creation by including that discourse in his ethics of responsibility for the technological world. He should have emphasized the fact that humanity has a huge responsibility to preserve what God has entrusted into their hands by virtue of His withdrawal from the world and leaving the running of the world in the hands of humanity. Unfortunately, his discussions did not include the stewardship of humanity over God’s creation. As Christian Wiese explains, “There is much to support the idea that in the Imperative of Responsibility Jonas endeavored to develop a universally plausible ethics for a global secular society... He wanted to avoid the risk of his project being branded a ‘Jewish ethics’ and thus having its breadth of influence impaired.”⁴⁷

This kind of ethics has a limited purview, and fails to take account of the universal nature of reality.

⁴⁴ According to Schuurman, “The spirit of the Enlightenment, in particular, promoted the influence of the technical control mentality.”

⁴⁵ From the Oxford Advanced Learner’s Dictionary.

⁴⁶ Jonas, *The imperative of responsibility*, 11

⁴⁷ Wiese, C. *The life and thought of Hans Jonas: Jewish dimensions*. (Waltham, Mass: Brandeis University Press, 2007), 111

An ethics of responsibility that fails to take into consideration the many-sided nature of reality, and as such the transcendental nature of reality, and hence, excludes reference to the God of creation, or the metaphysical nature of reality, is bound to suffer from *cosmological deficiency*. Schuurman succinctly describes the situation this way: “Reality is often reduced to the world that science and technology aim to control – to a positivistic cosmology, a view of the cosmos to which technology is the key. This lopsided take on the world does not do justice to the many-sided dimensions and coherence of reality in its fullness and pays no attention to its dependence on and orientation with respect to its divine Origin, no heed to the transcendental direction of everything.”⁴⁸ Reality is not only about materialism; there is a spiritual dimension to it, and that is what Jonas fails to recognize in his imperative of responsibility. Such a world-view, as Schuurman also notes, suffers from *ethical deficiency*, as the object of technology is directed solely to the satisfaction of the whims and caprices of humanity to the neglect of the ecological environment and the biosphere as a whole. Technology is meant to serve the needs of humanity, but where there is no objective, transcendental source of ethical reference, the world capitalizes on the vacuum so created and many fatal consequences ensue. For example, in a situation like that, the business world focuses on profit as the sole aim of production, and that defeats the purpose and function of technology. We are aware that governments are supposed to make laws to govern the technological world, but where governments find themselves in the same predicament, who should be the ultimate judge of ethical norms?⁴⁹ We emphatically suggest that ultimately, God or the divine should be the arbiter of such ethical norms. Schuurman argues: “The norms that follow from the values of the technological world picture are effectiveness, standardization, efficiency, success, safety, reliability, and maximum profit, with little or no attention given to the cost to humanity, society, the environment, and nature.”⁵⁰ For instance, the current European horse-meat scandal, where horse meat is criminally canned as beef to maximize profit is a case in point. The blatant misuse of technology with the resultant effect of the depletion of the ozone layer is another example to point to the fact that if care is not taken, the future existence of humanity is in grave danger. America and the international community are pushing Iran very hard to stop the production of nuclear weapons because it also may have a devastating effect on the future existence of humanity if the nuclear weapons fall in the hands of, for instance, terrorists. With the production and testing of missiles that are capable of carrying nuclear weapons, North Korea is another place where the attention of the world must be focused. In this light, we agree with Schuurman when he argues that, “Technology is no longer the liberator, but itself stands in the service of power over humans and nature and, as such, binds humanity, destroys nature, and threatens culture.”⁵¹

Furthermore, it is important to note that human nature is made up of a complex mixture of freedom and responsibility; where there is freedom, there is responsibility. “Freedom” chooses between alternatives, between good and bad. The modern technological world-view emphasizes the freedom of humanity to the neglect of responsibility. The Enlightenment slogan that “Man is of age,” and as such does not need any God to tell him/her what to do with his/her life is a way of embracing freedom to the neglect of the responsibility that goes with free will. Where freedom is emphasized to the neglect of the responsibility that accompanies freedom, then there is bound to be disaster. Jonas is able to point to the fact that freedom alone in this world may lead humanity to despair and vacuity,⁵² but did not follow it up by stressing that the neglect of the existence of the God of creation by the Western world is the key to the problem of nihilism, and until God, the creator of humanity and the universe is brought back into the picture, humanity may continue to misuse the growing power and control that humanity wields over the whole of reality by the advance of science and technology. For Jonas, the answer to the question, “What are we responsible for?”

⁴⁸ Schuurman, Responsible ethics, 117

⁴⁹ Sartre and Levinas argue that global ethics cannot be left in the hands of governments and politicians alone, but it must also be laid in the hands of individuals.

⁵⁰ Schuurman, Responsible ethics, 116

⁵¹ Schuurman, Responsible ethics, 118

⁵² Jonas, 1982. *The phenomenon of life: towards a philosophical biology* (Phoenix ed.). Chicago: University of Chicago Press, 211-234

is “the future existence of mankind,”⁵³ or we ought to preserve the “the idea of Man.”⁵⁴ But from his myth of creation, we can infer that the answer to that question should be: ‘humanity is responsible to the deistic God’ who has made them responsible over all of reality by virtue of His withdrawal. For us, the transcendental and biospheric dimensions of reality are important if ethics could gain a universal significance. This is where, we believe, Hans Jonas’s weakness lies, and where William Schweiker took up the mantle!

Let us now look at the Christian ethics of responsibility of Schweiker to see whether he was able to defuse Jonas’s assertion that religious and traditional ethics are unable to cater for the ethics needed for the technological age.

William Schweiker’s Christian ethics of responsibility

In his book entitled *Responsibility and Christian ethics* (1995), Schweiker sets out to formulate what he describes as *an integrated ethics of responsibility* within the Christian context to diffuse the impression given by Jonas that religious ethics has no place in secular ethics in this modern world. Whereas Jonas is of the opinion that the dominance of religion in the West is lost forever, and therefore formulates a secular ethics of responsibility to respond to the current situation, Schweiker is of the view that a universal theological ethics of responsibility could still be formulated to salvage the inadequacy of current traditional and religious ethics. The similarity between Jonas and Schweiker is their desire to make the responsibility for the future welfare of humankind (and other life-forms) central to ethics. Schweiker agrees on the inadequacy of traditional ethics but is convinced that a renewal of Christian ethics can provide the ethics that is needed.

In his response to Jonas, Schweiker agrees that traditional ethics, including religious ethics are not adequate to tackle the current problem posed by the technological advancement to the future existence of mankind. Schweiker emphasizes, like Jonas, that the existing moral theories, including current Christian ethics, do not tackle the future life-threatening dangers that technological development poses to the future existence of humanity. He is of the view that traditional Christian ethics dwells too much on the individual relation with God and fellow human beings, and that it should go beyond that to include the respect for the future of human life and the ecological environment. In other words, Christian ethics should desist from only concentrating on individual salvation in Christ to the neglect of the ecological life, but should also see how humanity could leave a legacy that will improve the life of posterity. This means that Christian moral philosophers and theologians should also reflect on the implications of scientific and technological developments for the future of human life.⁵⁵

In addition to his observation that traditional and Christian ethics fails to take into consideration the respect for the future of human life and the ecological environment, Schweiker further argues that in much of Western ethics and virtually all of traditional Christian ethics, a person’s moral life is determined by the consideration he/she gives to others and to God, and that is where the inadequacy of modern ethics lies. In his own words, he writes, “What is under criticism is the belief that the consideration of the well-being of others or one’s duty to God ought to determine a person’s conduct and also what kind of life he or she should strive to live. Morality is defined by obligation to others, which include reasons for self-sacrifice”⁵⁶ Like Jonas, he insists that this ethics is not able to guide the persistent dangers of scientific developments in the world since it concentrates on satisfying one’s neighbor and God, before oneself, and therefore fails to portray the reciprocity and all-encompassing ethics that is needed in a future-oriented ethics. Schweiker refers to this anomaly in traditional and Christian ethics as *impartial other-regard*, which in his judgment permeates all cultures as well as traditional Christian ethics⁵⁷ For instance, he notes that

⁵³ Jonas, *The imperative of responsibility*, 81

⁵⁴ Jonas, *The imperative of responsibility*, 84

⁵⁵ Schweiker, 1995. *Responsibility and Christian ethics*. (Cambridge: Cambridge University Press, 1995), 221-222

⁵⁶ Schweiker, 1995. *Responsibility and Christian ethics*, 10

⁵⁷ Schweiker, 1995. *Responsibility and Christian ethics*, 10

others come first in the Christian injunctions that ‘we do to others as we would have them do to us; and also that we are to love our neighbors as ourselves’⁵⁸ He also cites Feminist ethicists who bemoan the fact that women lose their self-esteem when they suppress “... their needs, sensibilities, and actions to the demands of traditional roles and obligations to others”⁵⁹ As far as he is concerned, the “Christian faith intensifies the principles of moral equality and reciprocity through its conception of love, or *agape*”⁶⁰ In other words, an ethics of responsibility that starts with the individual and flows into the lives of others and vice versa is better than the one-sided ethics that aims at loving one’s enemies and neighbors exclusively. For him, therefore, the latter idea is the false interpretation that most Christians have placed on Christian ethics. In his book, *Theological ethics and global dynamics*, he argues that it is because of the inadequacy of traditional ethics that the world has turned elsewhere for the solution to moral problems. He puts it this way: “The inadequacy and poverty of ethics, I contend, is due in some measure to the modern banishment of religious sources from moral thinking...”⁶¹

According to Schweiker, individualism forms the core of human values in contemporary Western cultures. Consequently, the search for the goodness and satisfaction in human life is found, not in religion, but in fulfillment and authenticity, where fulfillment and authenticity are defined in the context of enrichment and enhancement of human life here on earth.⁶² This philosophy of life, according to him, does not cater for future ethical responsibility, and explains why a new ethics of responsibility is needed.⁶³

At a time when the secular world seeks to increase its power over nature, when the secular world has equated power with value, and also when the culture of fulfillment and authenticity seems to be the accepted norm of the Western world, Christian ethics, Schweiker argues, should emphasize the goodness of the power in humanity, and redirect the world to the source of all power – the divine – and seek to interpret human life in the context of the care, respect and the enhancing of the integrity of life before God. Schweiker makes it clear that Christian faith entails the conviction that who God is, is revealed within the travail of history.

Like Jonas, Schweiker affirms that the prevailing problem in the ethics of responsibility is the radical expansion of human power in the contemporary world. As a result of this, “Power makes responsibility basic to ethics in our age.”⁶⁴ This problem, he argues, is recognized by many in current ethics and “... centers on the radical extension of human power through technology in all of its forms, for instance, medical, military, communicational, and environmental technology ...”⁶⁵ He insists that an ethics of responsibility is helpful for morality since it deals with the appraisal and direction of power and that since responsibility hinges between agent and deed, it becomes very important in a world in which human power is increasing.⁶⁶ He observes that ethics of responsibility searches for the proper use of power in morality.

Schweiker questions Jonas’s notion that the *idea of being*, or the *heuristic of fear* should invoke *reverence* in us and enable us to obey the moral law that ultimately helps us to work towards the future existence of humanity. According to him, what gives us moral insight does not simply lie in reverence for being, but in “some idea, symbol, event, or name other than the idea of Man ...”⁶⁷ The solution, for him, lies in the exercise of *radical interpretation* in the context of theology. He explains that *radical interpretation* is the activity in which we freely engage in self-criticism with the aim of transforming our

⁵⁸ cf. Mat. 19:19; Mk 12:31; Lk. 10:27; Rom. 13:9; Gal. 5:14; Jas. 2:8

⁵⁹ Schweiker, 1995. *Responsibility and Christian ethics*, 11

⁶⁰ 1995. *Responsibility and Christian ethics*, 10

⁶¹ Schweiker, *Theological ethics and global dynamics: In the time of many worlds*. (Oxford: Blackwell Publishing Ltd., 2004), x; cf. Schweiker, W. *Power, value and conviction: Theological ethics in the postmodern age*. (Cleveland: The Pilgrim Press, 1998), 22

⁶² Schweiker, 1995. *Responsibility and Christian ethics*, 12

⁶³ Schweiker, 1995. *Responsibility and Christian ethics*, 224

⁶⁴ 2009. Responsibility and moral realities, *Studies in Christian Ethics* 22:472-495; cf. De Villiers, 2006. Prospects of a Christian ethics of responsibility (Part 1): An assessment of an American version, *Verbum et Ecclesia*, 27(2), 470.

⁶⁵ Schweiker, 1995. *Responsibility and Christian ethics*, 25; cf. Schweiker, 1998. *Power, value and conviction*, 1

⁶⁶ Schweiker, 1995. *Responsibility and Christian ethics*, 28; cf. Jonas, 1984. The imperative of responsibility, 23

⁶⁷ Schweiker, W 1993. Radical interpretation and moral responsibility: A proposal for theological ethics, *The Journal of Religion* 73(4), 630-631

moral lives to the point of gaining respect for the dignity of humanity and the biosphere. This moral transformation gained by self-reflection would also transform our self-understanding and lead us to care and respect others. This enables us to “see others as good, as ends-in-themselves, as this entails the demand to realize life in others and ourselves”⁶⁸ He surmises that this can be achieved if power finds its ultimate application in the idea of God, the source of power. For the imperative of responsibility to be formulated in the Christian context, it must define God with respect to some “specific values and norms: God is creator, sustainer, and redeemer.”⁶⁹ Seeing God in that light will enable us to subject power to the sustenance of humanity. Schweiker avers that his claim to the idea of God is to enable the transformation of “one’s moral sensibilities and sense of responsibility”⁷⁰ For him, what makes us understand the worth of others is the *radical interpretation* of the name and identity of God. This could be achieved in two ways: first, by employing what has been called *the first precept of practical reason*, that is, *seek good and avoid evil*, which when interpreted through the name of God means that we recognize finite life and refrain from its destruction. The second is that, “in all our actions and relations we ought to respect, even reverence, life in relation to God”⁷¹ These, according to Schweiker, are the conditions for responsible action. “Radical interpretation within a theological perspective is the enactment of the freedom to know and value others and ourselves in God for the sake of the integrity of life,” he stresses.⁷²

Touching on what constitutes the heart of a Christian ethics of responsibility, Schweiker objects to the contemporary Western society’s emphasis on fulfillment and authenticity and argues that promoting the reign of God on earth is the key moral value, since Christian ethics centers on advancing the reign of God in human relations and the world. Schweiker emphasizes the theocentric nature of Christian ethics in the following statement: “Christian ethics contends that human beings live, move, and have their being in God. Our most basic relationship to the universe is a relation to the divine.”⁷³ It is in the divine that we understand ourselves, which means that knowledge of the divine and knowledge of ourselves are functionally linked together. Schweiker rightly makes it clear that for an ethics to be called Christian ethics, it must explore “the inner possibility for the exercise of power,” which can be found in “the symbol of creation, the idea of covenant, and beliefs about Christ’s self-giving love.”⁷⁴ It is important to note in Christian ethics that “God has acted and is acting in history,” Schweiker observes.⁷⁵ Christian ethics, he reiterates, is expected to make an explicit assertion about the moral life, which is that life in Christ, which brings about a higher, fuller form of life. In Christian ethics, therefore, moral responsibility is deep-seated in God as the source of power, in Christ who poured out Himself and took the form of a servant, and in the Holy Spirit who authorizes people to be responsible agents.⁷⁶

Contrary to Jonas therefore, Schweiker argues that Christian ethics has a lot to offer in a world where there is an increase in human power and globalization, which has subjected life on this earth to human decision and power. Christian ethics is to interpret the moral life in such a way that power is directed into *respecting and enhancing the integrity of life*. Like Kant, Schweiker avers that in loving God and loving ourselves, we are called upon also to love our neighbors’ worth and dignity and use that to transform human power in order to respect and enhance the integrity of life on earth. The imperative of responsibility, he declares, is this, that *in all actions and relations we are to respect and enhance the integrity of life before God*.⁷⁷ “God is, Christians believe, the reality – the living power – which enables and requires integrity of life,” he stresses⁷⁸ Schweiker argues that to be responsible is to promote the wellbeing of life before God.

⁶⁸ Schweiker, 1993. Radical interpretation and moral responsibility, 632

⁶⁹ Schweiker, 1993. Radical interpretation and moral responsibility, 634

⁷⁰ Schweiker, 1993. Radical interpretation and moral responsibility, 631

⁷¹ Schweiker, 1993. Radical interpretation and moral responsibility, 635

⁷² Schweiker, 1993. Radical interpretation and moral responsibility, 637

⁷³ Schweiker, 1995. Responsibility and Christian ethics, 214; cf. Schweiker, 1993. Radical interpretation and moral responsibility, 617

⁷⁴ Schweiker, 1995. Responsibility and Christian ethics, 215

⁷⁵ Schweiker, 1995. Responsibility and Christian ethics, 223

⁷⁶ Schweiker, 1995. Responsibility and Christian ethics, 216; cf. Phil. 2:1-11

⁷⁷ Schweiker, 1995. Responsibility and Christian ethics, 2, 125

⁷⁸ 2009. Responsibility and moral realities, *Studies in Christian Ethics* 22:493

He observes that living a responsible life before God fulfills the Biblical injunction that we should “lose ourselves” in order to gain ourselves.⁷⁹ This, then, is the worldview of a theological ethics of responsibility. Even though Schweiker formulates his imperative of responsibility in close proximity to that of Jonas, the difference is that whereas Jonas’s imperative of responsibility is universally oriented, Schweiker emphasizes a theocentric nature of the ethics of responsibility.

Is universal theological ethics possible?

The question to be answered at this point is whether Schweiker managed to prove to Jonas that a universal theological ethics is possible. First, to us, *the imperative of responsibility* formulated by Schweiker does not show that theological ethics of responsibility could be formulated universally, and therefore, he did not prove Jonas wrong. This is because try as you could, atheists and those who do not have the same concept of God like Schweiker will be excluded from a theological imperative of responsibility like that of Schweiker above. Where God is introduced into an imperative of responsibility, atheists, African traditional religion and some eastern religions who do not have the same concept of God as Christians are left out. This means that it may be impossible to have a theological imperative of responsibility that is universal because of its particularity.

Second, it seems to me that the imperative of responsibility formulated by Schweiker does not fully conform to what we will describe as *Christian imperative of responsibility* that he set out to formulate. This is because, the way it stands, it rhymes with the theistic religions like Judaism, Islam, etc., and does not include the Christian character. This, we believe, is an attempt to fulfill his desire to formulate a theological universal ethics of responsibility. But because of the particularistic nature of Christianity, we do not think that it can fall within the universalistic confines of ethics. A Christian ethics of responsibility, as far as we are concerned, comes to contribute to the debate by presenting Christ’s sacrifice of Himself for the sins of humanity as a paradigm for the world. From our point of view, a Christian imperative of responsibility that improves on that of Schweiker may be formulated this way: *in all actions and relations we are to respect and enhance the integrity of life before God as portrayed in the altruistic death of Christ for humanity.*⁸⁰ The death of Christ is a positive, prospective ethics of responsibility in that it brings hope for today and hope for the future (see John 10:10).⁸¹

Looking critically at Schweiker’s argument on whether or not religious ethics is adequate, one observes that his argument is not purely on the inadequacy of traditional and religious ethics as such. Rather the debate is on the misapplication and misinterpretation of traditional and religious ethics. Schweiker is, therefore, right to emphasize that the ethics of the *other regard* is incomplete (impartial) if Christian love (agape) is to be practiced correctly, and that love, properly practiced, should be reciprocal. He also calls upon humans to exhibit that same love to the biosphere if love should be practiced holistically. We agree that the Christian love that is described as *agape* should be holistic in nature. Christian ethics should be interpreted in such a way that the individual, his neighbor, God and the environment should be taken into consideration if *agape* love is to be fully practiced. Holistic or *agape* love is expected to extend to the ecological environment because the continuation of life on earth is, to a large extent, dependent also on a healthy ecological environment. Humanity is expected to *respect and enhance the integrity of life before God* in the context of Christ’s altruistic love for humanity if holistic love is to be practiced in its fullness. When love is, thus, applied holistically, it will affect positively our attitude to the use of technology and is likely to make us more responsible towards making sure that technological advancement occurs in such a way that the future existence of humanity and the biosphere are not jeopardized in any way.

⁷⁹ Mat. 10:39; Lk. 17:33

⁸⁰ We are aware that such a Christian imperative of responsibility may not cater for Islam, Judaism, atheists, African traditional religion, etc. but the sacrificial nature of Christ’s death can still be an example for humanity to emulate.

⁸¹ Jesus said, “The thief comes only to steal and to kill and destroy; I have come so that they may have life, and have it to the full” (John 10:10)

Christ's Sacrificial Death on the Cross for Humanity as a Paradigm for Ethics of Technology

A Christian ethics of responsibility, as far as I am concerned, comes to contribute to the debate by presenting Christ's sacrifice of Himself for the sins of humanity as a paradigm for the world. What happened and now partially prevails is that humanity has sinned and fall short of the glory of God. Humanity, therefore, has the responsibility to pay for their own sins. But because humanity cannot pay for their own sins since God needed a sacrificial "lamb" without blemish, God, out of His love for humanity, sent His Only Begotten Son to take the place of sinful humanity in order to atone for their sins. It was an altruistic sacrifice in that Christ died for sins He did not commit. Since one cannot formulate a Christian ethics of responsibility without including, at least, the name of Christ and who he represents for humanity, a universal Christian ethics of responsibility is a mirage. As Wolfgang Schoberth generally puts it,

"A Christian conception of responsibility can only succeed when it places God's action before the definition of human abilities, and when it reflects on human agency as secondary to God's gifts...That such an understanding of responsibility cannot be appreciated by everyone is no surprise but simply the result of the fact that it cannot aim for general plausibility if it wants to retain its distinct character.

A Christian imperative of responsibility must, thus, include a call to emulate the love of Christ for the world. This will entail the subjection of human power and control to the altruistic nature of the death of Christ. In that case, power gained from the progress of science and technology will not be used selfishly, but will be used to promote *the integrity of life before God* in Christ Jesus. A Christian imperative of responsibility that improves on that of Schweiker, from my point of view therefore, may, consequently be formulated this way: *in all actions and relations we are to respect and enhance the integrity of life before God as portrayed in the altruistic death of Christ for humanity*. The death of Christ is a positive, prospective ethics of responsibility in that it brings hope for today and hope for the future (see John 10:10).

In order for the future of humanity to be preserved, the way forward is for everyone to emulate the altruistic love of Christ for humanity in the face of the technological advancement. For example, before a terrorist decides to kill people for his/her cause, he/she must, first of all, think about Christ's love for humanity and emulate that love by refraining to embark on the terrorist attack. This approach may seem naïve, but if one decides to emulate the love of Christ, he/she may be forced to refrain from any action that may hurt one's neighbor.

CONCLUSION

As far as I am concerned, a Christian imperative of responsibility should, therefore, include a call to emulate the love of Christ for the world. This will entail the subjection of human power and control to the altruistic nature of the death of Christ. In that case, power gained from the progress of science and technology will not be used selfishly but will be used to promote *the integrity of life before God* in Christ Jesus. And since one cannot formulate a Christian ethics of responsibility without including, at least, Christ and who he represents for humanity, a universal Christian ethics of responsibility is a mirage.⁸² As Wolfgang Schoberth generally puts it, "A Christian conception of responsibility can only succeed when it places God's action before the definition of human abilities, and when it reflects on human agency as secondary to God's gifts...That such an understanding of responsibility cannot be appreciated by everyone is no surprise but simply the result of the fact that it cannot aim for general plausibility if it wants to retain its distinct character."⁸³ Therefore, even though Schweiker came out with an ethics of responsibility in close proximity to that of Jonas, Schweiker's imperative of responsibility varies from that of Jonas by its theological nature. But Schweiker did not succeed in proving Jonas wrong that theological ethics cannot be used to formulate a universal imperative of responsibility.

⁸² Cf. De Villiers. Prospects of a Christian ethics of responsibility (Part 2): An assessment of three German versions, *Verbum et Ecclesia*, 2007: 28 (1), 89

⁸³ Schoberth, W 2009. The concept of responsibility: Dilemma and necessity. *Studies in Christian Ethics* 22 (4), 440-441.

BIBLIOGRAPHY

Hans Jonas

- Jonas, H 1974. *Philosophical essays: From Ancient creed to technological man*. Chicago: University of Chicago Press.
- _____ & Spicker, S F 1978. *Organism, medicine, and metaphysics: essays in honor of Hans Jonas on his 75th birthday*.
- _____ 1978. *On faith, reason and responsibility* (new ed.). San Francisco: Harper and Row.
- _____ 1981. Reflections on technology, progress and utopia, *Social Research* 48, 411–55.
- _____ 1982a. Technology as a subject for ethics, *Social Research* 49, 891–898.
- _____ 1982b. *The phenomenon of life: towards a philosophical biology* (Phoenix ed.). Chicago: University of Chicago Press.
- _____ 1984a. *The imperative of responsibility: In search of ethics for the technological age* (trans. of *Das Prinzip Verantwortung*) trans. Jonas, H & Herr, D. Chicago: University of Chicago Press.
- _____ 1984b. Ontological grounding of a political ethics: On the metaphysics of commitment to the future of man. Graduate Faculty Philosophical Journal 10(1), 47–62, in *Mortality and morality* 1996, 99-112.
- _____ 1985. Ethics and biogenetic art, *Social Research* 52, 491–504.
- _____ 1987. The concept of God after Auschwitz: A Jewish voice, *Journal of Religion* 67(1): 1-13
- _____ 1992. The consumer's responsibility, in *Ecology and ethics. A Report from the Melbu conference*, 18–23 July 1990, Ofsti, A (ed.), 215–18. Trondheim: Nordland Akademi for Kunst og Vitenskap.
- _____ 1994. Philosophy at the end of the century: A survey of its past and future, *Social Research* 61 (4): 812-32.
- _____ 2003. Toward a philosophy of technology, in *Philosophy and technology: The technological condition: An anthology*. Scharff, R C & Dusek, V (eds). London: Blackwell Publishing.

William Schweiker

- Schweiker, W 1992. The good and moral identity: A theological response to Charles Taylor's "Sources of the self," *The Journal of Religion* 72 (4), 560-572
- _____ 1993a. Radical interpretation and moral responsibility: A proposal for theological ethics, *The Journal of Religion* 73(4), 613-637.
- _____ 1993b. Realism, responsibility, and moral theory: An introduction, *The Journal of Religion* 73(4), 473-475.
- _____ 1995. *Responsibility and Christian ethics*. Cambridge: Cambridge University Press.
- _____ 1998. *Power, value and conviction: Theological ethics in the postmodern age*. Cleveland: The Pilgrim Press.
- _____ 2000a. Responsibility in the world of mammon: Theology, justice and transnational corporations, in Stackhouse, M L & P J (eds). *God and globalization*, vol 1: Religion in the powers of the common life. Harrisburg, Pennsylvania: Trinity Press International, 105-139.
- _____ 2000b. Radical interpretation and moral responsibility: A proposal for theological ethics, in *God and globalization Vol 1: Religion and the powers of the common life*. Stackhouse, Paris, P J (eds). Trinity Press International, 612-637.
- _____ 2001. Disputes and trajectories in responsibility ethics, *Religious Studies Review* 27(1), 18-25.
- _____ 2003a. *Humanity before God: Theological humanism from a christian perspective*. Martin Marty Center Web Forum.

- _____ 2003b. The barbaric 20th century, *The Christian Century*, 36-38.
- _____ 2003c. Theological ethics and the question of humanism, *The Journal of Religion* 83 (4), 539-561.
- _____ 2004a. *Theological ethics and global dynamics: In the time of many worlds*. Oxford: Blackwell Publishing Ltd.
- _____ 2004b. A preface to ethics: Global dynamics and the integrity of life, *Journal of Religious Ethics* 32 (1), 13-37.
- _____ 2004c. The ethics of responsibility and the question of humanism. *Literature & Theology*, vol. 18 (3): 251-270.
- _____ (ed) 2005. *On Religious ethics. The Blackwell companion to religious ethics*. Oxford: Blackwell Publishing Ltd.
- _____ 2006. On the future of religious ethics: Keeping religious ethics religious and ethical, *Journal of the American Academy of Religion* 74 (1), 135-151.
- _____ 2007. Wither global ethics? Moral consciousness and global cultural flows, *Journal of Ecumenical Studies* 42(3), 425-439
- _____ 2009. Responsibility and moral realities, *Studies in Christian Ethics* 22:472-495.

GENERAL REFERENCES

- Adkins, B M (ed.) 1983. *Man and technology: The social and cultural challenge of modern technology*. Cambridge: Cambridge Information and Research Services Ltd.
- Agnew, N M & Pyke, S W 1982. *The science game: Introduction to research in the behavioral sciences*, 3rd ed. Englewood Cliff, New Jersey: Prentice Hall.
- Amitai, E 1988. *The moral dimensions: Toward a new economics*. New York: The Free Press.
- Anderson, D 1998. *Who will bear moral responsibility?* Papers delivered at the Ethicomp 98. Fourth international conference on ethical issues of information technology, 25-27 March 1998, Rotterdam, Netherlands, 27-34.
- Anscombe, E 1958. Modern moral philosophy, *Philosophy* 33, 1-19.
- Apel, Karl-Otto 1987. The problem of a macroethic of responsibility to the future in the crisis of technological civilization: An attempt to come to terms with Hans Jonas's "Principle of responsibility", *Journal of Man and World*. Netherlands: Springer, 20(1).
- _____ 1988. *Diskurs und Verantwortung: das Problem des Übergangs zur postkonventionellen Moral*. Frankfurt am Main: Suhrkamp, 1988.
- _____ 2000. Globalization and the need for universal ethics, in *European Journal of social theory* 3(2), 137-155. London: Sage Publications.
- Aquinas, T. *Summa theologiae*, 1a, q. 44, article 1.
- Arendt, H 1991. Organized Guilt and Responsibility, in *Collective responsibility: Five decades of debate in theoretical and applied ethics*, ed. Larry May and Stacey Hoffman. Savage, Md.: Rowman & Littlefield, 1991, 273-83
- Asveld, L & Roeser, S (eds) 2008. *The ethics of technological risk*. London: Earthscan.
- Augustine, St. 1964. *On free choice of the will*. Indianapolis: Bobbs-Merrill.
- _____ 1958. *The city of God*, XIX, 14. New York: Doubleday Image Books.
- Ball, T 2001. New ethics for old? Or, how (not) to think about future generations, *Environmental Politics* 10(1), 89-110.
- Barbour, I G 1992. *Ethics in an age of technology*. The Gifford Lectures 1989-1991, vol 2. London: SCM Press.
- Barth, K 1936. *Church dogmatics* 1/1, translated by G. T. Thomson. Edinburgh: T. & T. Clark.
- _____ 1979. *Evangelical theology: An introduction*. Translated by Grover Foley. Michigan: Wm. B. Eerdmans Publishing Co.

- _____. 1960. *Church dogmatics* vol. III: The doctrine of creation, Part Three. Edinburgh: T. & T. Clark.
- _____. 1975. *The doctrine of the Word of God* (Prolegomena to Church Dogmatics, Being Volume I, 1). Edinburgh: T. & T. Clark.
- Bayertz, K 1995. Eine kurze Geschichte der Herkunft der Verantwortung, in: Bayertz, K (ed.) *Verantwortung: Prinzip oder Problem?* Darmstadt: Wissenschaftliche Buchgesellschaft, 3-71
- Bella, R N et al. 1985. *Habits of the Heart*. Berkeley and Los Angeles: University of California Press.
- _____. et al. 1991. *The good society*. New York: Knopf.
- Bayertz, K 1995. Eine kurze Geschichte der Herkunft der Verantwortung, in: Bayertz, K (ed.) *Verantwortung: Prinzip oder Problem?* Darmstadt: Wissenschaftliche Buchgesellschaft, 3-71
- Bazin, D & Ballet, J 2004. Corporate social responsibility: the natural environment as a stakeholder? *International Journal of Sustainable Development* 7(1), 59-75.
- Bender, W & Platrin, K 1995. On the assessment of genetic technology: Reaching ethical judgments in the light of modern technology, *Journal of Science and Engineering Ethics*. Netherlands: Springer, 1(1):21-32.
- Benne, R D 1970. *Toward a theory of responsibility: A critique of four Proposals*. Ph.D. diss., University of Chicago, Divinity School.
- Bernstein, R J 1995. Rethinking responsibility, *The Hastings Center Report* 25(7):13-20.
- Birnbacher, D 1988. *Verantwortung für zukünftige generationen*. Stuttgart: Recam.
- Bonhoeffer, D 1963. Dietrich Bonhoeffer *Ethics*. Edited by Eberhard Bethge. London: SCM Press Ltd.
- _____. 1968. The structure of responsible life, in *On being responsible: Issues in personal ethics*. New York: Harper & Row Publishers.
- _____. 1992. *Ethik*, ed. Ilse Todt et al., Dietrich Bonhoeffer Werke, no. 6. Munich: Kaiser.
- Booth, Jr. N. S. 1975. Time and change in African traditional thought, *Journal of Religion in Africa* 7 (2).
- Bradley, F H 1988. *Ethical Studies*. Oxford University Press.
- Brown, H S 1993. *Corporate environmentalism in a global economy: Societal values in international technology transfer*. Westport, Conn.: Quorum Books.
- Brown, M 1996. *The quest for moral foundations: An introduction to ethics*. Washington D.C.: Georgetown University Press.
- Brunner, E 1964. *Truth as encounter*. Philadelphia: The Westminster Press.
- Cattell, R B 1972. *A new morality from science: beyondism*. New York: Pergamon Press.
- Chetti, D D 1996 (ed.) *Ecology and development: Theological perspectives*. India: UELCI/GURUICUL and BTE/SSC
- Chignell, M A 1981. *Perspectives: a handbook of christian responsibility*. London: Arnold.
- Coolen, T M T 1987. Philosophical anthropology and the problem of responsibility in technology, in Durbin, P T (ed.) *Technology and responsibility*, Dordrecht: D Reidel Publishing company, 41-65
- Curren, R R 1988. *Towards a theory of moral responsibility*. Ann Arbor: University of Microfilms International.
- Curran, C & McCormick, R (eds.) 1984. *Readings in moral theology* (4). New York: Paulist Press.
- Dalai Lama 2005. *The universe in a single atom: The convergence of science and spirituality*. New York: Morgan Road Books.
- Davies, W (ed.) 2001. *The taking of responsibility: Comparative perspectives*. Charlottesville and London: University Press of Virginia.
- _____. 1998. Introduction to Picht, "The concept of responsibility," *Religion* 28, 185-190.
- De Gruchy, J W (ed.) 1996. *Bonhoeffer for a new day: Theology in a time of transition*. Michigan/Cambridge: Eerdmans Publishing Company.
- De Villiers, D E 2002. Who will bear responsibility? *Communicatio*, 28 (1), 16-21.

- _____ 2006. Prospects of a christian ethics of responsibility (Part 1): An assessment of an American version, *Verbum et Ecclesia*, 27(2), 468-487.
- _____ 2007. Prospects of a christian ethics of responsibility (Part 2): An assessment of three German versions, *Verbum et Ecclesia*, 28(1), 88-109.
- Dhillon, G S (ed) 2002. *Social responsibility in the information age: Issues and controversies*. Hershey Pa.: Idea Group Pub./Information Science Publishers.
- Donaldson, J S G 1988. Heidegger and Marx: Inauthenticity, alienation and technology, *The Trumpeter: Journal of Ecology* 5(4), 142-144.
- Donnelley, S 1989. Hans Jonas, the Philosopher of nature, and the ethics of responsibility, *Social Research* 56 (3), 635-657.
- Durbin, P T (ed) 1997. Engineering ethics and social responsibility: Reflections on recent developments in the USA, *Bulletin of Science, Technology & Society*, 17(2-3), 77-83.
- _____ 1987. *Technology and responsibility*. Norwell, Boston, MA, USA: D. Reidel Pub. Co.
- _____ 1976. *Are there interesting philosophical issues in technology as distinct from science? An overview of philosophy of technology*. PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association. Symposia and Invited by Papers, 2:139-152.
- Eliot, G 1970. *Silas Marner*. London: Heinemann Educational Books Ltd.
- Ellul, J 1990. *The technological bluff*. Translated by Geoffrey W. Bromiley. Michigan: Eerdmans.
- _____ The "autonomous" of the technological phenomenon, in *Philosophy and technology: The technological condition. An anthology*. Scharff, R C & Dusek, V (eds). London: Blackwell Publishing.
- Enderle, G 2007. The ethics of conviction versus the ethics of responsibility: A false antithesis for business ethics, *Journal of Human Values* 13 (2), 83-94.
- Eshleman, A. 2008. Moral responsibility, in E. N. Zalta (ed.) *The Stanford encyclopedia of philosophy*.
- Etzioni, A 1988. *The moral dimension: Towards a new economics*. New York: The Free Press.
- Evans-Pritchard, E. E. 1940. *The Nuer*. London: Oxford University Press.
- Fethe, C 1993. Beyond voluntary consent: Hans Jonas on the moral requirements of human experimentation, *Journal of medical ethics* 19, 99-103.
- Feinberg, J 1978. *Doing and deserving: Essays in the theory of responsibility*. Princeton, N.J.: Princeton University Press.
- Fischer, J. M. & Ravizza, M. 1998. *Responsibility and control: A theory of moral responsibility*. Cambridge: Cambridge University Press.
- Ford, D F 2004. *The modern theologians: An introduction to Christian theology in the twentieth century*. Oxford: Blackwell Publishing.
- French, P A 1992. *Responsibility matters*. Lawrence: University Press of Kansas.
- Fried, C 1978. *Right and wrong*. Cambridge: Harvard University Press.
- Fuchs, J 1981. *Christian morality: The Word becomes flesh*, translated by Brian McNeil. Washington: Georgetown University Press.
- Gamwell, F I 1990. *The divine good: Modern moral theory and the necessity of God*. San Francisco: Harper & Row.
- Gebhardt, G 2000. Towards a global ethic, *The Ecumenical Review* 52 (4): 503-512.
- Glennon, F E, Hauk, G S & Trimiew, D M (eds) 1977. *Living responsibly in community: Essays in honor of E. Clinton Gardner*. Lanham/NY/London: University Press of America, Inc.
- Grisez, G & Shaw R 1991. *Fulfillment in Christ*. University of Notre Dame Press.
- Gula, R 1968. *What are they saying about moral norms?* New York: Paulist Press.
- Gustafson, J M & Laney, J T 1968. *On being responsible: Issues in personal ethics*. New York: Harper & Row.

- _____. 1980. *Protestant and Roman Catholic ethics: Prospects for reproachment*. Chicago: University of Chicago Press.
- Guyer, P. (ed) 2006. *The Cambridge companion to Kant and modern philosophy*. Cambridge: Cambridge University Press.
- Hauerwas, S 1981. *A community of character*. Notre Dame: University of Notre Dame Press.
- _____. 1974. *Vision and virtue*. Notre Dame: University of Notre Dame Press.
- Hawkin, D J 1985. *Christ and modernity: Christian self-understanding in a technological age*. Waterloo, Ontario: Wilfrid Laurier University Press.
- Heidegger, M 2003. The question concerning technology, in *Philosophy and technology: The technological condition. An anthology*. Scharff, R C & Dusek, V (eds.). London: Blackwell Publishing.
- Hogue, M S 2007. Theological ethics and technological culture: A biocultural approach, *Zygon* 42(1), 77-95.
- Huber, W 1993. Towards an ethics of responsibility, in *The Journal of Religion* 73(4), 573-592.
- Jonsen, A R 1968. *Responsibility in modern religious ethics*. Washington/Cleveland: Corpus Books.
- Kant, I 1949. *Fundamental principles of the metaphysics of morals*, translated by Thomas K A. New York: Liberal Arts Press.
- _____. 2005. *Groundwork for the metaphysics of morals*. Translated by Thomas K. Abbot (1873). Edited and revised by Lara Denis (with selections from Kant's other writings in moral philosophy). Peterborough, ON: Broadview Press.
- _____. 1963. *Lectures on ethics*. Translated by Louis Infield. London: Methuen & Co., 1930. Reprinted with an introduction by Lewis White Beck. New York. Harper & Row (Now Hackett Publishing Company).
- _____. 1959. *Foundations of the metaphysics of morals*, 2nd ed., revised, translated by L. W. Beck. New York: Macmillan.
- Keeling, M 1990. *The foundations of christian ethics*. Edinburgh: T&T Clark.
- Kline, S 1997. The necessity of a telos: Karl-Otto Apel's and Wolfgang Huber's ethics of responsibility. *ARC, The Journal of the Faculty of Religious Studies*, McGill University, 25:85-100.
- Kohlberg, L 1984. *The psychology of moral development*. San Francisco: Harper & Row.
- Kretzschmar, L & Hulley, L (eds.) 1998. *Questions about life and morality: Christian ethics in South Africa today*. Pretoria: J L van Schaik Publishers.
- Kung, H & Karl-Josef Kuschel (eds.) 1993. *A global ethic: The declaration of the parliament of the world's religions*. London: SCM Press.
- Kung, H 1991. *Global responsibility: In search of a new world ethic*. Translated by John Bowden. London: SCM Press.
- Ladd, J 1982. Collective and individual moral responsibility in engineering: Some Questions, *IEEE Technology and Society Magazine*, 1(2), 3-10.
- _____. 1989. Computers and moral responsibility: A framework for an ethical analysis, in Gould, C C (Ed) *The information web*. Boulder. CA: Westview Press, 207-229.
- Leiss, W 1990. *Under technology's thumb*. Canada: McGill-Queen's University Press.
- Lovin, R W 1993. The limits of freedom and the possibilities of politics: A Christian realist account of political responsibility, *The Journal of Religion* 73(4), 559-573.
- _____. 2009. Becoming responsible in Christian ethics. *Studies in Christian Ethics* (22) 4, 389-398
- Lucas, J R 1993. *Responsibility*. Oxford: Clarendon Press.
- Mackie, J L 1977. *Ethics: Inventing right and wrong*. Harmondsworth: Penguin Books.
- McFadyen, A & Clark, D (eds.) 1997. *Christians in public life: Theological challenge. Changing world, unchanging Church?* London: Mowbray.
- Mckeon, R 1957. The development and the significance of the concept of responsibility, *Revue internationale de philosophie* 39, 3-32

- MacIntyre, A 1984 (1981). *After virtue: A study in moral theory*. Notre Dame: Notre Dame University.
- _____ 1990. *Three rival versions of moral enquiry: Encyclopedia, genealogy, and tradition*. Notre Dame, Ind.: University of Notre Dame Press.
- Marcus, H 2003. The new forms of control, in *Philosophy and technology: The technological condition: An anthology*. Scharff, R C & Dusek, V (eds.). London: Blackwell Publishing.
- Melle, U 1998. Responsibility and the crisis of technological civilization: A Husserlian meditation on Hans Jonas. *Human Studies* 21, 329-345.
- Mesthene, E G 2003. The social impact of technological change, in *Philosophy and technology: The technological condition: An anthology*. Scharff, R C & Dusek, V (eds). London: Blackwell Publishing.
- Mitcham, C 1987. Responsibility and technology. The expanding relationship, in Durbin, P T (ed). *Technology and responsibility*. Dordrecht: D. Reidel Publishing Company, 3-39.
- Miller, D 2001. Distributing responsibilities, *The Journal of Political Philosophy*, 9(4), 453-471.
- Mosley, A 2000. Science, technology and tradition in contemporary African philosophy, *African Philosophy* 13(1), 25-32.
- Mount, E Jr. 1969. *Conscience and Responsibility*. Richmond: John Knox Press.
- _____ 2004. Holding nations responsible, *Ethics* 114, 240-268.
- Muers, R 2003. Pushing the limits: Theology and responsibility to future generations, *Studies in Christian Ethics* 16, 36-51.
- Niebuhr, H R 1946. The Responsibility of the church for society," in *The gospel, the church and the world*, ed. Latourette, Kenneth Scott. New York: Harper & Bros.
- _____ 1969. *On being responsible: Issues in personal ethics*, ed. Gustafson, James M. & Laney, James T. London: SCM.
- _____ 1970. *Radical monotheism and western culture, with supplementary essays*. New York: Harper Torchbook.
- _____ 1978. *The responsible self: An essay in Christian moral philosophy*, introduction by James M. Gustafson. New York: Harper and Row.
- Niebhur, R 1979. *An interpretation of Christian ethics*. New York: Seabury Press.
- Nihlén F J 2009. Moral responsibility for environmental problems—individual or institutional? *Journal of Agricultural and Environmental Ethics*, 22(2), 109-124.
- Pace, E 1993. Hans Jonas, influential philosopher, is dead at 89, *New York Times*, February 6, 1993.
- Picht, G 1969. Der Begriff der Verantwortung, in his, *Wahrheit Vernunft Verantwortung. Philosophische Studien*. Stuttgart: Klett. Translated by Winston Davis 1998. The concept of responsibility, *Religion* 28, 199-203.
- _____ 1980. *Hier und Jetzt: Philosophieren nach Auschwitz und Hiroshima*. Stuggard: Klett.
- Pityana, N B 1996. The ethics of responsibility: Human rights in South Africa, in *Bonhoeffer for a new day: Theology in a time of transition*. De Gruchy, J W (ed.). Michigan/Cambridge: Eerdmans Publishing Company.
- Radnitzky, G 1980. What limits do technology and science have? *Critica: Revista Hispanoamericana de Filosofia* 12(35):15-54.
- Ramsey, P 1970. *Fabricated man: The ethics of genetic control*. New Haven, Conn.: Yale University Press.
- Ricoeur, P 2000. The concept of responsibility: An essay in semantic analysis, in Ricoeur, P. *The Just*. Chicago: University of Chicago Press, 11-35.
- _____ 1976. *Interpretation theory: Discourse and the surplus of meaning*. Fort Worth: Texas Christian University.
- _____ 1992. *Oneself as another*. Chicago: The University of Chicago Press.
- Rorty, R 1991. *Objectivity, relativism, and truth: Philosophical papers*, 1. Cambridge University Press.

- Rubenstein, A 2009. Hans Jonas: A study in biology and ethics. *Social Studies* 46:160-167.
- Sartre, J-P 1956. *Being and nothingness: An essay on phenomenological ontology*, translated by Hazel Barnes. New York: Philosophical Library.
- Schafer, A 1983. Experimenting with human subjects: a critique of the views of Hans Jonas, *Journal of Medical Ethics* 9:76-79.
- Scharff, R C & Dusek, V (eds.) 2003. *Philosophy of technology: The technological condition. An anthology*. London: Blackwell Publishing.
- Scharff, R C & Dusek, V 2003. *Is technology autonomous? Introduction in philosophy and technology: The technological condition. An anthology*. Scharff, R C & Dusek, V (eds.). London: Blackwell Publishing.
- Schoberth, W 2009. The concept of responsibility: Dilemma and necessity. *Studies in Christian Ethics* 22 (4), 423-441.
- Scodel, H 2003. An interview with Professor Hans Jonas. *Social Research*, Summer 2003.
- Schürmann, R 1993. Hans Jonas (1903-1993), *Social Research* 60(1), 1
- Schuurman, E 1995. *Perspectives on technology and culture*. Potchefstroom: Institute for Reformation Studies.
- _____ 2010. Responsible ethics for global technology. *Axiomathes* 20:107-127.
- Shklar, J 1964. *Legalism*. Cambridge: Harvard University Press.
- Shrader-Frechette, K 2003. Technology and ethics, in *Philosophy and technology: The technological condition. An anthology*. Scharff, R C & Dusek, V (eds.). London: Blackwell Publishing.
- Smith, S G 1983. *The argument to the Other: Reason beyond reason in the thought of Karl Barth and Emmanuel Levinas*. Chico: Schlar's Press.
- Smiley, M 1992. *Moral responsibility and the boundaries of community: Power and accountability from a pragmatic point of view*. Chicago: The Chicago University Press.
- Solomon, R C & Higgins, C M (eds.) 2005. *Routledge history of philosophy* Vol. VI. New York: Routledge.
- Spicker, S F (ed.) 1978. *Organism, medicine and metaphysics. Essays in honor of Hans Jonas*. Dordrecht: Reidel.
- Stumpf, E S 1999. *Socrates to Sartre: A history of philosophy*. New York: McGraw-Hill College.
- Sundström, P 1998. Interpreting the notion that technology is value-neutral. Revised version of a paper presented at the VIIth annual conference of the European Society for Philosophy of Medicine and Health Care, Oslo, Norway, August 19-21, 1993, *Medicine, Health Care and Philosophy* 1:41-45
- Swinburne, R 1989. *Responsibility and atonement*. Oxford: Clarendon Press.
- Symposium on Moral Responsibility," *Ethics* 101 (1991), 236-321
- Tanna, K 1993. The theological case for human responsibility in moral choice, *The Journal of Religion* 73(4), 592-613.
- Troster, L 2011. Hans Jonas: The most inspiring teacher that I never met. [Hpp://127.0.0.1:10000/search?q=Hans%20Jonas](http://127.0.0.1:10000/search?q=Hans%20Jonas)
- Turolfo, F & Barilan, M Y 2008. The concept of responsibility: Three stages in its evolution within bioethics. *Cambridge Quarterly of Healthcare Ethics* 17, 114-123.
- Tutu, D M 1999. *No future without forgiveness*. Johannesburg: Rider Publishers.
- Van Ufford, P Q & Giri, A K (eds.) 2003. *A moral critique of development: In search of global responsibility*. London: Routledge.
- Von Lüpke, J 2009. Responsibility as response: Biblical-Theological remarks on the concept of responsibility, *Studies in Christian Ethics* 22 (4), 461-471.
- Weber, Max 1919. Politik als Beruf, in Max Weber, *Wissenschaft als Beruf* (1917/1919). Mommsen, W J and Schluchter, W (eds.); Max Weber Gesamtausgabe, I/17. Tübingen: Mohr, 1992, 157-252, translated into English by H. H. Gerth and C. Wright Mills 1965. *Politics as a Vocation*. Philadelphia: Fortress Press.
- West, D 1996. *An introduction to Continental philosophy*. Cambridge, UK: Polity Press.
- Wiese, C 2007. *The life and thought of Hans Jonas: Jewish dimentions*. Waltham, Mass: Brandeis University Press.

- Wolf, E 2009. Responsibility in an era of modern technology and nihilism, Part 1. A non-foundational rereading of Jonas, *Dialogue* 48, 577-599
- _____ 2009. Responsibility in an era of modern technology and nihilism. Part 2. Inter-Connection and implications of the two notions of responsibility in Jonas, *Dialogue* 48, 841-866.
- Young, I M 2006. Responsibility and global justice: A social connection model, *Social Philosophy and Policy* 23(1), 102–130.
- Zandvoort, H 2005. Globalization, environmental harm and progress: The role of consensus and liability, *Water Science and Technology*, 52(6), 43–50.